CIDB CATEGORY: 6CE OR HIGHER

TENDER NUMBER: 13-2023/24
CONSTRUCTION OF NANCEFIELD EXT 9 AND 10 PAVED ROAD PHASE 3
BID AND CONTRACT DOCUMENT
(BOOK 1 OF 2)

Name of Bidder : _____
Telephone No : _____
Fax No : _____
Address : _____
: _____
: _____
Bid Sum : R_____ **Incl. V.A.T**

PREPARED FOR:

MUNICIPAL MANAGER
MUSINA LOCAL MUNICIPALITY
PRIVATE BAG X611
MUSINA

0900

Tel: (015) 534 6100
E-mail: info@musina.co.za

PREPARED BY:

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EXPANDED PUBLIC WORKS PROGRAMME

EXPANDED PUBLIC WORKS PROGRAMME

MUSINA LOCAL MUNICIPALITY

CONSTRUCTION OF NANCEFIELD EXT 9 AND 10 PAVED ROAD PHASE 3

TENDER NUMBER: 13-2023/24

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Documents with prefix C refer to the documents that relate to the contract.

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T1.1 INVITATION TO TENDER

MUSINA LOCAL MUNICIPALITY

Musina Local Municipality invites capable tenderers for the Construction of Internal Streets at Nancefield Extension 9 and 10 Phase 3

Tenders are hereby invited from tenderers who can demonstrate that they will have in their employ staff that satisfy EPWP requirements during the contract validity.

Bid Number	Project Description	Document Price	CIDB Grading	Compulsory Briefing Meeting	Closing Date	Bid Enquiries Person
13-2023/24	Construction Of Internal Streets at Nancefield Extension 9 and 10 Phase 3	R1,583.29, or can alternatively be downloaded for free from e-Tender Publication Portal or on the Musina Local Municipality website	**6CE or Higher**	N/A	21 June 2024 at 11:00am	Technical: mukondelelin@musina.gov.za SCM: marys@musina.gov.za

Musina Local Municipality shall adjudicate Tenders in accordance with the Supply Chain Management Policy and the Preferential Procurement Policy Framework Act, 2000 and its regulation

Tender documents containing the Condition of Tender will be available from the Cashier, Musina Civic Centre, 21 Irwin Street, **from Friday, 24 May 2024, upon a non-refundable fee as indicated above, during office hours (Monday to Friday from 8:00 am to 15:00 pm) OR can alternatively be downloaded for free from e-Tender Publication Portal (www.etenders.gov.za) or on the Musina Local Municipality website (www.musina.gov.za)**

Prospective bidders are required to submit fully completed, priced, signed, and initiated bid documents in a sealed envelope marked with the “Bid Number and Description”. The bid document must be deposited in the designated Tender Box located at the reception area of Musina Local Municipality Civic Centre, 21 Irwin Street, not later than the closing date and time. NB. All prescribed supporting documents as specified in the bid document must be attached.

All responsive bids will be evaluated on the 80/20 Preference Points System as prescribed by the Preferential Procurement Regulation, 2022

The Council is not bound to accept the lowest or any Bid(s) and reserves the right to accept any part of a Bid(s). Bids must remain valid for a period of ninety (90) days after the closing date of the submission thereof.

Bids that are late, incomplete, unsigned, completed by pencil, sent by telegraph, facsimile, electronically (fax), or E-mail and without the compulsory requirements will be disqualified.

All queries regarding the bids must be submitted in writing by email to the relevant contact person as indicated above. Supply Chain queries must be emailed to: marys@musina.gov.za

TN TSHIWANAMMBI
MUNICIPAL MANAGER

T1.2 TENDER DATA

T1.2 TENDER DATA

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1. CONDITIONS OF TENDER

The Conditions of Tender are the standard conditions of Tender as contained in Annex F of SANS 294: 2004, published by Standards South Africa, Private Bag X191, Pretoria 0001, Tel: 012 428 7911.

The standard conditions of Tender for procurements make several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of Tender.

Where applicable, items of data given here below are cross-referenced to the sub-clause in the standard conditions of Tender to which it applies.

2. EMPLOYER (Cl. F1.1)

The "Employer" is "**Musina Local Municipality**"

3. TENDER DOCUMENTS (Cl. F.1.2)

The Tender document issued by the Employer is a **two (2)** part document. Book 1 (this book) and comprises the following:

BOOK 1:

Volume	Heading	
1	**TENDER**	
	TENDERING PROCEDURES	
	T1.1	Invitation to Tender
	T1.2	Tender Data
	1.	Conditions of Tender
	2.	Employer
	3.	Tender Documents
	4.	Employer's Agent
	5.	Tenderer's Obligations
	6.	Employer's Undertaking
2	**RETURNABLE DOCUMENTS**	
	T2.1	List of Returnable Documents
	T2.2	Returnable Schedules
	C1.1	Form of Offer and Acceptance
	C2.2	Schedules of Quantities
3	**CONTRACT**	
	Part 1	**Agreements and Contract Data**
	C1.2	Contract Data
	Part 2	**Pricing Data**
	C2.1	Pricing Instructions
	Part 3	**The Works**
	C3	Scope of Work
	Part 4	**Site Information**
	C4	Site Information

Book 2 is an A3 size book and contains the relevant drawings.

4. EMPLOYER'S AGENT (Cl. F.1.4)

The Employer's agent is:

TSHAMBILA ENV CONSULTANT

Physical Address:
SUITE 9 BICCARD PARK
43 BICCARD STREET
POLOKWANE
0700

Enquiries: Mr David Nembilwi
Tel.: 015 880 0240
E-mail: info@tshambila.co.za

5. TENDERER'S OBLIGATIONS

5.1 Eligibility (Cl. F.2.1)

A Tender offer may only be submitted if the Tenderer satisfies the criteria stated in the Tender Data and if the Tenderer, or any of his principals, is not under any restriction to do business with the Employer.

Only those tenderers who can demonstrate that they will have in their employ management and supervisory staff satisfying the requirement of the scope of work for labour-intensive competencies for supervisory and management staff during the validity of the contract are eligible to submit tenders.

5.2 Site Visit and Clarification Meeting (Cl. F.2.7)

The compulsory clarification meeting for the project will be held as follows:

Date: n/a
Time: n/a
Venue: n/a

5.3 Insurance (Cl. F.2.9)

No insurance cover will be provided by the Employer. Contractor to provide his own insurance (refer to volume 3 item 2.2.32 of the white pages).

5.4 Alternative Tender Offers (Cl. F.2.12)

Unless anything to the contrary has been determined in the Contract Data, a Tenderer may, together with his Tender for the original designs contained in the contract documents, submit alternative designs and Tender offers for consideration. All designs, calculations, drawings and Operation and Maintenance manuals shall be fully endorsed by a third party registered engineer, accomplished in such specific field of practice and the cost thereof shall be borne solely by the Contractor. Such alternative designs and offers shall be subject to the following conditions and requirements:

5.4.1 Tenders

An alternative offer or design will be considered only if the Tender for the original items has been fully priced and completed. The alternative Tender offer is to be submitted in **the same envelope as the main Tender offer**, together with a schedule that compares the requirements of the Tender documents with the alternative requirements the

Tenderer proposes. No alternative Tender will be considered unless a Tender free from qualifications is also submitted.
Unless the alternative offer stipulates to the contrary, it shall be assumed that the period for completion of the Works shall not be more than the original design.

Designs, calculations, drawings and a modified schedule of quantities (as determined hereafter) in respect of each alternative offer or design shall accompany the alternative Tender offer and shall be endorsed fully by a third-party registered engineer, accomplished in such specific field of practice.

5.4.2 Preliminary calculations

Preliminary calculations for an alternative design shall be submitted with the Tender. Such calculations shall give adequate details so as to enable an assessment to be made of the general efficacy of the design and of its principal elements, also of the degree to which the design prescriptions and codes of the Employer are being complied with. The calculations shall be clear and in a logical sequence and shall clearly reflect all the design assumptions.

5.4.3 Preliminary drawings

Preliminary drawings of the alternative designs shall also be submitted with the Tender. These drawings shall comprise adequate layout plans, elevations and sections and shall clearly illustrate the general efficacy of the design and its principal elements.

5.4.4 Quantities

Each alternative offer shall be accompanied by a modified priced schedule of quantities compiled in accordance with the specifications, in so far as it is applicable, which clearly shows the manner in which the price for the alternative offer has been determined and the items in the original schedule of quantities which fall away or are being changed. In addition to the schedule of quantities, a set of calculations shall be supplied to show how the quantities have been determined. All assumptions in regard to factors which will determine quantities shall be clearly and conspicuously marked by underlining or colouring and shall indicate whether or not the assumptions have been based on information furnished in the Contract Data (with the necessary references).

5.4.5 Further details

Should the Employer's Agent find that the calculations and drawings submitted for alternative designs are not complete enough for proper adjudication of the alternative designs, the Employer reserves to itself the right to call on the Tenderer to submit such further calculations and drawings as may be required. If such further details are not submitted within ten days of having been requested, the alternative designs will not be given further consideration.

5.4.6 Preliminary adjudication of alternative designs

The Employer's Agent will undertake a preliminary scrutiny of any alternative designs for compliance with the specified requirements of the Employer. Should he find any mistakes or unsatisfactory aspects, he may afford the Tenderer the opportunity to rectify them within a period to be determined by the Employer's Agent. However, it is emphasized that the preliminary scrutiny of the design and Tender by the Employer's Agent, by its very nature, cannot be comprehensive, and no guarantee can be given in this regard that all the mistakes made by the Tenderer will in fact be detected. Any correction of such mistakes shall be made with the Tender price of the Tenderer being retained, and, wherever necessary, the priced schedule of quantities for the alternative design shall be adjusted accordingly.

5.4.7 Acceptance of Alternative Design

The Tenderer shall note that the acceptance of a Tender which includes alternative designs shall mean that the alternative designs have been approved in principle only. If the final calculations, drawings and details do not comply with the specified requirements, such alternative designs may be rejected, unless they are suitably amended by the Tenderer so as to be acceptable to the Employer.

5.4.8 Final drawings and calculations and the priced schedule of quantities

Where a Tender with an alternative design has been accepted, the Contractor shall, not less than two months before he intends starting with the construction of such design, submit to the Employer's Agent a complete set of working drawings, detailed calculations and a complete schedule of quantities, for approval. The schedule of quantities shall be based on the preliminary schedule of quantities, but with the necessary adjustments in quantities and prices and with the Tendered price for the alternative design being retained.

Within three weeks of having received the above, the Employer's Agent will indicate which drawings, calculations, quantities, prices and other particulars are acceptable to him and which not, with reasons furnished. The Contractor shall then submit to the Employer's Agent in good time any modified drawings and other particulars for approval, for which he will require two weeks. Any delay arising from the fact that the amended particulars do not meet the requirements shall be the responsibility of the Contractor.

No work which will be affected by an alternative design may be commenced, unless the drawings, schedule of quantities and prices for such alternative design have been approved. Should the Contractor fail to modify any drawings, calculations, quantities, prices or any other particulars to the satisfaction of the Employer's Agent, the alternative design will be rejected and the original design shall be constructed for the same amount as has been Tendered for the alternative design.

5.4.9 Responsibility for alternative design

The approval of a design by the Employer's Agent shall not in any way relieve the Tenderer of his responsibility to produce a design which conforms in all respects to all the specified requirements and which will be suitable for the purpose envisaged.

Should it appear later during construction or during the maintenance period that the design does not conform to the specified requirements, the Contractor only, shall be liable for any damage arising there from and he shall, at his own expense, do all the necessary work to ensure that the Works conforms to all the specified requirements.

5.4.10 Indemnity

Once the alternative design has been approved, the Contractor shall indemnify and hold harmless the Employer, its agents and assigns, against all claims howsoever arising out of the said design whether in contract or delict.

5.5 Submitting a Tender Offer (Cl. F2.13.1)

5.5.1 Whole of the Works (Cl. F.2.13.1)

Tenderers shall offer to provide for the whole of the Works identified.

5.5.2 Original Tender documents (Cl. F2.13.3)

The original Tender document, issued to the Tenderer, shall be submitted in its entirety. No copies are required.

5.5.3 Marking of Tender Submissions (Cl. F2.13.5)

The complete Tender documents shall be enclosed and sealed in a single envelope, marked:

TENDER NUMBER: 13-2023/24
CONSTRUCTION OF NANCEFIELD EXT 9 AND 10 PAVED ROADS PHASE 3
CLOSING DATE: 21 JUNE 2024

The Employer's address for delivery of Tender offers to be shown on each Tender submission package located at:

Tender Box @ Musina Local Municipality

5.5.4 Two envelope system (Cl. F.2.13.6)

A two-envelope procedure will not be followed.

5.5.5 Submission of Information and Data (Cl. F.2.14)

The Tenderer accept that tender offers, which do not provide all the data or information requested completely and, in the form required, may be regarded by the Employer as non-responsive.

5.5.6 Closing time (Cl. F2.15)

The closing time for submission of Tender offers is:

11am on the 21st of June 2024

Telegraphic, telephonic, telex, facsimile, e-mail, electronic and late Tender offers will not be accepted.

5.5.7 Tender offer validity (Cl. F.2.16)

The Tender offer validity period is **90 days** after Tender closing date.

5.5.8 Clarification of Tender offer after submission (Cl. F2.17)

Delete the last part of the second sentence, commencing with the word "and". Furthermore, delete the last two sentences of Cl. F2.17.

Add the following sentence:

"The rates stated by the Tenderer shall be binding".

5.5.9 Provide other Material (Cl. F2.18.1)

Upon request by the Employer, the Tenderer shall promptly supply any other material that has a bearing on the Tender offer, the Tenderer's commercial position (including, where applicable, notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair assessment. Should the Tenderer not provide the information or material called for, by the time for submission stated in the Employer's request, the Employer will regard the Tender offer as being non-responsive.

The tenderer must submit to the Employer, names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy eligibility requirements.

5.5.10 Certificates (Cl. F.2.23)

The following certificates are to be provided with this Tender:

a) Central Supplier Database (CSD)

b) Compensation Fund registration certificate

c) Certificate of Contractor Registration issued by the Construction Industry Development Board or a copy of the application Form for registration in terms of the Construction Industry Development Board Act (Form F006). A minimum grading of **6CE or higher** is required.

In the event of a Joint Venture submitting a Tender, every member of the joint venture must submit proof of registration with the CIDB within 10 days from the closing date for Tenders; and the lead partner must have a minimum contract grading designation in the **6CE or higher** class of construction work.

Important Note:

Failure to provide the required particulars as per the above listed certificates implies a non-responsive Tender and warrants rejection of the Tender on account of non-compliance with the requirements of the Tender Data.

6. EMPLOYER'S UNDERTAKING

6.1 Opening of Tender submissions (Cl. F3.4)

Tender Documents will be opened in public

6.2 Arithmetical errors (Cl. F.3.9)

Delete Clause 3.9.1 and renumber Clause 3.9.2 as 3.9.5.

Insert the following new clauses:

F.3.9.1 Check responsive Tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 Check the highest ranked Tender or Tenderer with the highest number of Tender evaluation points after the evaluation of Tender offers in accordance with F.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or
c) arithmetic errors in:
   i) line-item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
   ii) the summation of the prices

F.3.9.3 Notify the Tenderer of all errors or omissions that are identified in the Tender offer and either confirm the Tender offer as Tender or accept the corrected total of prices.

F.3.9.4 Where the Tenderer elects to confirm the Tender offer as Tender, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line-item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total shall govern, and the tenderer will be asked to be revised selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

c) The tenderer will be afforded **two days**, after being requested by the Employer or Engineer, to revise selected item prices to achieve the Tendered total of the prices. The tender may be rejected if the Tenderer does not correct or accept the correction of his arithmetical errors as described above.

In renumbered Clause 3.9.5 replace the wording "F3.9.1" with "F3.9.4".

6.3 Evaluation of Tender offers (Cl. F3.11)

The procedure for evaluation of responsive Tender offers is Method 4, viz. the case of a financial offer, quality and preferences.

The Employer's Preferential Procurement Policy applicable to this Tender and based on the Preferential Procurement Policy Act, 2000 (Act No. 5 of 2000) is set out here following:

6.3.1 Business Registration

Prospective Tenderers shall be registered:

a) with the South African Revenue Services for all categories of taxes applicable to it.
b) with the Compensation Commissioner.
c) with the Construction Industry Development Board.
A minimum grading of **6CE or higher** is required.

6.3.2 Preference Point System

Refer to form as **Preference Points Claim form in Terms of the Preferential Procurement Regulations 2022 (MBD 6.1) and Appendix A1 – Evaluation Criteria)** in the Returnable Schedules.

Contractors must also supply copies of a joint venture, CC's or any other agreements that clearly indicates ownership and % shareholding.

Tenderer's tax matters will be verified through Central Supplier Database (CSD) documents.

6.4 Acceptance of Tender Offer (Cl. F3.13)

Tender offers will only be accepted if:

a) the Tenderer has in his or her possession a latest Central Supply Database (CSD) documentation.

b) the Tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation. A minimum grading of **6CE or higher** is required.

c) the Tenderer or any of its principals is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; and

d) the Tenderer has not abused the Employer's Supply Chain Management System,

e) the Tenderer has not failed to perform on any previous contract.

6.5 Provide copies of the Contract Document (Cl. F3.18)

The number of paper copies of the signed Contract to be provided by the Employer to the successful Tenderer is **one**.

6.6 **Proof of Availability of Staff with LI Competencies**
Only those tenderers who can demonstrate that they will have in their employ management and supervisory staff satisfying the requirement of the scope of work for labour-intensive competencies for supervisory and management staff during the validity of the contract are eligible to submit tenders.

6.7 **Requirement for submission of names of LI staff**
The tenderer must submit to the Employer, names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy eligibility requirements.

VOLUME 2
RETURNABLE DOCUMENTS

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T2.2	Returnable Schedules	Yellow	2-6
C1.1	Form of Offer and Acceptance	Yellow	2-79

T2.1 LIST OF RETURNABLE DOCUMENTS

1. GENERAL

This section refers to documents that are returned with this single document and constitute a Tender. Whilst many of the returnables are required for the purpose of evaluating Tenders, some will form part of the subsequent contract, as they form the basis of the Tender offer. **It is therefore of paramount importance that tenderers return all information requested in items 2, 3, 4 and 5 below, duly completed as part of their tender submission.**

2. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

The returnable schedules, listed here below, are contained in Volume 2 of the tender document, referenced as Returnable Schedules.

The Tenderer **must complete** the following returnable schedules:

	Description
MBD 1	Invitation to Tender
MBD 2	Tax Clearance
MBD 3.1	Pricing Schedule – Firm Prices
MBD 3.2	Pricing Schedule – Non-Firm Prices – Subject to Escalation
MBD 3.3	Pricing Schedule
MBD 4	Declaration of Interest
MBD 5	Declaration for Procurement above R10 Million (all applicable taxes included)
MDB 6.1	Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022
MBD 7.1	Contract Form – Purchase of Goods/Works
MBD 7.2	Contract Form – Rendering of Services
MBD 7.3	Contract Form – Sale of Goods/Works
MBD 8	Declaration of Tenderer's Past Supply Chain Management Practices
MBD 9	Certificate of Independent Tender Determination
A1	Evaluation Criteria
A2	Certificate of Attendance at Site Clarification Meeting (Included but not required).
A3	Certificate of Authority of Signatory
A4	Certificate of Registration with the Construction Industry Development Board
A5	Record of Addenda to Tender Documents
A6	Form of Intent to Provide a Performance Guarantee
A7	Health and Safety Plan: Declaration by Tenderer
A8	Quality Assurance Programme
A9	Insurance Statement
A10	Commercial Equity Declaration
A11	Financial Information of Tenderer
A12	Joint Venture Disclosure Form (where applicable)
A13	Rates of labour and Materials (Daywork Rates)
A14	Alterations by Tenderer
A15	Plant
C1.1	Form of Offer
C2.1	Pricing Data
C2.2	Bill of Quantities

3. OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

3.1 Tax obligation as captured in Central Supplier Database.

a) It is a condition of Tender that any responsive Tenderer demonstrates compliance with respect to Central Supplier Database.
b) Each Party to a Consortium/Sub-Contractors must provide a separate Central Supplier Database document for compliance with tax obligation.

3.2 Compensation Fund

The Tenderer is required to submit with his Tender, proof of registration and good standing with the Compensation Fund.

3.3 Contractor Registration

The Tenderer is required to submit with his Tender, proof of registration and grading with the Construction Industry Development Board.

3.4 Data Provided by Contractor

Note: Tenderer must complete the required information at the Contract Data, Part C1, Items 3.1 and 3.2 (page 3-12) and submit as part of his tender.

4. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT

a) Curriculum Vitae of personnel

b) Schedule of Proposed Sub-contractors

c) Schedule of Available Infrastructure, Resources and Experience

d) Commercial Equity Declaration

e) Rates of labour and Materials (Daywork Rates)

5. OTHER SCHEDULES AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT

a) Offer and Acceptance

b) Contract Data

c) Schedule of Bills

T2.2 RETURNABLE SCHEDULES

The Tenderer **must complete** the following returnable schedules:

Description		Page
MBD 1	Invitation to Tender	2-6
MBD 2	Tax Clearance	2-8
MBD 3.1	Pricing Schedule – Firm Prices	2-14
MBD 3.2	Pricing Schedule – Non-Firm Prices – Subject to Escalation	2-15
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MDB 6.1	Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022	2-24
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MBD 7.3	Contract Form – Sale of Goods/Works	2-35
MBD 8	Declaration of Tenderer's Past Supply Chain Management Practices	2-37
MBD 9	Certificate of Independent Tender Determination	2-39
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A3	Certificate of Authority of Signatory	2-49
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A5	Record of Addenda to Tender Documents	2-58
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A7	Health and Safety Plan : Declaration by Tenderer	2-60
A8	Schedule of Proposed Sub-Contractors	2-63
A9	Quality Assurance Programme	2-69
A10	Insurance Statement	2-70
A11	Commercial Equity Declaration	2-71
A12	Financial Information of Tenderer	2-73
A13	Joint Venture Disclosure Form (where applicable)	2-74
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C2.2	Bill of Quantities	2-97

Functionality Criteria are as follows, refer to tables below:

a. **Prequalification / Quality Criteria**

The documents and schedules the tender shall submit with the tender shall include, but not limited to those set below, *table 1.*

Table 1.

RETURNABLE DOCUMENT	YES	NO
1. CERTIFIED COMPANY REGISTRATION CERTIFICATE		
2. ID COPIES OF COMPANY DIRECTORS: CERTIFIED.		
3. ORIGINAL SIGNATORY AUTHORISATION LETTER ON A COMPANY LETTER HEAD		
4. RECENT COMPLIANT CENTRAL SUPPLIER DATABASE, JV SHOULD SUBMIT FOR BOTH COMPANIES, SHOULD BE PRINTED BETWEEN ADVERT AND CLOSING DATE. **NB: PRINTED BETWEEN THE ADVERT DATE AND CLOSING DATE.**		
5. CIDB GRADING, JV SHOULD SUBMIT CONSOLIDATED CIDB (6CE or HIGHER).		
6. LETTER OF GOOD STANDING: CERTIFIED (COIDA).		
7. RECENT BANK RATING, NOT OLDER THAN 3 MONTHS FROM THE ADVERT DATE (FOR EVALUATION ON FUNCTIONALITY POINTS ONLY).		
8. ALL DIRECTORS AND COMPANIES PROOF OF MUNICIPAL ACCOUNT FOR WATER AND LIGHTS WHICH SHOULD NOT BE MORE THAN 3 MONTHS IN ARREARS; AND SHOULD NOT BE OLDER THAN 3 MONTHS. **NB:** VALID LEASE AGREEMENT ACCOMPANIED BY RECENT PROOF OF PAYMENT FOR MUNICIPAL RATES AND TAXES OF THE LESSOR AND THE STATEMENT FOR THE LESSOR WHICH IS NOT INARREAS FOR MORE THAN 90 DAYS. THIS IS ALSO APPLICABLE TO JV PARTNERS. RECENT AND ORIGINAL PROOF OF RESIDENCE FROM TRADITIONAL AUTHORITY OR INDUNA, ACCOMPANIED BY CONFIRMATION THAT THE AREA IS NOT LEVIED RATES OR RECENT CLEARENCE CERTIFICATE ISSUED BY THE MUNICIPALITY.		
9. COMPANY PROFILE		
10. PROGRAM OF WORKS,		
11. SCHEDULE OF MONTHLY EXPENDITURE (CASH FLOW)		
12. AUDITED FINANCIAL STATEMENT.IF THE COMPANY IS OLDER THAN THREE (3) YEARS, SUBMIT PAST THREE YEARS FINANCIAL STATEMENT (2020/2021 – 2021/2022 – 2022/2023)		
13. JOIN VENTURE AGREEMENT: WHERE APPLICABLE a. CIDB CONSOLIDATED		
14. LETTER OF INTENT FROM A REGISTERED FINANCIAL INSTITUTION AS A GUARANTOR IN THE AMOUNT OF 10% FOR SURETY.		

RETURNABLE DOCUMENT	YES	NO
15. COMPLETE THE DOCUMENT WITH A BLACK INK, INITIAL WHERE ALTERED AND INITIAL EVERY PAGE, INCLUDING ALL DRAWINGS ISSUED WITH THE DOCUMENT. COMPLETE FORM OF OFFER IN BLACK INK. **THE DOCUMENT SHOULD NOT BE DISMANTLED OR RE-ARRANGED**. BOOK OF PLANS ISSUED WITH DOCUMENTS SHOULD BE RETURNED WITH THE DOCUMENTS WITH ALL DRAWINGS SIGNED BY TENDERERS. HAND-WRITTEN.		
16. COMMISSIONER OF OATH STAMP OR SAPS CERTIFICATION ACCEPTABLE		
17. INCASE OF A JOINT VENTURE, ASSOCIATION OR CONSORTUIM, A FORMAL CONTRACT AGREEMENT MUST BE SIGNED BY BOTH PARTIES AND BE ATTACHED. THE FOLLOWING MUST BE ADDERED TO: a. ALL OF THE ABOVE REQUIREMENTS MUST BE FOR BOTH ENTITIES.		
18. PROOF OF RECIEPT OF PAYMENT FOR TENDER DOCUMENT (RECIEPT/INTERNET PAYMENT)		
19. CSD FULL REPORT		

MBD 2

TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

1 In order to meet this requirement bidders are required to complete in full the attached form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.

2 SARS will then furnish the bidder with a Tax Clearance Certificate Pin that will be valid for a period of 1 (one) year from the date of approval.

3 The original Tax Clearance Certificate Pin must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.

4 In bids where Consortia / Joint Ventures / Sub-contractors are involved; each party must submit a separate Tax Clearance Certificate Pin.

5 Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.

6 Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za .

MBD 3.1

PRICING SCHEDULE – FIRM PRICES
(PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder…… Bid Number……..

Closing Time ……. ….. Closing Date ……..

OFFER TO BE VALID FOR……DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)

- Required by: …….
- At: …….

……

- Brand and Model …….
- Country of Origin …….
- Does the offer comply with the specification(s)? *YES/NO
- If not to specification, indicate deviation(s) …….
- Period required for delivery …….
  *Delivery: Firm/Not firm
- Delivery basis …….

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

** “all applicable taxes” includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

MBD 3.2

PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Tenderer	.....	Tender No.	.....
Closing Time	.....	Closing Date	.....

OFFER TO BE VALID FOR …….. DAYS FROM THE CLOSING DATE OF TENDER.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
- Required by:			.....
- At:			.....
- Brand and model			.....
- County of origin			.....
- Does the offer comply with the specification(s)?			*YES/NO
- If not to specification, indicate deviation(s)			.....
- Period required for delivery			.....
- Delivery			*Firm/Not Firm

** ”all applicable taxes” includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

MBD 3.2

PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION

1. IN CASES OF PERIOD CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES

2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt\left(D1\frac{R1t}{R1o} + D2\frac{R2t}{R2o} + D3\frac{R3t}{R3o} + D4\frac{R4t}{R4o} \right) + VPt$$

Where:

Pa = The new escalated price to be calculated.
(1-V) Pt = 85% of the original bid price. **Note that Pt must always be the original bid price and not an escalated price.**
D1, D2.. = Each factor of the bid price e.g. labour, transport, clothing, footwear, etc.
The total of the various factors D1,D2…etc. must add up to 100%.
R1t, R2t…… = Index figure obtained from new index (depends on the number of factors used).
R1o, R2o = Index figure at time of bidding.
VPt = 15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

D1 = Labour = 0.15
D2 = Fuel = 0.1
D3 = Plant = 0.2
D4 = Material = 0.55

Base month for Index Figures = August 2020

Labour, Material, Fuel & Plant's Statistical Base Date = 2016 = 100

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. e.g. Labour, transport etc.)	PERCENTAGE OF BID PRICE
Labour	
Fuel	
Plant	
Material	

MBD 3.2

B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO.	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR =		
				ZAR =		
				ZAR =		
				ZAR =		
				ZAR =		
				ZAR =		

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

MBD 3.3

PRICING SCHEDULE
(Professional Services)

Name of Bidder:……Bid Number: ……..……

Closing Time: ……..…… Closing Date ……

OFFER TO BE VALID FOR ……DAYS FROM THE CLOSING DATE OF BID.

ITEM NO	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
1.	The accompanying information must be used for the formulation of proposals.	
2.	Bidders are required to indicate a ceiling price based on the total estimated time for completion of all phases and including all expenses inclusive of all applicable taxes for the project.	R……..……
3.	PERSONS WHO WILL BE INVOLVED IN THE PROJECT AND RATES APPLICABLE (CERTIFIED INVOICES MUST BE RENDERED IN TERMS HEREOF)	
4.	PERSON AND POSITION	HOURLY RATE / DAILY RATE
	----------	R---------- / ----------
	---------- --	R---------- / ----------
	----------	R---------- / ----------
	-- ---------- --	R---------- / ----------
	---------- --	R---------- / ----------
5.	PHASES ACCORDING TO WHICH THE PROJECT WILL BE COMPLETED, COST PER PHASE AND MAN-DAYS TO BE SPENT	
	----------	R---------- / ---------- days
	----------	R---------- / ---------- days
	----------	R---------- / ---------- days
	----------	R---------- / ---------- days
5.1	Travel expenses (specify, for example rate/km and total km, class of airtravel, etc). Only actual costs are recoverable. Proof of the	

expenses incurred must accompany certified invoices.

DESCRIPTION OF EXPENSE TO BE INCURRED	RATE	QUANTITY	AMOUNT
----------	……	……..	R……
----------	……	……..	R…….……
----------	……	……..	R……
----------	……	……..	R……

**"all applicable taxes" includes value-added taxes, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

5.2 Other expenses, for example accommodation (specify, eg. Three star hotel, bed and breakfast, telephone cost, reproduction cost, etc.). On basis of these particulars, certified invoices will be checked for correctness. Proof of the expenses must accompany invoices.

DESCRIPTION OF EXPENSE TO BE INCURRED	RATE	QUANTITY	AMOUNT
----------	……	……..	R……
----------	……	……..	R…….……
----------	……	……..	R……
----------	……	……..	R……

TOTAL: R…….

6. Period required for commencement with project after acceptance of bid……

7. Estimated man-days for completion of project……

8. Are the rates quoted firm for the full period of contract? ……*YES/ NO.

9. If not firm for the full period, provide details of the basis on which adjustments will be applied for, for example consumer price index……..

……

……

MBD 4

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 favouritism, should the resulting bid, or part thereof, be awarded to persons employed by 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:

……..

……..

* 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 on any municipality 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 legislate.

3.8 Do you, have any relationship (family, friend, other) with **YES/NO**

persons in the service of the state and who may be involved with the evaluation and or adjudication of this?

3.8.1 If so, furnish particulars
……..

……..

3.9 Are you, aware of any relationship (family, friend, other) between any other bidder and any person employed by 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, principal shareholders in service of the state? **YES/NO**

3.10.1 If so, furnish particulars
……..

……..

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

3.11.1 If so, furnish particulars
……..

……..

4. Full details of directors/trustees/members/shareholders

Full Name	**Identity Number**	**Personal Tax reference Number**	**State Employee Number/Personal Number**

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

MBD 5

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

1.	Are you by law required to prepare annual financial statements for auditing?	***YES/NO**
1.1	If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the part three years. …….. ……..	
2.	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?	***YES/NO**
2.1	If no, this services to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days.	
2.2	…….. …….. …….. ……..	
3.	Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?	***YES/NO**
3.1	If yes, furnish particulars …….. ……..	

*Delete if not applicable

4.	Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality/municipal entity is expected to be transferred out of the Republic?	***YES/NO**
4.1	If yes, furnish particulars …….. ……..	

CERTIFICATION

I, THE UNDERSIGNED, (NAME) ……..

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FROM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

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

MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

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1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **To be completed by the organ of state**

(*delete whichever is not applicable for this tender*).

a) The applicable preference point system for this tender is the 80/20 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
TOTAL POINTS FOR PRICE AND SPECIFIC GOALS	**100**

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to

preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. 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:

4.2. 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)
HDI Status: Entity to be at least 51% Black Owned (to be verified on CSD)	10	
Youth: 51% Youth owned (to be verified on CSD)	3	
Woman: Points for 51% Women's Equity (to be verified on CSD)	4	
Disability: Attach letter from registered and authorized medical professional confirming disability.	3	
Form not completed:	0	
TOTAL	**20**	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. 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
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

……
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: ……

DATE: ……

ADDRESS: ……

……

……

……

7.1

CONTRACT FORM – PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

7. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution)……..…… in accordance with the requirements and specifications stipulated in bid number……..……. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   i) Bidding documents, viz
      - Invitation to bid;
      - Tax clearance certificate;
      - Pricing schedule(s);
      - Technical Specification(s);
      - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022;
      - Declaration of interest;
      - Declaration of bidder's past SCM practices;
      - Certificate of Independent Bid Determination;
      - Special Conditions of Contract;

   ii) General Conditions of Contract; and

   iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I declare that I have no participation in any collusive practices with any bidder or any other person
regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT) .....

CAPACITY .....

SIGNATURE .....

NAME OF FIRM .....

DATE .....

WITNESSES

1. ……

2. ……

DATE: ……..

7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..….. accept your bid under reference number ……dated……for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating delivery instructions is forthcoming.

3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)	BRAND	DELIVERY PERIOD

4. I confirm that I am duly authorized to sign this contract.

SIGNED AT …… ON ……..

NAME (PRINT) …….

SIGNATURE …….

OFFICIAL STAMP

WITNESSES

1. ……

2……

DATE ……

MBD 7.2

CONTRACT FORM – RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to Musina Local Municipality in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number……. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   i) Bidding documents, viz
      - Invitation to bid;
      - Tax clearance certificate;
      - Pricing schedule(s);
      - Filled in task directive/proposal;
      - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022;
      - Declaration of interest;
      - Declaration of Bidder's past SCM practices;
      - Certificate of Independent Bid Determination;
      - Special Conditions of Contract;

   ii) General Conditions of Contract; and

   iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)	.....	WITNESSES
CAPACITY	.....	1. .....
SIGNATURE	.....	2. .....
NAME OF FIRM	.....	DATE: .....
DATE	.....	

MBD 7.2

CONTRACT FORM – RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..….. accept your bid under reference number …… dated……for the rendering of services indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating delivery instructions is forthcoming.

3. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE

4. I confirm that I am duly authorized to sign this contract.

SIGNED AT …… ON ……..

NAME (PRINT) …….

SIGNATURE …….

OFFICIAL STAMP

WITNESSES

1. ……

2……

DATE ……

MBD 7.2

CONTRACT FORM – RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to Musina Local Municipality in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number……. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   i) Bidding documents, viz
      - Invitation to bid;
      - Tax clearance certificate;
      - Pricing schedule(s);
      - Filled in task directive/proposal;
      - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022;
      - Declaration of interest;
      - Declaration of Bidder's past SCM practices;
      - Certificate of Independent Bid Determination;
      - Special Conditions of Contract;

   ii) General Conditions of Contract; and

   iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)	.....	WITNESSES
CAPACITY	.....	1. …….
SIGNATURE	.....	2. …….
NAME OF FIRM	.....	DATE: ……..
DATE	.....	

MBD 7.2

CONTRACT FORM – RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..…..
accept your bid under reference number …….
dated…… for the rendering of services indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating delivery instructions is forthcoming.

3. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE

4. I confirm that I am duly authorized to sign this contract.

SIGNED AT …… ON ……..

NAME (PRINT) …….

SIGNATURE …….

OFFICIAL STAMP

WITNESSES

1. ……..……

2.……

DATE ……..……

MBD 7.3

CONTRACT FORM – SALE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE SELLER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE SELLER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to purchase all or any of the goods and/or works described in the attached bidding documents from (name of institution)…….…..…… in accordance with the requirements stipulated in (bid number)……..…….. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the seller during the validity period indicated and calculated from the closing time of bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   i) Bidding documents, viz
      - Invitation to bid;
      - Tax clearance certificate;
      - Pricing schedule(s);
      - Declaration of interest;
      - Declaration of Bidder's past SCM practices;
      - Special Conditions of Contract;

   ii) General Conditions of Contract; and

   iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) cover all my obligations and I accept that any mistakes regarding price(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I undertake to make payment for the goods/works as specified in the bidding documents.

6. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

7. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)	.....	WITNESSES
CAPACITY	.....	1. ….……
SIGNATURE	.....	2. ….……
NAME OF FIRM	.....	DATE: ……..
DATE	.....	

MBD 7.3

CONTRACT FORM – SALE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..….. accept your bid under reference number ……. dated…… for the purchase of goods/works indicated hereunder and/or further specified in the annexure(s).

2. I undertake to make the goods/works available in accordance with the terms and conditions of the contract.

ITEM NO.	DESCRIPTION	PRICE (ALL APPLICABLE TAXES INCLUDED)		

3. I confirm that I am duly authorized to sign this contract.

SIGNED AT …… ON ……..

NAME (PRINT) …….

SIGNATURE …….

OFFICIAL STAMP

WITNESSES

1. ……..……

2……..……

DATE ……

MBD 8

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' / municipal entities 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) wilfully 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 of Restricted Suppliers as companies or persons 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 Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		

Item	Question	Yes	No
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)? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	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 outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
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 any 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 ☐
4.5.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED

(FULL NAME) ……

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS 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 TENDER DETERMINATION

1 This Municipal Tendering Document (MBD) must form part of all tenders[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 tendering (or tender rigging).[2] Collusive tendering 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 tender of any tenderer if that tenderer or any of its directors had 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 tendering process or the execution of that contract.

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

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

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

[2] Tender rigging (or collusive tendering) 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 tendering process. Tender rigging is, therefore, an agreement between competitors not to compete.

MBD 9

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying tender:

_____
(Tender Number and Description)

in response to the invitation for the tender 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 Tenderer)

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

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

6. The tenderer has arrived at the accompanying tender 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 tendering.

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 tender;
    (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
    (f) tendering with the intention not to win the tender.

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 tender invitation relates.

4. The terms of the accompanying tender have not been, and will not be, disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender 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 tenders and contracts, tenders 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 Tenderer

ANNEXURE A1: EVALUATION CRITERIA

Bids will be evaluated on administrative compliance, bidders will be assessed for capability and ability to execute the contract as per the requirements of this bid and lastly on price and specific goals (80/20 Preference Point System). Table 1 to 4 are mandatory requirements to be submitted for the assessment of the capability of the bidder. All copies of qualifications and certifications must be certified.

- Contractors must demonstrate their experience capability with regard to roadworks done previously within the last 10 years. (Refer Table 1). The contractor must attach **at least 4 Appointment and Completion Letters**

- Contracts Manager, Site Agent and Safety Officer must have experience in roadworks. The contractor must **attach Organogram/Employment Structure with CV's and certified copies of qualifications and Identification Documents**.

The third stage of the evaluation will be based on Price (80) and preference points for specific goal scored of contribution (20)

TABLE 1: EXPERIENCE AND REFERENCES (CIVIL ENGINEERING WORKS EXPEREINCE)

No.	Target Goals: List reference with details (civil engineering works)	Number of projects
1	R10,1m to R20m	
2	R20,1m to R30m	
3	More than R30	

NB: Please attach at least 4 appointment letters & completion certificates.

TABLE 2: EXPERIENCE OF KEY STAFF

No.	Target Goals	Number of personnel
1	N6 Certificate in Civil engineering	
2	National diploma: civil engineering + 1 to 5 yrs. experience in civil engineering roads works/structures	
3	National diploma: civil engineering with more than 5 yrs. experience in civil engineering roads works	
4	Register with ECSA as a: Professional technician/Technologist/Engineer	

NB: Please attach the employment structure with CV's & certified copies of qualifications and certificates.

TABLE 3: PLANT AND EQUIPMENT

Provide list of Plant & Equipment's which you own. Proof of ownership of plant must be submitted with tender. In case of hiring, the bidder must submit a letter of intent signed by the Lessor along with certified copies of the Proof of Ownership in the Lessor's name.

TABLE 4: BANK RATING

	TARGETED GOALS	**Rating**
1	Bank Rating C or higher	Attach Proof

NB: attach Bank letter to confirm bank rating.

Evaluation of bids

1st stage: ADMINISTRATIVE COMPLIANCE

Check whether the bidder has submitted all documents

- **Tax Compliance Pin Issued**
- **Please note that the tender document will be made available for free on E-Tender portal and on municipal website, therefore proof of receipt will only be applicable to those who purchased the document**
- **Copy of municipal rates and taxes statement of account not older than three months for all directors and for the company**
- **CIDB Grading of 6CE or higher**
- **Attach CSD Report**
- **Letter of Good standing from Workman's Compensation**
- **Letter of Good standing from UIF**

2nd Stage: PRICING AND SPECIFIC GOALS

The 80/20 Points will be as follows:

Price Assessment	**80 Points**
TOTAL A	**80**

Designated Groups	**Number of points (80/20)**
Points for HDI status (At least 51% Black owned)	10
Points for 51% Women's Equity	4
Points for black person with Disability	3
Points for 51% owned Youth firm	3
Form not completed or submitted	0
TOTAL B	20

TOTALA+B = 100

Inquiry should be directed to: SCM: marys@musina.gov.za
Technical: mukondelelin@musina.gov.za
NB: Telephonic enquiries will not be entertained

SCHEDULE OF TENDERER'S EXPERIENCE

The following is a statement of similar work executed by myself/ourselves in the last ten (10) years:

Employer, Contact Person and Telephone No.	Description of Contract	Value of Work Inclusive of VAT (Rand) if applicable	Date Completed

Please attach separate sheet for any additional projects that the space provided may not cater for

Curriculum Vitae of Contracts Manager (Registered)

Name:	Date of Birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (Firm):	
Current Position:	Years with the firm:
Employment Record: (List in chronological order stating with earliest work experience)	
Experience Record Pertinent to Required Service	
Certification I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience. ……..... Date: …… [Signature of person named in schedule]	

Curriculum Vitae of Site Agent

Name:	Date of Birth:
Profession:	Nationality:
Qualifications:	
Name of Employer (Firm):	
Current Position:	Years with the firm:
Employment Record: (List in chronological order stating with earliest work experience)	
Experience Record Pertinent to Required Service	
Certification I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience. ……..... Date: …… [Signature of person named in schedule]	

Curriculum Vitae of Safety Officer (Registered)

Name:	Date of Birth:
Profession:	Nationality:
Qualifications:	
Professional Registration Number:	
Name of Employer (Firm):	
Current Position:	Years with the firm:
Employment Record: (List in chronological order stating with earliest work experience)	
Experience Record Pertinent to Required Service	
Certification I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience. ……..... Date: ……. [Signature of person named in schedule]	

APPENDIX 2: CERTIFICATE OF ATTENDANCE AT SITE CLARIFICATION MEETING

This is to certify that:

…….…. (Tenderer)

of ……..…… (Address)

…….

was represented by the person(s) named below at the compulsory meeting held for all Tenderers at

..... (location) on ..... (date), starting at .....

We acknowledge that the purpose of the meeting was to acquaint ourselves with the Site of the Works and/or matters incidental to doing the work specified in the Tender documents in order for us to take account of everything necessary when compiling our entire Tender submission.

Particulars of person(s) attending the meeting:

Name ..... Signature .....

Capacity .....

Note: All particulars above this horizontal divide line to be filled in by the Tenderer **prior to** signature by Employer's representative.

Attendance of the above persons at the meeting is confirmed by the representative of **Tshambila ENV Consultant** namely:

Name: D Nembilwi Signature: .....

Capacity: Director Date: ……

Time: ……

Musina Local Municipality Stamp

APPENDIX A3: CERTIFICATE OF AUTHORITY OF SIGNATORY

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.

A Company ☐

B Partnership ☐

C Joint Venture ☐

D Sole Proprietor ☐

E Close Corporation ☐

(Tick the appropriate box)

A. Certificate for 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 authorised to sign all documents in connection with this Tender and any contract resulting from it on behalf of the company.

As witnesses:

1. ....
Chairman

....
Print Name Print Name

2. ....
Date

.....
Print Name

B. Certificate of partnership

We, the undersigned, being the key partners in the business trading as ……

....., hereby authorise Mr/Ms ……, acting in

the capacity of …....., to sign all documents in connection with the Tender for Contract …....., and any contract resulting from it on our behalf.

Name	Address	Signature	Date

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

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize

Mr/Ms ……..……, authorised signatory of the firm .....

....., acting in the capacity of lead partner, to sign all documents in

connection with the Tender offer for Contract …… and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

Name of Firm	Address	Authorising	
		Signature	Name
Lead Partner			

D. Certificate for sole proprietor

I, ……, hereby confirm that I am the sole owner of the

business trading as ……

As witnesses:-

1. ……. ……
Signature: Sole Owner

……. ……
Print Name Print Name

2. ……. ……
Date

…….
Print Name

E. Certificate for Close Corporation

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

…… hereby authorise Mr/Ms ……., acting in

the capacity of ……, to sign all documents in connection with

the Tender for Contract ……..…… and any contract resulting from it on our behalf.

Name	Address	Signature	Date

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

APPENDIX A4: CERTIFICATE OF REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

1. General

The Register of Contractors is established by the Construction Industry Development Board in terms of the CIDB Act 38 of 2000 and Construction Industry Development Regulations as published in Government Gazette number 26427 of 2004.

The Act makes it mandatory for public sector clients to apply this register when considering Tenders. Any enterprise that submits a Tender or enters into contract for construction works with the public sector, must be registered.

Once-off joint ventures do not have to register, provided that each partner of the joint venture is separately registered.

2. Status

Tenderers shall fill in the following sections of this form, depending on their status:

2.1 Section A

Tenderers who have accomplished registration and can provide proof of their grading designation.

2.2 Section B

Tenderers who are in the process of registration of an update to an existing registration or a renewal.

2.3 Section C

Tenderers who have submitted the first application.

2.4 Section D

Tenderers submitting this Tender offer in Joint Venture and can provide proof that each partner of the Joint Venture is separately registered.

Note: Complete only one of Sections A, B, C or D.

SECTION A

I, …… acting in capacity of ……
was authorised to sign all documents in connection with this Tender an any contract resulting from it on
behalf of the following entity: ……

hereby declare that the above mentioned entity has achieved registration with the Construction Industry Development Board on date …… and declare that the grading designation is reflected in the following **symbols** on the registration certificate.

Contract Value		
Type of Work		

……..	……..
Signature of Tenderer	Signature of Witness
……..	……..
Print Name	Print Name

SECTION B

I, ……..…… acting in capacity of ……..... was authorised to sign all documents in connection with this Tender and any contract resulting from it on behalf of the following entity: …… hereby declare that the above mentioned entity has achieved registration with the Construction Industry Development Board on date …… furthermore declare that the existing grading designation is:

Contract Value		
Type of Work		

and the following update has been applied for:

Amendment of Category Status		mark with a "✓"
Change of Particulars		
Annual Confirmation of Particulars		
Renewal of Registration		

…… ……..…
Signature of Tenderer Signature of Witness

…… ……..…
Print Name Print Name

SECTION C

I, …… acting in capacity of …… was authorised to sign all documents in connection with this Tender and any contract resulting from in/on behalf of the following entity: …… hereby declare that the above mentioned entity has submitted its FIRST APPLICATION FOR REGISTRATION with the Construction Industry Development Board on date ……

I furthermore accept that failure to achieve registration with the Construction Industry Development Board in a category stipulated in the Tender Data within 10 days from the date of closing this Tender implies a non-responsive Tender and warrants rejection of the Tender on account of non-compliance with the requirements of the Tender Data.

……	……..…
Signature of Tenderer	Signature of Witness
……	……..…
Print Name	Print Name

SECTION D

I, …… acting in capacity of the LEAD PARTNER in the Joint Venture

…….
…. was authorised to sign all documents in connection with this Tender and any contract resulting from it, hereby declare that each of the Joint Venture is separately registered with the Construction Industry Development Board and declare that the grading designation is reflected in the following **symbols** on the registration certificates:

Name of Lead Partner:		
Contract Value		
Type of Work		

Name of 2nd Partner:		
Contract Value		
Type of Work		

Name of 3rd Partner:		
Contract Value		
Type of Work		

…… ……..…
Signature of Tenderer Signature of Witness

…… ……..…
Print Name Print Name

APPENDIX A5: RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Procuring Department before the submission of this Tender Offer, amending the Tender Documents, have been taken into account in this Tender Offer:

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

Attach additional pages if more space is required.

Signed ……. Date …….

Print Name ……. Position …….

Tenderer …….

APPENDIX A6: FORM OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE

If my/our Tender is accepted, I/we will, when required and within the time stipulated, provide a guarantee of

Insurance Company (name) ……

(of address) ……

……

or

Commercial Bank (Name) ……..

(Branch) ……..

(of address) ……

……

to be approved by you, the Employer, for the amount stipulated.

I/we understand that failure to produce an acceptable Performance Guarantee within the stipulated period is a fundamental breach of Contract, entitling the Employer to:

(i) withhold all payments which may be due to the Contractor pending compliance with the stipulated requirements to produce an acceptable Performance Guarantee.

(ii) instruct the Contractor to cease all work pending provision of the Performance Guarantee, and

(iii) cancel the Contract.

Signed …… Date ……..

Print Name …… Position ……..

Tenderer ……

APPENDIX A7: HEALTH AND SAFETY PLAN: DECLARATION BY TENDERER

I/we declare that we have read and understand the health and safety specifications contained in the Contract Data and undertake to:

- provide and demonstrate to the Employer a suitably and sufficiently documented health and safety plan, which shall be applied from the date of commencement of and for the duration of the construction work,
- appoint a full-time competent employee in writing as the Construction Supervisor from the date of commencement of and for the duration of construction work,
- appoint a full time/part time competent employee in writing as the Construction Safety Officer from the date of commencement of and for the duration of construction work.

I/we undertake to rectify all non-conforming conditions for which we are responsible. I/we accept that, should I/we not rectify these timeously, they will be corrected by the Employer and the cost subtracted from any amounts due to me/us in terms of the Contract Data.

I/we confirm that I/we am/are registered and in good standing with the Compensation Fund and our

registration number is: ……..

alternatively, my/our licensed compensation insurer is:

(Name) …….

(Address) …….

…….

To this effect, I/we attach proof of registration and good standing.

I/we certify that to the best of my/our knowledge and belief, the curricula vitae of our proposed key health and safety personnel cited hereinafter correctly describe their qualifications and experience.

Signed ……. Date …….

Print Name ……. Position …….

Tenderer …….

APPENDIX A8: QUALITY ASSURANCE PROGRAMME

Tenderer to submit details here below of his Quality Assurance Policy whereby he shall demonstrate that he has the following:

(a) An Operating Quality Management System based on SABS/ISO 9001: 2000 international standards, if not, state alternative.

(b) Proof of Quality Assurance Co-ordination.

(c) Proven technical capabilities and resources to ensure Quality Management.

(d) A recent assessment/audit report on his Quality Management and Quality Control System(s).

Contractor's details with respect to items a), b), c) and d):

Signed ……. Date ……..

Print Name ……. Position …….

Tenderer ……

APPENDIX A9: INSURANCE STATEMENT

TENDERER'S DECLARATION OF INSURANCES

I/We hereby declare that the insurances enumerated below have been affected by me/us.

I/We further declare that all premiums in respect of the insurances are fully paid up to date.

Cover Effected	Insurer and Policy Number	Expiry Date	Limits of Indemnity / Sums Insured	Deductibles
Contractor's All Risks				
Occupational Injuries and Diseases				
Unemployment Insurance				
Motor Vehicle Insurance				
Other:				

We submit herewith a letter of good standing from the Workman's Compensation Commissioner in respect of Occupational Injuries and Diseases Insurance.

Signed ……. Date ……..

Print Name ……. Position ……..

Tenderer …….

APPENDIX A10: COMMERCIAL EQUITY DECLARATION

A10.1 General

The Employer considers the information contained in this Declaration as a material aspect of the Contract. Should there, during the duration of either the bid enquiry or contract, be any significant change in the equity situation of the Bidder, the Employer shall immediately be notified and the Employer will, in terms of the Contract Data, exercise its rights.

A10.2 Name of Bidder ……..……..……

A10.3 Type of enterprise e.g. Sole Proprietor, Partnership, CC, Pty, JV, etc. ……..……

A10.4 Details of Firm:

Name of Company: _____

Street Address: _____

_____

Postal Address: _____

Tel. Number: _____

Fax Number: _____

Contact Person: _____

Company Registration No. _____

Income Tax Registration No. _____

VAT Registration No. _____

Number of years in Business: _____

Founding Date of Firm: _____

A10.5 List all equity owners

Name	M/F	PDI (Y/N)	D (Y/N)	% Equity owned	ID Number

Attached registration documents and shareholders agreements.

PDI (Previously Disadvantaged Individuals). If disabled indicate under D.

A10.6 Did the enterprise exist under a previous name? (Tick one box)

☐ Yes ☐ No

If yes:

What was its previous name? ……..……...

Why did it change its name? ……...

List the previous owners/partners/directors ……

……..

……..

A10.7 Identify by name, status and length of service, those individuals in the enterprise (including owners) responsible for day-to-day management and business decisions.

Financing decisions	Name	Status (Yes/No)*			Length of service (years)
		PDI	Women	Disabled	
Cheque signing					
Signing and co-signing of loans					
Acquisition of lines of credit					
Demand & Retention Guarantees					
Major Purchases or acquisitions					
Signing contracts					

Management decision	Name	Status (Yes/No)*			Length of service (years)
		PDI	Women	Disabled	
Estimating					
Marketing and sales operations					
Hiring & firing of management personnel					
Hiring & firing of non-management personnel					
Supervision of office personnel					
Supervision of field/production activities					

*State Yes or No Attach separate list, if necessary.

I (1), ... and (2) ..... (names), hereby certify that, to the best of our knowledge, the information, facts and representations are correct and that we are duly authorised to sign on behalf of the Bidder.

Date: .....

Signature: (1)..... (2) .....

APPENDIX A11: FINANCIAL INFORMATION OF TENDERER

This information sheet has to be filled in by the financier of the Tenderer, duly signed and stamped on behalf of the financial institution he represents.

Tenderer / Tender Details

Name of Tenderer : .....

Bank Account Number: .....

Tender Amount: .....

Performance Guarantee will be provided by this Bank: YES ☐ NO ☐

If yes, state amount of Performance Guarantee: R ……

Financial Institution

Name the Branch of Commercial Bank: .....

Name & Tel. No. of Bank Manager: .....

I / We acting on behalf of the above Commercial Bank confirm that

……..……
(Tenderer)

has operated an account with us for the last ..... years.

We have been requested to provide a bank rating based in relation to the financial capability of the Tenderer, taking into account directives set out in the following two tables.

BANK RATING	
Bank Code	**Description of Bank Code**
A	Undoubted good for the amount of enquiry
B	Good for the amount of enquiry
C	Good for the amount quoted if strictly in the way of business
D	Fair trade risk for amount of enquiry
E	Figures considered too high
F	Financial position unknown
G	Occasional dishonours
H	Frequent dishonours

The value on which our Bank Rating of the Tenderer is based is R……..

(in words ……..……

……..……..…… only)

The Bank Rating is code: ……

…… …….. ……..
Signature: Manager Financial Institution Print Name Date

RUBBER STAMP OF BANKING INSTITUTION

APPENDIX A12: JOINT VENTURE DISCLOSURE FORM

Employer: ----------

Contract Number: ----------

NOTE 1 This form need only be completed in the event of a Joint Venture submitting this Tender.

NOTE 2 Fill in all the information requested in the spaces provided. Attach additional sheets if required.

NOTE 3 Provide a copy of the Joint Venture agreement. Demonstrate that the partners to the Joint Venture share in the ownership, control, management responsibilities, risks and profits of the Joint Venture. The Joint Venture agreement shall include specific details relating to:

a) the contributions of capital and equipment;
b) portions of the Contract to be performed by the partner's own resources; and
c) portions of the Contract to be performed under the supervision of each partner.

NOTE 4 Provide copies of all written agreements between partners concerning the Joint Venture, including those that relate to ownership options and to restrictions/limits regarding ownership and control.

A12.1 Joint Venture Particulars

Name ----------

Postal Address ----------

Physical Address ----------

Telephone No. ----------

Fax No. ----------

Name of Authorized Representative ----------

A12.2 Identity of Partner No. 1

Name ----------

Postal Address ----------

Physical Address ----------

Telephone No. ----------

Fax No. ----------

Contact Person ----------

A12.3 Identity of Partner No. 2

Name .....

Postal Address .....

Physical Address .....

.....

Telephone No. .....

Fax No. .....

Contact Person .....

A12.4 Identity of Partner No. 3

Name .....

Postal Address .....

Physical Address .....

.....

Telephone No. .....

Fax No. .....

Contact Person .....

A12.5 Description of the Role of the Partners in the Joint Venture

Partner No. 1 .....

.....

Partner No. 2 .....

.....

Partner No. 3 .....

.....

A12.6 Ownership of the Joint Venture

i) Ownership percentage(s)

Partner No. 1 ..... %

Partner No. 2 ..... %

Partner No. 3 ..... %

ii) Partner percentage in respect of:

a) Profit and loss sharing — Partner No. 1 ..... %

Partner No. 2 ..... %

Partner No. 3 ..... %

b) Initial capital contribution — Partner No. 1 ..... %

Partner No. 2 ..... %

Partner No. 3 ..... %

iii) Anticipated ongoing contributions: — Partner No. 1 .....

Partner No. 2 .....

Partner No. 3 .....

iv) Contributions of equipment (specify types, quality and quantities of equipment) to be provided by each partner:

Partner No. 1 .....

.....

Partner No. 2 .....

.....

Partner No. 3 .....

.....

A12.7 Recent contracts performed by partners in their own right or as partners in other Joint Ventures

a) Partner No. 1

i) _____

ii) _____

iii) _____

iv) _____

v) _____

b) Partner No. 2

i) _____

ii) _____

iii) _____

iv) .....

v) _____

c) Partner No. 3

i) _____

ii) _____

iii) _____

iv) _____

v) _____

A12.8 Control and participation in the Joint Venture

(Identify by name and firm those individuals who are, or will be, responsible for, and have authority to engage in the relevant management functions and policy and decision making, indicating any limitations in their authority, for example, co-signature requirements and monetary limits).

a) Joint Venture cheque signing

b) Authority to enter into contracts on behalf of the Joint Venture

c) Signing, co-signing or collateralizing of loans

d) Acquisition of lines of credit

e) Acquisition of demand bonds

f) Negotiating and signing of labour agreements

A12.9 Management of the performance of the Contract
(Fill in the name and firm of the responsible person)

a) Supervision of field operations

b) Major purchasing

c) Estimating

d) Technical management

A12.10 Management and control of the Joint Venture

a) Identify the managing partner

b) What authority does each partner have to commit or obligate the other to financial institutions, insurance companies, suppliers, Sub-Contractors or other parties participating in the performance of the contemplated works:

Partner No. 1

Partner No. 2

Partner No. 3

c) Describe the management structure for the joint venture's work under this Contract:

Management Function / Designation	Name	Partner

A12.11 Personnel

a) State the approximate number of operative personnel (by trade/function/discipline) needed to execute the Joint Venture Contract.

Trade/function/discipline	Number

b) State the number of operative personnel to be employed on the Contract who are currently in the employ of partners:

c) State the number of operative personnel who are not currently in the employ of the respective partners and shall be engaged on the project by the Joint Venture:

d) State the name of the individual who shall be responsible for hiring Joint Venture employees:

e) State the name of the partner who shall be responsible for the preparation of Joint Venture payrolls:

A12.12 Services

List the firms who provide the following services:

Service	Name	Contact Person	Tel. No.
Accounting			
Auditing			
Banking			
Insurance			
Legal			

A12.13 Control and structure of the Joint Venture

Briefly describe the manner in which the Joint Venture is structured and controlled.

The undersigned warrants that he/she is duly authorised to sign this Joint Venture disclosure form and affirms that the foregoing statements are correct and include all the material information necessary to identify and explain the terms and operations of the Joint Venture and the intended participation of each partner in the undertaking

The undersigned further covenants and agrees to provide the Employer with complete and accurate information regarding actual joint venture work and the payment therefore, and any proposed changes in any provisions of the Joint Venture Agreement, and to permit the audit and examination of the books, records and files of the Joint Venture, or those of each partner relevant to the Joint Venture, by duly authorized representatives of the Employer.

Duly authorized to sign on behalf of: .....

(**the Joint Venture**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Tel. No. .....

Date: .....

Duly authorized to sign on behalf of: .....

(**Partner No. 1**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Tel. No. .....

Date: .....

Duly authorized to sign on behalf of: .....

(**Partner No. 2**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Tel. No. .....

Date: .....

Duly authorized to sign on behalf of: .....

(**Partner No. 3**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Tel. No. .....

Date: .....

APPENDIX A13: RATES OF LABOUR AND MATERIALS (DAYWORK RATES)

LABOUR

The rates for labour indicated below shall be the total cost to the Employer, and shall include for all the Contractor's profits, overheads, wages, accommodation, travelling, subsistence and other costs relative to the employment by the Contractor of the personnel detailed, and for hand and portable electric or pneumatic tools and consumables normal to the trade of the respective personnel.

Contractor's labour rates are based on a normal …….. hours/day

The application and use of these rates shall be at the sole discretion and subject to the prior approval of the Engineer.

Item No	Category	Rate per Day in Rand		
		Normal	Overtime	Sundays and PPH
1				
2				
3				
4				
5				
6				
7				
8				
9				

MATERIALS

The Contractor shall indicate hereunder the percentage mark-up required on the net cost of materials actually used on site. Proof of cost of materials shall be furnished by invoices.

Percentage Mark-up _____ % (Default 5%)

Signed …… Date ……

Print Name …… Position ……

Tenderer ……

APPENDIX A14: ALTERATIONS BY TENDERER

Should the Tenderer desire to make any departures from or modifications to the "Tender" or "Contract", or to qualify his Tender in any way, he shall set out his proposals clearly hereunder or alternatively state them in a covering letter attached to his Tender and referred to hereunder, failing which the Tender will be deemed to be unqualified.

Page	Item of Clause	Details	Cost Involved (R)

Signed …… Date ……

Print Name …… Position ……

Tenderer ……

APPENDIX A15 PLANT (Day work Schedule)

The Day work Schedule shall be used for the valuation of any additional or substituted work which cannot conveniently be valued at the rates and prices submitted in the schedule of quantities.

In respect of labour and materials used in the additional or substituted work not covered in the Day work Schedule the Contractor shall be paid the actual cost plus the percentage allowance stated in the schedule of quantities.

The Tenderer shall quote hereunder rates which shall apply for payment purposes if the Engineer orders additional or substituted work to be carried out on a day work basis and shall therefore be in accordance with the requirements of clause 37(2) of the General Conditions of Contract.

1. LABOUR AND MATERIALS

Rates and prices entered in the schedule shall be held to allow for net cost of labour and materials delivered to site respectively with the percentage allowances stated in the schedule of quantities.

2. PLANT AND EQUIPMENT

The Tenderers shall list all major items of plant and equipment to be used on the works and which may be required for use on day works. The proposed hire rates of these items shall be entered against each type of machine, such rates to include for all relevant costs of plant hire inclusive of fuels and lubricants but exclusive of labour charges for the operators, which will be paid for under sub-clause (1) above.

The rates for plant items not listed in the schedule will be the ruling plant hire rates, inclusive of fuels and lubricants but exclusive of labour charges for the operators, inclusive of a 7.5% handling charge. It is therefore in the Tenderers interest to ensure that the list is complete.

Should there be insufficient space on the pages provided the Tenderer shall add further pages as required.

THE RATES FOR THE PLANT AND EQUIPMENT MENTIONED IN THE SCHEDULE SHALL BE FILLED IN FOR THE ITEMS REQUESTED. SHOULD AN ITEM BE OMITTED IT SHALL BE DEEMED TO HAVE BEEN INCLUDED IN THE OTHER DAYWORKS RATES.

A. Labour

Designation		Rate	
		R	c
Pipe Layers	per hour		
Plant Operators	per hour		
Truck Drivers	per hour		
Labour - unskilled	per hour		
- semi-skilled	per hour		
- skilled	per hour		

B. Materials

Designation		Rate	
		R	c
Cement	per 50 kg pocket delivered		
Concrete Sand	per m^3 delivered		
Concrete Aggregate	per m^3 delivered		

C. Transport

Designation	Rate	
	R	c
Per cubic metre kilometre		

D. Plant and Equipment

Item	Description	Size	Non-working Rate*		Operating Rate		Per Unit
			R	c	R	c	
	TLB						
	Water Cart						
	LDV						
	Compactor						
	Vibrating Roller						
	Concrete Mixer						
	Test Pump						
	Excavator						
	Crane						
	Water tanker						
	Excavator						
	Grader						
	Tipper Truck						
	12-ton roller						
	Pedestrian						

*Only applicable on authority of the Engineer

Signed …… Date ……

Print Name …… Position ……

Tenderer ……

C1.1 FORM OF OFFER AND ACCEPTANCE

C1.1 FORM OF OFFER AND ACCEPTANCE

1. OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of construction works viz.:

Construction Of Internal Streets at Nancefield Extension 9 and 10 Phase 3
Tender Number: 13-2023/24

The Tenderer, identified in the Offer signature block, 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 authorized, 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:

……..

……..

…….……. (amount in words);

R……..…….. (amount 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 terms of the Conditions of Contract identified in the Contract Data.

For the Tenderer .....

…..
(Name and address of organization)

Signature(s) ....

Print Name(s) ..... …….....

Capacity ....

Signature of witness ..... Date: .....

Print Name .....

Important Note

This page to be duly completed by the **Tenderer** before submitting the Tender.

2. ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer 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 include this Agreement)

Part 2: Pricing Data

Part 3: Scope of Work

Part 4: Site Information 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, as 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 shall be duly signed by the authorized representative(s) of both parties.

The Tenderer shall, within 7 days of 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 guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of the 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 copy of this original document, including the Schedule of Deviations (if any). Such date shall be confirmed in a manner that can be read, copied and recorded and shall be accepted by the contracting parties as the Commencement Date. This Agreement shall constitute a binding contract between the parties.

For the Employer .....

.....
(Name and address of organization)

Signature(s) ....

Print Name(s) ....

Capacity ....

Signature of witness ..... Date: .....

Print Name .....

3. SCHEDULE OF DEVIATIONS

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

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, be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

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.

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

3.1 Subject ……

Details ……..

3.2 Subject ……

Details ……..

3.3 Subject ……

Details ……..

By the duly authorized representatives signing this Schedule of Deviations, the Employer and the Contractor 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 changes to the terms of the offer agreed by the Tenderer and the Employer in concluding this process of offer and acceptance; in witness thereof the parties hereto have caused this Agreement to be executed.

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.

Employer		**Tenderer**	
Signed by:	……...	Signed by:	……...
Print Name:	……...	Print Name:	……...
Capacity:	……...	Capacity:	……...
Address:	……...	Address:	……...
	……...		……...

for and on behalf of the **Employer** in the presence of

Witness: ……...

Print Name: ……...

Date : ……...

for and on behalf of the **Tenderer** in the presence of

Witness: ……...

Print Name: ……...

Date : ……...

4. CONFIRMATION OF RECEIPT

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the …….. (day)

the ……. (month)

20….. (year)

at ……..…… (place)

For the Contractor: ……
Signature

……
Print Name

……
Capacity

Signature and name of witness:

……
Signature

……
Print Name

PART C2
PRICING DATA

CONTENTS

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C2.1	Pricing Instructions	Yellow	C2-93

PART C2.1 PRICING INSTRUCTIONS

C2.1.1 GENERAL

The pricing instructions describe the criteria and assumptions which will be assumed in the Contract that the Bidder has taken into account when developing his prices. The Bills of Quantities record the Contractor's rates for providing supplies, services, engineering and construction works in accordance with the Scope of Work.

The terms of payment and the provisions for price adjustment, if applicable, are established in the Contract Data. These items are not described in the Pricing Data.

The Bidder's obligations in pricing the Bid offer and the Employer's undertakings in the checking and correction of arithmetical errors are dealt with in the Standard Conditions of Bid contained in Annexure F of SANS 294, as amended in and read in conjunction with the Bid Data.

C2.1.2 DOCUMENTS MUTUALLY EXPLANATORY

The documents forming the Contract are to be taken as mutually explanatory of one another. The Bill of Quantities forms an integral part of the Contract Documents and shall be read in conjunction with the Bid Data, Contract Data, Scope of Work, Site Information General and Special Conditions of Contract, the Specifications and the Drawings.

C2.1.3 DEFINITIONS

For the purpose of this Bill 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 Scope of Work and Site Information.
Quantity	:	The number of units of work for each item.
Rate	:	The payment per unit of measurement at which the Contractor contracts to do the work.
Amount	:	The product of the quantity and the rate Bided for an item.
Sum	:	An amount contracted for an item, the extent of which is described in the Bill of Quantities, the specifications or elsewhere but the quantity of work of which is not measured in any units.

C2.1.4 DESCRIPTIONS

Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardised Specification or Scope of Work, as applicable, shall prevail.

C2.1.5 REFERENCES

The clauses in a specification in which further information regarding the schedule item can be obtained appear under "Reference clause" in the Bill. The reference clauses indicated are not necessarily the only sources of information in respect of scheduled items. Further information and specifications may be found elsewhere in the contract

documents. Standardised Specifications are identified by the letter or letters which follow SABS in the SABS 1200 series of specifications, e.g. G for SABS 1200 G.

C2.1.6 UNITS OF MEASUREMENT

The units of measurement indicated in the Bill of Quantities are metric units.

The following abbreviations are used in the Bill of Quantities:

%	=	per cent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
MN	=	meganewton
MN-m	=	meganewton-metre
MPa	=	megapascal
m^2	=	square metre
m^3	=	cubic metre
m^3-km	=	cubic metre-kilometre
m^2-pass	=	square metre-pass
no	=	number
PC sum	=	Prime Cost sum
Prov Sum	=	Provisional Sum
sum	=	lump sum
t	=	ton (1 000 kg)

C2.1.7 NET MEASUREMENTS

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

C2.1.8 QUANTITIES

The quantities set out in the Bill of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work accepted and certified for payment.

C2.1.9 CURRENCY

All rates and sums of money quoted in the Bill of Quantities shall be in Rand and whole cents. Fractions of a cent shall be discounted.

C2.1.10 VALUE ADDED TAX

Value Added Tax shall be excluded from the rates and sums contracted for the various items of work included in the Bill of Quantities. VAT will be added as a single entry to the summary.

C2.1.11 RATES AND PRICES

C2.1.11.1 General

a) The Contractor must price each item in the Bill of Quantities in BLACK INK. Reproduced computer printouts of the Bills of Quantities will not be acceptable.

b) The rates and prices to be inserted in the Bill of Quantities shall cover all the services and incidentals for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Bid is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

c) Where the Contractor is required to furnish detailed drawings and designs or other information in terms of the Contract Data, all costs thereof shall be deemed to have been provided for and included in the unit rates and sum amounts contracted for the items scheduled in the Bill of Quantities. Separate additional payments will not be made.

d) A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill. The Contractor will not be paid for items against which no rate or lump sum has been entered in the Bill of Quantities.

e) Should the Contractor group a number of items and contract one lump sum for such group of items, this single lump sum shall apply to that group of items and not to each individual item.

f) Should the Contractor indicate against any item that compensation for such item is included in another item, the rate for the item included in another item shall be deemed nil.

g) A submission may be regarded as non-responsive if any rates or lump sums in the Bill of Quantities are, in the opinion of the Employer, unreasonable or out of proportion.

C2.1.11.2 “Rate only” items

The Contractor shall fill in a rate (in the rate column) against all items where the words "rate only" appear in the Amount column, which rate will constitute payment for work which may be done in terms of this item. Such "rate-only" items are used where it is estimated that little or no work will be required under the item or where the item is to be considered as an alternative to another item for which a quantity is given.

C2.1.11.3 Arithmetic

Excepting where Sum Amounts are required or where Provisional Sums have been indicated, the Contractor shall enter an applicable rate in the Rate Column of the Bill of Quantities for each scheduled item. He shall also enter an appropriate sum in the Amount column for each scheduled item, by determining in the applicable line item the product of the Quantity and the Unit Rate.

If there is an error in the line item resulting from the product of the unit rate and the quantity, the rate shall be binding and the error of extension as entered in the Bid offer will be corrected by the Employer in determining the Contract Price.

Prefix LI to relevant items

Those parts of the contract to be constructed using labour-intensive methods have been marked in the bill of quantities with the letters LI in a separate column or as a prefix or suffix against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of works, is a deviation from the contract. The items marked with the letters 'LI' 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 labour intensive specification in the Scope of Works.

Requirement for tenderer to meet Work Opportunity target

Where minimum labour intensity is specified by the design the contractor is expected to use their initiative to identify additional activities that can be done labour-intensively in order to comply with the set minimum labour intensity target.

Unauthorized use of Plant to construct designated LI activities in the BOQ

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

C2.2 BILL OF QUANTITIES

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		GENERAL REQUIREMENTS AND PROVISIONS				
B12.01		**Protection, removal, modification, realignment, relocation and replacement of services:**				
	LI	(a) All services:				
		(i) Water and Sewer pipelines	PC sum	1	100,000.00	100,000.00
		(ii) Electrical services	PC sum	1	130,000.00	130,000.00
		(iii) Sewer Manholes	PC sum	1	50,000.00	50,000.00
		(iv) Handling costs, profit and all other charges in respect of subitem B12.01(a)(i)(ii)(iii) above	%	280,000.00		
B12.02		**Compliance with the Occupational Health and Safety Act (OHS) and Regulations (including the Construction Regulations, 2014) and compliance with the relevant legal requirements in terms of COVID-19 pendemic**				
		(a) Fixed Obligations	lump sum	1		
		(b) Monthly Obligations	month	6		
B12.03		**The Contractor's environmental obligations:**				
		(a) Compliance with the EMP	Lump Sum	1		
B12.04		**Construction Education & Training Authority (CETA) Accredited Training:**				
		(a) Training for labourers	Prov Sum	1	150,000.00	150,000.00
		(b) Contractor's handling costs, profit and all other charges in respect of subitem B12.04(a) above	%	150,000.00		
B12.07		**Provision for CLO, PSC, OHS Rep and Internship**				
		(a) Provisional sum for the payment of the Community Liaison Officer	Prov sum	1	36,000.00	36,000.00
		(b) Provisional sum for the payment of stipends, catering and transport for PSC members	Prov sum	1	7,500.00	7,500.00
		(c) Provisional sum for the payment of Health and Safety Reprentative (SHE Rep)	Prov sum	1	30,000.00	30,000.00
		(d) Provisional sum for the payment of two (2) Student trainee (Inservice /internship)	Prov sum	1	72,000.00	72,000.00
		(e) Handling costs and profit in respect of subitem B12.07(a),(b),(c) & (d)	%	145,500.00		
1200		Carried forward				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		Brought forward				
B12.08		**Provision for Occupational Health and Safety Agent**				
		(a) Provisional sum for the payment of the Occupational Health and Safety Agent	Prov sum	1	300,000.00	300,000.00
		(b) Handling costs and profit in respect of subitem B12.08(a)	%	300,000.00		
B12.09		**Provision for Environmental Management t Agent**				
		(a) Provisional sum for the payment of the Environmental Management agent	Prov sum	1	300,000.00	300,000.00
		(b) Handling costs and profit in respect of subitem B12.09(a)	%	300,000.00		
B12.10		**Provision for Social Facilitation**				
		(a) Provisional sum for the payment of the Social facilitator	Prov sum	1	300,000.00	300,000.00
		(b) Handling costs and profit in respect of subitem B12.10(a)	%	300,000.00		
1200		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 1300 : CONSTRUCTION OF NANCEFIELD EXT 9 and 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS				
B13.01		**The Contractor's general obligations:**				
		(a) Fixed obligations	lump sum	1		
		(b) Value-related obligations	lump sum	1		
		(c) Time-related obligations (Contractor to propose contract period)	month	6		
		NB The combined total tendered for subitems B13.01(a), B13.01(b) and B13.01(c) shall not exceed 15% of the Contract Sum (excluding CPA, contingencies and VAT)				
1300		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 1500 : CONSTRUCTION OF NANCEFIELD EXT 9 and 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		ACCOMMODATION OF TRAFFIC				
B15.01		**Accommodating traffic and maintaining temporary deviations**	km	1.70		
B15.02		**Earthworks for temporary deviations:**				
		(a) Shaping of temporary deviations	km	1.50		
B15.03	**LI**	**Temporary traffic-control facilities:**				
		(a) Flagmen	man-day	288		
		(e) Road signs, R- and TR-series, 450 mm in diameter	number	9		
		(f) Road signs, TW-series, 600 mm sides	number	9		
		(g) Rectangular road signs, TGS-, TIN- and TW-series (excluding TW-series delineators and barricades)	m²	40		
		(h) Delineators TW401/TW402 (200 mm x 800 mm sides):				
		(ii) Double-sided	number	45		
		(o) Other signs or facilities:				
		(i) Provision of other signs or facilities	Prov sum	1	10,000.00	10,000.00
		(ii) Handling costs and profit in respect of subitem B15.03(o)(i)	%	10,000		
B15.05		**Gravelling and repair of temporary deviations and existing gravel roads used as temporary deviations:**				
		(a) Temporary deviations (Provison for rainy season)	m³	125		
1500		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		OVERHAUL				
B16.02		**Overhaul on material hauled in excess of 1,0 km (ordinary overhaul)**				
		(e) Section 3300 & 3400 - Pavement Layers of Gravel Material	m^3-km	757		
		(f) Disposing of concrete/other	m^3-km	925		
1600		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 1700 : CONSTRUCTION OF NANCEFIELD EXT 9 and 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		CLEARING AND GRUBBING				
B17.01		**Clearing and grubbing**	ha	1.0		
17.02	**LI**	**Removal and grubbing of large trees and tree stumps:**				
		(a) Girth exceeding 1,0 m up to and including 2,0 m	number	4		
		(b) Girth exceeding 1,0 m up to and including 2,0 m	number	2		
B17.08	**LI**	**Demolition, removal and disposal off site of miscellaneous structures consisting of:**				
		(a) Un-reinforced concrete	m^3	10		
		(b) Brickwork including roof	m^2			Rate Only
		(c) Reinforced concrete	m^3	7		
1700		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		DAYWORKS				
B18.01		**Unskilled Labourers**				
		(a) Normal working hours	hr	150		
		(c) Sunday and Public Holidays	hr	30		
B18.02		**Semi Skilled Labourers**				
		(a) Normal working hours	hr	70		
		(c) Sunday and Public Holidays	hr	15		
B18.03		**Skilled Labourers**				
		(a) Normal working hours	hr	70		
		(c) Sunday and Public Holidays	hr	15		
B18.04		**Foreman**				
		(a) Normal working hours	hr	20		
		(c) Sunday and Public Holidays	hr	5		
B18.02		**Equipment:**				
		(a) Motor grader (128 kW)	hour	3		
		(b) Excavator (96 kW)	hour	3		
		(c) Rubber-tyred loader (60 kW)	hour	3		
		(d) Tractor-loader-backhoe (55 kW)	hour	5		
		(e) Pedestrian vibrating roller (1,4 ton)	hour	3		
		(f) Self-propelled vibrating roller (80 kW)	hour	3		
		(h) 10,0 m³ tip truck	hour	3		
		(i) Water spray truck (9 000 litre)	hour	3		
		(j) 250 cfm compressor (7,0 m³/min) complete with 2 tools and operators	hour	3		
B18.06		**Materials**				
		(a) Procurement of materials	-	Prov	Sum	
		(b) Contractor's handling costs,profit and all other charges in respect of Subitem B18.06(a)	%	########	. . . . . .%	
B18.04		**Transport:**				
		(a) LDV (2000cc)	km	100		
		(b) Flatbed truck (5 ton)	km	100		
		(c) Lowbed truck	km	100		
1800		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 2100 : CONSTRUCTION OF NANCEFIELD EXT 9 and 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
2100		**DRAINS**				
21.01	**LI**	**Excavation for open drains:**				
		(a) Excavating soft material situated within the following depth ranges below the surface level:				
		(i) 0 m up to 1,5 m	m³	50		
		(b) Extra over subitem 21.01(a) for excavation in hard material, irrespective of depth	m³	25		
21.02	**LI**	**Clearing and shaping existing open drains (Other roads)**	m³	-		Rate Only
B21.20	**LI**	**Armaflex 140 lining and edge beam**				
		(a) 140mm thick Armorflex blocks (or similar approved by Engineer) supplied and installed accoriding to supplier requirements for lining the trapezoidal channel) refer to detail drawing	m²	140		
		(b) Edge beams, size 400mm wide and 250mm deep including excavation, formwork, finishing, etc. refer to detail drawing	m	7		
		(c) Geotextile Bidum (Kaytech A4) or similar approved	m²	140		
2100		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		PREFABRICATED CULVERTS				
B22.01		**Excavation:**				
	LI	(a) Excavating soft material situated within the following depth ranges below the surface level:				
		(i) 0 m up to 1,5 m	m³	578.00		
		(ii) Exceeding 1,5 m and up to 3,0 m	m³	105.00		
		(b) Extra over subitem B22.01(a) for excavation in hard material irrespective of depth	m³	261.00		
		(c) Extra over subitem B22.01(a) for excavation by hand	m³	150.00		
22.02	**LI**	**Backfilling:**				
		(a) Using the excavated material	m³	486.00		
		(b) Using imported selected material	m³	95.00		
		(c) Extra over subitems B22.02(a) and B22.02(b) for soil cement (soilcrete) backfilling containing 5% cement	m³	324.00		
22.03	**LI**	**Concrete Pipe culverts (interlocking) :**				
		(c) On class B Bedding				
		(i) Class 100D, 600mm dia pipe	m	370.00		
		(ii) Class 100D, 750mm dia pipe	m	90.00		
22.05	**LI**	**Portal and rectangular culverts:**				
		(b) Without prefabricated floor slabs, Class…				
		(i) 900 mm x 600 mm 100S	m	30.00		
22.07	**LI**	**Cast insitu concrete and formwork**				
		(a) In class A bedding, screeds and the encasing for pipes, including formwork (Class 15/19 concrete)	m³	10.00		
		(b) In floor slabs for portal culverts including formwork joints and class U2 surface finish (class 30/19 concrete)	m³	10.00		
		(c) In inlet and outlet structures, skewed ends, catchpits, manholes, thrust and anchor blocks, excluding formwork but including class U2 surface finish to new and existing structures (Class 30/19 concrete)	m³	12.00		
		(d) Formwork of concrete under subitem 22.07(c) above				
		(i) Vertical formwork for F1 surface finish	m²	22.00		
2200		Carried forward				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		Brought forward				
B22.10	**LI**	**Steel reinforcement**				
		(a) Steel reinforcement	t	0.70		
		(c) Welded steel fabric (Ref 245)	kg	525.00		
22.17	**LI**	**Manholes, catchpits, precast inlet and outlet structures complete including covers and frames**				
		(a) Manholes (standard depth 1.5m) kerb inlet & grid inlets of ref dwg				
		(i) 600mm dia	No	7.00		
		(ii) 750mm dia	No	-		Rate Only
		(b) Junction (standard depth 1.5m) at direction change of ref dwg				
		(i) 600mm dia		2.00		
		(ii) 750mm dia		2.00		
		(d) Extra over or less than subtem 22.17 (a) & (b) for variations in the depths of manholes from the standard depth desinated for tenderng purposes	No	20.00		
2200		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS				
23.07	**LI**	**Trimming of excavations for concrete-lined open drains:**				
		(a) In soft material	m²	400.00		
		(b) In hard material	m²	220.00		
23.08	**LI**	**Concrete lining for open drains**				
		(a) Cast in situ concrete using 25/19 concrete as indicated in drawings with reinforcement MESH ref. 395 3.95kg/m²	m³	40.00		
		(b) Class U2 surface finish to cast in situ concrete drain	m²	400.00		
		(d) To sides with formwork on both internal and external faces	m²	155.00		
23.12	**LI**	**Steel Reinforcement**				
		(c) Welded Steel fabric ref. 193	Kg	772.00		
2300		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 3300 : CONSTRUCTION OF NANCEFIELD EXT 9 & 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		MASS EARTHWORKS				
33.01		**Cut and borrow to fill, including all haul.**				
		(a) Gravel material in compacted layer thickness of 200mm and less (minimum G7 material)				
		(ii) Compacted to 93% of modified AASHTO density	m³	955.00		
33.04		**Cut to spoil, including free haul up to 1 km. Material obtained from :**				
		(a) Soft excavation	m³	5,990		
		(b) Intermediate excavation	m³	920		
		(c) Hard excavation	m³	478		
33.07		**Removal of unsuitable material (including free-haul of 1 km)**				
		(a) In Layer thickness of 200mm and less				
		(ii) Unstable material	m³			Rate Only
33.10		**Roadbed preparation and the compaction of material:**				
		(a) Compaction to 93% of modified AASHTO density	m³	2,295		
33.2		**Cut to Stockpile, including free haul up to 1 km. Material obtained from :**				
		(a) Soft excavation	m³	1,444		
3300		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 3400 : CONSTRUCTION OF NANCEFIELD EXT 9 & 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		PAVEMENT LAYERS OF GRAVEL MATERIAL				
B34,01		**Pavement layers constructed from gravel taken from cut or stockpile or borrow including including free-haul up to 1,0 km:**				
		(a) Gravel selected layer compacted to: (i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm	m³	225		
		(ii) 95% of modified AASHTO density for a compacted layer thickness of 150 mm	m³	225		
		Construction of layers with material obtained from commercial sources including all:				
		(c) Gravel subbase (unstabilised gravel) G6 materia obtained from commercial sources compacted to: (ii) 96% of modified AASHTO density for a compacted layer thickness of 150 mm	m³	2,450		
		(d) Gravel base (chemically stabilised material) G6 materia obtained from commercial sources compacted to: (i) 97% of modified AASHTO density for a compacted layer thickness of 150 mm	m³	2,140		
3400		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		STABILIZATION				
B35.01		**Chemical stabilization extra over unstabilized compacted layers:**				
		(b) Gravel base, 150 mm thick	m³	2,345		
B35.02	**LI**	**Chemical stabilizing agent:**				
		(h) Cement (CEM II 32.5 A-L)	t	225		
3500		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		ASPHALT BASE AND SURFACING				
42.02		**Asphalt surfacing of 40 mm thick:**				
		(a) Using 60/70 penetration-grade bitumen and 13.2mm maximum size aggregate:				
		(i) Continuously graded (medium grade)	m²	980		
42.04	**LI**	**Tack coat of 30% stable-grade emulsion**	litre	588		
B42.08		**Cores in asphalt paving:**				
		(a) 100 mm diameter	number	8		
42.21/41.01	**LI**	**Prime coat:**				
		(c) MC-30 cut-back bitumen	litre	785.00		
4200		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 5600 : CONSTRUCTION OF NANCEFIELD EXT 9 & 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		ROAD SIGNS				
B56.01		**Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from:**				
		(c) Prepainted galvanized steel plate (chromadek or approved equivalent):				
		(i) Area not exceeding 2,0 m²	m²	15		
56.02		**Extra over payment item B56.01 for using:**				
		(a) Background of retro-reflective material:				
		(i) Class I	m²	15		
		(b) Lettering, symbols, numbers, arrows, emblems and borders of retro-reflective material:				
		(ii) Class III	m²	20		
56.03	**LI**	**Road sign supports (overhead road sign structures excluded):**				
		(a) Steel tubing				
		(i) 75mm D-Section 2mm wall thickness	t	1		
		(ii) 100mm D-Section 4mm wall thickness	t	1		
		(b) Timber				
		(i) 175 mm	m	30		
56.05	**LI**	**Excavation and backfilling for road sign supports (not applicable to kilometre posts)**	m³	7		
56.06	**LI**	**Extra over payment item 56.05 for cement-treated soil backfill**	m³	7		
B56.10	**LI**	**Danger plates at culverts or structures (800 mm x 200 mm)**	number	4		
5600		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		ROAD MARKINGS				
57.02		**Retro-reflective road-marking paint:**				
		(a) White lines (broken or unbroken):				
		(i) 100 mm wide	km	2.5		
		(ii) 150 mm wide	km	0.5		
		(iii) 200 mm wide	km			Rate Only
		(d) White lettering and symbols	m²	35		
		(f) Transverse lines, painted island and arrestor bed markings (any colour)	m²	28		
B57.06	**LI**	**Setting out and premarking the lines (excluding traffic-island markings, lettering and symbols)**	km	2.5		
57.07		**Re-establishing the painting unit at the end of the maintenance period**	lump sum	1		
57.08	**LI**	**Removal of existing, temporary or permanent road markings by:**				
		Construction of speed hump	number	7		
B57.05	**Li**	**Roadstuds:**				
		(a) PFG Armourlight, Stimsonite, Lynkor or approved equivalent:				
		(i) Bi-directional, white/red	number	96		
		(ii) Bi-directional, amber/red	number	100		
		(iii) Bi-directional, white/white	number	96		
		(v) Bi-directional, red/red	number	100		
5700		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 5900 : CONSTRUCTION OF NANCEFIELD EXT 9 & 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS				
59.01		**Finishing the road and road reserve:**				
		(b) Single carriageway road	km	2.1		
5900		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
SCHEDULE 7300 : CONSTRUCTION OF NANCEFIELD EXT 9 & 10 PHASE 3

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		CONCRETE BLOCK PAVING FOR ROADS				
73.01	**LI**	**Concrete block paving:**				
		(a) Class 30, Type S-A, 80 mm thick (interlocking)	m²	11,273		
73.02	**LI**	**Cast in situ concrete edge and intermediate beams**	m³	10		
73.03		**Provision of approved herbicide and ant poison:**				
		(a) Provision of materials	PC sum	1	95,000.00	95,000.00
		(b) Contractor's charges and profit added to the prime cost sum	%	95,000.00		
73/23.01	**LI**	**Concrete kerbing:**				
		(b) Prefabricated barrier kerb, SABS 927 fig 7, as shown on the drawings	m	35		
		(b) Prefabricated barrier kerb, SABS 927 fig 8c, as shown on the drawings	m	3,666		
B73.04	**LI**	**Construction of speed hump**	number	7		
7300		**TOTAL CARRIED TO SUMMARY**				

ITEM NO		DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		TESTING MATERIALS AND WORKMANSHIP				
B81.02		**Other special tests requested by the Engineer:**				
		(a) Cost of testing	Prov sum	1	150,000.00	150,000.00
		(b) Handling costs and profit in respect of subitem B81.02(a) above	%	150,000.00		
8100		**TOTAL CARRIED TO SUMMARY**				

MUSINA LOCAL MUNICIPALITY
TENDER NO: 13-2023/24
CONSTRUCTION OF NANCEFIELD EXT 9 and 10 PHASE 3 SCHEDULE OF WORKS

1200	GENERAL REQUIREMENTS AND PROVISIONS	R
1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	R
1500	ACCOMMODATION OF TRAFFIC	R
1600	OVERHAUL	R
1700	CLEARING AND GRUBBING	R
1800	DAYWORKS	R
2100	DRAINS	R
2200	PREFABRICATED CULVERTS	R
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	R
3300	MASS EARTHWORKS	R
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	R
3500	STABILIZATION	R
4200	ASPHALT BASE AND SURFACING	R
5600	ROAD SIGNS	R
5700	ROAD MARKINGS	R
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	R
7300	CONCRETE BLOCK PAVING FOR ROADS.	R
8100	TESTING MATERIALS AND WORKMANSHIP	R

TOTAL OF SCHEDULE OF QUANTITIES. R

CONTINGENCIES
The sum provided here shall be 10% of Subtotal and is under the sole control of the Engineer and may be deducted in whole or in part R

SUBTOTAL
The sum including 10% Contingencies. R

VALUE-ADDED TAX (VAT)
The Tenderer shall add 15% of the subtotal for VAT R

CONSTRUCTION ESTIMATE **R**

SIGNED ON BEHALF OF TENDERER :

VOLUME 3 CONTRACT

C1.2 CONTRACT DATA

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1. CONDITIONS OF CONTRACT

The conditions of contract are the General Conditions of Contract for Construction Works (3rd Edition 2015) published by the South African Institute of Civil Engineering, Private Bag X200, Halfway House 1685, Tel. 011 805 5947.

The General Conditions of Contract make several references to the Contract Data. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

Where applicable, items of data given here below are cross-referenced to the subclause in the General Conditions of Contract to which they apply.

2. AMPLIFICATIONS OF THE GENERAL CONDITIONS OF CONTRACT

2.1 General

The following clauses amplify the General Conditions of Contract and highlight areas in this document that require specific attention.

2.2 Data Provided by the Employer

2.2.1 Defects Liability Period (Cl 1.1.1.13)

The Defects Liability Period is **12 calendar months** calculated from the date of the Certificate of Completion.

2.2.2 Time for Practical Completion (Cl1.1.1.14)

This clause shall apply *mutatis mutandis* to any portion or phase of the Works that may be described in the scope of Works or in the Contract Data or agreed subsequently between the Contractor and the Employer, and committed to writing.

The time for achieving Practical Completion is **32 weeks** calculated from the Commencement Date, excluding special non-working days.

2.2.3 Employer (Cl 1.1.1.15)

The Employer is: "**Musina Local Municipality"**

2.2.4 Pricing Strategy (Cl 1.1.1.26)

The pricing strategy is the **re-measurement strategy**.

2.2.5 Delivery of Notices to the Employer (Cl1.2.1.2)

The Employer's address for receipt of communication is:

Postal: Private Bag X611, MUSINA, 0900
Telephone: 015 543 6100

2.2.6 Engineer (Cl 1.1.1.16)

'Engineer' means any Director, Associate or Professional Engineer appointed by a Director of Tshambila ENV Consultant to fulfil the functions of the Engineer in terms of the Contract Data.

2.2.7 Delivery of Notice to Engineer (Cl 1.2.1.2)

The Engineer's address for receipt of communication is:

Physical: Suite 9 Biccard Park, 42 Biccard Street, Polokwane, 0700
Telephone: 015 880 0240
E-mail: info@tshambila.co.za

2.2.8 Information in respect of Construction Equipment (Cl 4.9.1)

The Contractor shall deliver to the Engineer, on a monthly basis, a detailed inventory of Construction Equipment kept on Site, full particulars given for each day of the month. Distinction shall be made between Owned Equipment and Hired Equipment as well as Equipment in working order and Equipment out of order. Such inventory shall be submitted by the seventh day of the month following the month to be reported.

2.2.9 Information in respect of Employees (Cl 4.10.2)

The Contractor shall deliver to the Engineer, on a monthly basis, a return in detail of supervisory staff and the number of categorized classes of labour employed each day for the said period by the Contractor for execution of the Contract. Such return shall be submitted by the seventh day of the month following the month to be reported.

2.1.10 Contractor's Superintendence (Cl 4.12)

Add the following sub-clause 4.12.4 to Clause 4.12:

"Where a form is included in the Appendix to the Contract Data for this purpose, the Tenderer shall fill in the name of the person he proposes to entrust with the post of Contractor's Site Agent on this Contract in the space provided therefor. Previous experience of this person on work of a similar nature during the past five (5) years is to be entered in the list.

The Contractor's Site Agent shall be on Site at all times when work is being performed.

The person as approved of by the Engineer in writing shall not be replaced or removed from Site without the written approval of the Engineer."

2.2.11 Documentation required before Commencement with Works Execution (Cl 5.3.1)

The documentation required before commencement with Works execution is:

a) Health and Safety Plan (refer to Cl 4.3)
b) Initial Programme (Refer to Cl 5.6)
c) Security (Refer to Cl 6.2.1 and Cl 6.2.3)
d) Insurance (Refer to Cl 8.6)

2.2.12 Time to Submit the Documentation (Cl 5.2.3)

The time to submit the documentation required before commencement with Works execution is **14 days**.

2.2.13 Access Not Exclusive (Cl 5.4.2)

The access and possession of the Site shall not be exclusive to the Contractor as other construction services might be executed concurrently by independent Contractors or bodies under separate Contracts entered into with the Employer.

The other Works which will be in progress or come into operation during the progress or tenancy of this Contract are likely to include, but are not limited to the following:

- …….
- …….

The Contractor shall ensure that neither his operations nor his employees shall interfere with or hinder the operations of the Employer or of other Contractors and he shall indemnify the Employer against all claims arising through default of this requirement.

The Contractor shall hand over portions of the Site of Works (whether completed or not), or completed portions of Works, to these Contractors when required by the Employer. The Contractor shall cause no interference with or delays in the execution of these Contracts.

No discount or commission for the Contractor is allowed on these contracts and it will be assumed that he has fully allowed in the Contract Price for the presence of these contractors on Site. Any service rendered or assistance given by the Contractor to these contractors save as are contained in the Works Specifications, shall be for their accounts only and the Employer shall in no way be responsible to the Contractor for any payments in this respect.

The Contractor shall protect all existing services and all work being carried out and structures being erected on the Site by other contractors. Any damage caused to these services or structures or any obstructions or hindrance caused to other contractors by the Contractor and claims arising there from will be the sole responsibility of the Contractor.

Any repair work shall be carried out at the Contractor's expense, in conformity with the Works Specifications.

The same obligations shall be imposed on the Employer and on other Contractors in respect of the Works being executed under this Contract.

2.2.14 Programme (Cl 5.6)

Add the following sub-clause 5.6.6 to Clause 5.6:

"Failure on the part of the Contractor to deliver to the Engineer, the

- Programme of the Works in terms of Clause 5.6.1 and
- Supporting documents in terms of Clause 5.6.2

Within the period stated in the Contract Data, shall be sufficient cause for the Engineer to retain 25 percent of the value of the Fixed Charge and Value-related items in assessment of amounts due to the Contractor, until the Contractor has submitted aforementioned first Programme of the Works and Supporting Documents".

2.2.15 Non-working Days (Cl 5.8.1)

a) The non-working days are Sundays.

b) The special non-working days are statutory public holidays and the year end breaking commencing on 16 December and end on 4 January.

2.1.16 Contractor's Designs and Drawings (Cl 5.9.7)

Add to Clause 13.7 the following:

"All designs, calculations, drawings and operation and maintenance manuals shall be fully endorsed by a third party registered engineer, accomplished in such specific field of practice and the cost thereof shall be borne solely by the Contractor.

Once the alternative design has been approved, the Contractor shall indemnify and hold harmless the Engineer, the Employer, their agents and assigns, against all claims howsoever arising out of the said design, whether in contract or delict".

2.2.17 Extension of Time Arising from Abnormal Rainfall (Cl 5.12)

Add the following to sub-clause 5.12.2.2:

"The extension of time to be allowed due to abnormal rainfall shall be calculated separately for each calendar month or part thereof in accordance with the following formula :

$$V = (Nw - Nn) + \left(\frac{Rw - Rn}{x}\right)$$

V = Extension of time in calendar days for the calendar month under consideration

Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded

Nn = Average number of days for the calendar month on which a rainfall of 10 mm or more has been recorded, as derived from existing rainfall records

Rw = Actual recorded rainfall for the calendar month

Rn = Average rainfall for the calendar month, as derived from existing rainfall records

x = 20

The rainfall records which shall be accepted for calculation purposes are based on WB40 records at Levubu and the co-ordinates are: S 23° 05' and E 30° 17'

Rainfall Records

Month	Average rainfall for calendar month Rn	Average number of days for calendar month on which a rainfall of 10 mm or more were recorded Nn
	(mm)	(days)
January	69.6	3.5
February	68.9	3.2
March	34.7	2.5
April	12.2	1
May	5.6	0.7
June	5.7	1.4
July	4.5	0.5
August	1.4	0.3

Month	Average rainfall for calendar month Rn	Average number of days for calendar month on which a rainfall of 10 mm or more were recorded Nn
	(mm)	(days)
September	7.8	1.9
October	24.4	2
November	62	3.2
December	48.5	4.5

The factor (Nw - Nn) shall be considered to represent a fair allowance for days during which rainfall exceeds 10 mm and the factor (Rw - Rn)/x shall be considered to represent a fair allowance for those days when rainfall does not exceed 10 mm but wet conditions prevent or disrupt work.

The total extension of time shall be the algebraic sum of all monthly totals for the contract period, but if the algebraic sum is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for a part of a month shall be calculated using pro rata values of Nn and Rn."

2.2.18 Penalty for Delay (Cl 5.13.1)

The penalty for failure to complete the Works is **0.1 percent of the Contract Sum per calendar day.**

2.2.19 Latent Defect Period (Cl 5.16.3)

The latent defect period is **10 years**.

2.2.20 Delivery of Security (Cl 6.2.1)

The type of security required for the due performance of the Contract shall be restricted to one of the following:

Cash deposit of **10 (ten) percent of the Contract Sum**,

or

Performance Guarantee of **10 (ten) percent of the Contract Sum**, issued by a Commercial Bank registered in the Republic of South Africa,

or

Performance Guarantee of 10 (Ten) percent of the Contract Sum, issued by an Insurance Company registered in terms of the Short-term Insurance Act (Act 53 of 1998).

Whenever a Joint Venture constitutes the contracting party (Contractor) to this Contract, the Performance Guarantee shall be issued on behalf of the Joint Venture.

2.2.21 Contractor Failing to Select or Provide Security (Cl 6.2.2)

Delete the entire contents of Clause 6.2.2 and replace with:

"Failure to deliver an acceptable security as selected in the Contract Data within the stipulated period is a fundamental breach of Contract".

2.2.22 Variations (Cl 6.3)

Omit the words “Provided that” under Clause 6.3.2 and omit Clause 6.3.2.1.

2.2.23 Dayworks (Cl 6.5.1.2.3)

The percentage allowance to cover overhead charges is **15 (fifteen) percent**.

2.2.24 Contract Price Adjustment (Cl 6.8.2)

The value of certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:

	x	=	0.10
Labour	a	=	0.15
Plant	b	=	0.2
Material	c	=	0.55
Fuel	e	=	0.1

The applicable area is **Limpopo Province**.

The applicable industry for the Producer Price Index for materials is **Civil Engineering Materials Index**

The applicable area for the Producer Price Index for fuel is **Witwatersrand**

The base month is **the month prior to closing date of tender**.

2.2.25 Variation in Cost of Special Materials (Cl 6.8.3)

Price adjustments for variations in the costs of special materials **are not permitted**.

2.2.26 Interim Payments (Cl 6.10)

Add to the end of Clause 6.10.1 the following paragraph:

“The Contractor shall complete the ‘Contractor’s Monthly Report Schedule’, which pro forma documentation is obtainable from the Engineer. Pursuant to Sub-Clause 6.10.1.8, these, duly signed by all concerned, together with the Contractor’s statement and a VAT invoice in original format are to be submitted to the Engineer. Issue by the Engineer to the Employer and Contractor of any signed payment certificate is conditional to this information being fully endorsed, accurately and timeously submitted to the Engineer”.

Add to the end of Clause 6.10.2 the following paragraph:

“All documentary evidence of such materials shall be unambiguous with respect to ownership having fully passed to the Contractor on or before the date of submittal of the Contractor’s monthly statement.

Should the Contractor fail to supply unambiguous documentary evidence, he shall, prior to submittal of his monthly statement, deliver to the Employer a Guarantor Guarantee in the form contained in the Appendices to the Contract Data.”

2.2.27 Percentage Limit on Plant and Materials (Cl 6.10.1.5)
The percentage limit on Plant and Materials not yet built into the Permanent Works is **80 (eighty) percent**.

2.2.28 Retention Money (Cl 6.10.3)

The percentage retention on amounts due to the Contractor is **10 (ten) percent**.

The limit of retention money is **10 (ten) percent** of the Contract Sum.

2.2.29 Insurances (Cl 8.6)

Delete sub-clause 8.6.7) and substitute with:

"Failure on the part of the Contractor to effect and keep in force any of the insurances referred to in Clause 8.6.1 and its sub-clauses, is a fundamental breach of Contract, entitling the Employer to cancel the Contract by due notice in terms of Clause 9.2."

2.2.30 Special Risks Insurance (Cl 8.6.1.2)

A Coupon Policy for Special Risks **is required**.

2.2.31 Liability Insurance (Cl 8.6.1.3)

The limit of indemnity for liability insurance required is **R10 000 000.00**.

2.2.32 Insurance of Materials Supplied by the Employer (Cl 8.6.1.1.2)

The insurance amount to cover the value of Plant and Materials, supplied by the Employer for incorporation in the Works and not included in the Contract Sum, is **NIL**.

2.2.33 Insurance to Cover Professional Fees (Cl 8.6.1.1.3)

The insurance amount to cover professional fees, not included in the Contract Sum, payable in respect of the repair or reinstatement of damage to the Works, is **NIL**.

2.2.34 Cancellation of the Contract (Cl 9)

Alter the numbering of:

Clause 9.1.5 to 9.1.6 to Clause 9.1.6 and 9.1.7 respectively.
Insert the following new clause 9.1.5.

"The Employer shall be entitled to cancel the Contract, at any time for the Employer's convenience, by giving written notice of such cancellation to the Contractor. The termination shall take effect 28 days after the later of the dates which the Contractor receives this written notice or the Employer returns the Performance Guarantee.

The Employer shall not cancel the Contract under this sub-clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor.

This restriction on the Employer shall lapse 18 months after the date of receipt by the Contractor of cancellation in terms of this sub-clause".

2.2.35 Dispute Resolution (Cl 10.5.2)

Dispute resolution shall be referred to **ad-hoc adjudication**.

2.2.36 Disagreement with ad-hoc Adjudicator's Decision (Cl 10.6.1)
Should either of the contracting parties disagree with any decision of the ad-hoc adjudicator, such matter shall be referred to litigation for **court judgement**.

3. DATA PROVIDED BY THE CONTRACTOR

3.1 Contractor (Cl 1.1.1.9)

The legal name of the Contractor is _____

3.2 Delivery of Notices to the Contractor (Cl 1.2)

The Contractor's address for receipt of communication is:

Postal: _____

_____

Telephone: _____

Facsimile: _____

E-mail: _____

Important Note

Paragraphs 2.3.1 and 2.3.2 hereabove to be duly completed by the **Tenderer before submitting the Tender**.

4. PRIORITY OF DOCUMENTS

The documents forming the Contract are to be taken as mutually explanatory of one another.

For the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence:

a) The Form of Offer and Acceptance.

b) Amplifications of the General Conditions of Contract within the Contract Data.

c) Additional special conditions or amendments to the General Conditions of Contract within the Contract Data.

d) The General Conditions of Contract.

e) The Specifications, Drawings, Schedules and other documents forming part of the Contract (in that order) contained in the Scope of Work and the Site Information.

If any ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

5. APPENDIX TO CONTRACT DATA

- Performance Guarantee
- Performance Guarantee for Materials not yet Built into the Works
- Retention Money Guarantee

PERFORMANCE GUARANTEE

(not to be completed at tender stage)

To: ..... (whom the Contract defines as the Employer)

Address: .....

.....

.....

DEFINITIONS AND DETAILS

"Guarantor" means: …….

Physical address: …….

"Employer: means: …….

"Contractor" means: …….

"Engineer" means: …….

"Works" means: …….

"Site" means: …….

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

The description of the Contract is: …….

…….

…….

"Contract Sum" means: The accepted amount inclusive of tax of R……...

Amount in words: …….

"Guaranteed Sum" means: The maximum aggregate amount of R…….

Amount in words: …….

"Expiry Date" means: The date of issue by the Engineer of the certificate of Completion of the Works

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledges that:

   3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;

   3.2 its obligations under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

   4.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 4; or

   4.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 4; and

   4.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

5. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 shall not exceed the Guarantor's maximum liability in terms of 1.

6. Payment by the Guarantor in terms of 4 shall be made within seven (7) calendar days upon receipt of the first written demand by the Employer.

7. Payment by the Guarantor in terms of 4 will only be made against the return of the original Performance Guarantee by the Employer.

8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

11. This Performance Guarantee, with the required demand notices in terms of 4 shall be regarded as a liquid document for the purposes of obtaining a court order.

12. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at ……..

Date ……..

Guarantor's signatory (1) ……..

…….
…….
Print Name Capacity

Guarantor's signatory (2) ……..

…….
…….
Print Name Capacity

…….
…….
Witness signatory (1) Print Name

…….
…….
Witness signatory (2) Print Name

PERFORMANCE GUARANTEE FOR MATERIALS AND EQUIPMENT NOT YET BUILT INTO THE WORKS

(not to be completed at tender stage)

To: .....

.....

.....
(hereinafter referred to as the Employer)

re: Demand Guarantee in respect of the project : ……

Contract No. : ……

For construction of : ……

Contractor : ……

I/We, the undersigned,

……

and

……

of

……
(hereinafter referred to as the "Bank")

address:

……

……

and acting on behalf of the Bank have been informed that ……
(hereinafter called "the Contractor") is your contractor under such Contract and wishes to receive payment in respect of manufacture or partial manufacture of equipment and/or materials brought in a ready state for despatch to the construction site, whether temporarily stored in the warehouse of the Contractor or on the Construction Site, for which the Contract requires him to obtain a guarantee.

We hereby irrevocably undertake to pay you, the Employer, any sum or sums not exceeding in total the amount of R..... (in words …… only) the "Guaranteed Amount" upon receipt by us of your demand in writing and your written statement stating:

- that the Contractor has failed to deliver such equipment and/or materials when required or instructed to do so.

The Bank's liability under this guarantee is principal in nature and is not subject to the Contract. The Bank's liability shall not be reduced, or in any way be affected by any alteration of the terms of the Contract, or any other arrangements made between the Employer and Contractor.

The Bank will pay on demand and will not determine the validity of the demand or the correctness of the amount demanded, or become party to any claim or dispute of any nature which any party may allege.

The Bank will pay the amount demanded into the bank account to be notified by the Employer.

This guarantee is neither negotiable nor transferable, is restricted to the payment of a sum of money only and is limited to the Guaranteed Amount.

This guarantee will lapse sixty (60) days after all the said equipment and/or materials have been built into the Works unless the Bank is, before the expiration date, advised in writing by the Employer of his intention to demand payment for such equipment and/or materials.

This original guarantee must be returned to the Bank by the Employer or the Employer's duly authorised agent either:

- on expiry of the guarantee; or
- against payment of the Guaranteed Amount.

This guarantee shall be governed by the law of the Republic of South Africa.

The Bank chooses as its domicilium citandi et executandi for the purpose of the service of all notices and legal processes the following address:

THUS DONE AND SIGNED AT ..... ON ..... 20.....

In the presence of the following:

AS WITNESSES:

1. .....

.....
Print Name

2. .....

.....
Print Name

on behalf of the Bank and duly authorised thereto

1. .....

.....
Print Name

and

on behalf of the Bank and duly authorised thereto

2. .....

.....
Print Name

RETENTION MONEY GUARANTEE

(not to be completed at tender stage)

TO: .....
.....
.....
.....
(whom the Contract defines as “the Employer”)

Re: Retention Money Guarantee in respect of : ……

Contract Number : ……

For supply of : ……

Contractor : ……

I/We, the undersigned,

……

and

……

of

……
(hereinafter referred to as the “Bank”)

address:

……

……

and acting on behalf of the Bank have been informed that ..... (hereinafter called the “Contractor”) is your contractor under such Contract and wishes to receive early payment of the retention money, for which the Contract requires him to obtain a guarantee.

We hereby irrevocably undertake to pay you, the Employer, any sum or sums not exceeding in total the amount of R..... (in words ……) (the “guaranteed amount”, upon receipt by us of your demand in writing and your written statement stating:

- that the Contractor failed to carry out his obligation(s) to rectify defect(s) for which he is responsible under the Contract.

The Bank’s liability under this guarantee is principal in nature and is not subject to the Contract. The Bank’s liability shall not be reduced, or in any way be affected by any alteration of the terms of the Contract, or any other arrangements made between the Employer and Contractor.

The Bank will pay on demand and will not determine the validity of the demand or the correctness of the amount demanded, or become party to any claim or dispute of any nature which any party may allege.

The Bank will pay the amount demanded into the Bank account to be notified by the Employer.

This guarantee is neither negotiable nor transferable, is restricted to the payment of a sum of money only and is limited to the Guaranteed Amount.

This guarantee shall expire on the date on which the last of the retention monies, which but for this guarantee would have been retained by the Employer, becomes payable to the Contractor.

This original guarantee must be returned to the Bank by the Employer or the Employer's duly authorised agent either:

- on expiry of the guarantee; or
- against payment of the Guaranteed Amount.

This guarantee shall be governed by the law of the Republic of South Africa.

The Bank chooses as its domicilium citandi et executandi for the purpose of the service of all notices and legal processes the following address:

THUS DONE AND SIGNED AT ..... ON ..... 20.....

In the presence of the following:

AS WITNESSES:

1. .....

.....
Print Name

2. .....

.....
Print Name

on behalf of the Bank and duly authorised thereto

1. .....

.....
Print Name

and

on behalf of the Bank and duly authorised thereto

2. .....

.....
Print Name

Where there is an error in addition, either as a result of other corrections required by this checking process or in the Bidder's addition of prices, such error will be corrected by the Employer in determining the Contract Price.

C2.1.12 VARIATION IN TEXT

No alteration, erasure or addition is to be made in the text of the Bill of Quantities. Should any alteration, erasure or addition be made, it will not be recognized; the original wording of the Bill of Quantities will be adhered to.

Payment for LI Component of Works

Payment for works identified in the Scope of Works as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict

Linkage of Payment to Submission of Project Data

The Contractor's payment invoices shall be accompanied by labour information for the corresponding period in a format specified by the employer. If the contractor chooses to delay submitting payment invoices, labour returns shall still be submitted as per frequency and timeframe stipulated by the Employer. The contractor's invoices shall not be paid until all pending labour information has been submitted.

Applicable Labour Laws

The current Ministerial Determination (also downloadable at www.epwp.gov.za), Expanded Public Works Programmes, issued in terms of the Basic Condition of Employment Act of 1997 by the Minister of Labour in Government Notice, shall apply to works described in the scope of work as being labour-intensive and which are undertaken by unskilled workers.

C3 SCOPE OF WORK

MUSINA LOCAL MUNICIPALITY

CONSTRUCTION OF INTERNAL STREETS IN NANCEFIELD EXT 9 AND 10 PHASE 3

PART C3

SCOPE OF WORK

Specifies and describes the supplies, services, or engineering and construction works which are to be provided and any other requirements and constraints relating to the manner in which the contract work is to be performed

Part C3.1 Project Scope of Work

The scope of the project entails the upgrading of a 1.844km gravel road to a 80mm paved surface including a RAL intersections.

C3.1.1 Employer's Objectives

The employer's objectives are to deliver public infrastructure using labour intensive methods in accordance with EPWP Guidelines. In addition, the upgrading of the road must improve the quality if life in and around Nancefield Township and improve the social and economic standards.

C3.1.2 Overview and Location of Works

The site is location in Nancefield, Musina. The extract below shows the location of the roads and the proposed temporary roads that will be used during construction

C3.1.3 Extent of Works

The scope of this project is within Nancefield Ext 9 and 10

Part C3.1 SPECIFICATIONS

TENDER No.: 13-2023/24 CIDB Category 6CE or Higher

FOR
MUSINA LOCAL MUNICIPALITY

CONSTRUCTION OF INTERNAL STREETS IN NANCEFIELD EXTENSION 9 AND 10 PHASE 3

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PART I : STANDARD SPECIFICATIONS

PROJECT SPECIFICATIONS

PART A GENERAL

A1 MISCELLANEOUS

The Standard Specifications that form part of this Contract have been written to cover all phases of work normally required for road contracts, and may therefore cover items of work not applicable to this particular Contract.

The Project Specifications form an integral part of the Contract Documents, supplement the Standard Specifications, and take precedence in the event of discrepancies with the Standard Specifications, the Schedule of Quantities or the Drawings.

A2 DESCRIPTION OF THE WORKS

(1) THE SITE

(i) Employer's Objectives

The Employer's objective is to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

The main objective of the employer is to provide the Musina Local Municipality Construction of Internal Streets in Nancefield Ext 8 and 9 Phase 3. Objectives during construction are to provide black empowered economic enterprise contractors with a portion of the work, work opportunities to the local communities, provide training to local and other labourers and to execute and complete the work with a high degree of safety, sensitivity to the environment and quality within a period of six (6) months.

(ii) General Description of the Project Route

The project entails the upgrading of a gravel road by constructing pavement layers and a concrete block paving wearing course. The project is internal streets within Nancefield Ext 8 and 9 Phase 3

(iii) Extent of the works

The main items of work to be undertaken in terms of the contract involve the following:

1. Contractor's establishment on site
2. Compliance with EMP requirements
3. Compliance with OHS act requirements
4. Provisions of temporary workforce (ABE)
5. Training of temporary workforce
6. Housing, offices and laboratories for the engineer's personnel

7. Accommodation of traffic
8. Clearing and grubbing
9. Side drains, banks and dykes
10. Concrete kerbing, channeling, chutes and lining for open drains
11. Concrete edge beams
12. Roadbed preparation
13. Construction of fills, selected layers, selected sub-grade, sub base and base layers (stabilized)
14. Construction of a 80mm interlocking concrete brick paving
15. Underground stormwater extension connecting to existing system
16. Overland concrete v-drains
17. Erection of road signs
18. Road markings
19. Finishing of the road and road reserves
20. Construction of RAL Intersections (2off)
21. Relocation of existing services

(2) DETAILED DESCRIPTION OF ROADWORKS

(a) Typical Cross-Section of Road Pavement

The pavement structures of the roads are as follows:

Pavement	Specification
Surfacing	Class 30, Type S-A, 30/20, 80 mm thick paving (interlocking)
Base	150mm thick chemically Stabilized (C4) Compacted to 97% of modified AASHTO density (minimum G6 gravel material)
Subbase	150mm thick gravel selected layer compacted to 95% of modified AASHTO density (minimum G7 gravel material)
Roadbed	150mm thick in-situ rip and recompact to 93% modified AASHTO density (minimum G9 gravel material)

(b) Accommodation of Traffic

The existing roads will be under construction and allowance for small deviations of traffic will be allowed as measured in the bill of quantities.

(c) Existing Services

The following existing services may be encountered within the road reserve:

- Overhead/underground power lines
- Electrical cables
- Water supply lines

A3 DRAWINGS

The reduced drawings that form part of the Tender Documents are to be used for tender purposes only.

The Appointed Contractor will be supplied with an unreduced print of each of the Drawings. These prints will be issued free of charge and the Contractor must make any additional prints he may require at his own cost.

Any information in the possession of the Contractor that is required by the Engineer's Representative to complete his as-built drawings must be supplied to the Engineer's Representative before a Certificate of Completion will be issued.

Only figured dimensions must be used and Drawings must not be scaled unless required by the Engineer. The Engineer will supply any figured dimensions that may have been omitted from the Drawings.

The levels given on the Structural Drawings are subject to confirmation on the Site and the Contractor shall submit all levels to the Engineer for confirmation before he commences construction of any structure. The Contractor shall also check all clearances given on the Drawings and shall inform the Engineer of discrepancies.

A4 POWER SUPPLY AND OTHER SERVICES

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

A5 CONSTRUCTION IN CONFINED AREAS

It will be necessary for the Contractor to work in confined areas. No additional payment will be made for work in "restricted areas", except in the case of structures as described in Sub clause 6108(d) of the Standard Specifications. In certain areas the width of the fill material and pavement layers may reduce to zero and the working space may be confined. The method of construction in these confined areas depends on the Contractor's

Constructional Plant. However, the Contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions, irrespective of the methods used to achieve these cross-sections and dimensions, and that the rates and amounts tendered will be deemed to include full compensation for any special equipment or construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for payment be considered on account of these difficulties.

A6 CONTRACTOR'S CAMP SITE

(*Read with SANS 1921 - 1 : 2004 clause 4.14)*

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.

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 have to be provided.

A7 SECURITY

The Contractor shall be responsible for the security of his personnel and Constructional Plant on and around the Site of the Works and for the security of his camp, and no claims in this regard will be considered by the Employer. Provision is made in these specifications for the erection of a security fence around the site offices.

A8 WATER FOR CONSTRUCTION PURPOSES

The Contract will be undertaken in an arid area with scarce water resources. The Contractor must make adequate provision in his Tender for all negotiations and procurement of water for construction activities, and all related costs will be deemed to be included in his tendered rates.

A9 ADDITIONAL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

(a) 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.

(b) Failure to maintain road signs, warning flashing lights, etc, in a good condition shall constitute ample reason for the engineer to bring the works to a stop until the road signs, etc, have been repaired to his satisfaction.

(c) The contractor may not commence constructional activities 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 (SARTSM – Vol 2, Chapter 13).

(d) The contractor may not proceed with permanent works before the required offices and laboratories of the engineer’s site personnel have been erected by him. This includes the provision of electricity, sanitary arrangements, potable water and telephone, e-mail and fax facilities. In the event where the contractor cannot obtain telephone lines timeously from Telkom, a wireless system shall be provided for telephone, e-mail and fax facilities.

(e) Co-ordinating the main contract work with that of the selected subcontractor for the supply and installation of street lighting. The main contract work includes the following civil works relating to the street lighting subcontract : the excavation and backfill of trenches,

construction of bedding , installation of marker tape for cables and ducts, the excavation and backfill of holes pertaining to the scissor masts, the installation of 110mm diameter ducts for the cables crossing road P115-5 and providing general attendance to the selected street lighting subcontractor.

A10 TEMPORARY LATRINES

The Contractor shall provide sufficient latrine facilities for the use of his employees. He shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer and the Employer. Latrines shall be positioned within walking distance from wherever employees or labourers are employed on the Works.

Where required, latrines shall be provided at the rate of one for ten persons and where applicable, the Contractor shall make his own arrangements and pay all charges for the removal of sewage.

A11 MOVING EXISTING SERVICES

Services belonging to any public or private authority, which require moving, shall be dealt with in the manner specified in clause B1202.

The plans show the positions of services determined from observations and measurement but neither the Employer nor the Engineer accepts responsibility neither for the accuracy of the information nor for the omission of any information. The Contractor shall locate and mark the positions of hidden services in advance of construction and take all reasonable steps to protect existing works against damage, which may arise as a result of his operations on the site.

The Contractor will be held responsible for direct or consequential damage to any existing works including any claims which may arise as a result thereof and the cost of repair of any such damage shall be borne by the Contractor unless it is established by the Engineer that the Contractor exercised reasonable care and damage was unavoidable.

The owners and the Engineer shall be notified immediately of any damage done to existing works.

If so directed by the Engineer the positions of existing works shall be changed by the Contractor to meet the requirements of the proposed work. The cost of such work shall be paid for at the applicable rates set out in the Schedule of Quantities or, in the absence of such rates, at rates mutually agreed between the Engineer and the Contractor.

Work required on known services has been tabulated in a services schedule. The schedule must be read in conjunction with the services plans.

All communication by the contractor with the relevant authorities in connection with services must be directed through the Engineer.

A12 TRAINING

Technical skills, generic and management skills training shall be provided with the aim of providing locally employed labour with the technical skills required to undertake the work involved in the Contract, and of furthering small contractor development. Part D of the Project Specifications deals specifically with matters regarding training, and a payment item for that is included in Clause B 1231 of Part B of the Project Specifications.

A13 USE OF LOCAL RESOURCES

A major objective of this Contract is the optimum use of local resources. One of the methods to be adopted to achieve this objective is through the implementation of labour-optimising construction methods. Labour-optimising construction is defined in Clause B 1156 of Part B of the Project Specifications.

A14 LABOUR-OPTIMISING CONSTRUCTION ACTIVITIES

(a) General

The portions of the Works listed in Subclause (b) below shall, unless otherwise instructed by the Engineer, be constructed under this Contract using labour-optimising construction methods only. Payment for works identified in Subclause (b) below shall be made in accordance with the pay items provided in the bill of quantities.

In respect of those portions of the Works which are not listed in Subclause (b), the construction methods adopted and Plant used shall be at the discretion of the Contractor, provided always that the construction methods adopted and Plant used by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

(b) Operations to be executed using labour-optimising construction methods

Labour-intensive work shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work.

The following portions of the Works shall be executed using labour-optimising construction methods:

i. Clearing and grubbing the site
ii. Removing and grubbing large trees and tree stumps
iii. Clearing and grubbing at inlets and outlets of hydraulic structures
iv. Cleaning of hydraulic structures
v. Excavating for all open drains, culverts, inlet and outlet structures, concrete structures, fence posts, road sign posts and guardrail posts
vi. Constructing catch-water banks and mitre banks
vii. Backfilling and compacting all excavations
viii. Removing oversize material
ix. Removing existing concrete and masonry work, irrespective of class and type
x. Stone pitching and erosion protection
xi. Finishing off cut and fill slopes
xii. Finishing the road and road reserve
xiii. Treating old roads and temporary diversions
xiv. Carrying out maintenance activities

A15 RESTRICTIONS ON THE USE OF PERSONNEL IN THE PERMANENT EMPLOY OF THE CONTRACTOR

(a) The Contractor shall limit the use on the Contract Works of his permanently employed personnel to that of key personnel only (as defined in Part C of the Project Specifications) and shall, subject to the further provisions of the following parts of the Project Specifications

(i) Part C - Provision of the temporary workforce,
(ii) Part D - Provision of structured training,

execute and complete the Works using a temporary workforce employed directly by the Contractor and/or by Subcontractors.

(b) The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor and where he deems the circumstances to warrant, authorise in writing that the Contractor may use in the execution of the Works, workers not being his key personnel but who are in his permanent employ. Without limiting the generality of application of this subclause, circumstances which may be considered by the Engineer to warrant the authorization of the use of the Contractor's permanent employees not being key personnel, include:
(i) The unavailability of sufficient numbers of temporary workers and/or Subcontractors to execute the Works, provided always that the Contractor has proven that he has exercised his best endeavors and taken all reasonable actions to recruit sufficient numbers of temporary

workers and Subcontractors and has exhausted all reasonable recruitment options

(ii) The unavailability within the temporary worker pool and/or subcontractor sources available to the Contractor in terms of the Contract, of sufficient of the required knowledge and skills necessary for the execution of the Works or specific portions thereof, in cases where the time for completion allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of training as contemplated in this Contract

(iii) Any other circumstances which the Engineer may deem as constituting a warrant.

A16 COMMUNITY LIAISON AND COMMUNITY RELATIONS

In all dealings with the various communities and workers employed from within the communities, the Contractor shall take due cognisance of the character, culture and circumstances of the communities involved and shall at all times use his best endeavors to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the Contract.

The Contractor shall at all times keep the Engineer fully informed on all matters affecting the Contract and the communities, and shall attend all meetings of the Project Co-ordinating Committee as may be reasonably required by the Engineer. All matters concerning the communities shall be discussed and where possible, resolved at such meetings.

Where any resolution of the Project Co-ordinating Committee shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect to them without a prior written instruction from the Engineer. Where the Contractor is of the opinion that any instruction of the Engineer issued in terms of this clause will result in him incurring additional costs which were not provided for in his tendered rates and prices, and/or that a delay in the progress of the Works will result, he will be entitled to submit a claim in terms of Clause 51 of the Conditions of Contract, provided always that the period of twenty-eight (28) days referred to in Clause 51 shall be reduced to three (3) normal working days in respect of all claims submitted in terms of this clause.

A17 EXTENDED PUBLIC WORKS PROGRAMME SPECIFICATIONS

17.1 Labour-Intensive Competencies of Supervisory and Management Staff

Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 “National Certificate Supervision of

Civil Engineering Construction Processes" and Site Agent/Manager at NQF level 5 " Manage Labour-intensive Construction Processes" or equivalent QCTO qualifications.

Personnel	**NQF level**	**Unit standard titles**	**Skills programme 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 Storm water 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 Storm water 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 Programme against this single unit standard

Details of these skills programmes may be obtained from the CETA ETQA manager
(e-mail: gerard@ceta.co.za , tel: 011-265 5900)

17.2 Employment of Unskilled and Semi-Skilled Workers In Labour-Intensive Works

1. Requirements for the sourcing and engagement of labour

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour. Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of this Scope of Work

1.1.2 The rate of pay set for the SPWP is R 121.28 per task or per day.

1.1.3 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.

1.1.4 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 1.1.3.

1.1.5 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 has 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

1.1.6 The Contractor shall endeavor to ensure that the expenditure on the employment of temporary workers is in the following proportions:
a) 60 % women;
b) 55% youth who are between the ages of 18 and 25; and
c) 2% on persons with disabilities.

A18 PROGRAMME REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

The contractor shall programme his activities to be suitable in terms of his resources to complete the contract inside the stipulated time period.

A19 PROCUREMENT

PREFERENTIAL PROCUREMENT POINT SYSTEM POLICY

A19.1 GENERAL CONDITIONS

The abovementioned provisions of this policy document shall apply subject to the following terms and conditions:

A19.1.1 Company Registration

Whereas the Employer shall have the above responsibilities, the respective and prospective service providers shall be:

(a) Formally registered entity, in compliance with the applicable legislation such as the Companies Act, the Close Corporations Act , other related industry regulatory bodies, and professional bodies, where required;

(b) Registered with the South African Revenue Services for all categories of taxes applicable to it.

A19.1.2Tender Evaluation

(a) Only a tenderer who has completed and signed the declaration part of the tender documentation may be considered for preference points.

(b) The Employer may, before a tender is adjudicated or at any time, require a tenderer to substantiate claims it has made with regard to preference.

(c) The Employer shall, when calculating comparative prices, take into account any discounts, which have been offered unconditionally.

(d) A discount, which has been offered conditionally must, despite not being taken into account for evaluation purposes, be implemented when payment is effected.

(e) In the event that different prices are tendered for different periods of a contract, the price for each period must be regarded as a firm price if it conforms to the definition of a “firm price”.

(f) Points scored must be rounded off to the nearest 2 decimals.

(g) In the event that two or more tenders have scored equal total points, the successful tender must be the one scoring the highest number of preference points for specified goals. Should two or more tenders be equal in all respects, the award shall be decided by the drawing of lots.

A19.1.3 Principles

(a) Preference points stipulated in respect of a tender must include preference points for equity ownership by HDIs.

(b) The equity ownership contemplated in sub-regulation (A19.1.3 (a)) must be equated to the percentage of an enterprise or business owned by individuals or, in respect of a company, the percentage of a company’s shares that are owned by individuals, who are actively involved in the management of the enterprise or business and exercise control over the enterprise, commensurate with their degree of ownership as the closing date of the tender.

(c) In the event that the percentage of ownership contemplated in sub regulation (A19.1.3 (b)) changes after the closing date of the tender, the tenderer must notify The Employer and such tenderer will not be eligible for any preference points.

(d) Preference points may not be claimed in respect of individuals who are not actively involved in the management of an enterprise or business and who do not exercise control over an enterprise or business commensurate with their degree of ownership.

(e) Subject to sub-regulations A19.1.3 (a), (b), (c) and (d), all claims made for equity ownership by an HDI must be considered according to the following criteria:

i. Equity within private companies must be based on the percentage of equity ownership;

ii. Preference points may not be awarded to public companies and tertiary institutions;

iii. The following formula must be applied to calculate the number of points for equity ownership by an HDI:

$$NEP = NOP \times \frac{EP}{100}$$

Where

NEP = Points awarded for equity ownership by an HDI

NOP = The maximum number of points awarded for equity ownership by an HDI

EP = The percentage of equity ownership by an HDI within the enterprise or business, determined in accordance with sub-regulations A19.1.3 (a), (b), (c) and (d).

(f) Equity claims for a Trust may only be allowed in respect of those persons who are both trustees and beneficiaries and who are actively involved in the management of the Trust.

(g) Documentation to substantiate the validity of the credentials of the trustees contemplated in sub-regulation A19.1.3 (f) must be submitted to the relevant The Employer.

(h) A Consortium or Joint Venture may, based on the percentage of the contract value managed or executed by their HDI members, be entitled to equity ownership in respect of an HDI.

(i) The number of points scored for a Consortium or Joint Venture must be added to the number of points scored for achieving specified goals.

(j) The points contemplated in sub-regulation A19.1.3 (i) must be added to the points scored for price, in order to establish the total number of points scored.

(k) Subject to regulations A19.1.3 (i), the contract must be awarded to the tender, which scores the highest points.

(l) A person awarded a contract as a result of preference for contracting with, or providing equity ownership to, an HDI, may not subcontract more that 25 % of the value of the contract to a person who is not an HDI or does not qualify for such preference.

A19.1.4Declarations

A tenderer must, in the stipulated manner, declare that-

(a) The information provided is true and correct;

(b) The signatory to the tender document is duly authorised; and

(c) Documentary proof regarding any tendering issue will, when required, be submitted to the satisfaction of the Employer.

A19.1.5Penalties

(a) The Employer shall, upon detecting that a preference in terms of the Act and these regulations has been obtain on a fraudulent basis, or any specified goals are not attained in the performance of the contract, act against the person awarded the contract.

(b) The Employer may, in addition to any other remedy it may have against the person contemplated in sub-regulations A19.1.5(a).

(c) Recover all costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(d) Cancel the contract and claim any damages which it has suffered as a result of having to make less favorable arrangements due to such cancellation;

(e) Impose a financial penalty more severe than the theoretical financial preference associated with the claim which was made in the tender; and

(f) Restrict the contractor, its shareholders and directors from obtaining business from the Employer for a period not exceeding 10 years.

(g) The Employer reserves the right to have access and/or require production of the original or certified proof of any such registration at a time agreed to by the parties or as may be prescribed by law.

(h) In the event that the Tenderer fails to substantiate that any failure to achieve the Contract Participation Goal relating to the granting of a preference was due to quantitative under runs, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, it shall be liable to pay to the Employer a financial penalty calculated in the following manner:

$$P = 0{,}15 \times \frac{(D - Do)}{(100)} \times N_A$$

Where D = tendered Contract Participation Goal percentage.

Do = the Contract Participation Goal which the Employer's representative based on the credits passed, certifies as being achieved upon completion of the Contract.

N_A = Net Amount
P = Rand value of penalty payable

i) Ministerial Determination: This can be downloaded from website.

A19.1.6 Areas of Policy Coverage

The above-mentioned provisions of this policy shall apply subject to, but not limited to, the following entities and/or activity:

(a) Procurement of goods or services;

(b) Appointment of consultants;

(c) Appointment of contractors, subcontractor, consortia and joint venture contractors;

A19.1.7 Criteria for Tender Evaluation

The Employer shall use the following criteria to evaluate tenders: -

(a) Compliance with tender conditions;

(b) Contractor Capability

(c) Administrative Compliance

(d) Pricing and Specific Goals (80/20)

A19.2 APPOINTMENT OF CONTRACTORS

A19.2.1 Procedure for Invitation of Tenders

Tenders will be invited publicly through the general media and other forms of communication to ensure that the target communities are reached. The intention is to ensure that the SMME's in rural areas that may not be in a position to access the general press is also reached.

A19.2.2The tender invitation shall include:

(a) Specifications and description of project or service to be procured.

(b) Tendering information and documentation will be in English;

(c) A non-refundable charge shall be payable to cover the cost of the tender documents and specifications;

(d) In the event where normal tendering is not practical due to other constraints, at least three (3) selected service providers shall be invited to submit quotations.

A19.2.3Compulsory Requirements

The following requirements shall be applicable to all tenders and non-adherence thereto shall result in an automatic disqualification of the tender submitted:

(a) Submission of valid Tax Compliance Status Pin Issued.

(b) Authority to act and contractually bind the tenderer.

A19.2.4Closure and Opening of Tenders

Tenders shall close on a date and time specified in tender document and shall be opened and read in public.

A19.2.5Evaluation of Tenders

Tenders to be evaluated in the same manner as prescribed in the tender data.

A19.2.6Cessions

A service provider awarded a contract may not cede or subcontract a contract/project or any part thereof without written consent of the Employer and where such consent is granted, a signed agreement involving the cedent, cessionary and the Employer shall be entered into.

In any event, not more than 25% of the value of the contract shall be subcontracted. Both the cedent and the cessionary shall be jointly and severally liable for the quality of the material supplied and workmanship.

A19.2.7Performance Guarantees

The Employer shall strive to facilitate the participation of HDI's and SMME by waiving or reducing the maximum amounts of sureties as follows:

(a) No surety for projects between 0 to 500 000
(b) 1% surety for projects between 500 000 to R1 million

(c) 2,5% surety for projects between R1 million to R2 million

(d) 10% surety for projects above R2 million

The period required to provide surety shall be 21 calendar days. However, depending on circumstances, a shorter period may be prescribed. In the event of failure to submit the surety within the stipulated period, the Employer shall be entitled to cancel the contract and award the tender to a suitable contractor.

Sureties may only be accepted from a banking institution registered in terms of the Bank Act, 1996, an insurer registered in terms of the Insurance Act, 1943 or from governmental institutions established for such purposes.

A19.2.9 Notification of Acceptance

Successful service tenderer/s shall be notified before the tender validity period expires.

A19.2.10 Contractual Agreement

The relationship between the Employer and contractor shall be managed under the following contractual documents:

(a) The tender document submitted by the tenderer

(b) The project drawings relevant for the tendered project

(c) The General Conditions of Contract for Construction Works (GCC 2004)and the COLTO Standards Specifications for Road Bridge Works for State Authorities as they may apply from time to time.

(d) Employers Procurement Policy

(e) Any other relevant legislation aimed at meeting other government policy initiatives.

A19.3.11 Tax Compliance Status Pin Issued

No contract shall be awarded to an entity, which fails to submit a valid original Tax Clearance Certificate from the South African Revenue Service (SARS) certifying that the taxes of the said entity are in order or that suitable arrangements have been made with SARS, and submitted proof as part of the tender documentation.

In case where the successful tenderer has only submitted a letter from SARS, the tenderer will be given seven (7) working days to submit the original Tax Clearance Certificate. Failure to produce same will disqualify the tenderer and the next recommended tenderer shall be awarded the contract.

A19.2.12 Variations

(a) The Employer shall have the right to reduce or increase the scope of work by no more than 20% of the tendered amount without affecting the preliminary and general items.

PROJECT SPECIFICATIONS

PART B: MATTERS RELATING TO THE STANDARD SPECIFICATIONS

B1 PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

In certain clauses the Standard Specifications allow a choice to be specified in the Project Specifications between alternative materials or construction methods, 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.

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. The number of a new clause or a new payment item that does not form part of a clause or a payment item in the Standard Specifications and 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.

B2 SECTION 1100: DEFINITIONS AND TERMS

Works specifications shall comply with the following specifications:
Standard specifications for road and bridge works for state road authorities (COLTO)

B 1115 GENERAL CONDITIONS OF CONTRACT

REPLACE "for National and Provincial Road and Bridge Works", IN THE SECOND AND THIRD LINES WITH "for Road and Bridge Works for State Road Authority".

ADD THE FOLLOWING CLAUSE:

"B 1156 LABOUR-OPTIMISING CONSTRUCTION

The cost effective employment of as great a portion of labour as is practically and technically feasible to produce a standard of construction as required by the Specifications, thus the economic substitution of plant and mechanical equipment in favour of available labour using hand tools, on condition that this method is not more expensive than the conventional construction practices."

B3 SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B 1202 SERVICES

Add the following:

"Information regarding known services is shown on the drawings.

The information shown on the schedule of services is based on the best available information. No guarantee as to the accuracy of the information can be given and the schedule should, therefore, be used as a guide only.

Before work commences, the Contractor shall contact all private owners or public authorities controlling services to allow them to protect, move or relocate a service as required, or to confirm that all such work has been completed.

The relocation and protection of services shall be carried out in conjunction with the service owners and in compliance with the Machinery and Occupational Safety Act 6 of 1983.

Where protective measures involve the construction of permanent work, payment as specified in the order given by the engineer, shall be either at contract rates, where these are applicable, or where no contract rates are applicable, in accordance with the provisions of Clause 6 of the General Conditions of Contract.

No payment will be made for inconvenience to the Contractor due to services crossing the Site or any authority working on such services, nor will delays caused by such workings be accepted as a basis for claiming an extension of time for completing the Works."

B 1204 PROGRAMME OF WORK

Insert the following before the first paragraph:

"A bar-chart programme 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. The critical path of the programme of work shall also be indicated.

In compiling the programme of work, the contractor shall incorporate the following important factors specified in these specifications:

- The specified contract period.
- Percentage of work to be done by Black Economic Empowered Enterprises and labour intensive work including a breakdown of the labour intensive work.
- Weather limitations regarding the application of bituminous products as specified in sections 4100, 4200, 4400 and 4500 of the standard specifications.
- The relocation and protection of services.
- Accommodation of traffic proposals.
- Phase construction detail relating to the relocation and protection of services, accommodation of traffic and weather limitations.

The contractor shall take note of various factors contained in these specifications which will have a significant influence on the compilation of the programme of work."

B 1205 WORKMANSHIP AND QUALITY CONTROL

Replace the third paragraph with the following:

"The contractor shall determine his own frequencies at which quality or process control tests are to be undertaken. The engineer will, however, undertake all acceptance control tests for the judgement of workmanship and quality of products."

Add the following at 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 8300 of the standard specifications (quality control scheme 2). 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."

B 1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Add the following:

"Before commencing construction the contractor shall align the road horizontally according to the information given on the drawings and shall establish a stake line for controlling purposes. Subsequently he shall supply the Engineer's Representative with a full set of cross-sections taken at 10 m intervals along the centreline of the road. These cross-sections shall cover

the full width of the road reserve. Stake-line beacons shall be clearly marked and protected during construction.“

Amend the first line of the last paragraph as follows:

“The setting-out of work including the survey and staking of the new road centreline will not be measured and paid for ……”

B 1209 PAYMENT

(b) Rates to be inclusive

Add the following to the first paragraph:

"VAT shall be excluded from the tendered rates and sums and provided for as a lump sum in the summary of the Schedule of Quantities."

(e) Materials on the site

Add the following to the end of the clause:

“The engineer may at his sole discretion allow payments under "Materials on the site" in respect of any construction materials, if stored off-site, providing that:

- the site selected for this purpose is approved by the engineer;
- such land is physically separated from any production plant or operation;
- only materials for use under this contract are stockpiled on such land, and

the contractor has provided proof of an agreement with the owner of such land that the owner has no objection to using the land for these purposes and has no claim whatsoever on any materials stockpiled on such land.”

Add the following subclause:

"(g) Payment certificates

With reference to Clause 6.10 of the General Conditions of Contract, the Engineer's Certificate will only be issued after he has received a draft certificate prepared by the Contractor at his own expense in the form prescribed by the Engineer. The cost of duplicating and delivering copies of the certificate to the Contractor, the Engineer and the Employer shall be borne by the Contractor. The Engineer and the Employer require a total of four sets of A4-sized paper copies."

B 1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Add the following at the end of the clause:

"In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the employer, no sections of the works, individually or collectively, shall be considered for practical completion unless the following criteria also have been met:

(i) In the case of partial completion, the estimated cost to complete the outstanding work is less than 2% of the estimated cost to construct the whole section or sections.

(ii) In the case of the whole works, the estimated cost to complete the outstanding work is less than 2% of the tendered value of work plus the cost of any variation or extra work orders, but excluding CPA and VAT.

(iii) The written list of outstanding items of work can be completed within 28 days of the list having been accepted in writing by the contractor."

B 1213 VARIATION FROM SPECIFIED NOMINAL RATES OF APPLICATION OR NOMINAL MIX PROPORTIONS

Add the following to the first paragraph:

"Tenderers shall, for the purpose of calculating tender rates, take note that the nominal rates of application and/or nominal mix proportions of a number of products are amended in these project specifications."

B 1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Add the following:

"Extension of time for completion in terms of Clause 5.12 of the General Conditions of Contract in respect of abnormal rainfall shall be determined in terms of Method (ii) (The Critical Path Method) as described under Clause 1215 of the Standard Specifications. This formula does not take account of flood damage that could cause further or concurrent delays. Extension of time due to delays resulting from flood damage will be in accordance with the provisions of Clause 8.4 of the General Conditions of Contract."

The Critical Path Method

The critical path method is specified in the project specifications for determining extension of time resulting from abnormal Musina and it shall be applied as follows:

A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the engineer all progress on the item/s of work on the critical path of the working programme 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 programme 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. **The value of "n" shall be given in the project specifications by the Engineer.**

Extension of time during working days will be granted to the degree to which actual delays as defined above exceed the number of "n" working days as mentioned in the project specifications.

The Value of "n" for this contract is 54 days
(derived from the average number of days when Musina of 10mm or more falls during normal rainy season using records from 2004 to 2012)

B 1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED WORK IS COMMENCED

Add the following clauses*:*

"(h) Prior to the start of any excavation in the existing pavements on any part of the works, the contractor shall submit to the engineer for approval a method statement for the execution of that part of the work. The contractor is responsible for the protection of the underlying pavement layers and the drying out and/or keeping dry of such excavations. The contractor's programme shall make provision for the speedy backfilling of the excavations and the drainage thereof if inundation cannot be prevented.

The contractor shall, at his own cost, be responsible for the repair of pavement layers which have been damaged due to his own works or his neglect to submit his planning to the engineer for approval or to adhere to approved precautionary measures.

(i) Concrete elements adjoining the road which is designated for resurfacing, shall be covered with protective material prior to any spraying operations to prevent the concrete from being stained with bituminous binder. The protection of concrete elements shall be to the engineer's satisfaction and no additional payment will be applicable for taking the specified protection measures."

B 1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following to the first paragraph:

"The total length of the road reserve will be handed over to the contractor at the start of the contract period."

B1229 SABS CEMENT SPECIFICATIONS

Replace the last paragraph of this clause with the following:

"Where reference is made in this specification or the standard specifications to the cement specifications, e.g. SABS 471: Portland cement and rapid hardening Portland cement, it shall be replaced with the new specification:

SABS ENV 197-1: Cement-composition, specifications and conformity criteria.

Part 1: Common cements.

Furthermore, where reference is made in this specification or the standard specifications to the different cement types, the following new names/types shall apply:

Old product nomenclature	Typical new product nomenclature	
	Cement type	Cement strength class
OPC	CEM I	32,5
	CEM I	32,5R
RHC	CEM I	42,5
	CEM I	42,5R
LASRC	No provision made	No provision made
PC15SL	CEM II/A-S	32,5
	CEM II/A-S	32,5R
	CEM II/A-S	42,5
	CEM II/A-V	32,5
	CEM II/A-V	32,5R
	CEM II/A-W	32,5
	CEM II/A-W	32,5R
RH15FA	CEM II/A-V	42,5
	CEM II/A-V	42,5R
	CEM II/A-W	42,5
	CEM II/A-W	42,5R
PBFC	CEM III/A	32,5
	CEM III/A	32,5R

Old product nomenclature	Typical new product nomenclature	
	Cement type	Cement strength class
PFAC	CEM II/B-V	32,5
	CEM II/B-W	32,5
RH30SL	CEM II/B-S	32,5R
	CEM II/B-S	42,5
RH40SL	CEM III/A	32,5R
	CEM III/A	42,5

CEM I 32,5, CEM II A-S 32,5, CEM II/A-V 32,5, or CEM III A may be used for the manufacture of reinforced concrete members."

Add the following new clauses:

B 1230 SUBCONTRACTORS

It is a condition of the contract that an approved subcontractor shall not sublet part of his work, covered in his appointment by the main contractor, to another subcontractor without the consent and approval of the engineer.

B 1231 CONTRACTOR'S ACTIVITIES ON PRIVATE PROPERTY

(a) Action required prior to entering property

The contractor shall not enter onto private property or property not belonging to the employer for the purpose of carrying out any work in connection with the contract without having completed the following formalities well ahead of the intended date for entering such property:

- The contractor shall give notice, in writing, to the owner, lessee or occupier, on a form approved by the engineer, of his intention of entering upon the property, together with full details of the work he intends to carry out on the property and the intended dates and duration of occupation.

- The contractor shall arrange a meeting with the owner, lessee or occupier, to:

  - conform that the owner, lessee or occupier, has permitted the contractor to enter upon the property for the said purpose;

  - obtain details from the owner, lessee or occupier, regarding any special precautions that should be taken by the contractor during the execution of the works;

  -

record details, with photographs if necessary, of the condition of the property at that stage, including any defects in buildings, swimming pools, outbuildings, fences, etc. that may be affected by his activities;

- record in writing the details of the above; the form and substance of such records and agreements shall be subject to the engineer's approval and a copy of the details as recorded shall be sent to the engineer for his records and his approval.

- In the event of the contractor failing to reach agreement with the owner, lessee or occupier of the property on any of the matters referred to above, the matter shall be referred to the engineer for further action.

B 1232 MATERIALS

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 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.

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.

Earth, stone, gravel, sand, and all other materials excavated or present on the Site or in borrow areas provided by the Employer 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.

No materials to be included in the works shall 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.

B 1233 TRAINING

Temporary personnel involved in the Contract in accordance with the provisions set out in Part D. The selection of the candidates will be approved by the Engineer, the representatives of the local communities and the Employer's Representative in the area, subject to the required entrance levels. All training courses must be offered through approved accredited training organizations, nominated by the Engineer upon the written instruction of the Employer.

The Contractor shall provide the following for the training:

(a) Electrified venue with sufficient lighting and furniture

(b) All necessary stationery, consumables and study material

(c) Transport to and from the training venue

(d) Wages for candidates attending technical skills training during working hours

(e) Payment to approved training organizations for the provision of training.

(f) Details of training venue (location, size, facilities available)

B1234 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 contractor at the commencement of the contract shall resolve the manner in which Workmen’s Compensation will be handled. Amounts paid by the contractor shall not be included in the wage rates but shall be an extra payment allowed for by the contractor.

B 1235 MEASUREMENT AND PAYMENT

Item **Unit**

B12.01 Protection, removal, realignment and Replacement of Services

(a) Utility services

(i) Relocation of services and payments to service owners. Provisional sum

(ii) Handling costs and profit in respect of Sub item B12.01 (a) (i) above percentage (%)

The provisional sum for utility services shall be expended in accordance with Clause 6.6.1 of the General Conditions of Contract. The tendered percentage is a of the amount actually spent under item B12.01 (a) (i), which shall be paid to the Contractor for full compensation for handling costs and profit in connection with dealing with utility services.

B4 SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B 1302 GENERAL REQUIREMENTS

(a) Camps, construction plant and testing facilities

Add the following:

“There is no area available within the road reserve for the establishment of the contractor’s organization, camp and constructional plant on site.

The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel. No personnel will be allowed to reside on the site. Only night watchmen may be on the site after hours.

The contractor shall be responsible for the security of his personnel, construction plant on and around the site of the works, and of his camp. The cost of this will be deemed to be included in item B13.01.

“The contractor's offices, laboratory and stores shall, unless otherwise agreed, be erected in close proximity to the engineer's offices and laboratory. The entire area shall be fenced with a minimum of 1,8m height razor taped mesh. The contractor's offices, laboratory and stores and engineer's offices and laboratory shall be provided with sufficient perimeter lighting.

The contractor shall provide security guards from a reputable security company for protection of the engineer's offices and laboratory. The security guards must be provided with a two way radio and be in constant contact with the control room of the security company and an armed response unit. The security guards must be armed and accompanied by trained guard dogs. Payment for the above shall be included in item B13.01.”

"The contractor shall provide at each work site at least one portable chemical latrine unit per 10 workers for use by construction workers employed on the project. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the engineer. The contractor shall move them to the required positions, and finally remove them, on completion of the works, all to the satisfaction of the Health Department of the relevant authority. Toilets must be screened from public view and their use shall be enforced. No separate payment shall be made for this requirement and payment shall be deemed to be included in the rates tendered for the contractor's time-related obligations."

B1303 PAYMENT

Item		Unit
B13.01	**The contractor's general obligations** (As specified)	**Lump Sum**

Add the following after the fifth paragraph:

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

Should the contractor be of the opinion that 15% is inadequate to cover his costs in terms of section 1300, he shall indicate separately with his tender where such costs have been allowed for in his tender. If no such indication is given, the contractor shall not at any stage during the contract for any reason whatsoever claim additional compensation under this item."

B5 SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL

B 1402 OFFICES AND LABORATORIES

(a) General

: Add the following

"It is a requirement of the contract that the offices for the engineer's supervisory staff shall be supplied with approved burglar proofing, the cost of which shall be included in the relevant tendered rates."

(b) Offices

Replace sub subclause (xii) with the following*:*

"A complete telephone service together with fax equipment shall be provided. The cost of telephone and cell phone calls and fax transmissions are included in the prime cost sum for the provision of the telephone service.

The following list is indicative of the number and sizes of offices and other accommodation that will be required:

	Description	Area
•	Office for the engineer's personnel	4 x12m²
•	Conference room	23m²
•	Car ports	4 x 15m²,

(c) Laboratories

Add the following:

"The layout, sizes and general requirements for the laboratory are shown on the drawings in Volume 4. All doors and windows of the laboratory shall close air tight to ensure that the instruments are not affected by draughts. The doors shall be double to allow the importing of apparatus. The sides of the store shall be similar to the walls of the laboratory.

"Uninterrupted power supply (UPS) units shall be supplied for all electronic equipment."

(g) Ablution units

Add the following:

"Two ablution units are required on site. Each unit shall contain at least a wash-hand basin, flush toilet, urinal, shower unit and the necessary accessories.

Both ablution units shall be provided with hot and cold water.

The towels shall be replaced with clean towels every second day and soap supplied as necessary.

One of the units shall contain a lockable clothing cupboard for at least four employees. The other unit shall contain a lockable clothing cupboard for at least two employees.

The ablution units shall each have an interior floor area of at least 10m² and a 1,5m wide veranda on one side with a 100mm concrete floor.

The tendered rate under Item B14.01(e) shall include full compensation for the supply, erection and maintenance of the complete units as specified."

Add the following new subclause:

"(i) Kitchen units

The contractor shall provide two kitchen units with minimum interior floor area of 12m², a 1,5m wide veranda on one side with a 100 mm thick concrete floor in the vicinity of the offices.

Each unit shall contain at least two opening windows, a lockable door, a two-plate electrical stove without oven, a steel framed formica topped table (0,6 m x 1,2 m), four steel framed bar or kitchen stools, a lockable refrigerator of one hundred and fifty litres capacity, a kitchen sink supplied with clean hot and cold potable water, a drain board coupled to a suitable drainage system and a lockable steel grocery cupboard."

B 1403 HOUSING

(c) Rented accommodation

Add the following:

"The engineer will arrange for the obtaining of rented accommodation for his supervisory personnel on site. Payment of rent shall be made under the Provisional Sum in subitem 14.07(a) and shall be expended on a monthly basis as ordered by the engineer."

(b) Accommodation for labourers

Add the following:

"Curtains must be provided to the windows of the housing unit."

B 1404 SERVICES

(b) Water, electricity and gas

Add the following:

"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 electronic equipment during power surges. In the event of damage to the office and laboratory equipment and related electronic equipment because of a faulty voltage, the contractor shall be liable for payment of all repair or replacement costs of such damaged items."

B 1406 MEASUREMENT AND PAYMENT

Change the unit of measurement of Item 14.01(e) to "number" and renumber as follows:

Item		Unit
B14.01	**(e) Ablution units**	number (No.)

Add the following subitem to item 14.01:

Item			Unit
B14.01	**(g)**	**Kitchen units**	number (No.)

The unit of measurement and payment shall be the authorized number of units erected, complete and in accordance with the specifications and drawings, together with all items as specified in Clause B1402.

The tendered rate shall include full compensation for the supply and erection of units, accessories, furniture, etc. as specified and for the proper maintenance, cleaning and provision of daily requirements.

Add the following subitem to Item 14.03*:*

Item			Unit
"B14.03	**(a)(xvii)**	**Uninterrupted power supply units**	number (No.)

The unit of measurement and payment shall be the authorized number of units erected, complete and in accordance with the specifications and drawings, together with all items as specified in Clause B1402.

The tendered rate shall include full compensation for the supply and erection of units, accessories, furniture, etc. as specified and for the proper maintenance, cleaning and provision of daily requirements."

B6 SECTION 1500 : ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

"It is a condition of this contract that traffic is accommodated in accordance with 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 the South African National Roads Agency Limited, P.O. Box 415, Pretoria, 0001."

B 1502 GENERAL REQUIREMENTS

(a) Safety

Add the following:

"The Contractor shall take all precautions necessary to programme and conduct his construction operations in such a manner that inconvenience and annoyance to public traffic, property owners and road users is kept to a minimum. The Contractor shall also ensure that safety requirements are strictly enforced at all times.

The Contractor shall be responsible for maintaining the existing road within the site of the Works in a safe and trafficable condition for the duration of the contract.

The Contractor, before starting work on any part of the site or at any position, shall submit to the Engineer his method statement and programme for accommodating traffic on that section."

(e) Access to properties

Add the following:

"Where the alignment of the new road coincides with the alignment of the existing road, a number of accesses to private properties will have to be operational and maintained during the constructional period. No separate payment will be made for providing acceptable and safe access across the new road at all times during construction of the road."

(i) Traffic safety officer

Add the following to the second paragraph:

"The Contractor shall submit a CV of the candidate to the engineer for approval before the Traffic Safety Officer is appointed. The Traffic Safety Officer shall be available to discuss road safety and traffic accommodation matters whenever required by the engineer."

Replace subsubclauses (ii) and (iii) with the following:

"(ii) Record on neat and dimensioned sketches and submit 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 identifiable permanent features or survey points located 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 be amended whenever changes are made in the field and the revised detailed sketches shall be submitted to the engineer. Such changes shall include the recording of the position of flagmen and STOP/GO control men and their associated traffic accommodation equipment wherever used.

(iii) Personally inspect the position and condition of each traffic accommodation feature on the entire site of works twice each day before 09:30 and at 16:30, 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 to the engineer the daily labour returns of flagmen, STOP/GO and traffic signal control men employed."

Add the following new subsubclauses:

(ix) The Traffic Safety Officer shall be equipped with a cellular telephone and shall have a vehicle and 3 labourers at his disposal 24 hours a day and he shall be directly answerable to the Contractor's Site Agent. The Traffic Safety vehicle shall be a truck with a capacity of 3 tons and shall be equipped with a high visibility rear panel in accordance with the requirements of Volume 2 Chapter 13 of the South African Road Traffic Signs Manual. The words "TRAFFIC CONTROL" shall be written on the high visibility panel in highly legible letters not less than 140mm high.

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 Traffic Safety Officer, the Traffic Safety vehicle, the driver and three labourers and the cost of the cellular telephone shall be deemed to be included in the rate tendered for Pay Item B15.01 : Accommodation of traffic and maintaining temporary deviations.

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

(xi) Be responsible for 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 and be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.

(xii) In the event of an accident, record details of the accident in a written report, to a format agreed with the engineer accompanied bt photographs and a neat sketch plan on which is shown identifiable permanent features, relevant dimensions and the position of all temporary traffic control facilities or other devices used for traffic accommodation."

Add the following new subclauses:

"**(j) Overnight parking of plant**

During non-working hours, all plant and traffic hazards shall be removed from the road and all signs no longer applicable to the situation shall be removed or effectively covered. No plant shall be left adjacent to the road during overnight parking. Plant which is impractical to be parked at the contractor's camp may be parked at the construction site, provided it is parked at least 5 m from the edge of the road surface.

(k) Use of reflective safety jackets

The Contractor shall ensure that all site personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and that these are worn at all times when working on or in proximity of the travelled way. The safety

jackets shall be of an approved Level 2 type, bright/fluorescent orange, red-orange or yellow in colour with retro-reflective strips as indicated in Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual (SARTSM), Figure 13.30 (Detail 13.30.2). Any person found not wearing a reflective safety jacket under these circumstances shall be removed from the site until such time as he/she is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are, in the opinion of the engineer, ineffective shall be immediately replaced by the contractor.

The provision of these safety jackets shall be deemed to be included in the rate tendered for item B15.01 : Accommodation of traffic and maintaining temporary deviations.

(l) 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 traveling public, accommodation of traffic, and the provision of 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 impose 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."

(m) Handing over the site

The total extent of the site between the limits of construction as described in this document and indicated on the drawings will be handed over to the contractor at the commencement of the contract period. The engineer however reserves the right to adjust this arrangement should progress or safe passage of traffic warrant such a change.

(n) Use of explosives in close proximity of temporary deviations

The contractor shall arrange all necessary traffic control and other requirements to safeguard the traffic on temporary deviations during blasting operations.

(o) Land taken up for deviations

Negotiations with landowners to obtain the land taken up by temporary deviations will be undertaken by the employer. A prime cost sum is allowed in the bill of quantities for payment of compensation to affected landowners. All other negotiations regarding temporary access to properties, land-use, fencing requirements etc. shall be dealt with by the contractor in conjunction with the engineer and be confirmed in writing and be kept on record by the contractor.

B 1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

Replace the first sentence of the first paragraph with the following:

The contractor shall provide, erect and maintain the necessary traffic-control devices, road signs, channelization devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control devices) in accordance with the project specifications, the South African Road Traffic Signs Manual (SARTSM) and as shown on the drawings and remove them when no longer required. It shall be incumbent upon the contractor to ensure that the abovementioned traffic-control devices are present where required at all times and are functioning properly.≅

Replace the third paragraph with the following:

“The type of construction, spacing and placement of traffic-control devices shall be in accordance with the SARTSM. The recommended arrangements of the traffic control devices illustrated and/or drawings issued by the engineer shall not be departed from without prior approval of the engineer. The arrangements expected to be most commonly used in the contract are given on the tender drawings.

The details shown for spacing and placement of traffic-control facilities may however, be revised at the discretion of the engineer where deemed necessary to accommodate local site geometry and traffic conditions.”

(b) Road signs and barricades

Add the following:

“The contractor shall be responsible for the protection and maintenance of all signs, and shall at his own cost replace any that have been damaged, lost, or stolen.

All temporary road signs required to be moved often shall be mounted on portable supports for the easy moving of signs to temporary positions. The only permitted method of ballasting the sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the various types of temporary road signs.

The covering of permanent road signs, if applicable, shall be by utilizing a hessian bag that shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials and fastened by means of adhesive tape shall not be permitted. The

cost of covering of permanent road signs shall be included in the tendered rates of items B15.01 and B15.10."

(d) Channelization devices and barricades

Add the following:

"The use of drums as channelisation devices shall not be permitted. Drums may however be used to set up barriers as provided for in sub clause 1503(d).

Delineators shall:

(i) comply with the manufacturing and reflective requirements of the SARTSM and the blades shall be reversible with dimensions as indicated on the drawings;
(ii) have smooth and round edges and be mounted on a post and base. All components shall be of durable plastic material;
(iii) have the lower edge of the reflective part of the delineator mounted not lower than 250mm above the road surface;
(iv) be capable of withstanding the movement of passing vehicles and gusting winds up to 60 km/h in typical working conditions without falling over. To achieve this, the base shall be at least 0,18 m^2 and ballasted by sandbags with sand;
(v) together with its mounting be designed such that it will collapse in a safe manner under traffic impact.

Traffic cones manufactured in a fluorescent red-orange or red plastic material may be used only at short term lane deviations during daylight. Cones shall not be used on their own, but shall be interspersed with delineators at a ratio not exceeding 3:1. Cones used on all deviations shall be 750 mm high. Lane closures which continue into the night time shall be demarcated by delineators only."

(e) Warning devices

All construction vehicles utilized on site shall be equipped with visible rotating amber warning lights and these shall be operational at all times when travelling on site or when vehicles are stationary in construction areas. The contractor shall also provide the engineer's site personnel with warning lights for their vehicles (maximum of two (2) lights required). All construction vehicles shall clearly display an identification sign(s) with the legend "CONSTRUCTION VEHICLE" visible from the front and back of the vehicles.

No separate payment shall be made for the provision of warning lights or identification signs for construction vehicles and shall be deemed to be included in the tendered rate for Pay Item B15.01.

Add the following new subclauses*:*

(g) Maintenance

All temporary traffic control facilities shall be kept clean and maintained in good order at all times.

If the coefficient of retro-reflection of any of the Contractor's signs falls below 80% of the value given in Table 1 of CKS 191 - 1987 (observation angle 0,33 , entrance angle 5,0) for the grade and colour of the material used the sign shall be considered defective and shall either be rectified or removed and replaced.

(h) Sufficiency

The Contractor shall determine, from his proposed programme, the number of temporary traffic-control facilities required and shall not commence with any accommodation of traffic before sufficient traffic-control facilities have been delivered to the site.

The Contractor shall keep sufficient surplus barricades, signs and delineators on or around the site to allow for the replacement of damaged or missing items within a period of two (2) hours of the deficiency being discovered.

The Contractor shall allow in his tendered rates for the replacement of five (5) percent of the traffic-control facilities scheduled. This percentage is to allow for the replacement of traffic-control facilities which become unserviceable or damaged by public traffic or stolen and is beyond the Contractor's control and not the result of his actions or omissions during the period of accommodation of traffic on the site. The replacement of traffic control facilities over and above this five (5) percent of the scheduled items damaged by public traffic or stolen shall be payable at tendered rates."

B1504 WIDTH AND LENGTH OF TEMPORARY DEVIATIONS

Replace the second paragraph with the following:

"Where the existing road is repaired, resurfaced or reconstructed in half widths, the roadway width for accommodating one-way traffic shall be at least 4m wide. The length of the half-width construction shall not exceed 4 000 m."

B 1517 MEASUREMENT AND PAYMENT

Item	Unit
B15.01 Accommodating traffic and maintaining temporary deviations	kilometre (km)

Add the following*:*

“The unit of measurement and payment under Item 15.01 shall apply mutatis mutandis to Item B15.01.

The tendered rates for Item B15.01 shall however include full compensation for all flagmen as required and as shown or specified on the accommodation of traffic drawings in accordance with the requirements of the South African Road Traffic Signs Manual Volume 2 Chapter 13.”

Item	Unit
B15.03 Temporary traffic-control facilities	

Add the following:

“For the purposes of this Contract, it should be noted that measurement and payment for flagmen is included under Item B15.01.”

Amend the paragraph headed "**General**" to read:

"The tendered rates for the respective traffic-control facilities shall include full compensation for the supply and initial erection complete with posts, stakes, portable stands and sandbags as may be required, for clearing, for their maintenance and the replacement of items which have become unserviceable due to normal wear and tear, and their removal when no longer required. As stated in subclause B15.03(k), the Contractor shall allow in his tendered rates for the replacement of at least five (5) percent of the traffic-control facilities scheduled. This percentage is to allow for the replacement of traffic-control facilities which become unserviceable or damaged by public traffic or stolen and is beyond the Contractor's control and not the result of his actions or omissions during the period of accommodation of traffic on site. The replacement of traffic control facilities over and above this five (5) percent of the scheduled items damaged by public traffic or stolen shall be payable at tendered rates. 75% of the tariff will be payable when the items have been provided and erected in position for their first use on site and 25% when finally removed from the site.

The tendered rate for sub-item (h), delineators, shall also include full compensation for moving these signs laterally (as required or instructed by the engineer) as specified in Subclause B1503 (c) so as

to widen the travelled way when work is not in progress on that part of the section that is closed, or vice versa.≅

Add the following new Item :

“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 per hour hour (hr)

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 sub-item B15.14(a) which 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.”

Add the following new clause:

B 1518 ADDITIONAL REQUIREMENTS

The following additional requirements shall apply:

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

- No section of the road shall be closed to traffic during the construction works and at least one lane in each direction shall be open to traffic at all times.

- 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.

- Failure to maintain road signs, warning signs or flicker lights, etc. in a good condition shall constitute ample reason for the engineer to bring the works to a stop until the road signs, etc. have been repaired to his satisfaction.

- The contractor may not commence construction activities 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 submit proposals for each traffic accommodation in connection with directional signs to the engineer for approval.

B7 SECTION 1600: OVERHAUL

B 1602 DEFINITIONS

(a) Overhaul material

Add the following:

(vii) Any material, irrespective of the type of material, which is removed from the existing pavement layers and spoiled at designated spoil sites, or is re-used in other parts of the works or to approved stockpiles or from stockpiles to any part of the works.

(b) Overhaul

Add the following:

Overhaul shall not be payable on materials transported from commercial sources.

B8 SECTION 1700: CLEARING AND GRUBBING

B1702 DESCRIPTION OF WORK

(a) Clearing

Add the following:

“Clearing shall include the removal of material to a thickness of up to 150mm in-situ material as ordered by the engineer. 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 shall be taken after clearing (topsoil or unsuitable roadbed material) and roadbed preparation if applicable.

The payment for the clearing of concrete structures which cannot be cleared by means of a bulldozer as described under clause 1702(a), shall be made according to item B17.08.”

Add the following subclauses:

“(e) Existing roads

Where new construction work extends over existing roads, the existing road surface shall be ripped and removed if so directed by the engineer. The work as described above will be paid for under item B17.01.

(f) Removal of trees

Only trees identified and marked by the engineer shall be removed.”

B 1703 EXECUTION OF THE WORK

(a) Areas to be cleared and grubbed

Add the following*:*

“Apart from normal clearing and grubbing, the fill embankments of the existing roads are also to be cleared and grubbed over the areas where the new horizontal alignment coincides with the alignment of the existing road, or where repairs are required to the fill embankments of the approaches of bridges. Provision is made for separate payment for clearing and grubbing of the existing fill embankments where conventional machinery might be suitable to undertake the work due to the steep side slopes of the embankments. An additional pay-item is allowed for in the bill of quantities for this type of clearing and grubbing which may have to be undertaken by hand or similar manner

(c) Disposal of material

Add the following:

"(i) Non toxic waste (trees, tree stumps, plain and reinforced concrete, rubble, etc.)

All surplus or unsuitable material (non-toxic waste) shall be disposed of at an approved dumping site. The local authority within whose boundaries the site is located, must approve such site, and the dumping must comply with all statutory and municipal regulations. Rates tendered shall include an unlimited free haul distance to the approved dumping site.

(ii) Toxic waste (bitumen products, etc.)

The contractor shall identify a approved toxic waste dumping site. Pay item B17.08 has been provided in the schedule of quantities to compensate the contractor for all costs associated with the removal and disposal of existing toxic waste, viz existing bitumen products.

Toxic waste generated by the contractor during construction shall be removed and disposed of by the contractor at his own cost. No pay item has been provided for this work. The cost thereof shall be deemed to be included in the contractor's tendered rates."

B 1704 MEASUREMENT AND PAYMENT

Add the following new Item:

Item		Unit
B17.08	**Disposal of toxic waste including dumping site fees and an unlimited free-haul distance to an approved dumping site**	cubic metre (m^3)

The unit of measurement shall be the cubic metre of in-situ material removed.

The tendered rate shall include full compensation for all excavation, demolition and for loading, transporting and disposal of the toxic waste, including dumping site fees and an unlimited free-haul distance to an approved dumping site.

B9 SECTION 1800: DAY WORK

Add the following new Section:

B 1801 SCOPE

This section covers the listing of daywork items for use in determining payment for work which cannot be quantified in specific pay item “units” in the bill of quantities or work ordered by the engineer during the construction period which was not foreseen at tender stage for which no applicable rate exists in the schedule or for work of a special or different character warranting special payment as decided by the engineer. No surcharge is applicable to the rates tendered under Section B1800 of the schedule of quantities.

B1802 ORDERING OF DAYWORK

No daywork shall be undertaken unless specific written authorisation is obtained from the engineer.

B1802 GENERAL

The contractor shall submit records of the work performed in accordance with the requirements of Clause 6.5 "Day work" of the general conditions of contract to the engineer.

B1803 MEASUREMENT AND PAYMENT

Only work ordered by the Engineer to be carried out under dayworks shall be measured and paid for at the rates given in the daywork schedule.

The daywork rates submitted for labour shall cover overhead charges and profit, site supervision and administration staff, use of small hand tools and appliances, non-mechanical plant and equipment, consumable stores and site supervisors transport.

The daywork rates for vehicles, plant and equipment shall be all-inclusive hire charge for the use of the vehicle and driver or plant/equipment and operator and shall apply only to vehicles, plant and equipment nominated in writing by the engineer.

The mark-ups on daywork items in accordance with the Appendix to the Tender shall not be applicable on daywork items listed in the bill of quantities in terms of the above specifications. In the event of new daywork rates being requested for items not appearing in the bill of quantities, then the provisions of the general conditions of contract and the Appendix to the Tender shall apply.

Prior to the commencement of any work by the labourers described under item B18.01, the contractor must obtain written consent from the engineer regarding the classification and composition of all labourers in terms of “unskilled” and “skilled” labourers required for the work as ordered by the engineer.”

Item **Unit**

B18.01 Unskilled Labourers

(a) Normal working hours hour (hr)

(b) Overtime hour (hr)

(c) Sundays and public holidays hour (hr)

The unit of measurement shall be the hours worked by unskilled labourers.

The tendered rates shall include full compensation for all costs, for the use of tools and for financial charges of any description incurred by the contractor and his sub-contractor as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads and profit. Payment for a foreman will only be made when the foreman is in full time attendance of the day work.

Item **Unit**

B18.02 Semi-skilled Labourers

(a) Normal working hours hour (hr)

(b) Overtime hour (hr)

(c) Sundays and public holidays hour (hr)

The unit of measurement shall be the hours worked by semi-skilled labourers.

The tendered rates shall include full compensation for all costs, for the use of tools and for financial charges of any description incurred by the contractor and his sub-contractor as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads and profit. Payment for a foreman will only be made when the foreman is in full time attendance of the day work.

Item **Unit**

B18.03 Skilled Labourers

(a) Normal working hours hour (hr)

(b) Overtime hour (hr)

(c) Sundays and public holidays hour (hr)

The unit of measurement shall be the hours worked by skilled labourers.

The tendered rates shall include full compensation for all costs, for the use of tools and for financial charges of any description incurred by the contractor and his sub-contractor as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads and profit. Payment for a foreman will only be made when the foreman is in full time attendance of the day work.

Item **Unit**

B18.04 Foreman

(a) Normal working hours hour (hr)

(b) Overtime hour (hr)

(c) Sundays and public holidays hour (hr)

The unit of measurement shall be the hours worked by foreman.

The tendered rates shall include full compensation for all costs, for the use of tools and for financial charges of any description incurred by the contractor and his sub-contractor as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads and profit. Payment for a foreman will only be made when the foreman is in full time attendance of the day work.

Item **Unit**

B18.05 Hire of construction equipment (as specified in the schedule) hour (hr)

The unit of measurement shall be the number of hours the equipment has been used on the designated work. Standing time will not be measured for payment.

The tendered rates shall include full compensation for furnishing and using the equipment, including the cost of the operator, fuel, ground engaging tools, supervision, maintenance and for all other incidentals necessary to carry out the work.

B10 SECTION 2100: DRAINS

B2104 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Pipes for subsoil drainage can be of internal diameter less than 100 mm, when used in composite in-plane (geocomposite) drainage systems.

High-density polyethylene (HDPE) drainage pipes with lattice wall construction.

(ii) Synthetic-fibre filter fabric (Geotextile)

The geotextile shall be manufactured for civil engineering purposes by a manufacturer recognised by the Geosynthetic Interest Group of South Africa (GIGSA). It shall be manufactured from any suitable synthetic polymer, excepting polyamide, into a homogeneous sheet exhibiting uniform properties. These properties shall not be subject to a degradation of more than 10 % during the design life of the structure by the chemicals and organisms encountered in normal soils. Immersion in fresh or sea water during its design life shall not alter the specified qualities of the geotextile.

When used for filtration, drainage or separation the filter properties of the geotextile/soil interface shall not develop a permeability lower than that of the surrounding soil during the design life of the structure. The geotextile shall have an initial permeability not less than ten times the permeability of the surrounding soil which property the fabric shall maintain for the design life of the structure.

In order to ensure that the geotextile performs properly and survives the construction process, the grade of the geotextile to be used shall be specified according to the minimum index strength properties

corresponding to the severity of the installation as given by the mechanical properties in tables 2104/1 and 2104/2.

TABLE 2104/1: CONSTRUCTION SURVIVABILITY-STRENGTH REQUIREMENTS

PROPERTY	UNITS	GRADE					TEST METHOD
		1	2	3	4	5	
Trapezoidal tear	N	225	275	325	425	525	ASTM D4533-85
CBR	kN	1.5	2.0	2.5	3.0	4.0	SABS 0221-88
Dart test	mm	28	24	20	16	14	TRH 15 TEST METHOD B2
Tensile strength	kN/m	9	11	13	19	25	SABS 0221-88

Numerical values represent the **minimum** average values (in the weaker principle direction), except for the dart test where the numerical value represent the **maximum** allowable diameter of hole made by the falling dart.

Geotextile acceptance shall be based on the specified test methods.

TABLE 2104/2 : INSTALLATION CONDITIONS RELATING TO GRADE OF GEOTEXTILE

INSTALLATION CONDITION	GRADE				
	1	2	3	4	5
Trench less than 2.0 deep, with rough or irregular sides and/or sharp drainage stone, with moderate degree of compaction.*	•				
Trench less than 2.0 deep, with rough or irregular sides and/or sharp drainage stone, with high degree of compaction.*		•			
Trench greater than 2.0 deep with smooth sides and rounded drainage stone, with moderate degree of compaction.			•		
Trench greater than 2.0 deep, with rough or irregular sides and/or sharp drainage stone, with high degree of compaction.*				•	

Erosion protection with stone hand-packed directly onto geotextile (gabions and mattresses).			•		
Erosion protection with rock less than 100 kg placed on geotextile protected by 150-300 mm sand, or “zero drop height” (dumped or packed riprap).				•	
Erosion protection with rock heavier than 100 kg placed on geotextile protected by 150-300 mm sand, or “zero drop height” (dumped or packed riprap).					•

* The geotextile under this installation condition shall exhibit an elongation characteristic of not less than 20% in both directions.

The engineer shall assess the severity of the installation and/or confirm the grade of geotextile to be used in each case.

In certain applications the following minimum hydraulic properties will apply or as decided by the engineer.

TABLE 2104/3 : HYDRAULIC PROPERTIES

PROPETY	UNIT	GRADE					TEST METHOD
		1 1	2 2	3 3	4 4	5 5	
Normal through flow @ 100 mm head	$l/m^2/s$	20	20	20	20	20	SABS 0221-88
Planar through flow under a confining pressure of 100 kPa	l/m/h	10	14	19	26	34	ASTM D4716-87

The contractor shall submit a sample 1,0 m x full roll width as well as commercial literature showing the flow curves of each grade of geotextile he proposes to use. Before bringing the material onto site the contractor shall obtain the approval of the engineer for the make and grade of material to be used. The engineer may, at any time, require random samples of the material used on site to be tested from time to time. Products found to vary markedly from the specified norms may be rejected and replaced at the contractor’s cost.

(iv) Composite in-plane drainage fabric (for geocomposite drain)

The geocomposite drain shall, excluding the pipe, consists of a synthetic drain core sandwiched between two layers of geotextile. The geotextile shall allow the free passage of water, but not the soil particles, and the thicker drain core shall permit the water to move in the plan of the composite with virtually no head loss.

The geotextile shall comply with the requirements of Subclause (iii) above.

The drain core shall be manufactured from any suitable synthetic polymer. It shall not be subject to degradation by the chemicals and organisms encountered in normal soils. Immersion in fresh or sea water during its design life shall not significantly alter the specified properties of the material.

The thickness of the drain core shall not be reduced by more than 30 % under a confining pressure of 100 kPA.

The geotextile jacket shall not reduce the flow capacity of the geocompositedrain by more than 50 % under a confining pressure of 100 kPA.

Crushed stone

The crushed stone used for subsurface drains shall be clean, hard, durable, crushed stone from approved sources. The aggregate crushing value of the stone shall not exceed 30 when tested in accordance with method B1 of TMH1.

The crushed stone shall conform to the following grading:

GRADE	SIEVE SIZE (mm)	PERCENTAGE PASSING BY MASS
Course grade	26,5	100
	13,2	60 – 85
	6,70	15 min
	2,36	15 max

The aggregate shall be evenly graded between the coarse and fine fractions with no excessive discontinuities.

B2107 MEASUREMENT AND PAYMENT

Add the following new items:

"Item			**Unit**
B21.08	**(e)**	**HDPE flexible pipe**	metre (m)

Measurement and payment shall be as specified for item 21.08(e) in the standard specifications.

Item		**Unit**
B21.20	**Subsoil drainage markers**	Number (No)

Measurement and payment shall be as specified for item 22.24 in the standard specifications."

'Item **Unit**

B21.21 Extra over item 21.16 for cement-treated soil backfill cubic metre (m^3)

The unit of measurement shall be the cubic metre of excavation backfilled with cement –treated soil, measured as specified for item 21.16.

The tendered rate shall include full compensation for the additional cost of providing and mixing in cement (Cem II 32,5 @ 5%) in the backfill material.

B11 SECTION 2200 : PREFABRICATED CULVERTS

B2201 SCOPE

Add the following:

"All rectangular culverts with spans from 0,9m up to and including 2,4m shall be constructed with precast units.

The attention of the contractor is drawn to the fact that information given on the plans, longitudinal sections or drainage schedules may have to be altered to suit actual site conditions and, therefore, the contractor shall only construct these culverts after the engineer has verified the information on the drawings from detail surveys taken on site by the contractor as directed by the engineer.

Precast units shall be ordered by the contractor from actual measurements of length acquired on the site and not from lengths stated in the drainage schedule or from the bill of quantities.

No precast units shall be ordered until the engineer has satisfied himself that the proposed units have been manufactured to the required tolerances and loading standards. The engineer must be given the opportunity to load test units if he considers this necessary".

B2203 MATERIALS

(f) Skewed Ends

Delete the second and third paragraphs and substitute with the following:

"Precast portal and rectangular culverts placed on a skew shall be supplied with cast in situ skewed ends as shown on the drawings. In

situ skew ends are to be constructed simultaneously with the wingwalls and headwalls".

B2204 CONSTRUCTION METHODS

Add the following:

"In all cases where soft founding materials is classified as suitable for culvert bedding construction, the in situ material shall be ripped, moistened and compacted to 90% or 93% modified AASHTO density. The depth of preparation and compaction of founding material shall be as indicated on the drawings or as specified by the engineer. Allowance for measurement and payment for this work is made in the bill of quantities under this section."

(c) Excavation by hand

Where circumstances prevent the use of mechanical excavators and material can be removed only by hand tools, the engineer shall authorise the supplementary payment to the contractor for such work at the tendered rates for excavation by hand should he be satisfied that the contractor had been unable to prevent the necessity for excavation by hand by proper planning and precautionary measures. The supplementary rate for excavation by hand shall not apply to minor finishing or clearing jobs in excavations which are otherwise being done by mass excavation plant.

Payment for hand excavation shall be an "extra over" payment to normal excavation as allowed for in item 22.01."

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

Add the following subclauses:

"(c) Excavation by hand

Where circumstances prevent the use of mechanical excavators and material can be removed only by hand tools, the engineer shall authorise the supplementary payment to the contractor for such work at the tendered rates for excavation by hand should he be satisfied that the contractor had been unable to prevent the necessity for excavation by hand by proper planning and precautionary measures. The supplementary rate for excavation by hand shall not apply to minor finishing or clearing jobs in excavations which are otherwise being done by mass excavation plant.

Payment for hand excavation shall be an "extra over" payment to normal excavation as allowed for in item 22.01.

(d) Drainage of excavations

The contractor shall apply suitable, effective drainage and dewatering methods for preventing the ingress of water into the excavation and to keep them dry.

Drainage measures, with the exception of pumping, shall be maintained until the backfilling has been completed. Between various construction stages, pumping may be interrupted in consultation with the engineer.

Any draining or pumping of water shall be done in a manner as will preclude the concrete or materials or any part thereof from being carried away.

Allowance for measurement and payment for dewatering and keeping dry of culvert excavations is made in the schedule in this section".

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

B.2210(b)(i) Cast in situ invert slabs

Replace with the following:

"In accordance with the drawings, transverse construction joints are required in cast in situ concrete invert slabs for portal culverts. In addition, longitudinal construction joints as shown on the drawings between the invert slabs of each of the barrels of multiple culverts are required. Allowance for measurement and payment for a Class F1 surface finish and soft board in these joints is made in the bill of quantities. No payment shall be made for formwork on the outside edges of invert slabs (closest to excavated face).

All culverts (precast as well as in situ) shall be constructed with an in situ reinforced concrete floor laid on a 75mm concrete screed".

Delete subclause B.2210(b)(ii) : "Prefabricated floor slabs."

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Change the last sentence in the fourth paragraph to read "90% or 93% as shown on the drawings or as directed by the engineer."

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

(b) Concrete work

Add the following:
"The type of surface finish for in situ concrete in the culverts shall be as indicated on the drawings. Generally all exposed faces shall be of Class F2 formwork and faces covered by backfill shall be Class F1. The top of parapet walls and wingwalls shall be finished to a Class U2 surface finish."

(h) Prefabricated inlet and outlet structures

Add the following:

"The use of precast concrete inlets and outlets as described in clause 2212(h), shall not be allowed under any circumstances. Cast in situ concrete wingwall type inlets and outlets shall be constructed as indicated on the drawings and shall be in accordance with section 6000 of the Standard Specifications. Allowance for measurement and payment for wingwall type inlets and outlets is made in the schedule in this section."

B12 SECTION 3100 : BORROW MATERIALS

B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

Add the following to sub-clause 3102(a):

"Arrangements regarding to access to borrow pits and the alignment of haul roads shall be made between the contractor and the owners of the land on which borrow pits are situated. The engineer's representative on site shall be present at all such negotiations, which shall be confirmed in writing by the contractor. All costs involved with such negotiations as well as the requirements contained in clause 3102 and clause 1225 of the specifications shall be borne entirely by the contractor."

B3103 OBTAINING BORROW MATERIALS

(a) General

Add the following:

"The expropriation and compensation for land from which borrow materials is obtained shall be negotiated and paid for by the employer."

In addition to all the requirements for borrow pits, the contractor shall take cognizance of and implement any requirements in the Environmental Management Plan relating to borrow pits

(c) Use of borrow materials

Add the following to the second paragraph of this subclause:

“Compensation to owners and arrangements with owners for taking material from alternative borrow pits proposed by the contractor shall be the contractor’s responsibility and entirely at his own expenses.”

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

(c) Excess overburden

Add the following:

“All excess overburden removed at borrow pits shall be replaced over the entire area of the borrow pit after initial shaping has been undertaken in an even layer. Payment for this requirement shall be deemed to be included in pay item 31.01

(f) Protecting borrow pits

Add the following:

"It is a requirement of the contract that, where-ever required by the landowner, borrow pits shall be provided with temporary fencing around the perimeters of the borrow areas. The temporary fencing shall be erected prior to entering the land for borrowing purposes and shall on final finishing of the borrow areas as specified, be dismantled and removed and discarded as decided upon by the contractor. Payment for temporary fencing around borrow pits shall be made in accordance with the stipulations of section 5500 in these specifications."

Add the following new subclause:

“(h) Haul roads

Haul roads to designated borrow pits along the road shall be constructed along alignments as instructed by the engineer and shall be maintained at the contractor’s own cost to the satisfaction of the engineer."

B3105 FINISHING-OFF BORROW AREAS AND HAUL ROADS

Add the following to this clause:

"Should the employer, engineer or any other authority approved by the engineer, require a higher standard of shaping and finishing off of borrow pits than specified in the standard specifications, measurement and payment for such extra work shall be made using daywork items as scheduled under this section."

The contractor shall provide detailed proof of payment before payment shall be certified to the contractor.

B13 SECTION 3200: SELECTION, STOCKPILING AND BREAKING-DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING THE GRAVEL LAYERS

B3201 SCOPE

Add the following after the first paragraph:

For safety reasons, all material for the construction of layerworks, dumped in heaps next to the road surface where traffic is accommodated, shall be flattened on the same day. Payment for this activity shall be deemed to be included in the relevant tendered rates under sections 3300, 3400 and 3600.

B3204 BREAKING-DOWN THE MATERIAL

(a) Initial breaking-down of the material in cuttings, borrow pits and existing pavement layers

Add the following to the table in the second paragraph of this subclause:

"Pioneer layers - 500mm maximum dimension

(b) Further breaking-down of pavement material

Add the following:

"Material used for the construction of selected, and wearing course layers shall be broken down by means of normal grid-rolling or additional normal grid-rolling to such an extent that the compacted pavement layer shall contain material of which 95% of the aggregate size shall not exceed 65mm. All oversize material, after breaking-down, shall be removed".

B3209 PLACING AND COMPACTING THE MATERIALS IN LAYER THICKNESSES IN EXCESS OF 200mm AFTER COMPACTION

Add the following new subclauses:

(c) Pioneer layer

"The maximum size rock used in pioneer layers shall be 500mm and the layer thickness before compaction shall not be more than one-and-a-half times the maximum actual size of the rock. Not more than 20% of pioneer layer material shall pass through the 2,0mm sieve. Pioneer layer processing and compaction shall be as specified in subclause 3307(c) of the standard specifications".

"**(d) Joints**

Joints between adjacent portions of the same layer, be it as a result of half-width construction or longitudinal joints between individual work areas, shall not correspond with the joint in the layer below and shall be offset a minimum of 150mm. During the placement of material adjacent to a joint, the existing material shall be cut back sufficiently to ensure tie-in with sound compacted material.

At permanent tie-ins at the start and end of the newly constructed section of the base, as well as tie-ins required at structures and intersections, the existing pavement materials shall be removed to sufficient depth to allow for the construction of the new subbase and base layers."

B 3212 MEASUREMENT AND PAYMENT

In the fifth line of the first paragraph after the words "given in this section", insert the words "including the forming of all joints as specified".

B14 SECTION 3300: MASS EARTHWORKS

B 3302 MATERIALS

(a) Roadbed and cut

Add the following:

"The CBR of the upper 150mm of the roadbed shall be not less than 10 at 93%of modified AASHTO density and the CBR of the lower 150mm layer shall not be less than 7 at 93% of modified AASHTO density. If this is not attainable the material shall be deemed as unsuitable and treated in accordance with subsection 3305(a) Removing unsuitable material."

(b) Fill

Add the following to paragraph (ii):

"The top 150mm of the fill shall have a CBR not less than 10 at 93% of modified AASHTO density while the lower 150mm layer shall have a CBR of not less than 7 at 93% of modified AASHTO density."

(iii) Compaction requirements, minimum in-situ dry density

Add the following after the first paragraph:

All fills shall be compacted to 93% of modified AASHTO density unless otherwise specified by the engineer.≅

Add the following to paragraph (iv):

AThe maximum swell at 100% Mod ASSHTO density compaction shall not be more than 2%."

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Add the following to the third paragraph:

"For the purpose of this contract, excavation and removal of in-situ clayey material over areas where the road is in a fill condition shall be classified as removal of unsuitable material, irrespective of the stability or moisture condition of the in-situ material".

(b) Preparing and compacting the roadbed

Delete the last sentence of the first paragraph "If necessary, roadbed……. depth of compaction" and replace as follows:

"Where demarcated by the engineer, prior to the roadbed being scarified, the excess in situ material forming part of the present roadway, and within the limits of the roadbed, and in close proximity of the layer works, but falling within the limits of the layerworks, shall be bladed to controlled level in order to achieve the required level and necessary depth of compaction."

B3307 FILLS

(c) Constructing a pioneer layer

Add the following to the first paragraph:

"For the purpose of this contract, pioneer layers shall be completed by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications."

(d) Benching

Add the following:

"Benching of fill and pavement layer material is required to be undertaken into the existing fill embankments and pavement layers. No additional payment shall be made over and above the normal pay items applicable to earthworks and pavement layers where benching is required for widening of the existing road formation. Benching shall be undertaken as shown on the drawings.

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 and details of benching are shown on the drawings."

B 3312 MEASUREMENT AND PAYMENT

General Directions

(3) Work in Restricted areas

Add the following:

"Widening of existing fills as specified in sub-clause 3307(i) shall not be classified as restricted in terms of this sub-clause and no additional payment over and above payment under items 33.15 and 33.18 shall be considered in this regard≅.

B16 SECTION 3400 : PAVEMENT LAYERS OF GRAVEL MATERIALS

B 3401 SCOPE

Add the following paragraphs:
This section also covers the construction of subbase layers from designated borrow pit by the contractor for the construction of the layers.

The source of the material to be used on the layers is located in Magomani Village approximately 4km from the construction works in the south-westerly direction..

B3402 MATERIALS

(a) General

(i) Selected layer

Materials for the selected layer shall be obtained from an approved borrow pit and comply with the following:

(1) Selected layer:

- Minimum CBR at specified density 20
- Maximum plasticity index 3GM + 10
- Minimum grading modulus
  0,75

(ii) Subbase layers

The subbase layers shall be constructed from material obtained from an approved borrow pit material source. Subbase layer shall be unstabilized. Stabilisation shall be as directed by the engineer.

Materials used in the subbase layers shall comply with the following requirements:

(1) Subbase layer:

- Minimum grading modulus 1,50
- Maximum size of aggregate 63 mm

(iii) Base layer

The subbase layers shall be constructed from material obtained from an approved borrow pit material source. Subbase layer shall be stabilized. Stabilisation shall be as directed by the engineer.

Materials used in the base layers shall comply with the following requirements prior to the addition of the stabilizing agent:

(1) Base layer:

- Minimum grading modulus 1,50
- Maximum size of aggregate 63 mm

Materials used in the base layers shall comply with the following requirements after the addition of the stabilizing agent:

(2) Base:

- Minimum UCS at specified density 1 500 kPa
- Maximum plasticity index 6

(iv) Gravel shoulders and gravel wearing course

Gravel shoulders and gravel wearing course shall be constructed from material imported from an approved borrow pit. The gravel shoulders and the gravel wearing course shall be unstabilized.

Materials for shoulders and gravel wearing course shall comply with the following:

Oversize index < 5%

- Shrinkage product (LS x % < 0,425 mm) 100 – 365
- Grading co-efficient (% < 26,5 mm - % < 2,0 mm) x % < 4,75 mm/100 16 – 34
- CBR at 93% of modified AASHTO density > 15

Compaction requirements

The minimum in-situ dry density required for the various layers, in terms of modified AASHTO density, are as follows:

- selected subgrade 93%
- subbase 95%
- Base 97%
- Shoulders 93%
- Gravel wearing course 93%

B3405 CONSTRUCTION TOLERANCES

(a) Level

Add the following paragraph:

"The spacing of level control poles for the construction of layerworks shall not exceed ten meters in the longitudinal direction unless otherwise authorized by the engineer".

B3406 ROUTINE INSPECTION AND TESTS

Statistical control on layer thickness, compaction and stabiliser content will be applied in accordance with Section 8300 Quality Control (Scheme 2).

B17 SECTION 3500: STABILIZATION

B3502 MATERIALS

The actual application rate of the stabilization agent used in any specific material or the engineer shall determine layer.

All references to “Ordinary Portland Cement” shall be replaced with “Portland composite cement (CEM II 32,5)”.

(f) Application rate

The nominal application rate of chemical stabilizing agents for tender purposes shall be 80 kg/m³

B3503 CHEMICAL STABILIZATION

(i) Construction limitations

In table 3503/1, delete “8 hours” for ordinary Portland cement and cement blends and replace with “6 hours”.

B3506 TOLERANCES

(b) Uniformity of mix (chemical stabilization)

Add the following:

“The method described under 3506(b)(ii) shall be applicable to this contract.”

B3507 ROUTINE INSPECTION AND TESTS

Statistical control as per Section 8300 (Scheme 2) will apply.

Add the following sub-clause:

(j) Rejection of stabilized layers

Where newly constructed layers have been stabilized and have been rejected, the following shall apply:

(i) if rejected within seven (7) days of construction – 50% stabilizing agent shall be added and the layer reworked.

(ii) if rejected more than seven (7) days of construction – the material shall be removed and replaced and the layer reworked with 100% stabilizing agent.

B 4303 PLANT AND EQUIPMENT

(a) General

Add the following:

"Apart from the specified capacity and condition of plant used for sealwork, the operators and attendants of binder distributors and chip spreaders shall prove their abilities to the engineer to apply the binder and sealwork aggregate within the specified tolerances for application rates, widths of application and making good of all seemingly minor defects which may occur during sealwork operations. Able operators and attendants shall be kept in service throughout the construction period and shall not be rotated with reserve staff who might not be familiar with the equipment or final product requirements.

The engineer will instruct the removal of incompetent staff from site if satisfactory performance is not achieved and maintained."

B20 SECTION 5200: GABIONS

B5201 SCOPE

Add the following paragraph

"This section also covers the removal, dismantling and stacking of existing gabion work, and the reuse of these materials where authorised by the engineer."

B5203 CONSTRUCTION OF GABION CAGES

(a) General

Add the following new sub-clause:

"(iii) Reno mattresses or similar may be used as alternative to gabion boxes. These Reno mattresses are to be manufactured of 80mm x 100mm mesh (2,5mm diameter wires, diaphragm spacing 0,6m).

B5204 CONSTRUCTING GABIONS

(c) Assembly

Delete and substitute with:

(c) Assembly, erection and stretching

(i) Assembly

"Prior to assembly, the gabion material shall be opened out flat on the ground and stretched to remove any kinks and bends. The gabion boxes shall then be assembled individually by raising the sides, ends and diaphragms ensuring that all creases are in the correct position and that the tops of all four sides are even. The four corners of the gabion boxes shall be laced first followed by the edges of internal diaphragms to the sides. In all cases lacing shall commence at the top of the box by twisting the end of the lacing wire around the selvages. It shall then be passed round two edges being joined, through each mesh in turn and securely tied off at the bottom. The ends of all lacing wire shall be turned to the inside of the box on completion of each lacing operation.

(ii) Erection

Only assembled boxes, or groups of boxes, shall be positioned in the structure. The side, or end, from which work is to proceed, shall be secured to either completed work or by rods or stakes driven into the ground at the corners. These must be secured and reach at least to the top of the gabion box. Further gabions shall then be positioned in the structure as required, each being securely laced to the preceding one at all corners and diaphragm points.

(iii) Stretching

On completion of erection of a suitable length of gabion, the gabion boxes shall be stretched using a wire strainer or winch of at least one ton capacity firmly secured to the free end of the assembled gabion boxes.

Whilst under tension the gabion boxes shall be securely laced along edges (top, bottom and sides) and at diaphragm points, to all adjacent boxes and shall thereafter be filled."

(d) Rock filling

Add the following new sub-sub-clause:

(iii) General

"Filling shall be carried out only whilst gabion boxes are under tension. Filling material shall consist of rock of size not less than 120mm and not greater than 250mm so placed to produce a neat face and line with a minimum of voids.

Internal horizontal bracing wire shall be provided at 500mm vertical

centres or such spacing to ensure a ratio of four to every 1m³ of filling. These bracing wires shall be wrapped around two mesh wires and extended from front to back so positioned to ensure a neat face and line free of excessive bulges and depressions. Gabion boxes shall be filled in stages and horizontal bracing wires inserted as filling is brought up.

Similar bracing wires used vertically shall be provided in 0,5mm deep gabions at 330mm horizontal centres where water falls directly onto gabions or where a neat face is required.

Tension on the gabion boxes shall be released only when sufficiently full to prevent the mesh from slackening.

Gabion boxes shall be overfilled by 20 to 50mm above their tops to allow subsequent settlement of the filling."
Add the following new sub-clauses:

(e) Final wiring

“Closing and wiring down of lids shall proceed as soon as possible after filling operations and certainly in the likelihood of storms or floods during construction. The wiring down shall consist of wrapping around wire at such intervals as required or specified.

Lids shall be stretched tight over the filling with bars and wired down securely through each mesh along all edges, ends and diaphragms. The ends of all tying and bracing wires shall be turned into the gabion box on completion of all lacing operations.

Tightness of mesh, well packed filling and secure lacing is essential in all structures.”

(f) Removal, dismantling and stacking of gabions

“Existing gabions, either damaged or not, that require to be removed or moved to a new location shall be dismantled. Material not required for re-assembly or unsuitable for re-use shall be neatly stacked at approved locations in accordance with the engineer’s instructions. Payment will be made only for gabions removed in accordance with the written instruction of the engineer.

Where gabions require moving, or as declared suitable by the engineer are re-usable, the contractor shall re-use all the material, plus supply such new materials as may be required to re-assemble the gabion again to the standard specification for new gabions.

B21 SECTION 5600: ROAD SIGNS

B5601 SCOPE

"This section also covers the supply and erection of permanent danger plates at culverts and bridges at the locations indicated on the drawings or as directed by the engineer."

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

(a) Road signboards

Add the following:

"The contractor shall make every effort to ensure that signboards are correct in all respect and before dispatching the boards from the manufacturer's factory shall provide the Engineer with a 100mm x 150mm colour photograph of each sign face for approval of the correctness of the legend. Such approval will not imply final acceptance of the board. If the Contractor is in any doubt as to the correctness of the sign detail, the sign designer shall be contacted for verification."

(a) (ii) Steel profile road signboards

Add the following:

"Where the letter or legends cross the horizontal joints of the sign panels, the letter shall be cut on the joint and both ends folded around the radius.

Retro-reflective material to adjoining Chromadek panels on a sign shall be practical visual match of the specified colour."

B5604 ROAD SIGN FACES AND PAINTING

Add the following new subclause:

"(e) Application of retro-reflective material

All sign faces shall be faced with diamond grade retro-reflective material. Painted front sign faces shall not be used.

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium section in Clause 5603(d) of the Standard Specification, and of Clause B5603(a)(ii) of this project Specification."

B5605 STORAGE AND HANDLING

Add the following:
"The following shall not be allowed on the sign face:
Drilling of holes, except for the fastening of overlays

Application of any form of adhesive
Cleaning with any chemicals that are not specifically approved by the manufacturer of the retro-reflective material
Covering the sign face with an impermeable material that does not allow free circulation of air."

B5606 ERECTING ROAD SIGNS

(c) Erection

Add the following:

"After erection the signboard shall be thoroughly cleaned with a cleaning agent approved by the retro-reflective material's manufacturer.

All vegetation obstructing the new or replaced sign board shall be removed and disposed of as instructed by the Engineer."

B5608 DISMANTLING, STORING AND RE-ERECTING EXISTING ROAD SIGNS

Add the following:

"Existing overhead and ground mounted road signs that are being replaced by new signs shall be dismantled and disposed of by the Contractor. Where possible the dismantling of the signs shall not be before the replacement sign is erected and displayed. Where dismantling of the sign is required before erection of the replacement sign, the dismantling shall not take place until immediately before work is to commence on the replacement, and the replacement shall be completed and the new sign displayed as soon as possible thereafter (within 72 hours).

Dismantling shall include sign panels and ground mounted sign supports.

Ground mounted sign supports shall be cut off just below ground level. Material excavated for removal of buried poles shall be replaced, and any depression made good using excess material from excavation for new signs.

Pay items are provided in the Bill of Quantities. Payment will differentiate between different types of sign panels."

B22 SECTION 5700: ROAD MARKINGS

B5701 SCOPE

Road marking plans shall be issued during construction

B 5707 APPLYING THE PAINT

(c) Replace the last paragraph with the following*:*

"Permanent road marking work as specified by the engineer shall be carried out within 14 days of opening the road full width to traffic after the completion of the double seal surfacing."

.

Add the following:

"B5715 ESTABLISHMENT OF PAINTING UNIT

Allowance is made in the schedule of quantities for the re-establishment of the painting unit at designated intervals during the contract period. The engineer will instruct the re-establishing of the painting unit as required."

B5714 MEASUREMENT AND PAYMENT

Add the following new items

"Item		Unit
B57.10	**Re-establishing the painting unit at intervals during the contract period**	number (No)

The unit of measurement shall be the number of times the painting unit is re-established on site during the contract period. The tendered rate shall include full compensation for all items as specified.

The tendered rate shall include full compensation for the re-establishment on the site and for later removing all special equipment, personnel, etc. as may be required for painting the road-traffic markings. The contractor will be paid at tendered rates for painting the road-traffic markings."

B23 SECTION 5900 : FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B 5902 FINISHING THE ROAD AND ROAD RESERVE

Add the following:

"The contractor shall pay special attention to the collection and removal of all waste materials originating from surfacing and other roadworks activities. Excess aggregate or asphalt broomed from the road surface shall not be discarded onto the side-slopes of the road formation. These aggregates, together with all other 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 incorporated in the tendered rates for item 59.01 of the Schedule of Quantities."

PROJECT SPECIFICATIONS

PART C PROVISION OF THE TEMPORARY WORKFORCE

CONTENTS

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C 01 SCOPE

This Specification covers the provisions and requirements relating to the provision of the temporary workforce.

C 02 INTERPRETATIONS

C 02.01 Supporting documents

The Tender Rules, Conditions of Contract, Standard and Project Specifications, Drawings and statutory minimum requirements relating to the employment and remuneration of labour shall *inter alia* be read in conjunction with this Specification.

C 02.02 Definitions and abbreviations

For the purposes of this specification, the definitions given in the Conditions of Contract, the Standard Specifications and the Project Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

(a) "Key Personnel" means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, artisans and the like, and all other personnel in the permanent employ of the Contractor or Subcontractor who posses special skills and/or who play key roles in the Contractor's or Subcontractor's operation

(b) "Project Committee" means a committee consisting of the Employer, the Engineer, the Contractor, (or their nominated representatives) as well as representatives of the temporary workforce, which is convened from time to time at the discretion of the Engineer, for the purposes of acting as an avenue for effective communication and liaison between all the parties referred to, in all matters pertaining to the Contract

(c) "Subcontractor" means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the Works are sublet or subcontracted by the Contractor in accordance with the provisions of the Contract

(d) "Worker" for the purposes of this Specification means any person, not being one of the Contractor's key personnel, nor any key personnel of any Subcontractor, who is engaged by the Contractor, a Subcontractor or the Employer to participate in the execution of any part of the Contract Works and shall include unskilled labour, semi-skilled and skilled labour, clerical workers and the like

(e) "Workforce" means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all Subcontractors

(f) "Liaison Officer" means a representative from the temporary workforce, duly elected by them, to act on their behalf and through whom all matters pertaining to the temporary workforce can be channelised.

C 02.03 Status

Where any provisions or requirements of this Specification are in conflict with

anything elsewhere set out in the Contract, the provisions and requirements of this

Specification shall take precedence and prevail.

C 03 PERMITTED SOURCES OF TEMPORARY WORKERS

The Contractor shall as far as possible make optimum use of the human resources

outside his own workforce and the workforces of all subcontractors. The

temporary workforce that is to be used in the execution of the Works in terms of Part A may consist of the workers of various communities, and shall not be bound to one particular community.

C 04 EMPLOYMENT RECORDS TO BE PROVIDED

(a) The Contractor shall maintain accurate and comprehensive records of all workers engaged on the Contract and shall provide the Engineer at monthly intervals from the commencement of the Contract, with interim records substantiating the actual numbers of employment opportunities that shall have been generated to date and the amounts actually paid in respect thereof. Such interim records shall be in a format approved by the Engineer.

(b) The Contractor shall, on completion of the Contract, and as a pre-requisite event to the release of any retention money in terms of the Conditions of Contract, provide the Engineer with copies of the Terms of Employment as well as independently audited documentary evidence of the total number of temporary and permanent employment opportunities actually generated during the Contract.

C 05 VARIATIONS IN WORKER PRODUCTION RATES

Notwithstanding anything to the contrary as may be stated in or inferred from any other provision of this Contract, the Contractor shall not be entitled to any additional payment or compensation whatever, in respect of any differences as may result between the production rates actually achieved by workers in the course of the execution of the Contract Works and those production rates on which he has based his tender.

C 06 TRAINING OF THE TEMPORARY WORKFORCE

(a) Selected members of the workforce are to be provided with structured training in accordance with the provisions of Part D.

(b) The Contractor shall make all necessary allowances in his programme of work to accommodate and facilitate the delivery of such structured training and shall comply fully with the requirements of Part D.

(c) The provision of structured training as described in Part D shall not relieve the Contractor of any of his obligations in terms of the Conditions of Contract

and the Contractor shall remain fully liable for the provision, at his own cost, of all training of the workforce, additional to that as provided for in Part D, as may be necessary to achieve the execution and completion of the works strictly in accordance with the provisions of the Contract.

C 07 RECRUITMENT AND SELECTION PROCEDURES

C 07.01 The Contractor shall be fully responsible for the recruitment and selection of workers to constitute the temporary workforce.

C 07.02 The Contractor shall advise the Engineer in writing of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall posses (taking due cognisance of the provisions of the Contract relating to training).

C 07.03 The Contractor shall, at his own cost, take all necessary actions to advertise within the communities comprising the personnel resources, the fact that temporary employment opportunities exist and the time and place where recruiting will occur.

C 07.04 The Contractor shall record in writing, the details of all persons applying for employment, including *inter alia*:

(a) Name, address, age and sex
(b) Marital status and number of dependants
(c) Qualifications and previous work experience (whether substantiated or not)
(d) Period since last economically active
(e) Preference for type of work or task.

C 07.05 The Contractor shall make his selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce and the provisions of the contract in regard to the provision of training to the workforce and in accordance with the following principles:

(a) No potential temporary worker shall be precluded from being employed by the Contractor on the execution of the Works, by virtue of his lack of skill in any suitable operation forming part of the Works, unless -
    (i) all available vacancies have been or can be filled by temporary workers who already posses suitable skills, or
    (ii) the Time for Completion allowed in the Contract, or the remaining portion of the Contract Period (as the case may be) is insufficient to facilitate the creation of the necessary skills.

(b) Preference shall be given to the unemployed and single heads of households.

(c) The Contractor shall, in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected.

(d) The selection process shall not be prejudicial to youth (over the age of fifteen years) and women.

C 07.06 After making his selection, the Contractor shall advise the Engineer thereof, in writing and the Engineer shall, without undue delay, ratify the Contractor's selection.

C 07.07 The provisions of this clause shall apply *mutatis mutandis* in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the Contract.

C 07.08 The Contractor shall, after selecting his temporary workforce, arrange at his own cost for the appointment of the Liaison Officer as representative of the workforce to act on their behalf with regards to all matters pertaining to the workforce."

C 08 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE

C 08.01 All temporary workers engaged in accordance with the provisions of Part A of the Project Specifications, shall be employed on the terms and conditions of employment as are consistent with those as set out in this Contract. The Contractor shall implement and adhere strictly to such terms and conditions relating to the employment of the temporary workforce, and subject only to the provisions of this Contract, shall not employ any temporary worker on terms and conditions which are less favourable to the worker or inconsistent with the standards and norms generally applicable to temporary workers in the Civil Engineering Industry and applicable to the particular area.

C 08.02 The Contractor shall pay to all temporary workers engaged in terms of Part A of the Project Specifications, not less than the minimum rate of remuneration as specified in Form P : Appendix to Tender.

C 09 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES

C 09.01 The Contractor, as the Employer of the workforce, shall be fully responsible for the establishment and maintenance at his own cost, of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur.

C 09.02 The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the Civil Engineering Construction Industry and shall conduct himself in a fair and reasonable

manner, within the constraints as may be imposed upon him by the terms of the Contract.

C 09.03 In the event of any temporary worker engaged by the Contractor in terms of the Contract, being aggrieved with regard to his Terms of Employment, working conditions and training, he shall have the right, at his discretion, to be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor in terms of Subclause C 09.02 above, by one member of the temporary workforce and one member of the Project Committee, which persons shall be nominated by the worker.

C 09.04 In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures in accordance with Sub clauses C 09.02 and C 09.03, then either the Contractor or the worker concerned may require that the matter be referred to the Project Committee for further consideration, with a view to facilitate the resolution thereof.

C 09.04 Wage Dispute (Contractor default to pay participants): (a) Any dispute between the Contractor and EPWP Workers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.

(b) The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

C 10 THE SUBCONTRACTORS' WORKFORCES

C 10.01 The provisions of this Part C shall apply *mutatis mutandis* to the workforces employed by all subcontractors engaged by the Contractor and the Contractor shall be fully responsible for ensuring, at his own cost, that the terms of every subcontract agreement entered into are such as to facilitate the application of these provisions in respect of the workforces of all subcontractors.

C 10.02 The Contractor shall at his own cost and to the extent necessary, assist and monitor all subcontractors in the application of the provisions of this Specification, and shall, in terms of the Conditions of Contract, remain fully liable in respect of the acts, omissions and neglects of all subcontractors, in respect of the application of the provisions of this Specification.

C 11 COMMUNITY LIAISON OFFICER (CLO)

The contractor or his appointed agent will appoint a Project Liaison Officer (PLO) after consultation with the local communities, the engineer and the employer. The contractor shall direct all his liaison efforts with the local communities through the appointed officer. The contractor shall, however,

accept the appointed as part of his management personnel.

C 11.01 Duties of the Community Liaison Officer

The Community Liaison Officer's duties will be:

(i) To be available on site daily between the hours of 07h00 and 10h00 and at other times as the need arises. His normal working day will extend from 07h00 in the morning until 16h00 in the afternoon.

(ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

(iii) To communicate daily with the contractor and the engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.

(iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a "labour desk".

(v) To attend all meetings in which the community and/or labour are present or are required to be represented.

(vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.

(vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.

(viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.

(ix) To keep a daily written record of his interviews and community liaison.

(x) To attend monthly site meetings to report on labour and RDP matters.

(xi) All such other duties as agreed upon between all parties concerned.

(xii) To submit monthly returns regarding community liaison in a format prescribed by the engineer.

C 11.02 Payment for the project liaison officer

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required and not necessarily for the full duration of the contract. The remuneration of the PLO shall be determined jointly by the contractor, engineer and employer.

C 11.03 Period of employment of the project liaison officer

The period of employment of the community liaison officer shall be as decided upon jointly by the contractor, engineer and employer.

C 12 MEASUREMENT AND PAYMENT

The Contractor will not be separately reimbursed or compensated in respect of the provision of the workforce and creation of temporary employment opportunities and all the Contractor's costs associated with compliance with the provisions of this part of the Project Specifications shall, except to the extent provided for as relevant, be deemed to be included in the rates tendered for in Section 1300 of the Bill of Quantities.

Item		Unit
C12.01	**Project Liaison**	
	(a) Project Liaison Officer(s)	Prime cost (PC) sum
	(b) Project Liaison Committee	Prime cost (PC) sum
	(c) Contractor’s charge to allow for handling costs and profit in respect ofsubitem C12.01(a) and (b)	percentage (%)

Payment under the Prime cost (PC) sum provided in subitem C12.01(a) and (b) to cover the employment and remuneration of the Project Liaison Officer(s) and the attendant members of the Project Liaison Committee established by the Contractor, shall be effected in accordance with the provisions of Clause 45.2 of the General Conditions of Contract.

The tendered percentage in subitem C12.01(c) is the percentage of the amount actually spent under subitem C12.01(a) and (b) that will be paid to the contractor in full compensation for the contractor’s handling costs and profit in respect of the employment and remuneration of the Liaison Officer(s) and Liaison Committee.

PROJECT SPECIFICATIONS

PART D: PROVISION OF STRUCTURED TRAINING

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D 01 SCOPE
D 02 INTERPRETATIONS
D 03 ENGINEERING SKILLS TRAINING
D 04 GENERIC TRAINING
D 05 ENTREPRENEURIAL SKILLS TRAINING
D 06 MEASUREMENT AND PAYMENT

D 01 SCOPE

This specification covers the requirements for the provision of the following training:

(a) Specified structured training to selected members of the workforce and small, medium and micro enterprises (SMME's) by a selected subcontractor as accepted by the Employer in terms of Clause 9 of the General Conditions of Contract.

(b) Additional training deemed necessary by the Contractor, to members of the workforce and small, medium and micro enterprises (SMME's).

D 02 INTERPRETATIONS

D 02.1 Supporting documents

The tender rules, conditions of contract, standard, supplementary and specific specifications and project specifications and drawings shall *inter alia* be read in conjunction with this specification.

D 02.2 Application

The provisions of this specification shall apply in respect of all workers and small, medium and micro enterprises other than the Contractor's key personnel, who are engaged on the execution of the works.

D 03 ENGINEERING SKILLS TRAINING

D 03.1 The Contractor shall, from the commencement of the contract, implement a structured training programme comprising of the training delivered by the selected subcontractor and any additional training as provided for by the Contractor, in which the various skills required for the execution and completion of the works are imparted to the workers, and where applicable, small, medium and micro enterprises engaged thereon, in a programmed and progressive manner. Selected workers shall be trained progressively

throughout the duration of the contract in the various stages of a particular type of work.

D 03.2 The skills training programme to be implemented by the selected subcontractor shall comply with the following minimum standards:

(a) Be accredited by the Civil Engineering Training Authority (CETA) or other institutions recognised by the Department of Labour, as being appropriate for application on this project. Accredited training refers to both the trainers as well as to the training materials.

(b) Be delivered by suitably qualified and experienced trainers accredited to do so.

D 03.3 The Contractor shall provide with his tender, full details of any additional accredited and in-house training, viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

(a) The name of the accredited training institution and programme

(b) The various aspects of each type of training comprised in the programme

(c) The manner in which the training is to be delivered

(d) The numbers and details of the trainers to be utilised.

Details of such additional skills training shall be attached to Form H of the forms to

be completed by the Tenderer.

D 03.4 The Contractor shall be responsible for the provision of the necessary items for the delivery of the specified and additional skills training programme, including the following:

(a) Sufficient skilled, competent and accredited trainers to deliver the additional training programme to workers in accordance with the training programme

(b) A suitably furnished venue

(c) Transport of the workers as required

(d) Tools, equipment, and teaching aids

(e) Stationery and all other necessary materials.

D 03.5 Selection of candidates

(a) Members of the workforce will be selected by the Engineer, assisted by the Contractor and the Liaison Officer, to receive specific training as approved by the Engineer.

(b) The following will be taken into account in the selection of the workers to receive the specified training:

i. Previous experience (if any)
ii. Previous courses completed (if any)
iii. Module specific requirements.

D 03.6 Duration of training

(a) The Contractor shall allow in his programme for the selected members of the workforce to be engaged in the specified training modules.

(b) Provision must also be made by the Contractor for members of the workforce to receive any additional training as provided for by the Contractor.

D 03.7 All specified skills-related training shall take place only during normal working hours and the Contractor shall ensure that the selected workers are available at the appropriate times to undergo such training.

D 03.08 Both the selected subcontractor's and the Contractor's additional training programme shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content to suit changing conditions on site and all changes in the Contractor's programme of work.

D 03.09 The Contractor shall keep comprehensive records of the training given to each worker involved in training as well as the nature and number of each task executed by the worker and whenever required shall provide copies of such records to the Engineer.

D 03.10 Workers shall be remunerated in respect of all time spent undergoing the specified training in terms of Clause D03.02, at the minimum specified wage rate for the area of the Works as indicated in Form P: Appendix to Tender.

D 03.11 Use of workers

The Contractor shall, in so far as it is reasonably feasible take due cognisance of the nature of the works to be executed at any given time, and use trained workers on those aspects of the works for which they have been trained.

D 04 GENERIC TRAINING

D 04.01 The Contractor shall, from the commencement of the contract, implement a structured progressive training programme comprising of the training delivered by the selected subcontractor and any additional training as provided for by the Contractor. Selected workers shall be trained progressively throughout the duration of the contract.

D 04.02 The generic training programme is to be implemented by a training subcontractor to be nominated by the Engineer, upon the instruction of the Employer.

D 04.03 The Contractor shall provide with his tender, full details of any additional recognised and in-house training viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

(a) The name of the training institution and programme
(b) The various aspects of each type of training comprised in the programme
(c) The manner in which the training is to be delivered
(d) The numbers and details of the trainers to be utilized.

Details of such additional generic training shall be attached to Form H of the forms to be completed by the Tenderer.

D 04.04 The Contractor shall be responsible for the provision of the necessary items for the delivery of the specified and additional generic training programme, including the following:

(a) A suitably furnished venue
(b) Transport of the workers as required
(c) Tools, equipment, and teaching aids
(d) Stationery and all other necessary materials.

D 04.05 All generic training shall take place outside of normal working hours.

D 04.06 The Contractor's training programme, if any, shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content.

D 04.07 The Contractor shall keep comprehensive records of the training given to each worker involved in training and whenever required shall provide copies of such records to the Engineer. At the successful completion of each course provided by the Contractor each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

D 04.08 No remuneration in respect of time spent undergoing training in terms of this Clause will be made to any of the workers.

D 05 ENTREPRENEURIAL SKILLS TRAINING

D 05.01 Training needs assessments of the Contractor and his sub-contractors will be undertaken during the course of the Contract by a sub-contractor to be nominated by the Engineer, on the instruction of the Employer. The training needs assessments shall have as their focus contractor development, and shall identify needs for business development, business management and technical construction management skills. Such training needs may be identified in personnel both in the permanent employ of the Contractor and/or his sub-contractors, as well as temporary employees thereof.

D 05.02 Once the needs assessments have been completed, training to meet the needs identified in the assessment phase will be provided, again by a

sub-contractor to be nominated by the Engineer, upon the instruction of the Employer.

D 05.03 The Contractor shall assist in facilitating in the delivery of the training, by instructing and motivating personnel and subcontractors regarding attendance and participation therein.

D 05.04 The Contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor's work with that of the delivery of the structured training.

D 05.05 Following completion of the structured training, members of small, medium and micro contractors/subcontractors that have demonstrated understanding of and competence in the training material are to be appropriately certified by the accrediting body.

D 05.06 The Contractor shall provide with his tender, full details of any additional accredited and in-house training, viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

(a) The name of the training institution and programme
(b) The various aspects of each type of training comprised in the programme
(c) The manner in which the training is to be delivered
(d) The numbers and details of the trainers to be utilized.

Details of such additional entrepreneurial training shall be attached to Form H of the forms to be completed by the Tenderer.

D 05.07 The Contractor shall be responsible for the provision of the necessary items for the delivery of the entrepreneurial training programme, including the following:

(a) A suitably furnished venue
(b) Transport of the subcontractors as required
(c) Tools, equipment, and teaching aids
(d) Stationery and all other necessary materials.

D 05.08 All specified entrepreneurial training shall take place within normal working hours.

D 05.09 The Contractor's training programme, if any, shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content.

D 05.10 The Contractor shall keep comprehensive records of all training given to personnel and subcontractors involved in training and whenever required shall provide copies of such records to the Engineer. At the successful completion of each course each subcontractor shall be issued

with a certificate indicating the course contents as proof of attendance and completion.

D 05.11 No remuneration in respect of time spent undergoing specified training in terms of this Clause will be made to any of the subcontractors.

D 06 MEASUREMENT AND PAYMENT

D 06.01 Basic principles

(a) General

Measurement and payment for all work executed in terms of this contract shall be measured and paid for in accordance with Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO) and the principles set out in Clause D 06.02 of the project specifications, irrespective of whether the work is executed as an integral part of the provision of training in terms of this specification.

(b) Training

The Contractor shall only be reimbursed for the amounts actually paid by the Contractor to the selected subcontractors appointed as directed by the Employer, in execution of the Engineer's written instruction, plus a percentage as tendered to cover all his charges and profits.

D 06.02 Scheduled items

Payment items are included in the Schedule of Quantities under Section 1200 for the provision of the specified training by selected subcontractors only. Any additional training as viewed by the Contractor to be necessary shall be viewed to be included under Section 1300 and shall not be paid for separately.

Terms of Payment

Payment under this Contract shall be on the following basis:

a) 90% (ninety percent) of the contract price after written acceptance by the Engineer of delivery of goods.

b) 10% (ten percent) of the contract plus or minus any adjustment due under the Contract at the expiry of the Period of Upholding of six months from the certified date.

Item **Unit**

D 07.01 Training:

(a) Technical skills .....Provisional Sum

(b) Generic and Management skills .....Provisional Sum

(c) Training venue ..... lump sum

(d) Remuneration of workers undergoing technical skills training Provisional Sum

(e) Contractor's handling costs, profit and all other charges in respect of Sub items D 07.01(a) and (b):

(i) Technical skills ..... percentage (%)

(ii) Generic and Management skills ..... percentage (%)

Payment under sub items D 07.01(a) and (b) shall be the amounts actually paid to the training institutions and shall be made in accordance with the provisions of the General Conditions of Contract.

The lump sum tendered for sub item D 07.01 (c) shall include full compensation for the provision of a suitable training venue, for all necessary lighting, furniture, stationery, consumables and study material, and for transportation of the workers to and from the training venue. Payment of the lump sum will be made in two instalments as follows:

(i) The first instalment, 75% of the lump sum, will be paid after the Contractor has met all his obligations regarding the provision of the training venue as specified.
(ii) The second and final instalment, 25% of the lump sum, will be paid after the Contractor has met all his obligations regarding the provision of all the training programmes specified in the document.

Payment under sub item D 07.01 (d) shall be the actual sum paid to workers undergoing technical skills training. The Contractor will not be reimbursed

directly for his administrative costs, which will be deemed to be included in the rates tendered for item B13.01.

The percentages tendered for sub item D 07.01 (e) shall be the percentages of the amounts actually reimbursed to the Contractor under sub items D 07.01 (a) and (b) and shall be in full and final compensation in respect of the Contractor's handling costs, profit, mentoring, record keeping, reporting and all other charges in connection with providing the services."

PROJECT SPECIFICATIONS

PART E : HEALTH AND SAFETY SPECIFICATION

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E 01 SCOPE

This specification covers the requirements, notwithstanding the provisions of all other appropriate legislation and regulations in this regard, for ensuring the continued health and safety of all personnel having access to the construction site, and in ensuring that persons not having such access may not enter the site for the duration of all construction works undertaken on the site.

E 02 INTERPRETATIONS

E 02.01 Supporting documents

The tender rules, conditions of contract, standard, supplementary and specific specifications and project specifications and drawings shall *inter alia* be read in conjunction with this specification, together with the Occupational Health and Safety Amendment Act (Act 85 of 1993) and the Construction

Regulations issued in pursuance of this Act in Government Gazette no. 25207 dated 18 July 2003.

E 02.02 Application

The provisions of this specification shall apply in respect of all Contractors appointed by the Employer for work on the site, as well as to all sub-contractors appointed by Contractors, their personnel and assigned agents expected to work on the site.

E 03 FALL PROTECTION

E 03.1 The complete contents of Paragraph 8, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 04 STRUCTURES

E 04.1 The complete contents of Paragraphs 9(1) and 9(3), and all of their sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 05 FORMWORK AND SUPPORT WORK

E 05.1 The complete contents of Paragraph 10, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 06 EXCAVATION WORK

E 06.1 The complete contents of Paragraph 11, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 07 DEMOLITION WORK

E 07.1 The complete contents of Paragraph 12, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 08 SCAFFOLDING AND SUSPENDED PLATFORMS

E 08.1 The complete contents of Paragraph 14, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification pertaining to the use of scaffolding.

E 08.2 The use of suspended platforms for access to any works on this contract is expressly forbidden.

E 09 BOATSWAIN'S CHAIRS

E 09.1 The complete contents of Paragraph 16, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 10 MATERIAL HOISTS

E 10.1 The complete contents of Paragraph 17, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 11 BATCH PLANTS

E 11.1 The complete contents of Paragraph 18, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 12 EXPLOSIVE POWERED TOOLS

E 12.1 The complete contents of Paragraph 19, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 13 CRANES

E 13.1 The complete contents of Paragraph 20, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 14 CONSTRUCTION VEHICLES AND MOBILE PLANT

E 14.1 The complete contents of Paragraph 21, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 15 ELECTRICAL INSTALLATIONS AND MACHINERY ON CONSTRUCTION SITES

E 15.1 The complete contents of Paragraph 22, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 16 USE AND TEMPORARY STORAGE OF FLAMMABLE LIQUIDS ON CONSTRUCTION SITES

E 16.1 The complete contents of Paragraph 23, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 17 WATER ENVIRONMENTS

E 17.1 The complete contents of Paragraph 24, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 18 HOUSEKEEPING ON CONSTRUCTION SITES

E 18.1 The complete contents of Paragraph 25, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 19 STACKING AND STORAGE ON CONSTRUCTION SITES

E 19.1 The complete contents of Paragraph 26, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 20 FIRE PRECAUTIONS ON CONSTRUCTION SITES

E 20.1 The complete contents of Paragraph 27, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 21 CONSTRUCTION WELFARE FACILITIES

E 21.1 The complete contents of Paragraph 28, and all of its sub-paragraphs, of the Construction Regulations published in Government Gazette no. 25207 dated 18 July 2003, read verbatim, and with all meanings assigned thereto by the definitions included in the said Construction Regulations, shall be deemed to constitute the contents of this specification.

E 22 MEASUREMENT AND PAYMENT

E 22.1 Payment for the contractor’s obligations in respect of the Occupational Health and Safety act and Construction Regulations shall be made through three payment items described below. The three payment items together shall include full compensation for all personnel (including a dedicated full time Construction Safety Officer), cost and incidentals in respect of compliance with the enforcement of the Health and Safety Specifications, which shall include for the compilation, presentation, implementation and maintenance of the Health and Safety Plan as contemplated. In tendering rates for the three items the contractor shall ensure that the sum of the amounts for the three items shall not be less than one percent (1%) of the Tender Amount.

All of the Contractor's costs associated with compliance with the provisions of this part of the Project Specifications shall be deemed to be included in the rates tendered for the items of work listed below.

Item		Unit
E 23.01	**Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations**	Lump Sum

The full amount will be paid in one instalment only once:-

(a) The contractor has notified the Provincial Director of the Department of Labour in writing of the project.
(b) The contractor has made the required initial appointments of employees and sub-contractors.
(c) The client has approved the contractor's Health and Safety Plan.
(d) The contractor has set up his Health and Safety File.

Item		Unit
E 23.02	**Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations**	Month

The tendered monthly amount shall represent full compensation for that part of the contractor's general obligations in terms of the Occupational Health and Safety Act and the Construction Regulations that are mainly a function of time. This includes inter alia payment of all costs for the appointment of all staff contemplated in the construction regulations and the transport of employees on site. Payment will be monthly only after payment for Item E 23.01 has been made.

Item		Unit
E 23.03	**Submission of the Health and Safety File**	Lump Sum

The tendered lump sum shall represent full compensation for the contractor meeting all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and for the preparation and submission of his Health and Safety File complete as envisaged on this specification to the Client's satisfaction.

This amount will be paid only once the contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction.

PROJECT SPECIFICATIONS

PART F: HIV/AIDS SPECIFICATION

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F 01 SCOPE

F 01.1 This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

F 01.2 Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behavior, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counseling, the diagnosis and treatment of Sexually Transmitted Infections, and the closest health service providers

F 01.3 Informing Workers of their rights with regard to HIV/AIDS in the workplace

F 01.4 Providing Workers with access to condoms and other awareness material that will enable construction Workers to make informed decisions about sexual practices

F 02 DEFINITIONS AND ABBREVIATIONS

F 02.1 Definitions

Service Provider: The natural or juristic person recognised and approved by the Department of public works as a specialist in conducting HIV/AIDS awareness programmes

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops presented by a Service Provider, which has been approved by the Representative/Agent

Worker: Persons in the employ of the Contractor or under the direction or supervision of the Contractor or any of his sub-contractors, who are on site for a minimum period of 30 days in all

F 02.2 Abbreviations

HIV : Human Immunodeficiency Virus
AIDS : Acquired Immune Deficiency Syndrome
STI : Sexually Transmitted Infection

F 03 BASIC METHOD REQUIREMENT

F 03.1 The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers

F 03.2 The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regards to HIV/AIDS awareness. The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Department's Tender Committee, the Contractor shall make available an appropriate venue that will be conducive to education and training.

F 03.3 The Service Provider Workshop Plan shall address, but will not be limited to the following:

(a) **The nature of the disease;**
(b) **How it is transmitted;**
(c) **Safe sexual behaviour;**
(d) **Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;**
(e) **Attitudes towards other people with HIV/AIDS;**
(f) **Rights of the Worker in the workplace;**
(g) **How the awareness champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic H1VIA1DS information and the necessary skills to handle questions regarding the HIVIAIDS awareness programme on site sensitively;**
(h) **How the Service Provider will support the awareness champion;**
(i) **Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;**
(j) **How the workshops will be presented, including frequency and duration;**
(k) **How the workshops will fit in with the construction programme;**
(l) **How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;**
(m) **How the video will be used;**
(n) How the Service Provider will elicit maximum participation from the Workers;
(o) A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

F 04 HIV/AIDS AWARENESS EDUCATION AND TRAINING

F 04.1 Workshops

The Contractor shall ensure that all the Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

F 04.2 Recommended practice

Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a next session.

An attendance register should be kept by the Service Provider at every workshop and should be handed to the Department's Project Manager on a monthly basis together with Process Indicator Forms.

Service Providers

A data base of recommended Service Providers is available from the Department of Public Works, Private Bag X65, Pretoria, 0001, located at the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria and at all Public Works Regional Offices

HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met

(a) UNIT I: The nature of HIV/AIDS

After studying and understanding this unit the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

(b) UNIT 2: Transmission of the HIV virus

After studying and understanding this unit the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:

1. Record in what bodily fluids you will find the HI virus.
2. Describe how HIV/AIDS can be transmitted.
3. Demonstrate your ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

(c) UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus to enter the blood stream.

Assessment Criteria:

1. Report on how you could minimise your risk of IUV/AIDS infection.
2. Report on precautions that can be taken to prevent HIV/AIDS infection.
3. Explain or demonstrate how to use a male and female condom.
4. List of factors that could jeopardize the safety condoms provide against HIV/AIDS transmission.

(d) UNIT 4: Voluntary HIV/AIDS counseling and testing

After studying and understanding this unit the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIVIADS testing and pre- and post-test counseling.

Assessment Criteria:

1. Describe kinds of testing for HIV/AIDS infection.
2. Report on why voluntary testing is important.
3. Report on why pre- and post-test counseling is important.

(e) UNIT 5: Living with HIV/AIDS

After studying and understanding this unit the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:

1. List and describe ways to manage HIV/AIDS.
2. Describe nutritional needs of people living with HIV/AIDS.
3. Describe ways to embrace a healthy lifestyle as a person living with HIVIAIDS.
4. Explain the need of counseling and support to people living with HIVIAIDS.

(f) UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child.
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS.
4. Describe post exposure prophylactics.

(g) UNIT 7: The rights and responsibilities of Workers in the workplace with regards to HIV/IAIDS

After studying and understanding this unit the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non- discriminative way.

Assessment Criteria:

1. Discuss the rights of a person living with HIV/AIDS in the workplace.
2. Discuss the responsibilities of a person living with HP//AIDS in the workplace.
3. Report on why acceptance and non-discrimination of colleagues living with HIVIAIDS is important.

F04.3 Displaying of plastic laminated posters and distribution of information booklets

(a) The Contractor shall obtain a set of four posters conveying different key messages, and information booklets from the Construction Industry Development Programme Unit (CIDP), Room A520 located in the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria or at all Regional Offices of the Department of Public Works. The postal address is the Department of Public Works, Private Bag X65, Pretoria, 0001.
(b) The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HI V/AIDS and STI's.

(c) Posters or display stands shall be displayed on site as soon as possible but not later than 14 days after the date of site hand over.
(d) Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.
(e) The posters on display should always be intact, clear and readable.
(f) Information booklets must be distributed to all Workers as soon as possible but not later than 14 days after site hand over, or as soon as the Worker joins the site.

F05 PROVIDING WORKERS WITH ACCESS TO CONDOMS

F05.1 The Contractor shall provide and maintain condom dispensers and make both male and female condoms complying with the requirements of SABS ISO 4074 available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the local clinic or the Department of Health.

F05.2 At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary to ensure that condoms are available within 14 days of site hand over.

F05.3 Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

F06 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

F06.1 The Contractor shall provide the Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counseling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics should be displayed on a poster of a size not smaller than Al in an area highly trafficked by Workers.

F07 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

F07.1 Within 14 days of site hand over the Contractor shall appoint an Awareness Champion, from, amongst the Workers, who speaks and understands all the languages spoken by the Workers and he/she shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive way.

The Awareness Champion shall be responsible for:
(a) Liaising with the Service Provider on organising awareness workshops;
(b) Filling condom dispensers and monitoring condom distribution;
(c) Handing out information booklets;

(d) Placing and maintaining posters

F08 MONITORING

F08.1 The Contractor shall grant to the Representative/Agent reasonable access to the construction site in order to conduct unannounced site visits in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

F08.2 The Representative/Agent shall conduct the site visits with the least possible disruption to the Contractor's daily routine.

F08.3 Contractors must report problems that they experience in implementing the HIV/AIDS requirements to the Representative/Agent.

F08.4 The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

F08.5 The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager through the Representative/Agent

F08.6 The Contractor shall, at the end of the contract, complete and submit a close out programme report CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C)

F09 MEASUREMENT AND PAYMENTS

F09.1 It is required of tenderers to thoroughly study the HIV/AIDS Specifications of the Department that must be read together with and is deemed to be incorporated in the Schedule of Quantities. Provision for pricing of HIV/AIDS awareness must be made under Item F10.01 hereafter and it is explicitly pointed out that all requirements of the aforementioned specifications are deemed to be priced hereunder as the said item represents the only method of measurement and no additional items or extras to the contract in this regard shall be entertained.

F09.2 Contractor should take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative /Agent, notwithstanding the provisions of any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment

Item		Unit
F 09.03	**HIV AIDS Awareness obligations**	Lump Sum

The tendered lump sum shall be in full compensation for the contractor providing an approved selected service provider to comply with the

requirements and conditions of the Department's HIV AIDS Specifications, including the workshop education and training within an HIV AIDS Awareness programme and the Contractor's handling costs, profit, record keeping, reporting and all other charges in connection with providing the HIV AIDS Awareness programme.

Payment under item F09.03 will be made as follows:

80% of the amount will be paid once the service provider has complied with the requirements and conditions of the Department's HIV AIDS Specifications, including the workshop education and training within an HIV AIDS Awareness programme.

The outstanding 20% will be paid on completion of the contract, subject to the contractor's compliance in all respects with the requirements and conditions of the Department's HIV AIDS Specifications.

F10 Reporting requirement of Contractor

The Contractor should submit the following at the beginning of the Contract:

(a) Contracts of all the workers employed on the contracts including their certified identity documents;
(b) Proof of Registration for COIDA and UIF;
(c) OHS Files

The Contractor shall submit monthly returns/reports as specified below:

(a) Signed Muster rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
(b) Copies of certified identity documents of workers
(c) Number of persons who have attended training including nature and duration of training provided
(d) Assets created, rehabilitated or maintained in accordance with indicators in the EPWP M&E framework
(e) Plant utilization returns

Progress report detailing production output compared to the programme of works

PROJECT SPECIFICATIONS

PART G : GENERIC LABOUR-INTENSIVE SPECIFICATION

CONTENTS

G 01 SCOPE
G 02 PRECEDENCE
G 03 HAND EXCAVATEABLE MATERIAL
G 04 LABOUR INTENSIVE WORKS

G1 SCOPE

As much as is economically feasible all work shall be implemented by employing Labour Intensive Construction methods. Over and above the normal Building and Allied works to be implemented by employing skilled and unskilled labour the works specified in the "Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)" shall be undertaken using Labour Intensive

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

a) trenches having a depth of less than 1.5 metres
b) storm water drainage
c) low-volume roads and sidewalks

G2 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.

Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
The minimum rate of pay set for the EPWP is R …….. per task or per day.
© 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.
(d 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 1.1.3 of the EPWP Infrastructure Guidelines.
(e 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

G3 HAND EXCAVATEABLE MATERIAL

The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions. Hand excavatable material is material:

a) Granular materials:
i) Whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
ii) Where the material is 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 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
ii) where the material is 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, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
2) A dynamic cone penetrometer is an instrument used to measure the insitu 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 1: 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

			penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumbnail; slight indentation produced by pushing geological picks 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.

G4 LABOUR INTENSIVE WORKS

Trench excavation

All hand excavateable material in trenches having a depth of less than 1.5 metres 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 tampers

a) To 90% Proctor density;
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 hand excavateable material including topsoil classified, as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material, which presents the possibility of danger or injury to workers, shall not be excavated by hand.

Clearing and grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

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

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.

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 designed by the Contractor, such as manhole rings and cover slabs, pre-cast concrete planks and pipes, masonry units and edge beams 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 handhold on them.

PROJECT SPECIFICATIONS

PART H : ENVIRONMENTAL MANAGEMENT PLAN

CONTENTS

H 01 SCOPE
H 02 DEFINITIONS
H 03 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS
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H 09 RECORD KEEPING
H 10 COMPLIANCE AND PENALTIES
H 11 MEASUREMENT AND PAYMENT

H 01 SCOPE

This environmental management programme (EMP) sets out the methods by which proper environmental controls are to be implemented by the contractor. The duration over which the contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the General Conditions of Contract, and the project specifications, as the defects notification period (maintenance period).

The provisions of this EMP are binding on the contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract. In the event that any conflict occurs between the terms of the EMP and the project specifications or Record of Decision, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any substantial changes shall be submitted to the Musina Local Municipality in writing for approval.

The EMP identifies the following:

Construction activities that will impact on the environment.
Specifications with which the contractor shall comply in order to protect the environment from the identified impacts.
Actions that shall be taken in the event of non-compliance.

H 02 DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien shall be those plant species that

show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the contractor, his subcontractors, suppliers or personnel during the construction process as defined in the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7, 1998)

Environment: environment means the surroundings within which humans exist and that could be made up of -

- the land, water and atmosphere of the earth;

- micro-organisms, plant and animal life;

- any part or combination of (i) and (ii) and the interrelationships among and between them; and

- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Record of Decision: a record of decision is a written statement from the National Department of Environmental Affairs and Tourism, (N.DEAT), that records its approval of a planned undertaking to improve, upgrade or rehabilitate a section of road and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Road Reserve: the road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

Road Width: for the purposes of the EMP, the road width is defined as the area within the road reserve i.e. fence line to fence line, but also includes all areas beyond the road reserve that are affected by the continuous presence of the road, e.g. a reach of a water course.

Listed in the table below are some of the references in the COLTO Standard Specifications to environmental related issues.

Description	**Reference**
Establishment of site offices	1302 (a), 1402 (e).
Vegetation	5801(b), 5802(b), (c), (d), and (e), 5804, 5805, 5806 and 5807.
Rehabilitation	1302 (a)and Sections 5800 and 5900.of

Description	Reference
	the Standard and Project Specifications
Sewage treatment	1402 (g) and 1404 (a) and Part B of the Project Specifications, clause B1302 (a).
Litter	1302 (b).
Removal of solid waste	1404 (a).
Soil management	3104 (a), 5802 (a), (g), 5804 (a), (b), and (c).
Borrow material	3100. (The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities.)

H 03 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The contractor shall identify likely aspects before commencing with any construction activity. Examples of environment aspects include:

- waste generation
- stormwater discharge
- emission of pollutants into the atmosphere
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise generation

Thereafter the contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit and contain the magnitude, duration and intensity of the impact. The contractor shall demonstrate that he/she is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to subclause 8.3 as amended by Particular Condition of the general conditions of contract and clause B1204 of these project specifications.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

Pollution of atmosphere, soil or water
Destruction or removal of fauna and flora and effect on biological diversity
Deformation of the landscape
Soil erosion
Destruction of historical/heritage sites
Effect on the built environment
Effect on agricultural land and wetlands

General good construction practice will play an important role in avoiding the occurrence of an Impact. The contractor's attention is drawn, in this regard, to C1008. Environmental Management of Construction Activities

H 04 LEGAL REQUIREMENTS

H04.01 General

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

H04.02 Statutory and other applicable legislation

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

H 05 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

H05.01 Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the contractor shall submit to the engineer for approval the appointment of a nominated representative of the contractor as the DEO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient detail to enable the engineer to make a decision. The engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the contractor has been approved he/she shall be the DEO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The engineer will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The DEO shall submit regular written reports to the engineer, but not less frequently than once a month.

The engineer shall have the authority to instruct the contractor to replace the DEO if, in the engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required.

There shall be an approved DEO on the site at all times.

H05.02 Administration

Before the contractor begins each construction activity the DEO shall give to the engineer a written statement setting out the following:

The type of construction activity.

Locality where the activity will take place.

Identification of the environmental aspects and impacts that might result from the activity.

Methodology for impact prevention for each activity or aspect.

Methodology for impact containment for each activity or aspect.

Emergency/disaster incident and reaction procedures.

Treatment and continued maintenance of impacted environment.

The contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the engineer whenever there is a change or variation to the original.

The engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

H05.03 Good Housekeeping

Contractor shall undertake "good housekeeping" practices during construction as stated in clause 1217 of the COLTO Standard Specifications for Roads and Bridges and subclauses 4.18 and 11.11 of the General Conditions of Contract. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

H06 TRAINING

The designated environmental officer (DEO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

The importance of conformance with all environmental policies

The environmental impacts, actual or potential, of their work activities

The environmental benefits of improved personal performance;

Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;

The potential consequences of departure from specified operating procedures;

The mitigation measures required to be implemented when carrying out their work activities.

In the case of permanent staff the contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the contractor shall inform the engineer when and how he/she intends concluding his environmental training obligations.

H 07 ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 7/1: Aspects or Activities that Cause Environmental Impacts during Construction Activities, which is to be found at the end of this part. This list is not exhaustive, and shall be used for guideline purposes only.

H 08 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

H 08.01 Site Establishment

H 08.01.01 Site Plan

The contractor shall establish his construction camps, offices, workshops, staff accomodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the contractor shall submit to the engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course as possible. Regardless of the chosen site, the contractor's intended mitigation measures shall be indicated on the plan. The site plan shall be submitted not later than the first site meeting. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept

by the engineer for consultation during rehabilitation of the site. Read with COLTO Specification 1302(a), 1402 (e).

H 08.01.02 Vegetation

The contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring, shall be re-established.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding. (Read in conjunction with COLTO Specification 5801(b), 5802(b), (c), (d) and (e), 5804, 5805, 5806 and 5807). Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

H 08.01.03 Rehabilitation

The area where the site offices were erected will require rehabilitation at the end of the
contract. All construction material, including concrete slabs and braai areas shall be removed from the site on completion of the contract.

H 08.01.04 Water for human consumption

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp / office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans dams etc). Only domestic type wastewater shall be allowed to enter this drain.

H 08.01.05 Heating and Cooking fuel

The contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

H 08.02 Sewage treatment

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as “enviro loos”, or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the engineer. Read with COLTO Specifications 1402(g) and 1404(a).

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the engineer.

H 08.03 Waste Management

The contractor’s intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper manner.

H 08.03.01 Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer. Disposal of solid waste shall be at a Department of Water Affairs and Forestry (DWAF) licensed landfill site or at a site approved by DWAF in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, nor anywhere else on the site, including the approved solid waste disposal site. Read with COLTO Specification 1404(a).

H 08.03.02 Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.
Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the contractor shall

provide litter collection facilities for later safe disposal at approved sites. (Read with COLTO Specification 1302(b)).

H 08.03.03 Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in a Department of Water Affairs and Forestry approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.
Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. Any spillage of tar or bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the engineer.

H 08.04 Control at the workshop

The contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop)

H 08.04.01 Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the contractor to, and used or worn by, the staff whose duty it is to manage and maintain the contractor's and his subcontractor's and supplier's plant, machinery and equipment.

H 08.04.02 Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials e.g. tar or bitumen binders shall be stored in a secured, appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the engineer.

The contractor shall provide proof to the engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the contractor shall furnish the engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

H 08.04.03 Fuel and Gas Storage

Fuel shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers.. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

H 08.04.04 Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.
All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

H 08.05 Clearing the Site

In all areas where the contractor intends to, or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the engineer for his approval.

The plan shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.

The contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, road construction has to be stored temporarily or otherwise within the road reserve, or at designated or instructed areas outside the road reserve. This responsibility shall extend until expiry of the defects notification period.

H 08.06 Soil Management

H 08.06.01 Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for

the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include the storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved Department of Water Affairs and Forestry waste disposal site. (Read with COLTO Specifications 3104(a), 5802(a), (g), 5804(a), (b) and (c)). The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water. Stockpiles of topsoil shall not exceed a height of 2m, and if they are to be left for longer than 3 months, shall be analysed, and if necessary, upgraded before replacement. Stockpiles shall be protected against infestation by weeds.

The contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be topsoiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the engineer. The contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

H 08.06.02 Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the engineer, and stored separately from the topsoil if not used for road building. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes.

H 08.07 Drainage

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users / receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and 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 or tar products.

The contractor shall submit to the engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions.

H 08.08 Earthworks and Layerworks

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the contractor shall have complied with the requirements of sections C1008 (e) and C1008 (g). In addition, the contractor shall take cognisance of the requirements set out below.

H 08.08.01 Quarries and borrow pits

The contractor's attention is drawn to the requirement of the Department of Minerals and Energy, that before entry into any quarry or borrow pit, an EMP for the establishment, operation and closure of the quarry or borrow pit shall have been approved by the Department. It is the responsibility of the contractor to ensure that he is in possession of the approved EMP or a copy thereof, prior to entry into the quarry or borrow pit. The conditions imposed by the relevant EMP are legally binding on the contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific EMP and these specifications the former shall apply. The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities. (Read with COLTO Specification 3100 and 3200).

H 08.08.02 Excavation, hauling and placement

The contractor shall provide the engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail the number of personnel and plant to be used and the measures by which the impacts of pollution (noise, dust, litter, fuel, oil, sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition from Musina overnight or over periods when there is no construction activity. (Read with COLTO Standard Specification clauses 1217 and 3309)

H 08.08.03 Spoil sites

The contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects notification period. This shall include existing spoil sites that are being re-entered. Before spoil sites may be used proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the engineer for his

approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the engineer. No spoil site shall be located within 500m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of hazardous or toxic wastes shall be prohibited unless special measures are taken to prevent leaching of the toxins into the surrounding environment. Such special measures shall require the approval of the relevant provincial or national authority. The same shall apply for the disposal of solid waste generated from the various camp establishments. The engineer will assist the contractor in obtaining the necessary approval if requested by the contractor.

Spoil sites will be shaped to fit the natural topography. These sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Slopes shall not exceed a vertical: horizontal ratio of 1:3. Only under exceptional circumstances will approval be given to exceed this ratio. Appropriate grassing measures to minimise soil erosion shall be undertaken by the contractor. This will include both strip and full sodding. The contractor may motivate to the engineer for other acceptable stabilising methods. The engineer may only approve a completed spoil site at the end of the defects notification period upon receipt from the contractor of a landowner's clearance notice and an engineer's certificate certifying slope stability (Read with COLTO standard Specifications clause 1214). The contractor's costs incurred in obtaining the necessary certification for opening and closing of spoil sites shall be deemed to be included in the tendered rates for spoiling.

H 08.08.04 Stockpiles

The contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the engineer for his approval, together with the contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.

The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the contractor shall at all times ensure that they are:

- Positioned and sloped to create the least visual impact;

- Constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment; and

- Kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated / deposited during construction shall remain on site. Areas affected by stockpiling shall be landscaped, top soiled,

grassed and maintained at the contractor's cost until clearance from the engineer and the relevant Authority is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in-situ milling or any detritus of material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract drawing or under instruction from the engineer

In all cases, the engineer shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their clause only when they have been satisfactorily rehabilitated. (Read with COLTO Specification 3203 and 4306).

H 08.08.05 Blasting activities

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives. In addition, the contractor shall, prior to any drilling of holes in preparation for blasting, supply the engineer with a locality plan of the blast site on which shall be shown the zones of influence of the ground and air shock-waves and expected limits of fly-rock. The plan shall show each dwelling, structure and service within the zones of influence and record all details of the dwellings/structures/services including existing positions, lengths and widths of cracks, as well as the condition of doors, windows, roofing, wells, boreholes etc. The contractor, alone, shall be responsible for any costs that can be attributed to blasting activities, including the collection of fly-rock from adjacent lands and fields. The submission of such a plan shall not in any way absolve the contractor from his responsibilities in this regard. The contractor shall also indicate to the engineer the manner in which he intends to advertise to the adjacent communities and/or road users the times and delays to be expected for each individual blast.

H 08.09 Batching sites

Asphalt plants are considered scheduled processes listed in the second schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). Should the use of an asphalt plant be considered on site, the contractor shall be responsible to obtain the necessary permit from the Department of Environmental Affairs and Tourism, regardless of where they are sited.

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the Department of Minerals and Energy legislation as well as the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relative authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section C1008(h)(iii), with the exception that the contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to

drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant national authority, as shall approval of closure. The engineer will assist the contractor in his submissions to the relevant authority.

Effluent from concrete batch plants and crusher plants shall be treated in a suitable designated sedimentation dam to the legally required standards to prevent surface and groundwater pollution. The designs of such a facility should be submitted to the engineer for approval.

The contractor shall invite the relevant department to inspect the site within 2 months after any plant is commissioned and at regular intervals thereafter, not exceeding 12 months apart

H 08.10 Spillages

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 tar or bituminous products. In the event of a spillage, the contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill treatment lies with the contractor. The individual responsible for, or who discovers a hazardous waste spill must report the incident to his/her DEO or to the engineer. The Designated Environmental Officer will assess the situation in consultation with the engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil / water shall be determined by the contractor in consultation with the DEO and the engineer. Areas cleared of hazardous waste shall be re-vegetated according to the engineer’s instructions

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the engineer. The costs of containment and rehabilitation shall be for the contractor’s account, including the costs of specialist input.

H 08.11 Areas of Specific Importance

Any area, as determined and identified within the project document as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the approved EMP. The contractor may offer alternative solutions to the engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection shall not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall require ad hoc treatment.

H 08.11.01 Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the engineer of such discovery. The National Monuments Council is to be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist. (Read with COLTO General Condition of Contract Subclause 4.24 as amended by Particular Condition).

H 08.11.02 Graves and middens

If a grave or midden is uncovered on site, or discovered before the commencement of work, then all work in the immediate vicinity of the graves/middens shall be stopped and the engineer informed of the discovery. The National Monuments Council should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred. (Read with COLTO General Conditions of Contract Subclause 4.24 as amended by Particular Condition).

H 08.12 Noise Control

The contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during daylight hours. Compliance with the appropriate legislation with respect to noise, shall be mandatory.

Should noise generating activities have to occur at night the people in the vicinity of the drilling shall be warned about the noise well in advance and the activities kept to a minimum.

H 08.13 Dust Control

Dust caused by strong winds shall be controlled by means of water spray vehicles. Dust omission from batching plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant office of the Department of Minerals and Energy.

H 08.14 Alien Vegetation

The contractor shall be held responsible for the removal of alien vegetation within the road reserve disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily or otherwise within the road reserve. This responsibility shall extend for the duration of the defects notification period.

H 09 RECORD KEEPING

The engineer and the DEO will continuously monitor the contractor’s adherence to the approved impact prevention procedures and the engineer shall issue to the contractor a notice of non-compliance whenever transgressions are observed. The

DEO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the engineer in the monthly report.
Copies of any record of decision or EMP's for specific borrow pits or quarries used on the project shall be kept on site and made available for inspection by visiting officials from the employer or relevant environmental departments.

H 10 COMPLIANCE AND PENALTIES

The contractor shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings.

Any avoidable non-compliance with the above-mentioned measures shall be considered sufficient ground for the imposition of a penalty

The following penalties shall apply for environmental violations:

H 10.01 Unnecessary removal or damage to trees

- 2600mm girth or less : R 5 000 per tree
- Greater than 2600mm, but less than 6180mm girth : R10 000 per tree
- Greater than 6180mm girth : R30 000 per tree

H10.02 Serious violations:

- Hazardous chemical/oil spill and/or dumping in non-approved sites. : R10 000 per incident
- General damage to sensitive environments. : R 5 000 per incident
- Damage to cultural and historical sites. : R 5 000 per incident
- Uncontrolled/unmanaged erosion (plus rehabilitation at contractor's cost). :R1 000 to R5 000 per incident
- Unauthorised blasting activities. : R 5 000 per incident
- Pollution of water sources. : R 10 000 per incident

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final.

H10.03 Less serious violations:

Littering on site. : R1 000 per incident
Lighting of illegal fires on site. : R1 000 per incident
Persistent or un-repaired fuel and oil leaks. : R1 000 per incident

- Excess dust or excess noise emanating from site. : R1
- Dumping of milled material in side drains or on grassed areas: R1 000 per incident

- Possession or use of intoxicating substances on site.: R 500 per incident
- Any vehicles being driven in excess of designated speed limits. : R 500 per incident
- Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife: R2 000 per incident
- Illegal hunting. : R2 000 per incident
- Urination and defecation anywhere except in designated areas. : R 500 per incident

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

H 11 MEASUREMENT AND PAYMENT

Item		Unit
H 11.01	**Penalty for unnecessary removal or damage to trees for the following diameter sizes:**	
(a)	2600mm girth or less	number (No)
(b)	Greater than 2600mm, but less than 6180mm girth	number (No)
(c)	Greater than 6180mm girth	number (No)

The unit of measurement shall be the number of trees by diameter size removed unnecessary or damaged. The penalty rates applied shall be those stated in clause H 10.01

Item		Unit
H 11.02	**Penalty for serious violations**	
(a)	Hazardous chemical/oil spill and/or dumping in non-approved sites	number (No)
(b)	General damage to sensitive environments	
(c)	Damage to cultural and historical sites	number (No)
(d)	Pollution of water sources	number (No)
(e)	Unauthorised blasting activities	number (No)
(f)	Uncontrolled/unmanaged erosion per incident, depending on environment impacts, plus rehabilitation at contractor's cost)	number (No)

The unit of measurement for H 11.02 (a) to (f) shall be the number of serious violation incidents. The penalty rates to be applied shall be those stated in clause H 10.02.

Item		Unit

H 11.03 Penalty for less serious violations

(a)	Littering on site	number (No)
(b)	Lighting of illegal fires on site	number (No)
(c)	Persistent or un-repaired fuel and oil leaks	number (No)
(d)	Excess dust or excess noise emanating from site	number (No)
(e)	Dumping of milled material in side drains or on grassed areas	number (No)
(f)	Possession or use of intoxicating substances on site	number (No)
(g)	Any vehicles being driven in excess of designated speed limits	number (No)
(h)	Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife	number (No)
(i)	Illegal hunting	number (No)
(j)	Urination and defecation anywhere except in designated areas	number (No)

The unit of measurement shall be the number of less serious violation incidents. The penalty rates applied shall be those stated in clause H 10.03.

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

Item		Unit

H 11.04 Contractor's time related obligations in respect of Environmental management plans and specifications month

The tendered monthly amount shall represent full compensation for that part of the contractor's general obligations in terms of the environmental management plans and specifications which are mainly a function of time. This includes inter alia payment of all costs of the approved designated environmental office (DEO) and other staff contemplated in the administration of the environmental obligations, including the transport of employees on site. Payment will be monthly.

Table 1: Mechanisms that Cause Environmental Impacts during Construction Activities

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
1300	Camp Establishment	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
1400	Housing, Offices and laboratories	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
1500	Accommodation of Traffic	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
1600	Overhaul	Spillage Storage Noise/lights Dust control Exhaust fumes Washing waste	Turning circles Parking areas	Restrict access to sensitive areas	Protection of indigenous vegetation Preserve topsoil	
1700	Clearing and grubbing	Waste treatment Hazardous waste Water supply Noise /lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Protection of indigenous vegetation Preserve topsoil	
2100 - 2400	Drainage	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

3100	Borrow pits	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3200	Stockpiling	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3300	Mass Earthworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3400 - 3900	Pavement layers	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

4100	Asphalt works / sealing operations	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control Smoke control Storage of materials	Selection of site Preserve indigenous vegetation Preserve topsoil Turning circles Parking areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	
5000	Ancilliary roadworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
6000	Structures	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
7000	Concrete pavements etc	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

I - STANDARD SPECIFICATION

(a) Definitions and Interpretation

Unless otherwise expressly stated or the contents otherwise requires, the words and expressions listed below shall, when used in this Agreement, bear the meanings ascribed to them.

a) “Acceptance Criteria” means those criteria as predetermined by the Parties and recorded in writing, which establish the Department of Water Affairs and Forestry requirements regarding professional services and construction.
b) “Agrément certificate” means any certificate issued by Agrément South Africa confirming compliance with normal Agrément criteria.
c) “Closing time” means the date and hour specified in the tender documents for the receipt of tenders.
d) “Contract” means the written agreement entered into between the Employer and the Contractor, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
e) “The Contractor” means the Tender that has been awarded the Contract
f) “Contract price” means the price payable to the Contractor under the contract for the full and proper performance of his contractual obligations.
g) "Commencement Date" means the date of delivery, to the Contractor, of the Letter of Acceptance from the Employer.
h) “Corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
i) “Day” means calendar day.
j) “Delivery” means delivery in compliance of the conditions of the contract or order.
k) “Delivery into consignees store or to his site” means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
l) "Engineer" means "Any Professional Engineer"
m) “Employer” means the Collins Chabane Local Municipality.
n) “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any tenderer, and includes collusive practice among tenderers (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the tenderer of the benefits of free and open competition.
o) “Project site,” where applicable, means the place indicated in tender documents.
p) “Written” or “in writing” means handwritten in ink or any form of electronic or mechanical writing.

Works specifications shall comply with the following specifications:

Standard specifications for road abridge works for state road authorities

Plant and Materials

All plant and material shall be as per Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO).

Treatment of Existing Services

COLTO SERIES: Protection of kerbs, channels, etc. shall apply.

Kerbs, channels, guttering, manholes, guard rails, bridge railings and any other structures that may be soiled by bituminous binders during spraying operations shall be covered with suitable plastic sheeting during spraying operations. The sheeting shall be kept firmly in position by soil, stones or adhesive tape in such a manner that it will not lift or be blown away during windy conditions but will keep the areas to be protected fully covered.

The use of paper bags, sand or other materials will not be permitted in lieu of plastic sheeting and the contractor shall replace at his own expense any items that have been soiled and cannot be cleaned entirely. The painting of soiled surfaces will not be accepted as a suitable remedy.

Damage to Services

The Contractor shall maintain the bituminous surface until the Employer finally accepts the work. Any damage occurring to the surface or any defects which may develop before the maintenance certificate is issued, fair wear and tear excepted shall be corrected by the Contractor at his own expense and to the requirements of the Engineer.

Reinstatement of Services and Structures Damaged During Construction

When any part of the Works or any equipment or material is found upon examination by the Engineer not to conform to the requirements or is at any stage before final acceptance damaged so that it no longer conforms to the requirements of the Specifications, the Engineer may order its complete removal and replacement, at the Contractor's expense, with satisfactory work, equipment or material or he may permit the Contractor to apply remedial measures in order to make good any such defects or damage. The actual remedial measures taken shall at all times be entirely at the Contractor's own initiative, risk and cost, but subject to the Engineer's approval regarding the details thereof.

In particular remedial measures must ensure full compliance with the specifications of the final product, shall not endanger or damage any other part of the Works and shall be carefully controlled and submitted to the Engineer for examination when completed or at any intermediate stage as may be required.

Site Establishment

Site establishment shall be in accordance with the Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO), Series 1000: General

Services and Facilities Provided by the Employer

The Employer shall provide the following services and facilities:

a) bulk water for construction
b) secured site for plant and material

Services and Facilities Provided by the Contractor

The Contractor shall provide and be responsible for all items such as facilities, machines, plant, material, labour, and accommodation to fulfil the contract. He shall allow for all such items in his unit prices and no extra payment will be made for these. The quantities as described in the Schedule of Quantities are only an estimated value and may vary.

The Contractor shall furthermore take care of the traffic and take responsibility for the easy passage of all traffic during the construction period using his own barricades, road signs, flagmen, etc. The Chief Traffic Officer of the Municipality will be available to give advice, if required. No extra item will be allowed in the Bill of Quantities for this item and the Contractor will have to allow for this in his unit prices.

Storage and Laboratory Facilities

Storage and Laboratory facilities shall be provide by the Contractor according the Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO), Series 4000:

Permits and Way Leaves

Permits for road closure and way leaves must be obtain by the Contractor from the Employer.

Alterations, Additions, Extensions and Modifications to Existing Works

Alterations, additions, extensions and modifications to existing works shall be in accordance with the Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO), Series 1000: General.

Inspection of adjoining properties

The Contractor shall be responsible to make a video recording of any adjoining properties, structures and facilities, including trees and scrubs aligning the street or parking area before sealing or re-sealing are commenced.

Survey Control and Setting out of the Works

Survey control and setting out of the works shall be according to the Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO).

Management of the Works

Particular Specifications

The engineer will indicate the exact limits of the contract on site. A site inspection can be held on request. Single bituminous treatment for resealing of existing road surfaces will be done at any time as is requested by the Engineer and co-ordinated with the Contractor.

Planning and Programming

The responsibilities of the Employer shall be as follows:

a) construct the network of tasks and the project cash flow budget with the input from the Contractor.
b) update the project schedule and cash flow budget on a weekly basis.
c) keep the Contractor informed on task start dates.
d) update the project risk register on a continual basis.
e) administer the agreement Requirements Register
f) prepare and distribute Project Status Reports bi-weekly to the Technical Committee
g) prepare and distribute Project Status Reports monthly to the Local Municipality of Greater LM

Sequence of the works

The sequence of works shall be according to the project schedule as agreed by both parties.

Software application for programming

The Software Application used for programming shall be Microsoft Projects 2010.

METHODS AND PROCEDURES

All Methods and procedures shall be in accordance with Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO).

Quality plans and control

Quality Control shall be in accordance with Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO), Section 8300: Quality Control (Scheme 2).

Testing

The minimum testing frequency that will be required from the contractor shall be as given in the following table:

Test	Minimum testing frequency
Materials Aggregate for chips:	One test every 250 m³
Grade ACV Flakiness	One test every 1 000 m³
Aggregate for slurry:	One test every 250 m³
Grading Sand equivalent Bituminous binders	One test every 50 m³
Application rates	One test every type of sand
Construction tolerances	No testing required but Contractor shall produce certificates from all suppliers to the effect that all materials applied comply with relevant specifications.
Width	Complete records to be kept of actual measurements made of quantities of materials applied and rates of application.
Cross section) Smoothness)	One test each and every spray run All rough areas to be checked

Binder content of slurry	One extraction test every 100 m³ of aggregate used
Bulking of aggregate for slummy	One test every 50 m³ of aggregate used

Routine Inspection and Testing

Routine inspection will be carried out by the Engineer to test the materials and workmanship provided, for compliance with the requirements specified in this section.

Any materials or workmanship that do not comply with the requirements specified, shall be removed and replaced with materials and workmanship complying with the Specifications or, if the engineer permits, be repaired as specified in Clause 16, so that after being repaired it shall comply with the requirements specified.

When any part of the Works or any equipment or material is found upon examination by the Engineer not to conform to the requirements or is at any stage before final acceptance damaged so that it no longer conforms to the requirements of the Specifications, the Engineer may order its complete removal and replacement, at the Contractor's expense, with satisfactory work, equipment or material or he may permit the Contractor to apply remedial measures in order to make good any such defects or damage. The actual remedial measures taken shall at all times be entirely at the Contractor's own initiative, risk and cost, but subject to the Engineer's approval regarding the details thereof.

In particular remedial measures must ensure full compliance with the specifications of the final product, shall not endanger or damage any other part of the Works and shall be carefully controlled and submitted to the Engineer for examination when completed or at any intermediate stage as may be required.

FORMAT OF COMMUNICATIONS

Key Personnel

The Contractor shall provide a schedule of key personnel and their contact details at the commencement of contract

Management Meetings

Management meetings will be conducted on a weekly basis at the site. The Contractor shall keep minutes of the meetings.

Records

The Contractor shall keep the following record:

- Daily Site Diary
- Safety Record

Payment Certificates

Payment certificates shall be issued on a monthly basis, subject to the certification by the inspecting Engineer.

Insurance Provided by the Contractor

Insurance to be provided shall be in accordance with Standard Specifications for Road and Bridge Works for State Road Authorities (COLTO).

Health and Safety Requirements and Procedures

The Occupational Health and Safety Act, 53 of 1993. The Occupational Health and Safety Requirements and Standards are as per Construction Regulations, 2003.

The Contractor shall within five working days from the commencement date provide the Employer with a Risk Report for each Occupational Health and Safety risk identified.

Abnormal Musina

The extension of time to be allowed for due to abnormal Musina shall be calculated by the formula :

$$V = (N_W - N_n) + (R_W - R_n) /20$$

Where

V = Extension of time in calendar days for the calendar month under consideration.

N_W = Actual number of days during the calendar month on which a Musina of 10mm or more has been recorded.

R_W = Actual total Musina in mm recorded during the calendar month under consideration.

N_n = Average number of days for the calendar month on which a Musina of 10mm or more has been recorded, as derived from existing Musina records.

Rn = Average total Musina for the calendar month, as derived from existing Musina records.

Where the extension of time due to abnormal Musina has to be calculated for portion of a calendar month, pro rata values shall be used.

Should V be negative for any particular month and should its absolute value exceed the corresponding value of N_n then V shall be taken as being equal to minus N_n.

The total extension of time to be granted shall be the algebraic sum of all the monthly extensions provided that if this total is negative then the extension of time to be granted for abnormal Musina shall be taken as zero.

Forms to be used for Contract Administration or SIMILAR:

Annexure A	Deliverable Acceptance Certificate
Annexure B	Deliverables Register
Annexure C	Notification of Construction Work
Annexure D	Recording and Investigation of Incidents
Annexure E	Risk Register
Annexure F	Risk Report
Annexure G	Seal Work Quantity Control
Annexure H	Tally
Annexure I	Variation Order
Annexure J	Variation Order Register
Annexure K	Weekly Site Report

Annexure A: Deliverable Acceptance Certificate

Bituminous Treatment for Sealing of Road Surfaces
PROJECT REF NO.

DELIVERABLE DETAILS:
The following Project Deliverables has been delivered, reviewed and formally accepted by the Department of Water affairs and Forestry:

VARIATIONS AND CONDITIONS:

The above mentioned project deliverables are accepted under these conditions:

_____	_____
Engineer signature	Contractor Signature
_____	_____
Name	Name
_____	_____
Date of acceptance	Date of delivery

Annexure B: Deliverables Register

Deliverables Register
PROJECT NUMBER:

Delivery Register Purpose: Identifies the status of all project deliverables.

Del ID	Description	Task ID	Accept Request Date	Accept Approve Date	Status/Comment

Annexure C: Notification of Construction Work

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
Regulation 3 of the Construction Regulations, 2003

1. Principle Contractor Details

Name of Principle Contractor:	
Postal Address of Principle Contractor:	
Contact Person Name:	
Telephone number:	
Cell phone number:	
Contractor's Compensation Registration Number:	
Name of Principal Contractor's Construction Supervisor on site appointed in terms of regulation 6.(1).	
Supervisor Telephone number:	
Supervisor Cell phone number:	
Name of Principal Contractor's Sub-ordinate Supervisors on site appointed in terms of regulation 6.(2).	

2. Client Details

Name of Client:	
Postal Address of Client:	
Contact Person Name:	
Telephone number:	
Cell phone number:	

3. Designer(s) Details

Name of Designer(s) for the project	
Postal Address of Designer:	
Contact Person Name:	
Telephone number:	
Cell phone number:	

1. Project Details

Physical address of the construction site or site office:	
Nature of the construction work:	
Expected commencement date:	
Expected completion date:	
Estimated maximum number of persons on the construction site	
Planned number of contractors on the construction site accountable to principal contractor:	
Name(s) of contractors already chosen.	

_____
_____
Principal 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 PRINCIPAL CONTRACTORS** THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

Annexure D: Recording and Investigation of Incidents

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
(ACT NO 85 OF 1993)
REGULATION 9 OF THE GENERAL ADMINISTRATIVE REGULATIONS

A. RECORDING OF INCIDENT

Name of Employer	Department of Water affairs and Forestry
Name of affected person	
Identity number of affected person	
Date of incident	
Time of incident	

Part of body affected	Head or Neck	☐	Eye	☐	Trunk	☐	Finger	☐	Hand	☐
	Arm	☐	Foot	☐	Leg	☐	Internal	☐	Multiple	☐

Effect on person	Sprains or strains	☐	Contusion or wounds	☐	Fractures	☐	Burns	☐	Amputation	☐
	Electric shock	☐	Asphyxiation	☐	Unconsciousness	☐	Poisoning	☐	Occupational Disease	

Expected period of disablement	0-13 days	☐	2-4 weeks	☐	>4-16 weeks	☐	>52 weeks or permanent disablement	☐	Killed	☐

Description of occupational disease	
Machine/process involved/type of work performed/exposure**	
Was the incident reported to the Compensation Commissioner and Provincial Director?	☐ Yes ☐ No

Was the incident reported to the police?*	☐ Yes ☐ No
SAPS office and reference	

*to be completed in case of a fatal incident.
** in case of a hazardous chemical substance, indicate substance exposed to

B. INVESTIGATION OF THE ABOVE INCIDENT BY A PERSON DESIGNATED THERETO

Name of investigator	
Date of investigation	
Designation of Investigator	

Short description of incident	

Suspected cause of incident	

Recommended steps to prevent a recurrence	

Signature of Investigator: _____

Name: _____

Date: _____

C. ACTION TAKEN BY EMPLOYER TO PREVENT THE RECURRENCE OF A SIMILAR INCIDENT

Signature of Employer: _____

Name: _____

Date: _____

D. REMARKS BY HEALTH AND SAFETY COMMITTEE

Signature of the Chairperson
Of Health and Safety Committee: _____

Name: _____

Date:

Annexure E: Risk Register

I.	Project: XXXXXX Bituminous Treatment for Sealing of Road Surfaces								Date:
Risk ID	**Risk Title**	**Status**	**Cost Impact (000)**	**Prob. %**	**Risk Exp. (000)**	**Sched. Impact (wks)**	**Perf. Impact (Y/N)**	**Owner**	**Comment**
Totals (000)									

Annexure F: Risk Report

Project number: XXXXXX **Project name:**

Risk Title:	**Risk Probability (%):**
Risk ID:	**Cost Impact (000):**
Risk Type: ☐ **Safety and Health** ☐ **Schedule** ☐ **Cost** ☐ **Quality**	**Risk Exposure (000):**
Date Identified:	**Schedule Impact (weeks):**
Risk Owner:	**Risk Status (open, active, closed):**
Critical Outputs(s) Impacted:	

Risk Description

[*Describe the risk in terms of a condition and the consequences that the condition will bring about*

Risk Mitigation Actions	**Assigned To**	**Scheduled Complete Date**	**Actual Complete Date**

Risk Contingency Actions	**Assigned To**	**Start Trigger**	**Stop Trigger**

Risk Status Description

Annexure G: Seal Work Quantity Control

Contract No: XXXXXXXX													Job No:						
Binder Type:				A.L.D.:									Height Of Bar:						
Date:				% Cutter:									Precoting Agent:						
Weather:				Road No:															
Remarks Bar Nozzles:				Stone Size:															
Section	Lane	Length m	Width m	Area m²	Time Spray	Temperature°C Air	Road	Binder	Binder Quantity Litres Before	After	User	Rate 1/M² Spray	Spec	Stone Rate M³/ M² Spread	Spec	Pump R.P.M.	Road Speed	Actual Time	Actual Road Speed
TOTAL AREA m²					TOTAL BINDER LITRES:					TOTAL STONE m²:									

Annexure H: Tally Sheet

II. **Contract: XXXX**					**Sheet No:**				
Location:					**Date:**				
Load No.	**W/Bridge Del No.**	**Time Arrived**	**Time Paved**	**Tonnage Paved**	**Length Paved**	**Width Paved**	**Thickness Paved**	**Area Paved**	**Spread**

Signature: _____

Annexure I: Variation Order

VO Title:		VO No.	
Raised By:	Contact Tel No:	Date Raised:	Priority: H / M / L
Description of the Variation Required:			
Proposed Solution:			
Cost Impact: Schedule Impact:			
Authorized By: _____ Signature _____ Name		Date:	

Annexure J: Variation Order Register

PROJECT NUMBER: SCM/02/08/2013

Change Control Register Purpose: Identifies and tracks requests to change the project scope.

VO Id	Date Raised	Requestor	VO Title	Affected Component(s)	Date Closed	Status/Comment	Cost of Change

Annexure K: Weekly Site Report

1. Contract Details

Contract Name:	
Contract Number:	
Contractor Name:	
Site Agent Name:	
Week starting on:	
Week ending on:	

2. Labour Details

Labour	Day 1 Number on Site	Day 2 Number on Site	Day 3 Number on Site	Day 4 Number on Site	Day 5 Number on Site
Foreman					
Surveyor					
Artisans					
Operators					
Drivers					
Skilled					
Semi-skilled					
Unskilled					
Other [*Specify*]					

3. Equipment Details

Equipment	Day 1 Number on Site	Day 2 Number on Site	Day 3 Number on Site	Day 4 Number on Site	Day 5 Number on Site
Compactors					
Compressors					
Dozers					
Excavators					
Graders					
Loaders					
Mixers					
Tippers					
TLB’s					
Tractors					
Trailers					
Water carts					
Others [*Specify*]					

4. Weather Details

		Day 2	Day 3	Day 4	Day 5
Recorded Musina					
From					
To					

5. Deliveries

Date	Item	Quantity

6. Task Progress

Current Active Tasks	Elapsed Duration	Estimated Remaining Duration	Delays [*Specify*]

7. Information and Drawings

Date	Description	Action	Person Responsible
		☐ Required ☐ Issued	
		☐ Required ☐ Issued	
		☐ Required ☐ Issued	
		☐ Required ☐ Issued	
		☐ Required ☐ Issued	

8. Existing Services Encountered

Date	Description	Location	Condition
			☐ Good ☐ Fair ☐ Damaged
			☐ Good ☐ Fair ☐ Damaged
			☐ Good ☐ Fair ☐ Damaged

9. General

_____
_____
_____
_____
_____
_____
_____

SIGNED: _____

CONTRACTOR SITE AGENT _____

C5 DRAWINGS FOR TENDER PURPOSES

APPENDIX B: EPWP GUIDELINE CONDITIONS

C3.7 EPWP GUIDELINE CONDITIONS

C3.7.1 SCOPE

This section covers all aspects that relate to the implementation of the EPWP, community participation, use and development of Affirmative Business Enterprises, engagement and training of the labour force and labour enhanced construction. This section shall be read in conjunction with the following supporting documents:

i. The Government RDP White Paper

ii. Small Business Act No 102 of 1996

iii. White Paper on National Strategy for the Development and Promotion of Small business in South Africa (Notice No. 213 of 1995, published in Gazette No. 16317 of 28 March 1995)

iv. ASSEC (Association of Emerging Contractors) Accreditation scheme for small /Emerging Contractors.

v. White Paper on creating an enabling environment for the Reconstruction, Growth and Development in the Construction Industry, March 1999.

vi. Affirmative Procurement policies as developed by the PWD led task team.

vii. Wage Disputes(Contractor's default to pay participants): Any dispute between the Contractor and EPWP Workers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.
The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

viii. Reporting requirement of Contractor:
The Contractor should submit the following at the beginning of the Contract:

a. Contracts of all the workers employed on the contracts including their certified identity documents;
b. Proof of Registration for COIDA and UIF;
c. OHS Files

The Contractor shall submit monthly returns/reports as specified below:

a. Signed Muster rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
b. Copies of certified identity documents of workers
c. Number of persons who have attended training including nature and duration of training provided

(d) Assets created, rehabilitated or maintained in accordance with indicators in the EPWP M&E framework
(e) Plant utilization returns
Progress report detailing production output compared to the programme of works

Aspects of these documents have been included as specifications; in which case the specifications will take precedence.

C3.7.2 GUIDELINES FOR THE IMPLEMENTATION OF EPWP

1. DEFINITIONS.

The community means individual and communal property owners, organised groups of road users, other interest groups and departments or spheres of government that may be affected by the location, construction, operation and maintenance of the road to which this contract applies.

"National Small Business Support Strategy" means the national policy in respect of small business support as published by the Minister in the Gazette, and includes the policy as stated in the White Paper on National Strategy for the Development and Promotion of Small Business in South Africa.

"Small business" means a separate and distinct business entity, including co-operative enterprises and non-governmental organisations, managed by one owner or more which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or sub-sector of the economy mentioned in column I of the Schedule below and which can be classified as a micro-, a very small, a small or a medium enterprise by satisfying the criteria mentioned in columns 3, 4 and 5 of the Schedule opposite the smallest relevant size or class as mentioned in column 2 of the Schedule.

For the purpose of construction projects, the medium classification will not apply in terms of the CPG, unless the enterprise can also be classified as an ABE

"Conventional contract" means any contract for the execution of civil engineering or building or similar construction works, in which the liabilities and responsibilities of the two parties thereto are assigned essentially in a manner which is consistent with that set out in the General Conditions of Contract for Road and Bridge Works for State Road Authorities, 1998 (as published by the Committee of Land Transport Officials) or other similar documents.
"Conventional subcontract" shall be similarly and appropriately construed.

“Contract Participation Goal” (or CPG), is the value of goods, services and works, excluding VAT, for which the Contractor proposes to engage labour and ABE’s.

“Contractor" means any person or group of persons in association, or firm, or body corporate whose expertise, resources, ability and experience are such as ***may generally be regarded with a reasonable degree of confidence by an experienced consulting engineer***, as rendering him/them capable and competent to independently and successfully enter into, execute and complete civil engineering, building or similar construction works in terms of a conventional contract.

“Conventional subcontractor" shall be similarly and appropriately construed.

Emerging contractor means an ABE that can not reasonably be categorised as a conventional contractor defined above.

"Key Personnel" means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, and all other personnel in the permanent employ of the Contractor or his subcontractor who posses special skills and/or who play key roles in the Contractor's or subcontractor's operations.

"Worker" for the purposes of this specification means any person, not being one of the defined key personnel of the Contractor or his subcontractor, who is engaged by the Contractor or subcontractor to participate in the execution of any part of the contract works and shall include unskilled labour, semi-skilled and skilled labour, artisans, clerical workers and the like.

“Workforce” means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all his subcontractors.

“Subcontractor” means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the works are sublet or subcontracted by the Contractor in accordance with the provisions of the contract.

Level of subcontractor means the level of responsibility carried by and the assistance to be provided to the different grades of subcontractor in the execution of subcontracts.

"**PLC**" is the Project Liaison Committee

"**Project Committee**" is the committee comprising out of the Employer's representative, The Engineer or his representative, the Contractor or his representative and the CLO.

"**CLO**" is the Community Liaison Officer as indicated by the Employer and appointed and paid by the Contractor under the Contract.

2. COMMUNITY PARTICIPATION.

2.1 Purpose

In order to give effect to the need for participation and transparency in the process of appointing labour, the community should participate in the decision making process throughout the life of a project. This shall be achieved through structured engagement between those responsible for the delivery of the project and the community.

2.2 Structure and Composition

A Project Liaison Committee (PLC) may be formed from representatives of the Employer, the Engineer, the Contractor and the Community if the project is such that a specific community can be identified.

2.3 Procedures

2.3.1 The PLC deals with labour and ABE involvement on the project and shall meet at least once every month until such time as it is of the opinion that it could fulfil its tasks by meeting less frequently.

2.3.2 The PLC shall make recommendations by consensus. If consensus can not be reached, the decision of the Employer will be final in cases that have no financial implications for the Contractor or where payment is to be made from PC items. Where the financial responsibility for the successful completion of the works rests with the Contractor, the Contractor's decision shall be final. In fulfilling its tasks, the PLC shall be guided by the relevant sections of this specification and the supplementary documents.

2.4 **Tasks of the PLC**

2.4.1 To assist with community liaison and resolution of disputes.

2.4.2 To devise fair and transparent procedures that will assist the Contractor in the engagement of labour and the award of sub-contracts to ABE's.

2.4.3 To advise on and monitor labour issues.

2.4.4 To assist in resolving labour disputes.

2.5 **Assistance to the PLC**

2.5.1 The appointed CLO will assist the Engineer and the Contractor in the day to day liaison with the communities directly affected by the project.

3. USE, DEVELOPMENT AND SUPPORT OF ABE'S

3.1 **Extent of the works to be executed by ABE's.**

A major objective of the RDP is to extend economic opportunities and entrepreneurial capacity to all localities by the optimum utilisation of the resources existing in the vicinity of projects, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.
The Engineer shall advise the Gauteng Provincial Government: Department of Public Works, Roads and Transport on the contract participation goal (CPG) for local ABE's that may be achieved on the project. This CPG will be stated in the Contract Data.

Only ABE's that have been appointed through the procedures adopted by the PLC shall count towards the achievement of the target, unless the PLC agrees that ABE's that have been engaged by the Contractor as a result of contractual arrangements between the Contractor and such ABE's prior to tendering, or before the adoption of the agreed procedures, can qualify.

Where all tenderers have been supplied with a list of pre-qualified ABE's, these ABE's can be engaged by the contractor prior to award and will be counted towards the achievement of the CPG.

Upon receipt of a fully motivated written application from the Contractor, the target may be reduced. The circumstances for such a reduction may include inter alia the following:

i) non-receipt of valid tenders from ABE's;
ii) default or failure of appointed ABE's to complete sub-contracts;
iii) but shall not include the failure of the PLC to approve ABE's referred to above.

3.2 **Terms and conditions of the subcontract agreements**

The terms and conditions of each subcontract agreement shall be as mutually agreed between the Contractor and the ABE's.

Each subcontract agreement shall contain terms and conditions which assign the responsibilities and liabilities of the two parties to the subcontract.

The terms and conditions of the subcontract agreement shall further be such as to specifically ensure that the provisions of this contract pertaining to:

i) the allowable sources from which workers may be drawn;
ii) the terms and conditions relating to the recruitment and employment of the workers
iii) any training to be provided to the temporary workforce;

shall apply in respect of all workers engaged and employed by any ABE.
Except where it is in conflict with the responsibilities of the subcontractor under a particular level of subcontract, the terms and conditions of the subcontract agreement shall:

i) include an entitlement of the subcontractor to receive such training and support as is contemplated in this contract; and
ii) an obligation on the ABE to participate and co-operate in such training as is provided for in this contract.

The Contractor shall be responsible for the compilation of each subcontract agreement and for ensuring that terms and conditions thereof are consistent with all requirements as specified in, or reasonably to be inferred from, the provisions of this contract. The Contractor shall bear all costs associated with the compilation of the subcontract documentation and the conclusion of the agreement.

In addition to the provisions of General Conditions of Contract, the final terms and conditions of each subcontract agreement

shall be subject to the approval of the Engineer, which approval shall be obtained by the Contractor prior to entering into the subcontract agreement and which approval shall not be unreasonably withheld.

The Contractor shall include a condition of subcontract that ABE subcontractors shall apply for accreditation through the CEITS Accreditation Programme or other similar approved programme, for small/emerging contractors.

3.3 Formulation of subcontracts

3.3.1 Scope, extent and level of subcontracts

The Contractor shall submit a list of subcontracts that he proposes to let to the PC setting out:

i) the scope and extent of the works to be included in any particular subcontract;
ii) the time at which subcontracts will be let; and
iii) the duration of the subcontract;

The scope and extent of the proposed subcontracts shall be framed in such a manner as will facilitate the achievement of all objectives and principles pertaining to ABE's use and development as are stated in or as may reasonably be inferred from the conditions of this contract, due cognisance being taken of:

i) the prevailing levels, ability, resources and previous experience of the potential candidates available;
ii) the training and assistance to be provided to the ABE's in terms of this contract;
iii) the period allowed in the Appendix for completion of the Works and the approved programme of works;
iv) the scope of the Works described in the Project Specifications; and all constraints and conditions contained in this contract, as may impact upon the subcontract.

The level to be applicable to any particular subcontract shall be selected by the Contractor, in accordance with the following criteria:

i) the level of subcontract shall be commensurate with the scope and extent of Works included in the subcontract; and
ii) the level of subcontract shall be selected taking due cognisance of:
    - the prevailing levels of the available candidates;

- the assistance to be provided by the Contractor to the ABE's for any given level of subcontract;

- the training and support to be provided to the ABE's in terms of the contract;
- the training as may have previously been provided to candidate ABE's under this or other contracts.

The Contractor shall formulate the subcontracts in a manner that will facilitate optimum use of available potential ABE's.

3.4 **Engagement of subcontractors**

The Contractor shall submit a program and procedures that will show the optimum use of ABE's on the contract along the following guidelines.

3.4.1 Identification and general training of potential ABE's

The Contractor will, through an appropriate public information campaign in the vicinity of the project, invite potential sub-contractors to attend information sessions about the scope of the works, the RDP objectives of the Project and the scope of the Works that could be undertaken by ABE's.

Potential ABE's shall be invited to attend training workshops that could include the following modules:

i) Estimating and Tendering
ii) Conditions of Contract & Specification
iii) Basic Business Appreciation
iv) Statutory obligations pertaining to the requirements and procedures of inter alia:

- Site tax/income tax deductions from the amounts due to their employees;
- The occupational Health and Safety Act 1993; (Act No 85 of 1993);
- Value-added tax (VAT) and other taxes for which the small subcontractor may be liable;
- His status as an employer.

The training shall be conducted by an accredited training agency and the candidates who successfully complete the training shall receive certificates and their names retained on a list of potential tenderers.

3.4.2 Advertisement

The contractor shall compile an advertisement setting out the scope and type of work that will be let out to sub-contractors and inviting interested parties to
obtain tender qualification forms. The tender qualification form shall elicit information from prospective tenderers that will assist the Contractor in determining the eligibility of the applicant to perform at a particular level of subcontract. This advertisement shall be run in appropriate daily newspapers if available and displayed at public buildings, shops and other places in the vicinity of the project and disseminated through various community structures.

Notwithstanding the above requirements to advertise publicly for invitations to qualify for tenders, the Contractor may invite specific eligible ABE's as he may select.

The PC shall scrutinize the applications in terms of previous experience, equipment, labour force, financial position and location, but without identification, and allocate them to the type of work that they could potentially undertake, having regard also for further training and support.

If after the initial allocation, there should be an excessive number of candidates, a further selection shall be made to reduce the number of potential tenderers per subcontract to no more than five.

3.4.3 Invitation and site inspection

Applicants who satisfy the pre-qualification process shall be invited to attend a site inspection, conducted jointly by the Engineer and the Contractor at which the tender documents shall be handed over and the exact scope and requirement of each sub-contract explained.

3.4.4 Adjudication and award

Upon receipt of the tenders, the Contractor shall adjudicate the tenders and make proposed awards, based on criteria such as balance of rates, overall tender price against realistic cost to deliver in time and at a reasonable margin of profit.

The proposed awards shall then be submitted to the PC for ratification. The PC shall have the right to interview any tenderer for the purpose of:

i) clarifying any aspect of the tender;
ii) verifying the eligibility of the tenderer by further enquiry into aspects that may not be clear from the pre-qualification; and

iii) making alternative proposals in the event that it is considered a better selection as is available to the Contractor.

Notwithstanding the above, since the responsibility for due performance vests with the Contractor, the Contractor's decision is final should agreement with the PC not be reached as to the preferred candidate.

3.5 **Training, Mentoring, Guidance and Assistance**

3.5.1 Structured training and support

The PLC may assist in identification of the contract workers to undergo training as specified in the training programme specifications in paragraph 9 of this section.

The PLC may assist with formalising a structured development programme for ABE subcontractors, having regard for the resources and experience of the ABE's that have been engaged and the scope and level of the subcontracts, in accordance with the criteria set out below.

3.5.2 Co-operative Venture

ABE contractors who have been identified in the pre-qualification stage and who have some experience and equipment, but who operate independently with little training and backup, should be brought together with a view to forming a co-operative venture to allow them to access work requiring varied skills and equipment and of a larger magnitude.

3.5.3 ABE support office

Such an office shall be part of the Contractor's own site establishment and shall provide administrative and technical services exclusively to ABE's that have been selected according to the processes defined in these project specifications. The following support shall be provided:

i) Materials ordering
ii) Invoicing
iii) Wage packaging
iv) Cost control
v) Work scheduling
vi) Setting out of work
vii) Measurement of work done
viii) Training

Such an office shall be staffed in joint venture between the Contractor, who shall be paid an amount under the contract for ABE support, the Employer via the training allowed for in the contract, and the ABE's who shall pay a service fee.

3.5.4 Financial Assistance to ABE's

The Contractor shall tender to assist ABE's with:

i) Funding of wages between payment certificates at the start of the contract
ii) Payment for materials channelled through their accounts
iii) Guarantees for financing of equipment

3.5.5 Supply of services and materials

As part of the pre-tender communication strategy, local business and local community structures should be informed of the needs so that they can prepare themselves to take advantage of the opportunities to provide goods and services.

Cartage only subcontracts could be advertised as ABE work and included in the statistics if the proper procedures are followed.

The supply only of material as well as the supply of labour through labour brokers who will work under the supervision of the Contractor, shall not count towards the target of work done by ABE's.

3.5.6 Accredited training

Over and above the in-task training provided to the workforce, training by accredited training providers shall be provided to ABE's as enterprises with the aim of progressing through the levels as defined. The Contractor shall assist in facilitating in the delivery of the training, by instructing and motivating the ABE's regarding attendance and participation therein. The Contractor shall further make all reasonable efforts to co-ordinate the programming of the ABE's work with that of the delivery of the structured training.

4. DISPUTE AVOIDANCE AND RESOLUTION PROCEDURES

The Contractor shall at all times apply the terms and conditions of the subcontract fairly and justly, taking due cognizance of the level of sophistication and experience of the particular ABE's concerned, as well as the level of subcontract applicable.

The Contractor shall closely monitor and supervise all ABE's and wherever feasible, shall give reasonable warning to the ABE's when any contravention of the terms of the subcontract has occurred or appears likely to occur.

The Contractor shall, whenever feasible, give the ABE's reasonable opportunity to make good any such contravention, or to avoid such contravention and shall render all reasonable assistance to the ABE's in this regard.

When taking any disciplinary actions or imposing any penalties as are provided for in the subcontract, the Contractor shall explain fully to the ABE's that such actions are provided for in the subcontract.

If any dispute should arise between the Contractor and a ABE's, such dispute shall be resolved in accordance with the provisions of the subcontract. Notwithstanding, either party may at any time, refer any dispute to the Project Liaison Committee, the PC or the Engineer for consideration, with a view to facilitating the resolution thereof.

No opinion expressed by, or resolution or decision of the Project Liaison Committee, pertaining to any matter referred to it shall be binding on either party to the subcontract unless:

i) it is stated in the subcontract agreement that the Contractor shall be bound by such opinions, resolutions or decisions; or

ii) the Contractor is instructed in writing by the Engineer to give effect thereto, in which case such instruction of the Engineer may be

deemed to constitute an "instruction" as contemplated in the General Conditions of Contract.

5. CONTRACTOR'S LIABILITY

No provision or requirement set out in this specification shall be deemed to relieve the Contractor of any liability or obligation under the contract, and in accordance with the provisions of sub-clause 8(4) of the conditions of contract, the Contractor shall be fully liable for the acts, defaults and neglects of any ABE's, his agents or employees, as fully as if they were the acts, defaults and neglects of the Contractor, his agents or employees.

Nothing contained in this specification shall be deemed to constitute or imply any warranty given by the Contractor to any party, that any ABE's to whom a subcontract is awarded in accordance with the provisions of this specification:

i) can or will actually achieve the successful execution and completion of the subcontract; nor

ii) will not suffer losses or damages as a result of the acceptance of his tender/quotation.

6. CERTIFICATE OF EXPERIENCE

The Contractor shall on the completion of each and every subcontract completed in accordance with the provisions of this specification, issue free of charge to the small, medium and micro enterprise a certificate stating:

6.1 Contract data:

(i) Contract title;
(ii) Contractor's full name and address;
(iii) Engineer's name and address;
(iv) Employer's name;

6.2 Subcontract data:

(i) ABE's name and address;
(ii) Scope or extent of the subcontract works;
(iii) Value of the subcontract works;
(iv) Applicable level of the subcontract;
(v) Duration of the subcontract;
(vi) Date of completion of the subcontract;
(vii) Description of the training undergone by the ABE's and certifying the ABE's completion of the subcontract.

The format, layout and appearance of certificates shall be at the Contractor's discretion, provided always that they shall be respectable and presentable in accordance with the general standards of normal business practice. All certificates shall be signed by the Engineer and a senior representative of the Contractor, who has been duly authorised thereto.

7. LABOUR ENHANCED CONSTRUCTION

The Contractor's attention is drawn to the fact that it is an objective of the contract to maximise the labour content of certain operations or portions thereof. In this regard, where the specified work allows for a choice between mechanical or labour-enhanced means, the former shall generally be kept to the practical minimum.

The Contractor shall submit on a monthly basis, daily labour returns to the Engineer indicating the numbers of temporary personnel employed on the works and the activities on which they were engaged.

8. TEMPORARY WORKFORCE

8.1 Record of workforce

The Contractor shall maintain accurate and comprehensive records of all workers engaged on the contract and shall provide to the Engineer at monthly intervals from the commencement of the contract, interim records substantiating the actual numbers of employment opportunities which have been generated to date and the amounts actually paid in respect thereof. Such interim records shall be in a format approved by the Engineer.

The Contractor shall, on completion of the contract, and as a pre-requisite to the release of any retention money, provide the Engineer with independently audited documentary evidence of the total number of employment opportunities actually generated during the contract.

The value of the target amount (minimum Contract Participation Goal) spent on local labour is prescribed in the Appendix.

8.2 Recruitment and selection procedures

The Contractor shall be responsible for the final selection of workers to constitute the temporary workforce but in doing so, shall adhere to the procedures adopted by the PLC or CLO along the following guidelines:

The Contractor shall advise the Engineer in writing, of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the contract relating to training).

The PLC or CLO shall take the necessary actions to identify potential workers for the temporary workforce from communities in the vicinity of the works. The details of all persons applying for employment shall be recorded, including inter-alia:

(i) Name, address, age and sex
(ii) Marital status and number of dependants
(iii) Qualifications and previous work experience (whether substantiated or not)
(iv) Period since last economically active
(v) Preference for type of work or task.

The PLC or CLO shall make a selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce as supplied by the Contractor and the provisions of the contract in regard to the provision of training to selected members of the workforce and in accordance with the following principles:
No potential temporary worker shall be precluded from selection by virtue of a lack of skill in any suitable operation forming part of the works, unless:

(i) all available vacancies have been or can be filled by temporary workers who already possess suitable skills; or
(ii) the completion period allowed in the contract, or the remaining portion of the contract period (as the case may be) is insufficient to facilitate the creation of the necessary skills;

The Contractor shall make a final selection from the list provided by the PLC or CLO using the following criteria:

(i) preference shall be given to the long term unemployed and single heads of households
(ii) in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected and shall not be prejudicial to youth over the age of fifteen years and women.

The same provisions shall apply as is in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the contract.

8.3 **Terms and Conditions Pertaining to the Employment of the Temporary Workforce**

The onus shall be on the Contractor to ensure that all the requirements of all the acts relating to the employment of workers are observed.

8.4 **Labour Relations and Worker Grievance Procedures**

In accordance with the provisions of the General Conditions of Contract, the Contractor shall, at his own cost, be fully responsible for the establishment and maintenance of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur.

The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the civil engineering construction industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the contract.

In the event of any temporary worker engaged by the Contractor in terms of the contract, being aggrieved on any issue, he shall have the right to nominate and be supported in any inquiry or

disciplinary hearing or investigation instituted by the Contractor, by one member of the temporary workforce.

In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures described above, then either the Contractor or the worker concerned may require that the matter be referred to the PC for further consideration, with a view to facilitating resolution thereof.

9. TRAINING OF THE TEMPORARY WORKFORCE.

Selected members of the workforce are to be provided at least with structured training by a nominated subcontractor, in accordance with the provisions of this section. The Contractor shall make all necessary allowances in his program of work to accommodate and facilitate the delivery of such structured training.

ABE subcontractors workforces will be entitled to receive accredited training that will improve on task skills necessary for the execution and successful completion of the various subcontracts. The Contractor, in conjunction with the Engineer, shall monitor each ABE's progress closely and shall identify those who will benefit from structured construction skills training

The technical training shall comprise of items selected from the table in paragraph 7 of this section and which are relevant to this project.

10. ACCREDITED TRAINING AND ATTENDANCE.

Only qualified trainers employed by training agencies who are accredited by the Civil Engineering Industry Training Scheme (CEITS), or any other institution recognized by the Department of Labour shall deliver all training certificates affirming the successful participation in the various courses and shall be presented to each attendant.
The contractor shall facilitate in the delivery of training, by instructing and motivating the relevant subcontractor regarding his staff's attendance and participation therein.

The contractor shall further make all reasonable efforts to co-ordinate subcontractors work with that of the delivery of the structured training

The provision of structured training shall not relieve the Contractor of any of his obligations in terms of clause 24 of the General Conditions of Contract and the Contractor shall remain fully liable for the provision, at his own cost, of any other training of the workforce, additional to the structured training, as deemed to be necessary by the Contractor to achieve the execution and completion of the works strictly in accordance with the provisions of the contract.

11. PENALTIES FOR NON-COMPLIANCE

Any deliberate failure or neglect by the Contractor to comply with the provisions of this specification, or any deliberate omission or neglect by the Contractor in adhering to or applying the principles as are described and inherent in this specification, shall be deemed to constitute a warrant for the Engineer to act in terms of sub-clause 58(1)(e) of the conditions of contract or the penalties specified for non attaining the prescribed CPG's will be applied and doubled.

C3.5.3 PAYMENT

To be included in tendered rates

C3.5.4 EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

1. Requirements for the sourcing and engagement of labour.

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 SANS 1914-5, Participation of Targeted Labour.

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1.1.2 The rate of pay set for the SPWP is R80,00 per task or per day.

1.1.3 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.

1.1.4 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 1.1.3.

1.1.5 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

1.1.6 The Contractor shall endeavour 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 35; and
c) 2% on persons with disabilities.

1.2 Specific provisions pertaining to SANS 1914-5

1.2.1 Definitions

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

1.2.3 Contract participation goals

1.2.3.1 There is no specified contract participation goal 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.

1.2.3.2 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 programmes.

1.2.4 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.

1.2.5 Variations to SANS 1914-5

1.2.5.1 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.

1.2.5.2 The schedule referred to above 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.

1.3 Training of targeted labour

1.3.1 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.

1.3.2 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.

1.3.3 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, Fax Number 012 328 6820 or email cinderella.makunike@dpw.gov.za Tel: 083 677 4026

1.3.4 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.

1.3.5 The contractors shall do nothing to dissuade targeted labour from participating in the above mentioned training programmes.

1.3.6 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 1.3.4 above.

1.3.7 Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

C3.5.5 MINIMUM LABOUR BASED TARGETS

The following minimum labour based targets are required to be met:

(a) Labour budget as percentage of project budget

A minimum of 30 % of the Project Budget is required to be spent on local community labour.

Employment of Local Labour

(i) The Contractor is required to make maximum possible use of the local labour in the community, which is at present underemployed or unemployed.

(ii) To this end the Contractor is required to give preference to the use of local labour and limit the use of non-local labour to key personnel only.

(iii) Local labour is defined as “people who reside in the community

(iv) Who have preferably been identified by the Project Steering Committee to be employed”

(v) Key Personnel – are defined as foremen and skilled labourers without whom the particular job could not be accomplished. As far as possible these people should impart their management and building skills to individuals within the community workforce who show a keen interest and display a willingness to learn.

Employment of Women

A minimum of **60%** of the clerical, semi skilled and unskilled local labourers employed is required to be women.

Employment of Youth

A minimum of **55 %** of the local labourers employed is required to be youth (35 years and under and out of school).

Employment of Disabled Persons

A minimum of **2%** of the local labourers employed is required to be disabled persons.

(b) Minimum Reporting

Contractors Report

The Contractor is required to complete a Contractors Report, which is to be submitted together with the Contractors Payment Claims all as per the “MIG Reporting Schedule 1 (overall)” attached hereto. Payment of the contractor is conditional on the information being accurately and timeously provided.

(a) Worker Contracts

All worker contracts for workers employed during the month must accompany the MIG Reporting Schedule 2 (Labour) attached hereto.

(b) Attachments

Special Conditions of Contract Transfer and Rights and Indemnity

MIG Reporting Schedule 1 (Overall)
MIG Reporting Schedule 2 (Labour)

ANNEXURE TO SPECIAL CONDITIONS OF CONTRACT TRANSFER OF RIGHTS AND INDEMNITY

Claim for materials on site, Payment Certificate No: ……..…… Date: ……..

Tender No: …… for (*contract title*) ……..

……
……

I, the undersigned (*name of signatory*) ……..……..……..
in my capacity as ……. of (*name of Contractor*) ……..……..
duly authorised hereto on behalf of the Contractor hereby transfer, cede and assign all the Contractor's rights, title and interest in and to the materials and goods, for which evidence of bona fide ownership is attached hereto,

unto and in favour of (*name of Employer*) ….……..……..
Insofar as the Contractor retains actual control of the materials and goods, the right of ownership thereof passes to the Employer by *constitutum possessorium*.

I herewith indemnify the Employer against any claim to and in respect of said materials by reason of the Contractor's sequestration or liquidation or of any effect in the Contractor's title to the materials and agree that no payment for materials on site will be made by the Employer until such time as I have submitted documentary proof of bona fide ownership of the said materials and goods.

The transfer shall become effective upon conclusion of the Contractor receiving payment from the Employer or from any other person on behalf of the Employer for the materials and goods as Materials on Site, payment of retention money thereon excluded.

I further confirm that I am fully responsible for all materials and goods listed under this Transfer of Rights and that they gave been insured adequately against all risks and will remain insured until they are built into or used in the permanent works and taken over by the Employer.

This certificate of Transfer of Rights applies only to the materials and goods as listed in the following table:

DESCRIPTION OF ITEM	UNIT	QTY	RATE	AMOUNT	SUPPLIER
TOTAL VALUE OF MATERIALS AND GOODS					

Signed by …… Date ……..
for and on behalf of the Contractor,

Witnesses by ……..…….…….. Date ……..

[Note: This form, together with the documentary proof of ownership or proof of payment by the Contractor to the supplier, shall accompany the Contractor's claim for payment for materials on site in terms of Clause 52(1)(e) of the General Conditions of Contract 1990.]

MIG REPORTING SCHEDULE 1 (OVERALL)

Reporting Period ……..

BUDGET

Proposed cash flow

This month	
Next month	
Month #3	
Month #4	
Month #5	

Expenditures (over reporting period)

Labour	
Material	
Tools/plant	
Training	
Other	

EXPENDITURE TO SMME's

	Name	Amount
SMME 1		
SMME 2		
SMME 3		
SMME 4		

LOCAL LABOUR UTILISED (labour days)

	Men	Women	Youth	Disabled
Professional				
Managerial				
Clerical				
Skilled				
Semi skilled				
Supervisor				
Labourer				

TRAINING UNDERTAKEN

	Accredited			Non accredited		
	Men	Woman	Youth	Men	Woman	Youth
Technical						
Administrative						
Life skills						

Verified for contractor:					
	Name		Signature		Date

Note
Reports to be submitted for a monthly period to the 25th of the month.
All expenditures to be VAT inclusive.

MIG REPORTING SCHEDULE 2 (LABOUR)

Reporting Period _____

No	Name	ID No	Days	Daily									
			Employed	Rate	Paid		Skilled	Semi Skilled	Total Clerical Super= vision	Labourer	Male	Female	Youth

Verified for contractor

…….. …….. ……..

Name Signature Date

C3.5.6 GENERIC LABOUR-INTENSIVE SPECIFICATION

The Generic Labour-intensive specification below is the same as SANS 1921-5, Construction and management requirement for works contracts - Part 5: Earthworks 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.

1. Scope

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

a) trenches having a depth of less than 1.5 metres
b) stormwater drainage
c) low-volume roads and sidewalks

2. 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.

2.1 Hand excavateable material

Hand excavateable material is material:

a) granular materials:

i) whose consistency when profiled may in terms of table 1 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 1 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, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the insitu 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 1 : 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 en of a geological pick can be pushed in 30-40mm; 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 10mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows	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 thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

7CC **2.2 Trench excavation**

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

2.3 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% Proctor density;
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.

2.4 Excavation

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

2.5 Clearing and grubbing

Grass and small bushes shall be cleared by hand.

2.6 Shaping

All shaping shall be undertaken by hand.

2.7 Loading

All loading shall be done by hand, regardless of the method of haulage.

2.8 Haul

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

2.9 Offloading

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

2.10 Spreading

All material shall be spread by hand.

2.11 Compaction

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

2.12 Grassing

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

2.13 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.

2.14 Manufactured Elements

Elements manufactured or designed 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. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.

Table 2: Skills programme for supervisory and management staff

Personnel NQF level		Unit standard titles	Skills programme 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	5	Manage Labour –Intensive Construction Processes	Skills Programme against this single unit standard

that is resident on the site)			

NANCEFIELD PHASE 9 & 10
SITE LOCALITY
SCALE 1 : 50 000

LIST OF DRAWINGS

ROADS

NF9_10 - ROADS - 001 - T - 0	SITE LOCALITY
NF9_10 - ROADS - 002 - T - 0	INTERNAL ROADS KEY PLAN (THIS DRAWING)
NF9_10 - ROADS - 003 - T - 0	ROAD 1 LAYOUT AND LONG SECTION
NF9_10 - ROADS - 004 - T - 0	ROAD 1 CROSS SECTIONS
NF9_10 - ROADS - 005 - T - 0	ROAD 2 AND ROAD 3 LAYOUT AND LONG SECTION
NF9_10 - ROADS - 006 - T - 0	ROAD 2 AND ROAD 3 CROSS SECTIONS
NF9_10 - ROADS - 007 - T - 0	ROAD 4 TO ROAD 7 LAYOUT AND LONG SECTION
NF9_10 - ROADS - 008 - T - 0	ROAD 4 TO ROAD 7 CROSS SECTIONS
NF9_10 - ROADS - 009 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: LAYOUT AND LONG SECTION
NF9_10 - ROADS - 010 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: TYPICAL CROSS SECTION
NF9_10 - ROADS - 011 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: ROAD SIGNAGE
NF9_10 - ROADS - 012 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: LONGITUDINAL ARROW MARKINGS
NF9_10 - ROADS - 013 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: LONGITUDINAL LINE MARKINGS
NF9_10 - ROADS - 014 - T - 0	ROAD 1 & D2692 INTERSECTION UPGRADE: CROSS SECTIONS
NF9_10 - ROADS - 015 - T - 0	TYPICAL PAVEMENT DESIGN
NF9_10 - ROADS - 016 - T - 0	TYPICAL SIGN ERECTION
NF9_10 - ROADS - 017 - T - 0	TYPICAL CULVERT INLET AND OUTLET DETAILS
NF9_10 - ROADS - 018 - T - 0	TYPICAL SPEED HUMP DETAILS
NF9_10 - ROADS - 019 - T - 0	TYPICAL STOP SIGN LAYOUT
NF9_10 - ROADS - 020 - T - 0	TYPICAL TRAFFIC ACCOMMODATION

STORM WATER

NF9_10 - STORM - 001 - T - 0	STORM WATER LAYOUT AND LONG SECTION
NF9_10 - STORM - 002 - T - 0	ROAD 1 CULVERT
NF9_10 - STORM - 003 - T - 0	TYPICAL STORM WATER DETAILS SHEET 1
NF9_10 - STORM - 004 - T - 0	TYPICAL STORM WATER DETAILS SHEET 2

GENERAL NOTES:

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6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
OCT 2023	P	A	FOR PRELIMINARY DESIGN APPROVAL		
DEC 2023	P	B	REVISED LAYOUT FOR APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
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43 BICCARD STREET, POLOKWANE
0700
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EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
SITE LOCALITY

DRAWING STATUS CODES: P = PLANNING, T = TENDER, C = CONSTRUCTION, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	001	T	0

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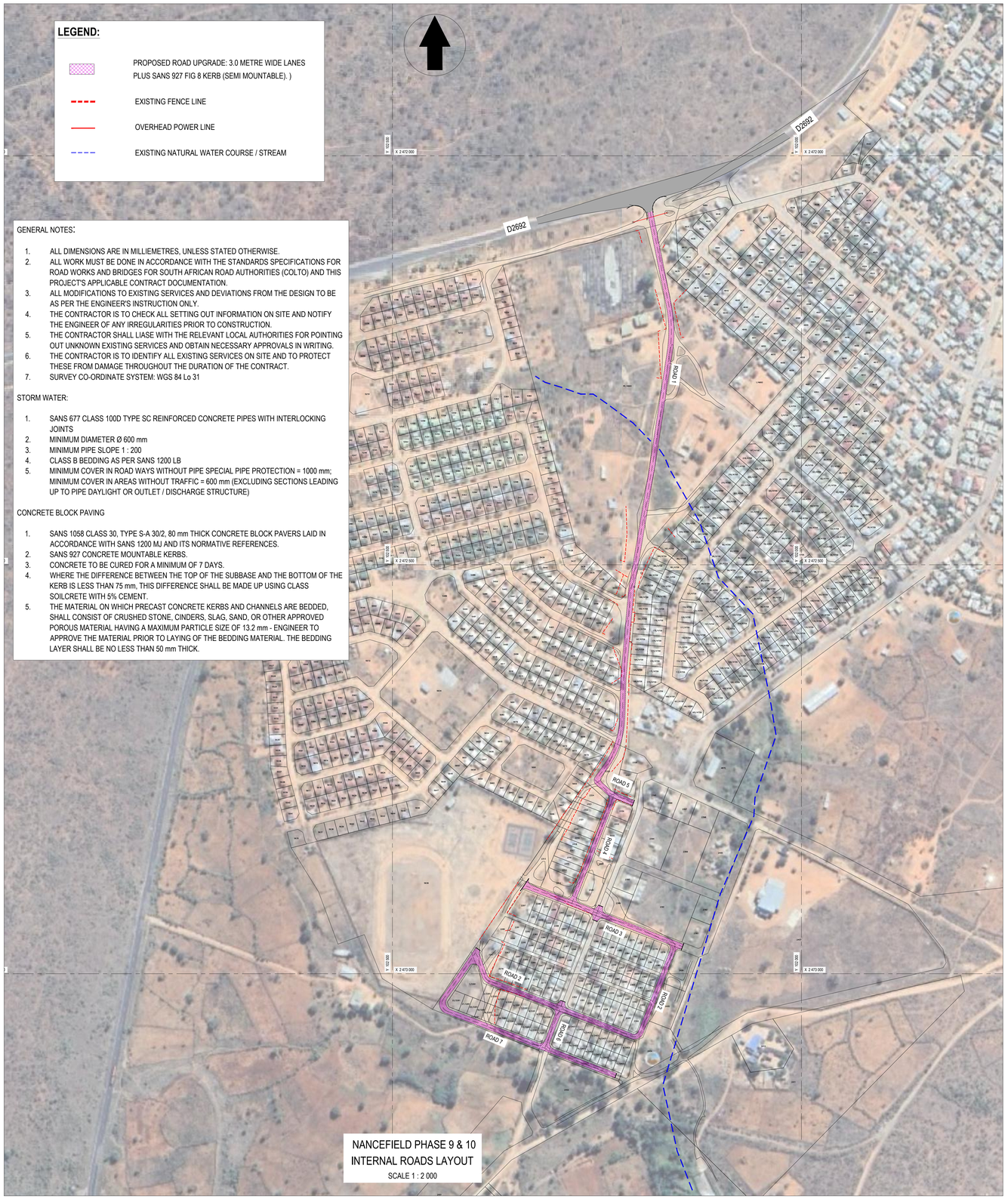

LEGEND:

- PROPOSED ROAD UPGRADE: 3.0 METRE WIDE LANES PLUS SANS 927 FIG 8 KERB (SEMI MOUNTABLE).)
- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM

GENERAL NOTES:

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7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
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NANCEFIELD PHASE 9 & 10
INTERNAL ROADS LAYOUT
SCALE 1 : 2 000

LIST OF DRAWINGS

ROADS

NF9_10 - ROADS - 001 - T - 0	SITE LOCALITY
NF9_10 - ROADS - 002 - T - 0	INTERNAL ROADS KEY PLAN (THIS DRAWING)
NF9_10 - ROADS - 003 - T - 0	ROAD 1 LAYOUT AND LONG SECTION
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NF9_10 - ROADS - 020 - T - 0	TYPICAL TRAFFIC ACCOMMODATION

STORM WATER

NF9_10 - STORM - 001 - T - 0	STORM WATER LAYOUT AND LONG SECTION
NF9_10 - STORM - 002 - T - 0	ROAD 1 CULVERT
NF9_10 - STORM - 003 - T - 0	TYPICAL STORM WATER DETAILS SHEET 1
NF9_10 - STORM - 004 - T - 0	TYPICAL STORM WATER DETAILS SHEET 2

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
OCT 2023	P	A	FOR PRELIMINARY DESIGN APPROVAL		
DEC 2023	P	B	REVISED LAYOUT FOR APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS

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43 BICCARD STREET, POLOKWANE
0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT | DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
INTERNAL ROADS KEY PLAN

DRAWING STATUS CODES:		SCALE:	SHEET	SIZE:
P = PLANNING	T = TENDER	AS SHOWN	1 OF 1	A0
C = CONSTRUCTION	A = AS BUILT			

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	002	T	0

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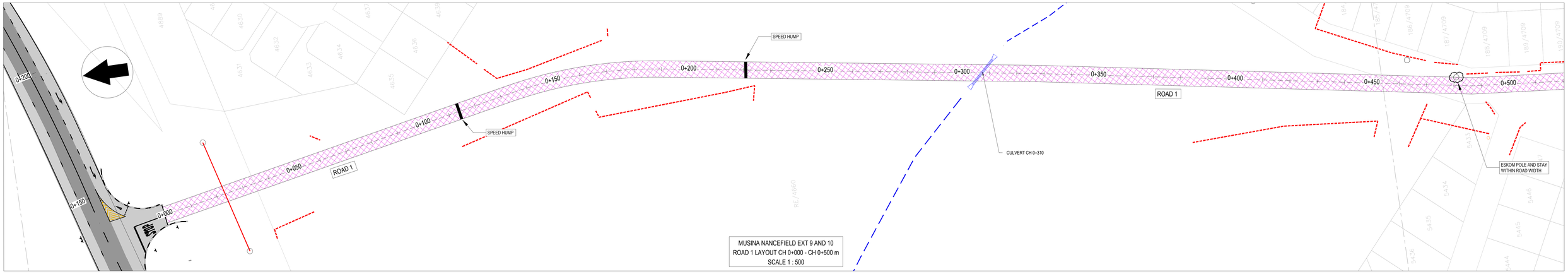

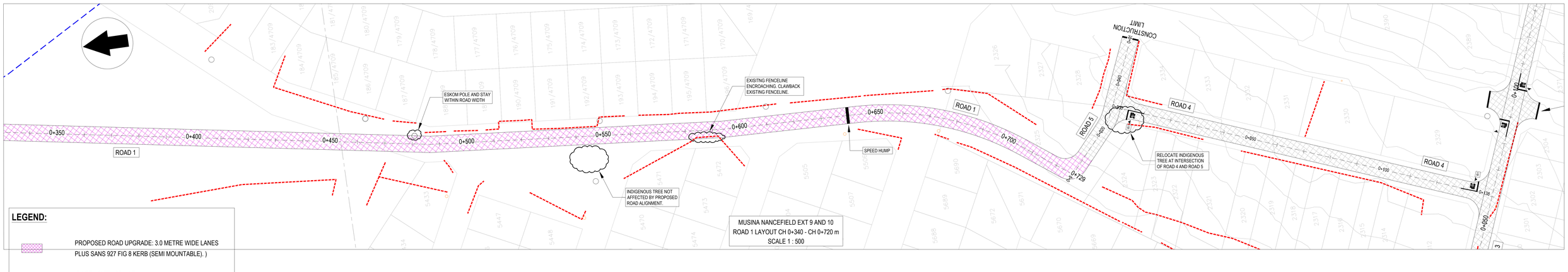

LEGEND:

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- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM

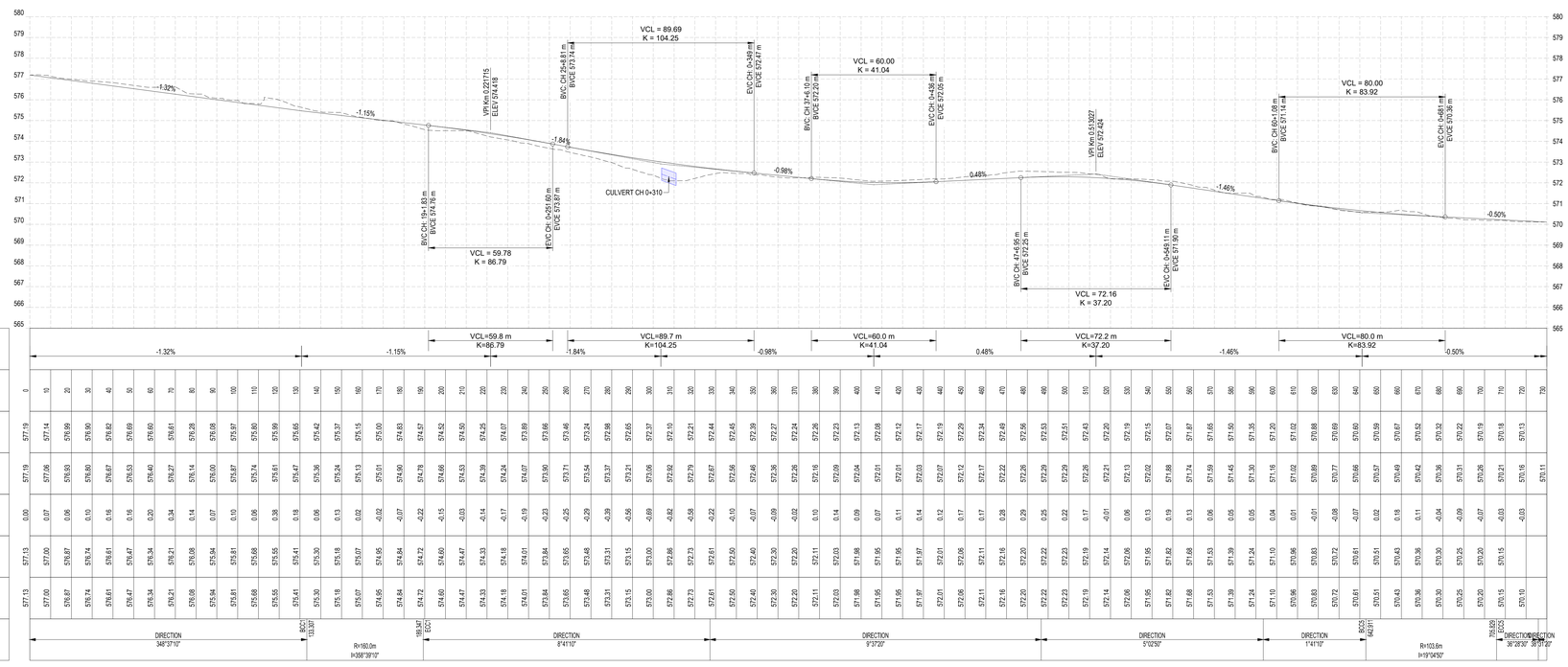
PROPOSED ROAD 1
LONGSECTION

- EXISTING GROUND
- FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 565.000



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DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
SUITE 9, BICCARD PARK
43 BICCARD STREET, POLOKWANE
0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
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0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 1 LAYOUT AND LONG SECTION

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 2	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	003	T	0

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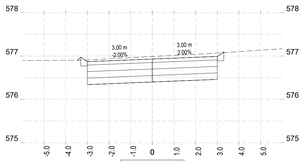
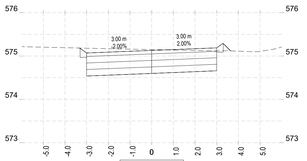


CH 0+020 m



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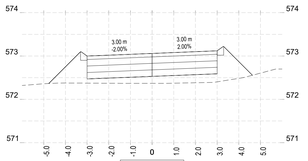

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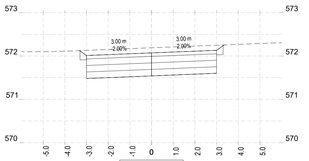

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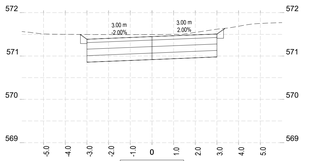

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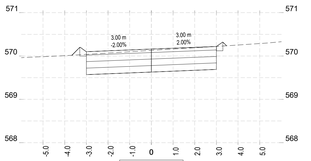

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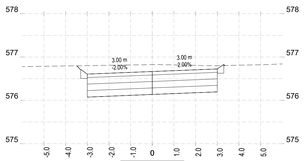

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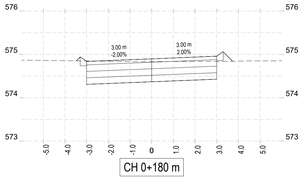

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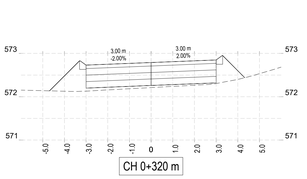

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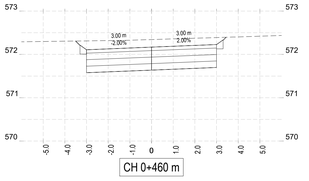

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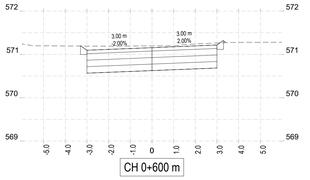

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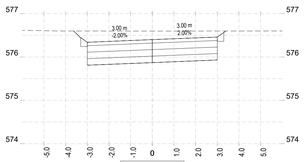

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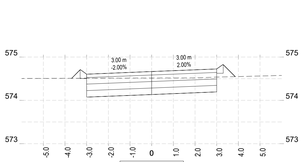

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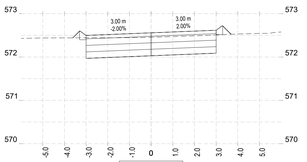

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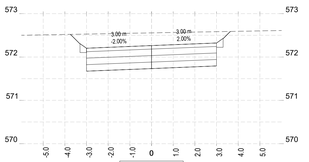

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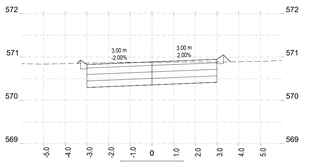

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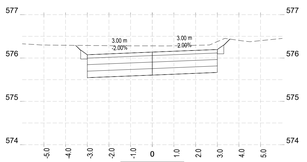

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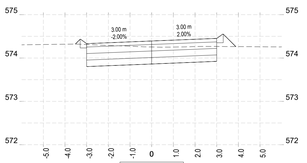

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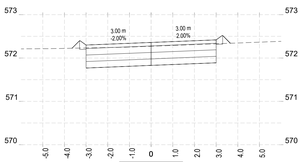

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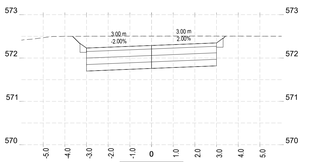

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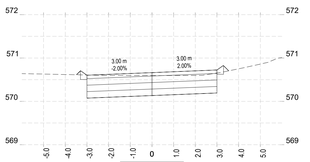

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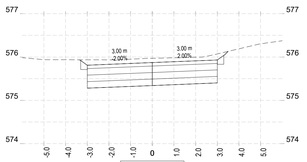

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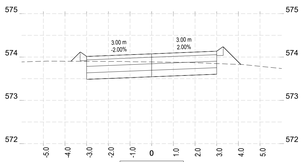

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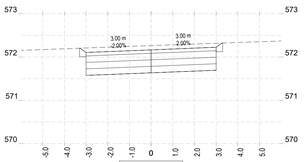

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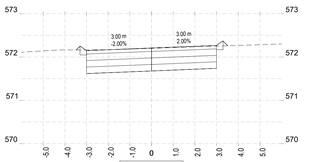

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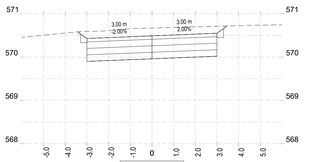

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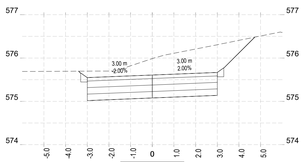
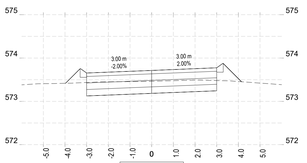


CH 0+120 m



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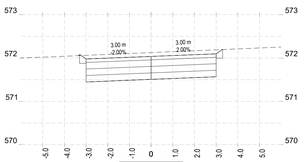

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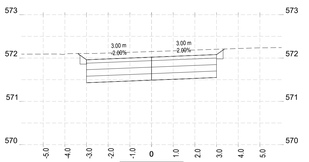

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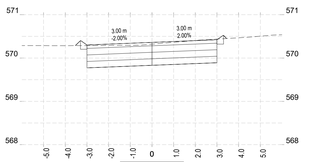

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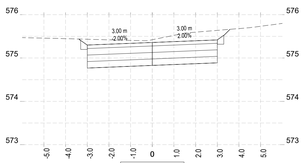

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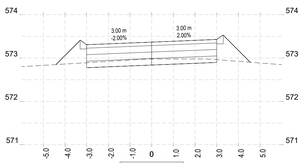

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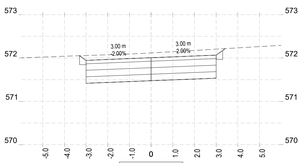

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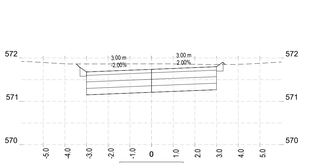

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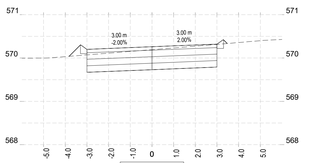

CH 0+700 m

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS

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43 BICCARD STREET, POLOKWANE
0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 1 CROSS SECTIONS

DRAWING STATUS CODES:		SCALE:	SHEET	SIZE:
P = PLANNING	T = TENDER	AS SHOWN	1 OF 2	A0
C = CONSTRUCTION	A = AS BUILT			

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	004	T	0

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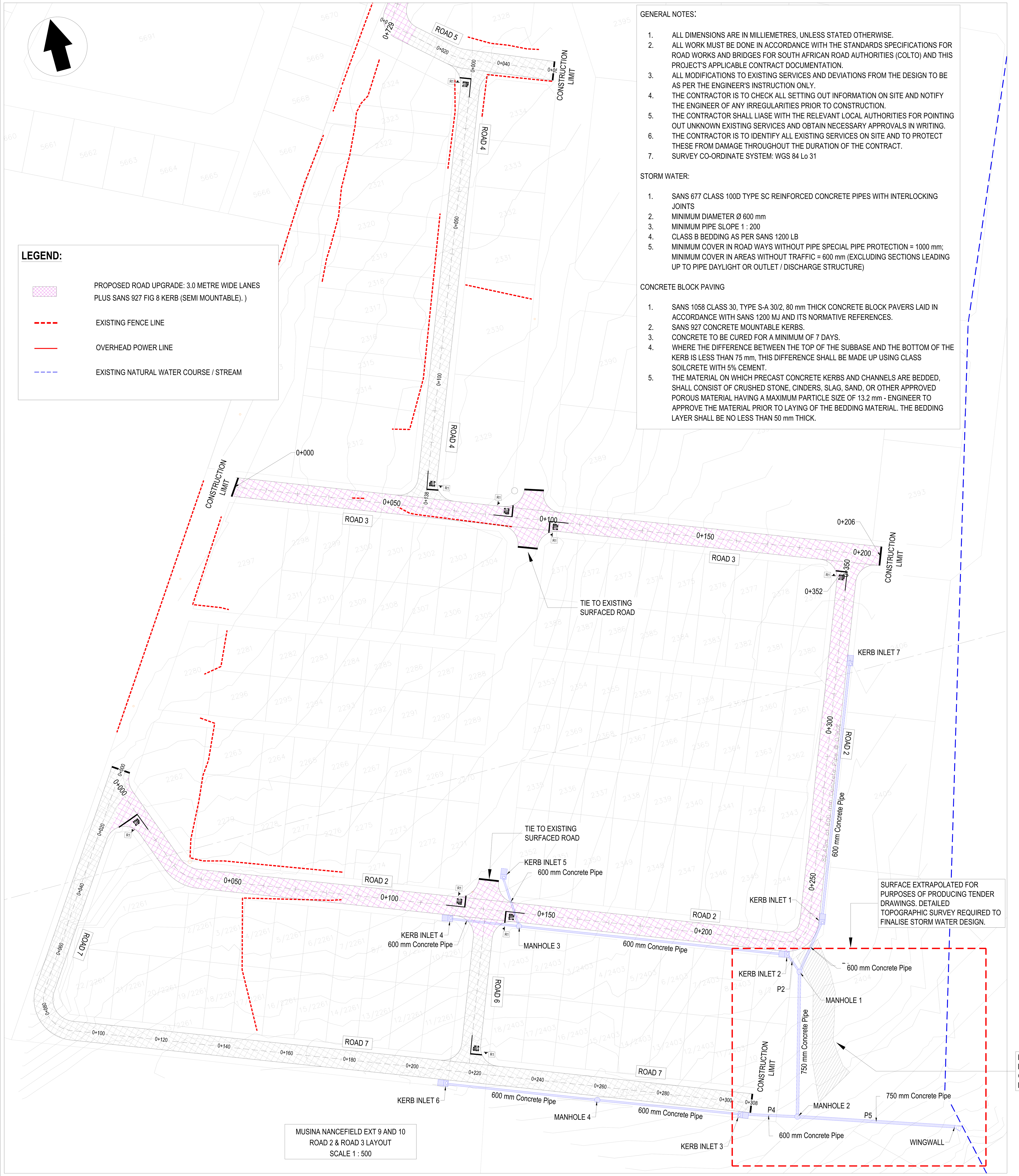


LEGEND:

- PROPOSED ROAD UPGRADE: 3.0 METRE WIDE LANES PLUS SANS 927 FIG 8 KERB (SEMI MOUNTABLE).)
- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM

MUSINA NANCEFIELD EXT 9 AND 10
ROAD 2 & ROAD 3 LAYOUT
SCALE 1 : 500

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
4. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

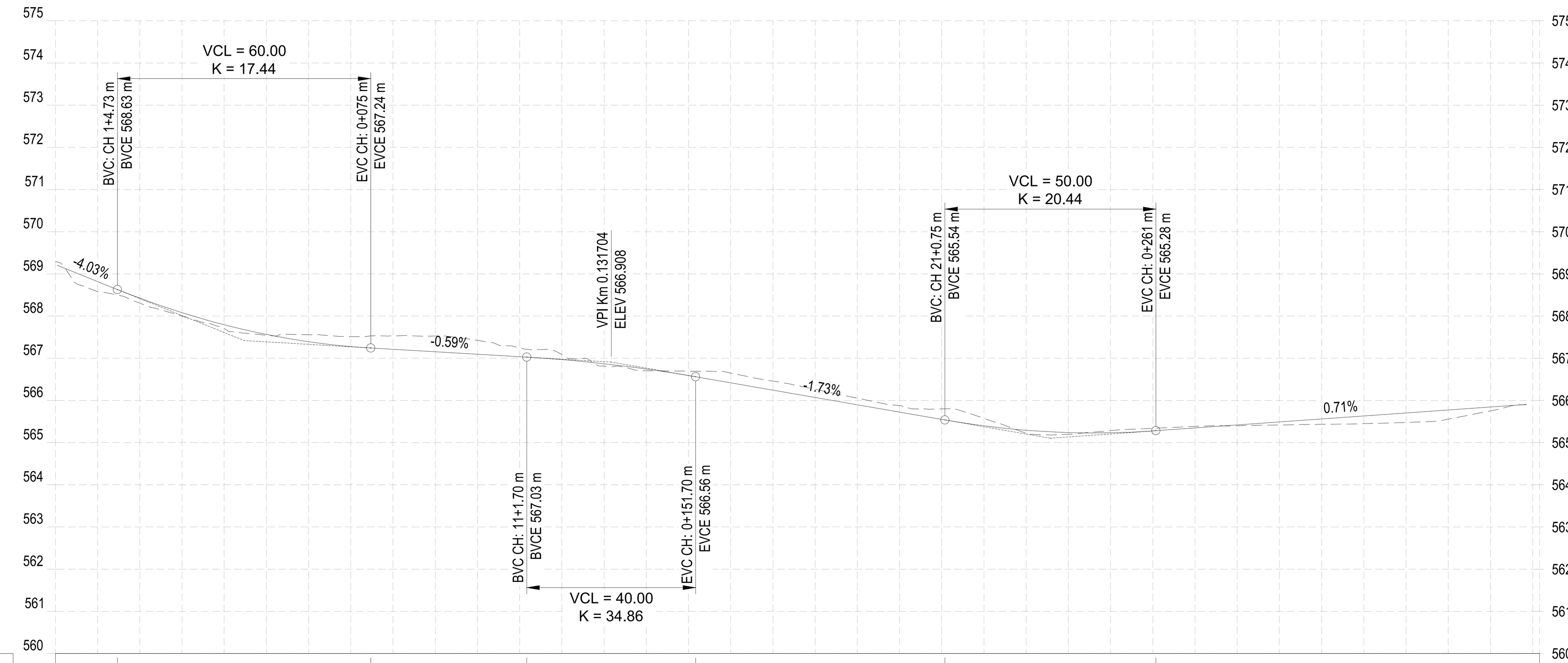
PROPOSED ROAD 2 LONGSECTION

EXISTING GROUND
FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 560.000



VERTICAL GEOMETRY: VCL=60.0 m K=17.44; -4.03%; -0.59%; VCL=40.0 m K=34.86; -1.73%; VCL=50.0 m K=20.44; 0.71%

DISTANCE (m)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
EXISITNG GROUND (m)	569.29	568.58	568.31	568.00	567.70	567.55	567.56	567.52	567.53	567.53	567.42	567.25	567.09	566.81	566.71	566.69	566.65	566.46
ROAD CENTER LINE (m)		568.82	568.42	568.08	567.79	567.56	567.39	567.28	567.21	567.15	567.09	567.04	566.97	566.87	566.74	566.59	566.42	566.24
LEVEL DIFFERENCE (m)		-0.24	-0.12	-0.08	-0.09	-0.02	0.17	0.24	0.32	0.37	0.33	0.21	0.12	-0.06	-0.04	0.10	0.23	0.21
LEFT EDGE OF ROAD (m)		568.76	568.37	568.02	567.74	567.51	567.34	567.22	567.15	567.09	567.03	566.98	566.90	566.81	566.68	566.53	566.36	566.18
RIGHT EDGE OF ROAD (m)			568.37	568.02	567.74	567.51	567.34	567.22	567.15	567.09	567.03	566.98	566.90	566.81	566.68	566.53	566.36	566.18

DISTANCE (m)	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350 352
EXISITNG GROUND (m)	566.26	566.05	565.88	565.80	565.57	565.22	565.20	565.28	565.34	565.39	565.40	565.42	565.43	565.45	565.48	565.56	565.75	
ROAD CENTER LINE (m)	566.07	565.90	565.72	565.55	565.40	565.29	565.24	565.23	565.28	565.35	565.42	565.49	565.56	565.63	565.70	565.77	565.84	
LEVEL DIFFERENCE (m)	0.19	0.16	0.16	0.25	0.18	-0.07	-0.04	0.05	0.06	0.04	-0.02	-0.07	-0.13	-0.18	-0.22	-0.22	-0.09	
LEFT EDGE OF ROAD (m)	566.01	565.84	565.66	565.49	565.34	565.23	565.18	565.17	565.22	565.29	565.36	565.43	565.50	565.57	565.64	565.71	565.78	
RIGHT EDGE OF ROAD (m)	566.01	565.84	565.66	565.49	565.34	565.23	565.18	565.17	565.22	565.29	565.36	565.43	565.50	565.57	565.64	565.71	565.78	

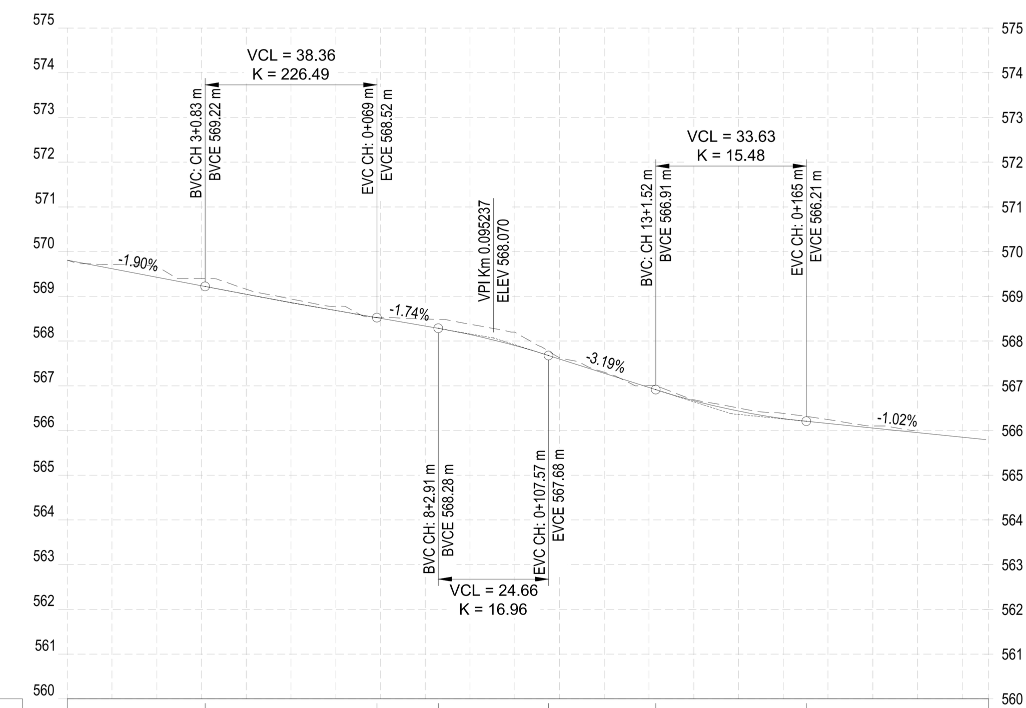
PROPOSED ROAD 3 LONGSECTION

EXISTING GROUND
FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 560.000



VERTICAL GEOMETRY: -1.90%; VCL=38.4 m K=226.49; -1.74%; VCL=24.7 m K=16.96; -3.19%; VCL=33.6 m K=15.48; -1.02%

DISTANCE (m)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	206
EXISITNG GROUND (m)	569.81	569.71	569.66	569.40	569.16	568.94	568.78	568.53	568.49	568.38	568.20	567.63	567.30	567.00	566.69	566.50	566.38	566.24	566.10			
ROAD CENTER LINE (m)	569.81	569.62	569.43	569.24	569.05	568.86	568.68	568.51	568.33	568.15	567.90	567.60	567.28	566.96	566.67	566.43	566.27	566.16	566.05	565.95	565.85	
LEVEL DIFFERENCE (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
LEFT EDGE OF ROAD (m)	569.87	569.68	569.49	569.30	569.11	568.93	568.75	568.57	568.39	568.20	567.96	567.66	567.34	567.02	566.73	566.50	566.33	566.22	566.11	566.01	565.91	
RIGHT EDGE OF ROAD (m)	569.75	569.56	569.37	569.18	568.99	568.81	568.63	568.45	568.27	568.08	567.84	567.54	567.22	566.90	566.61	566.38	566.21	566.10	565.99	565.89	565.79	

HORIZONTAL ALIGNMENT: DIRECTION 291°11'20" ; DIRECTION 291°03'20"

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL

NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
SUITE 9, BICCARD PARK
43 BICCARD STREET, POLOKWANE
0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 2 & ROAD 3 LAYOUT AND LONG SECTION

DRAWING STATUS CODES:
P = PLANNING; T = TENDER; C = CONSTRUCTION; A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	005	T	0

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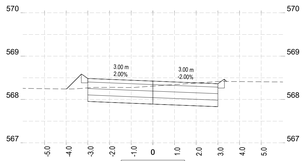
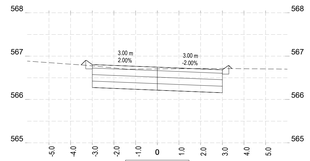
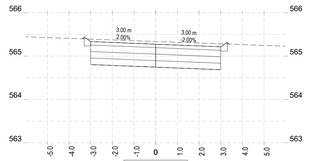
ROAD 2 CROSS SECTIONS



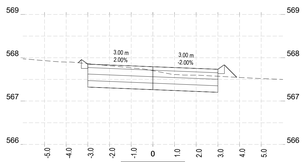
CH 0+020 m



CH 0+140 m



CH 0+260 m



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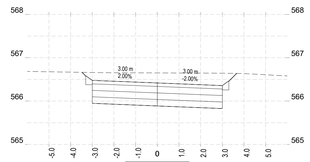

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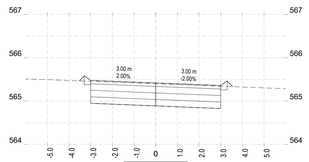

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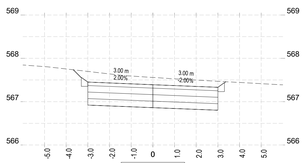
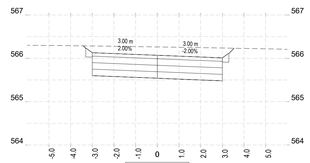
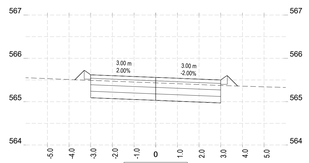


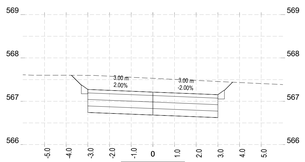
CH 0+060 m



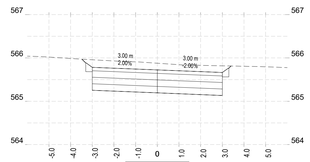
CH 0+180 m



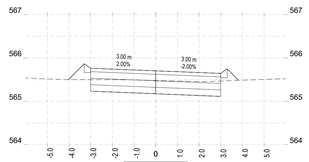
CH 0+300 m



CH 0+080 m



CH 0+200 m



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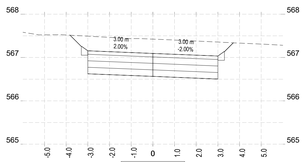
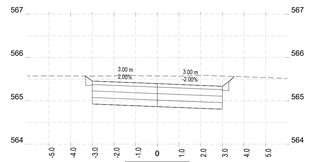


CH 0+100 m



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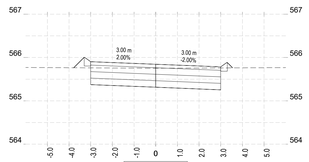
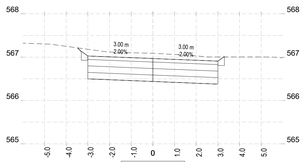
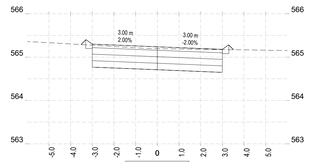


CH 0+340 m

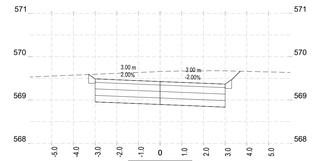


CH 0+120 m

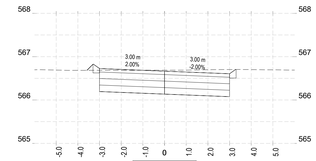


CH 0+240 m

ROAD 3 CROSS SECTIONS



CH 0+020 m



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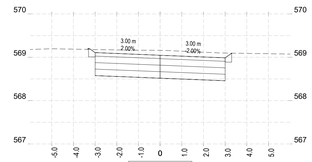

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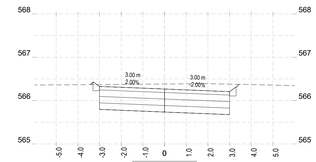
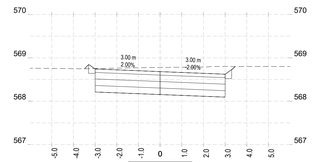


CH 0+160 m



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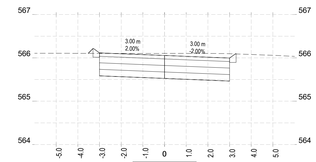

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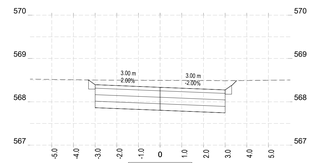

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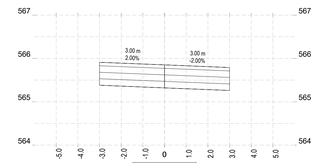
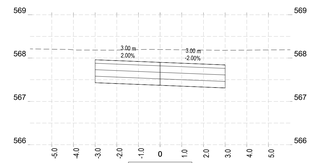


CH 0+200 m



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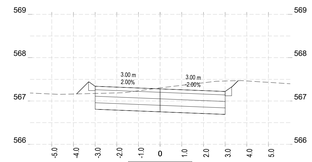

CH 0+120 m

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS

SUITE 9, BICCARD PARK
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0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 2 & ROAD 3 CROSS SECTIONS

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	006	T	0

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GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
4. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

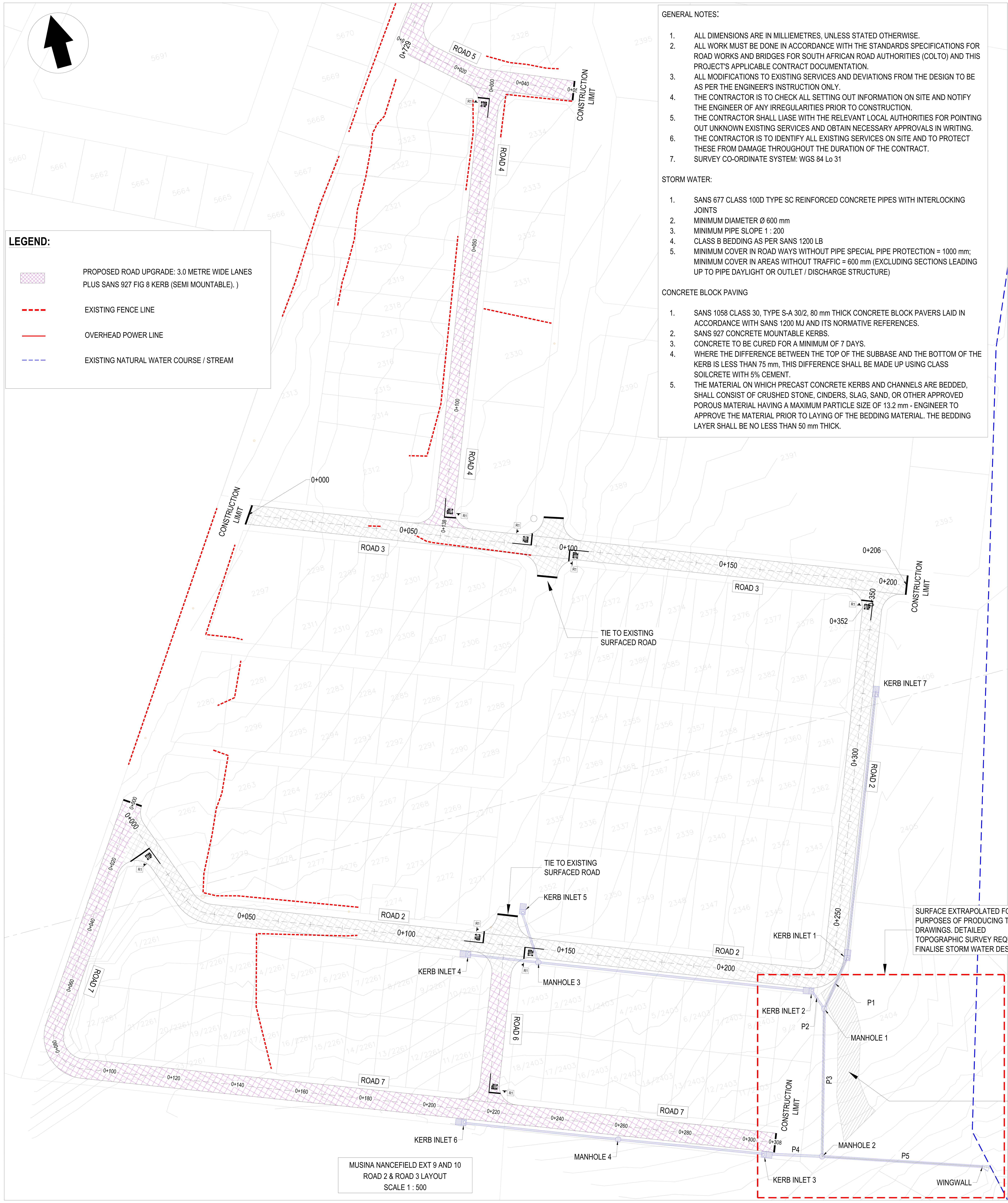
1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

LEGEND:

- PROPOSED ROAD UPGRADE: 3.0 METRE WIDE LANES PLUS SANS 927 FIG 8 KERB (SEMI MOUNTABLE).)
- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM



MUSINA NANCEFIELD EXT 9 AND 10
ROAD 2 & ROAD 3 LAYOUT
SCALE 1 : 500

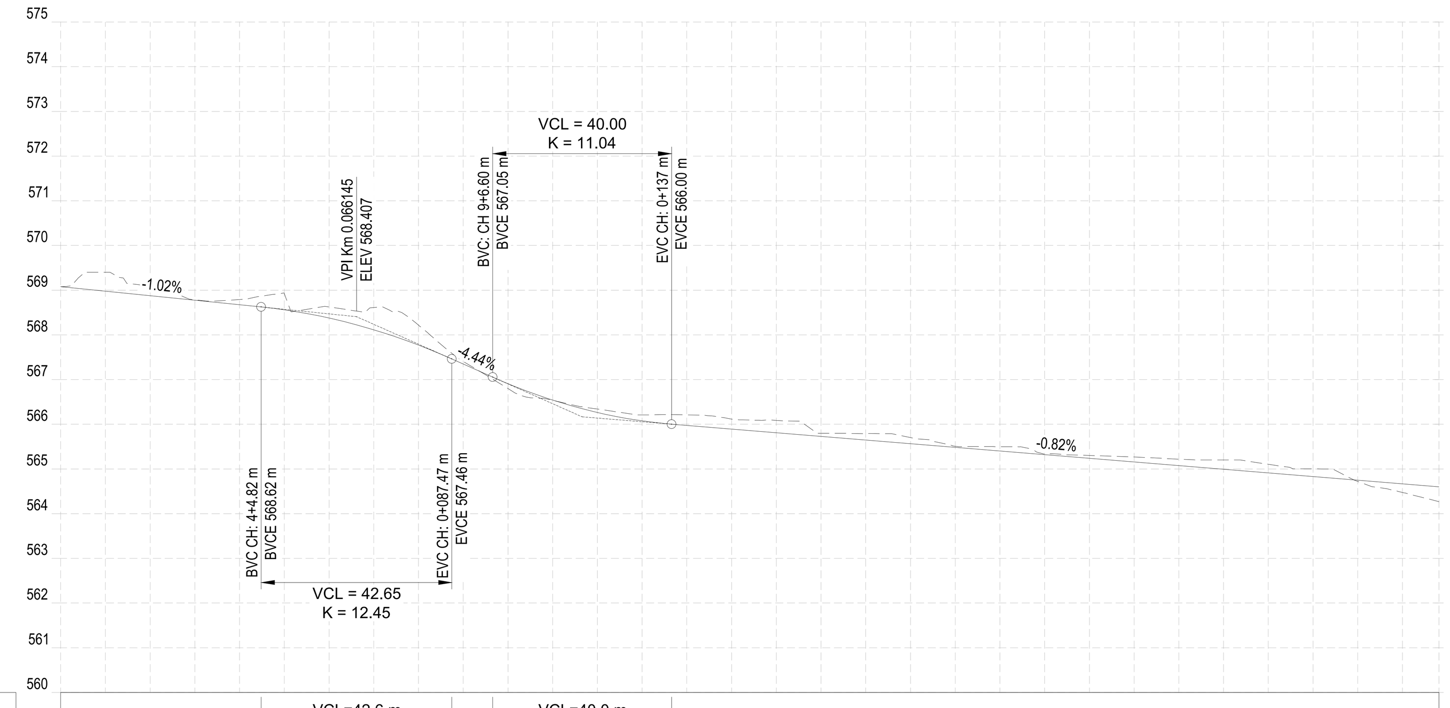
PROPOSED ROAD 7 LONGSECTION

EXISTING GROUND / FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 560.000



VERTICAL GEOMETRY	-1.02% · VCL=42.6 m K=12.45 · -4.44% · VCL=40.0 m K=11.04 · -0.82%																															
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	308
EXISITNG GROUND (m)	569.08	569.40	569.08	568.79	568.79	568.92	568.62	568.61	568.22	567.41	566.80	566.53	566.34	566.21	566.21	566.12	566.09	565.80	565.79	565.70	565.51	565.50	565.34	565.30	565.27	565.22	565.20	565.11	565.00	564.72	564.47	564.27
ROAD CENTER LINE (m)	569.08	568.98	568.88	568.77	568.67	568.56	568.38	568.11	567.77	567.35	566.91	566.54	566.26	566.08	565.98	565.89	565.81	565.73	565.65	565.57	565.48	565.40	565.32	565.24	565.16	565.08	564.99	564.91	564.83	564.75	564.67	564.60
LEVEL DIFFERENCE (m)	0.00	-0.42	-0.20	-0.01	-0.12	-0.36	-0.25	-0.50	-0.45	-0.06	0.11	0.01	-0.08	-0.13	-0.24	-0.22	-0.28	-0.07	-0.14	-0.14	-0.02	-0.09	-0.02	-0.06	-0.11	-0.14	-0.21	-0.19	-0.17	0.03	0.19	0.33
LEFT EDGE OF ROAD (m)				568.83	568.73	568.62	568.44	568.17	567.83	567.41	566.97	566.60	566.33	566.14	566.04	565.95	565.87	565.79	565.71	565.63	565.54	565.46	565.38	565.30	565.22	565.14	565.05	564.97	564.89	564.81	564.73	564.66
RIGHT EDGE OF ROAD (m)	569.02	568.92	568.82	568.71	568.61	568.50	568.32	568.05	567.71	567.29	566.85	566.48	566.21	566.02	565.92	565.83	565.75	565.67	565.59	565.51	565.42	565.34	565.26	565.18	565.10	565.02	564.93	564.85	564.77	564.69	564.61	564.54
HORIZONTAL ALIGNMENT	DIRECTION 34°02'20" · BCC1 73.500 · R=10.0m I=342°32'30" · 91.458 ECC1 · DIRECTION 291°02'30" · DIRECTION 291°13'00"																															

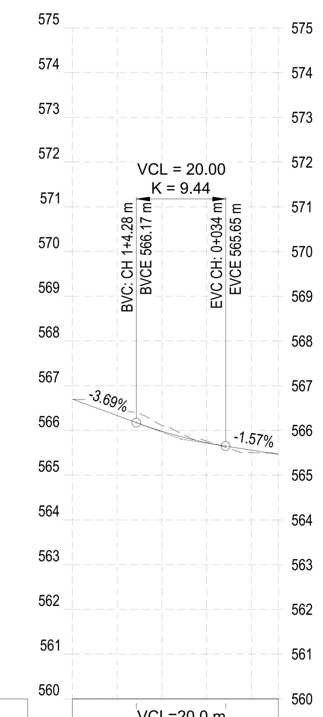
PROPOSED ROAD 6 LONGSECTION

EXISTING GROUND / FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 560.000



VERTICAL GEOMETRY	VCL=20.0 m K=9.44 · -3.69% · -1.57%					
DISTANCE (m)	0	10	20	30	40	46
EXISITNG GROUND (m)	566.70	566.52	566.11	565.76	565.50	565.47
ROAD CENTER LINE (m)		566.33	565.98	565.73	565.56	565.47
LEVEL DIFFERENCE (m)		-0.19	-0.13	-0.04	0.06	0.00
LEFT EDGE OF ROAD (m)		566.27	565.92	565.67	565.50	
RIGHT EDGE OF ROAD (m)		566.39	566.04	565.79		
HORIZONTAL ALIGNMENT	DIRECTION 21°09'40"					

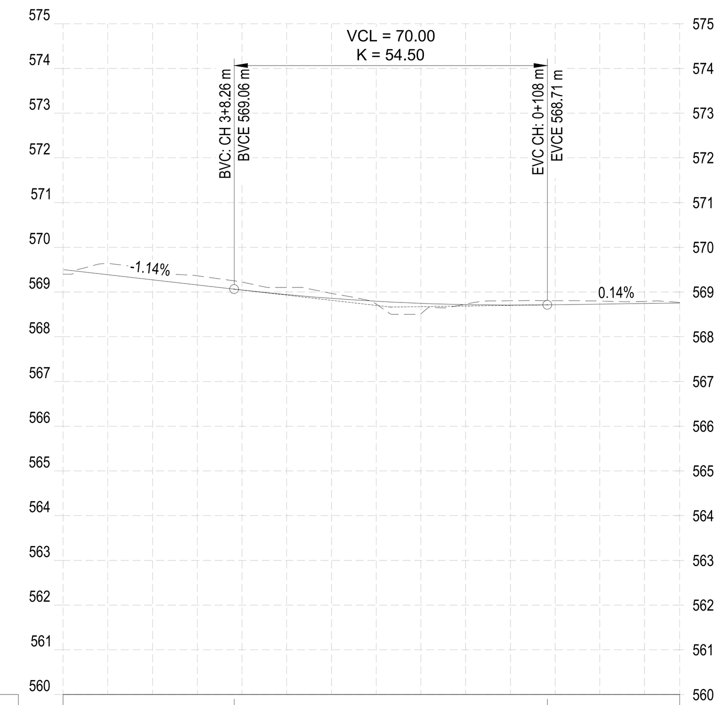
PROPOSED ROAD 4 LONGSECTION

EXISTING GROUND / FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 560.000



VERTICAL GEOMETRY	-1.14% · VCL=70.0 m K=54.50 · 0.14%														
DISTANCE (m)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	138
EXISITNG GROUND (m)	569.40	569.64	569.47	569.36	569.22	569.10	568.97	568.73	568.51	568.73	568.80	568.81	568.80	568.79	568.77
ROAD CENTER LINE (m)	569.40	569.64	569.47	569.36	569.22	569.10	568.97	568.73	568.51	568.73	568.80	568.81	568.80	568.79	568.77
LEVEL DIFFERENCE (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LEFT EDGE OF ROAD (m)	569.40	569.64	569.47	569.36	569.22	569.10	568.97	568.73	568.51	568.73	568.80	568.81	568.80	568.79	568.77
RIGHT EDGE OF ROAD (m)	569.40	569.64	569.47	569.36	569.22	569.10	568.97	568.73	568.51	568.73	568.80	568.81	568.80	568.79	568.77
HORIZONTAL ALIGNMENT	DIRECTION 21°12'10"														

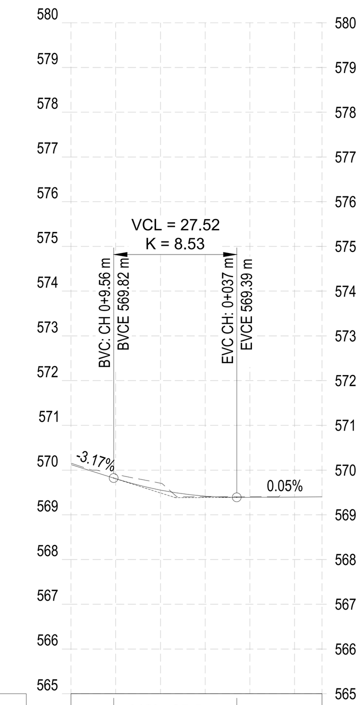
PROPOSED ROAD 5 LONGSECTION

EXISTING GROUND / FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 1 000
VERTICAL 1: 100

DATUM 565.000



VERTICAL GEOMETRY	VCL=27.5 m K=8.53 · -3.17% · 0.05%						
DISTANCE (m)	0	10	20	30	40	50	56
EXISITNG GROUND (m)	570.15	569.91	569.71	569.40	569.40		
ROAD CENTER LINE (m)		569.81	569.55	569.42	569.39	569.40	569.40
LEVEL DIFFERENCE (m)		-0.10	-0.15	0.02	-0.01		
LEFT EDGE OF ROAD (m)		569.75	569.50	569.36	569.33	569.34	569.34
RIGHT EDGE OF ROAD (m)		569.75	569.50	569.36	569.33	569.34	569.34
HORIZONTAL ALIGNMENT	DIRECTION 311°38'10" · BCC1 · ECC1 · R=16.5m I=302°09'30" · DIRECTION 292°40'50"						

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL

NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
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0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT   DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 4 TO ROAD 7 LAYOUT AND LONG SECTION

DRAWING STATUS CODES:
P = PLANNING   T = TENDER
C = CONSTRUCTION   A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10 -	ROADS -	007 -	T -	0

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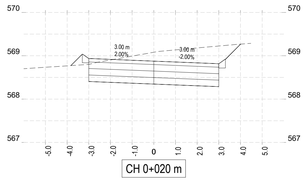
ROAD 7 CROSS SECTIONS



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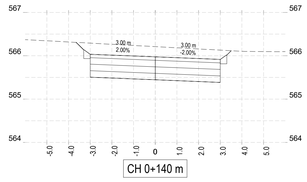

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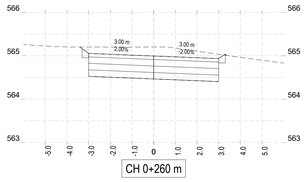

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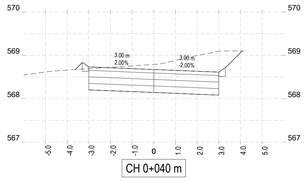

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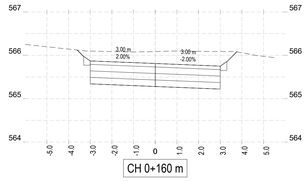

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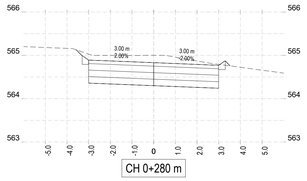

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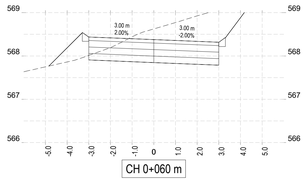

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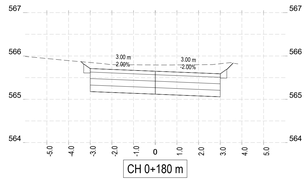

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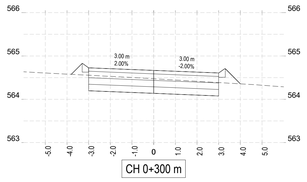

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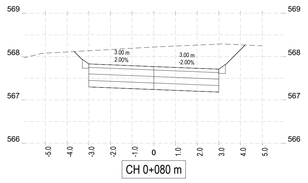

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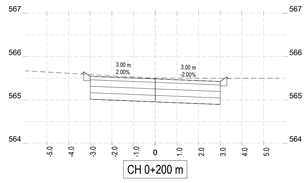

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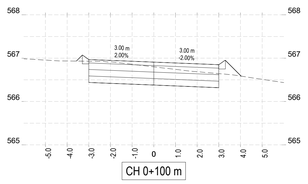

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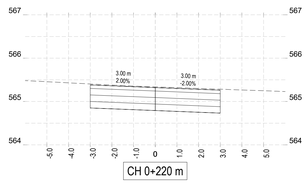

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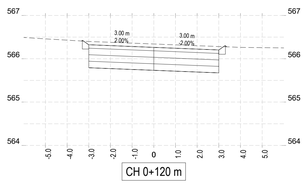

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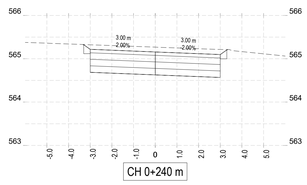
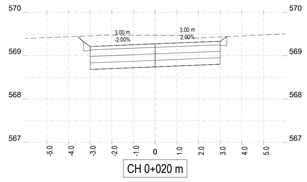


CH 0+240 m

ROAD 4 CROSS SECTIONS



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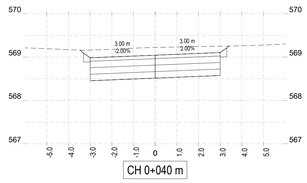

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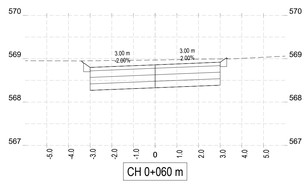

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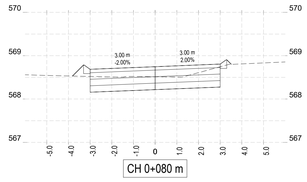

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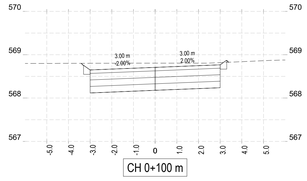

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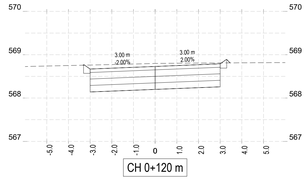
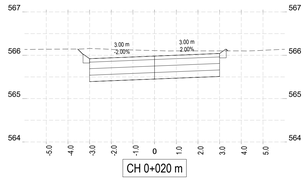


CH 0+120 m

ROAD 6 CROSS SECTIONS



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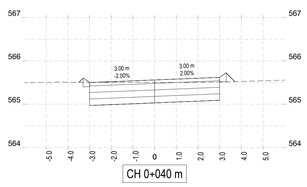

CH 0+040 m

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS

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CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 4 TO ROAD 7 CROSS SECTIONS

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	008	T	0

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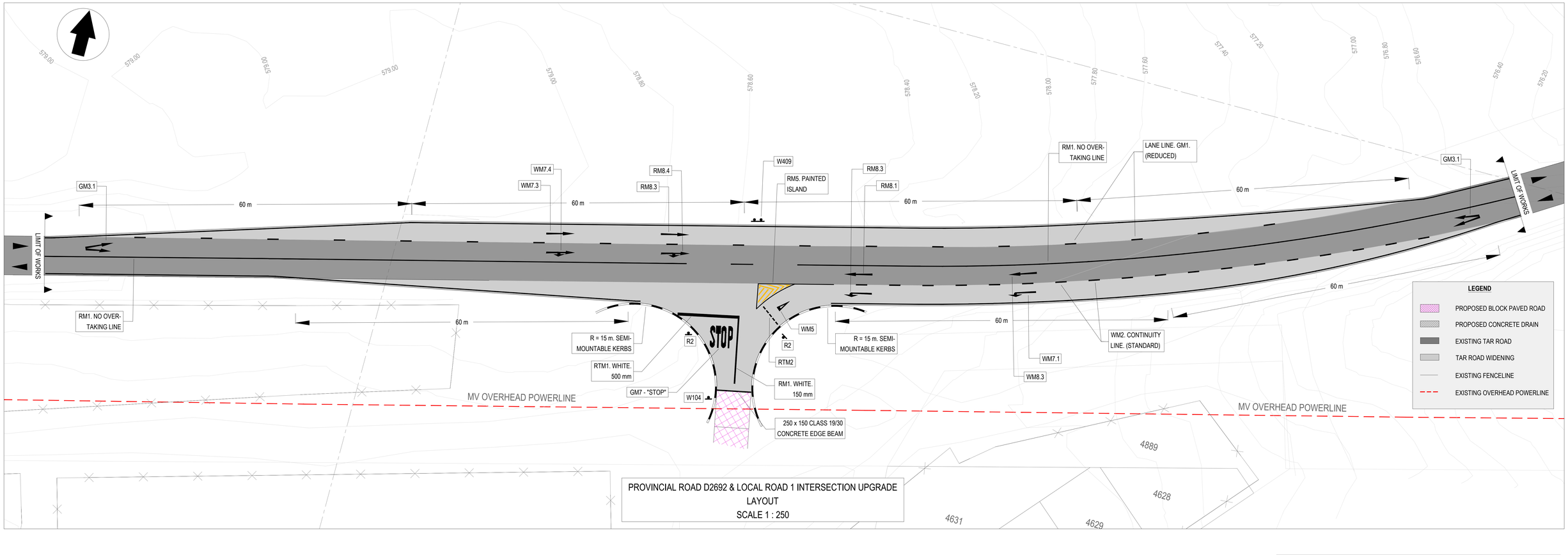


PROVINCIAL ROAD D2692 & LOCAL ROAD 1 INTERSECTION UPGRADE
LAYOUT
SCALE 1 : 250

RD D2692 CENTRELINE1
LONGSECTION

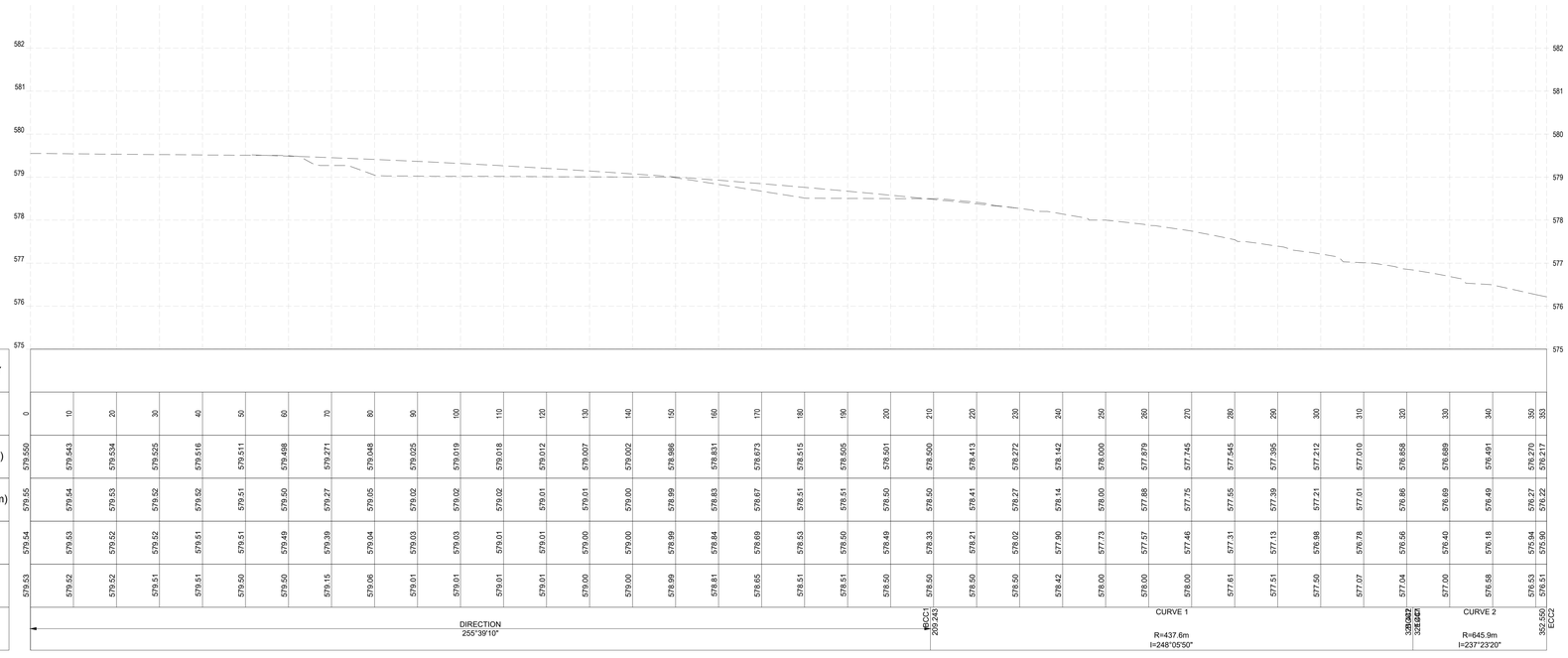
EXISTING GROUND

FINISHED GRADE

BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 500
VERTICAL 1: 50

DATUM 575.000



GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
4. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
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MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
SUITE 9, BICCARD PARK
43 BICCARD STREET, POLOKWANE
0700
TEL: 015 880 0240
EMAIL: info@tshambila.co.za

DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
LONG SECTION AND LAYOUT

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN		A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	009	T	0

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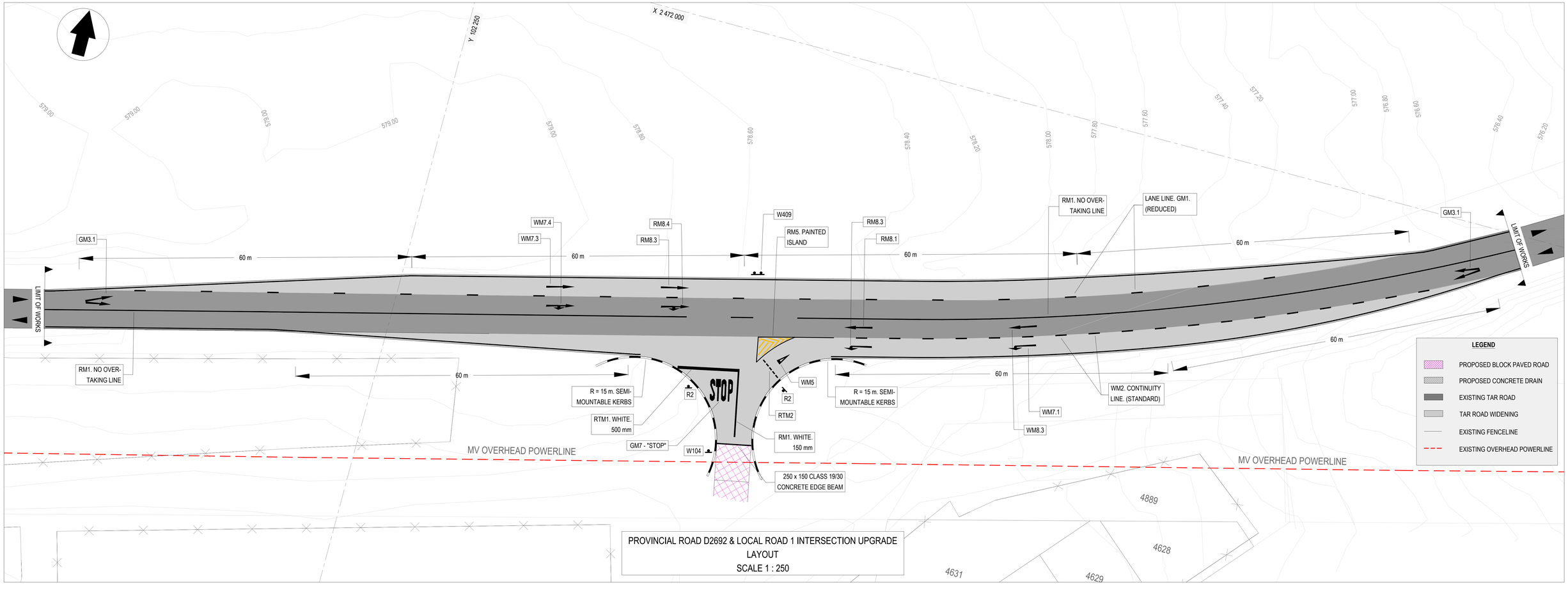
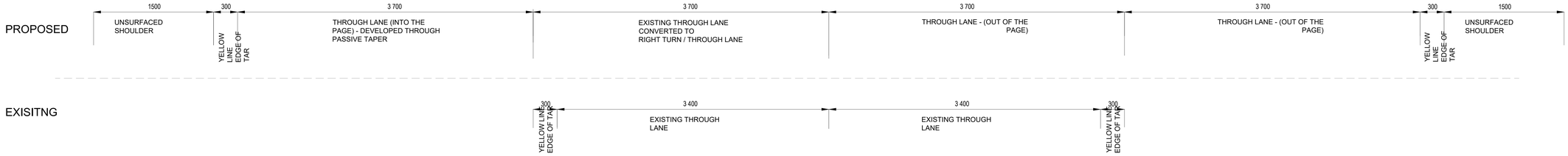
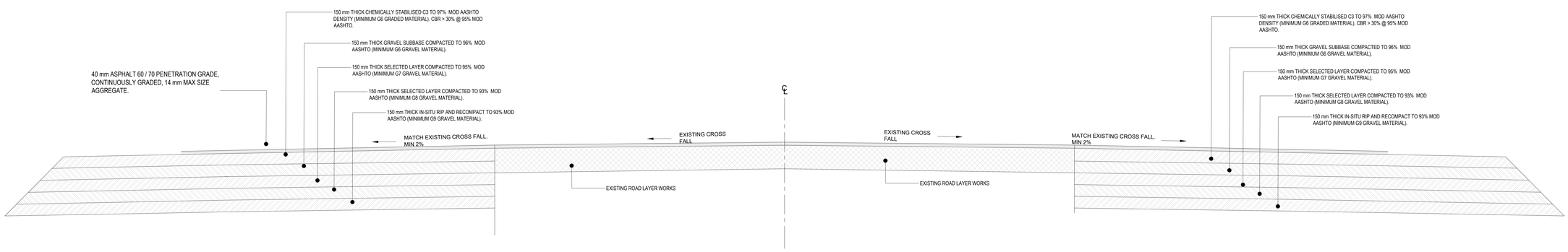


PROVINCIAL ROAD D2692 & LOCAL ROAD 1 INTERSECTION UPGRADE
LAYOUT
SCALE 1 : 250





TYPICAL CROSS SECTION:
LOCAL ROAD 1 AND ROAD D2692 INTERSECTION
SCALE 1 : 20

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

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DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
SUITE 9, BICCARD PARK
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TEL: 015 880 0240
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21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER
FOR CLIENT
DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
TYPICAL CROSS SECTION

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT
SCALE: AS SHOWN
SHEET:
SIZE: A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	010	T	0

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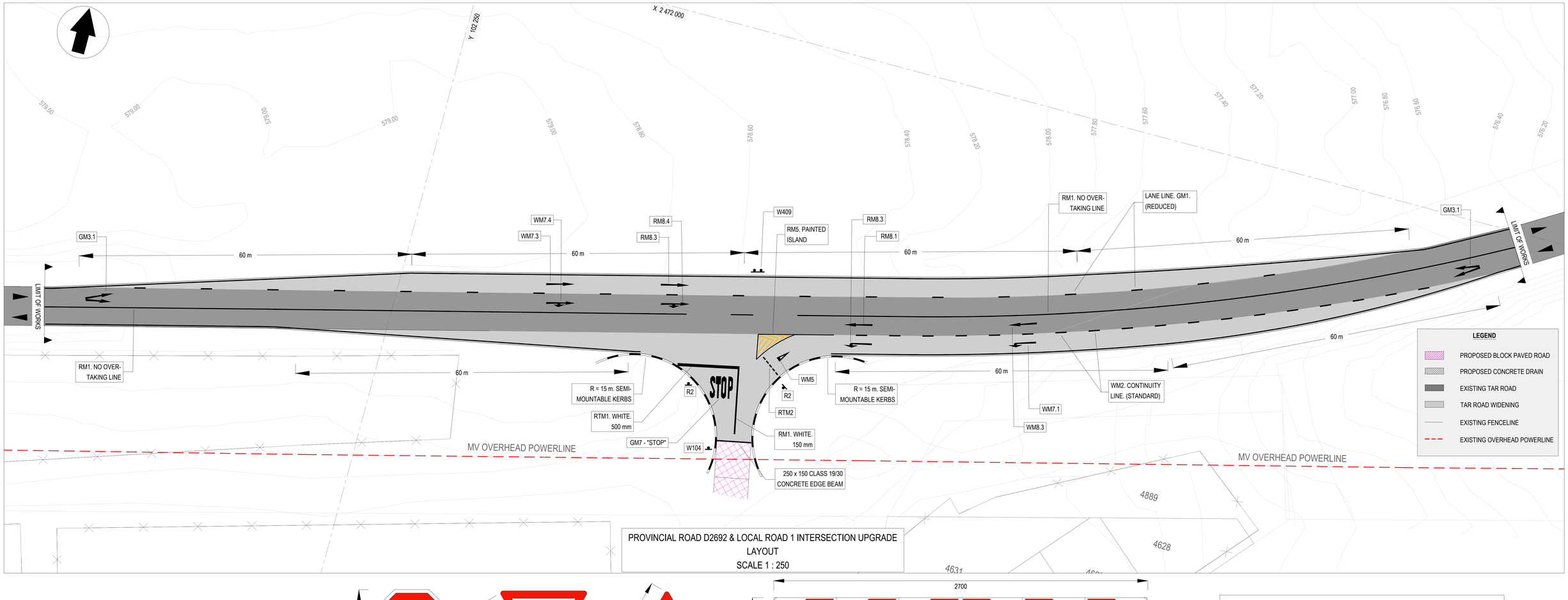
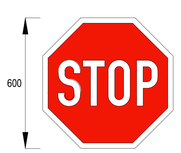
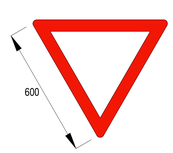


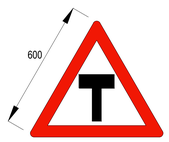
PROVINCIAL ROAD D2692 & LOCAL ROAD 1 INTERSECTION UPGRADE
LAYOUT
SCALE 1 : 250



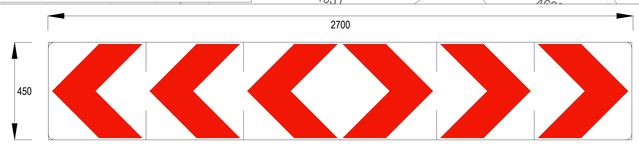
R1 - "STOP" SIGN
SCALE 1 : 10



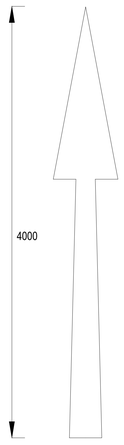
R2 - "YIELD" SIGN
SCALE 1 : 10



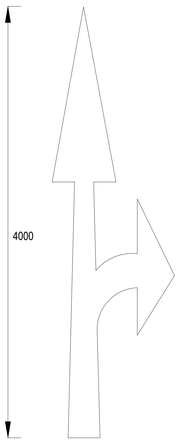
W104 - "T-JUNCTION" SIGN
SCALE 1 : 10



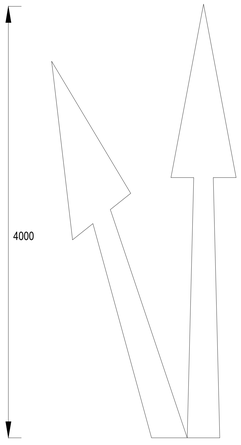
W409 - "T-JUNCTION" CHEVRON
SCALE 1 : 10



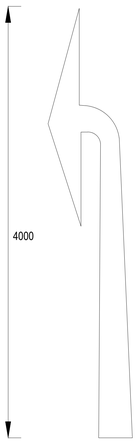
WM7.3 (WHITE)
RM8.3 (YELLOW)
NOT TO SCALE



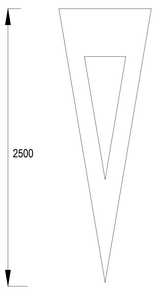
WM7.4 (WHITE)
RM8.4 (YELLOW)
NOT TO SCALE



GM3.1 (WHITE)
BIFURCATION ARROW
NOT TO SCALE



WM7.1 (WHITE)
RM8.1 (YELLOW)
NOT TO SCALE



WM5 (WHITE)
YIELD CONTROL AHEAD
NOT TO SCALE

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
4. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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MUSINA
0900
TEL: 015 534 6100
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DISCIPLINE: ROADS & STORM WATER
FOR CLIENT
DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
ROAD SIGNAGE

DRAWING STATUS CODES: P = PLANNING, T = TENDER, C = CONSTRUCTION, A = AS BUILT
SCALE: AS SHOWN
SHEET:
SIZE: A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	011	T	0

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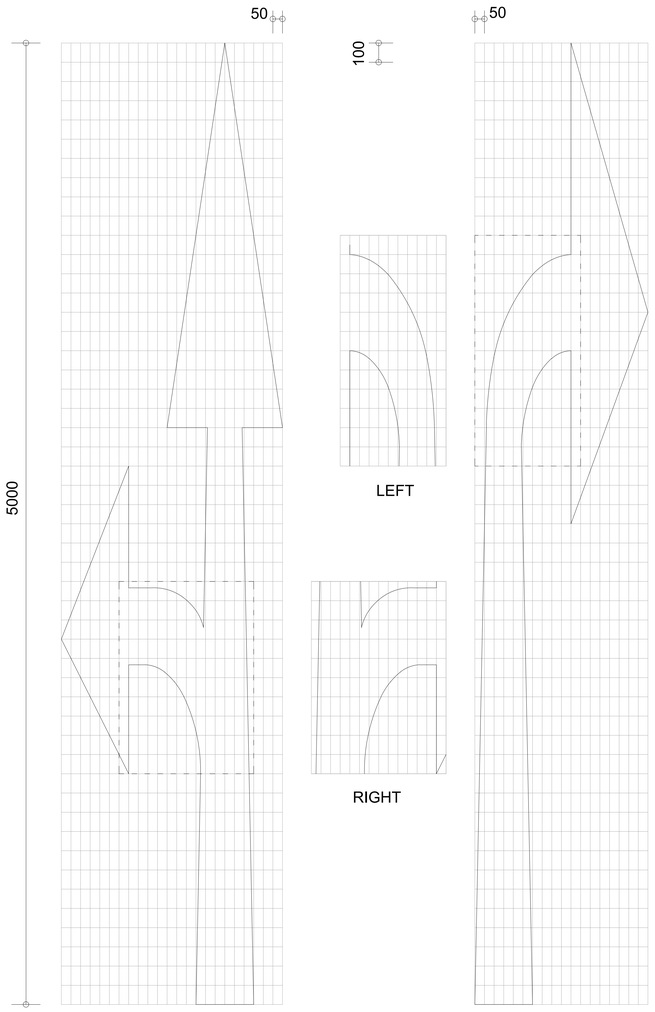

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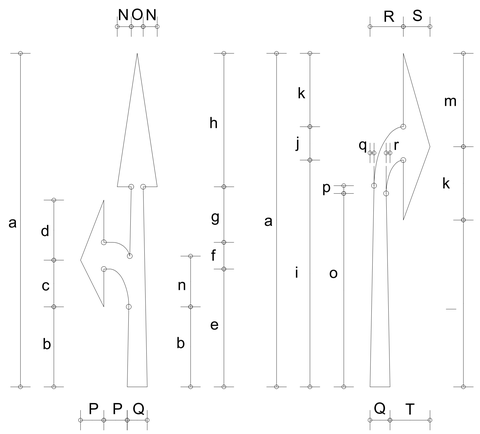

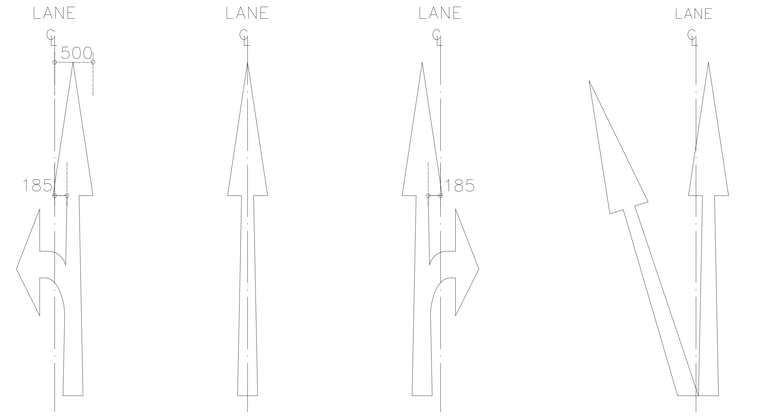

RM8.2
WM7.2
STRAIGHT AHEAD AND LEFT

RM8.3
WM7.3
STRAIGHT AHEAD

RM8.4
WM7.4
STRAIGHT AHEAD AND RIGHT

GM3-1
BIFURCATION ARROW

APPLICATIONS

Not to Scale

DIMENSIONS (mm)

Operating speed km/h	Typical applications	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
50 - 90	Rural expressway	4000	960	560	720	1406	320	666	1600	2720	400	880	2000	1120	608	2320	93	48	46

All operating speeds and applications	N	O	P	Q	R	S	T
	210	180	350	300	500	400	600

Arrow area m^2			
a	RM8.2/RM8.4 WM7.2/WM7.4	RM8.3 WM7.3	GM3.1
2500	0.89	0.66	1.03
4000	1.43	1.06	1.68
5000	1.78	1.32	2.12
7500	2.66	1.98	3.20

NOTES

1. THESE ARROWS MAY BE USED IN LANES TO INDICATE THAT DRIVERS SHALL PROCEED ONLY IN THE DIRECTION OR DIRECTIONS SHOWN. THEY SHOULD ONLY BE USED IF THE JUNCTION CONCERNED REQUIRED TURNING MOVEMENT CONTROL BY LANE.
2. THE FINAL ARROW NEAREST THE POINT OF TURN OR STRAIGHT ON MOVEMENT SHALL BE YELLOW. ANY ARROWS MARKED IN ADVANCE OF THIS POINT TO WARN DRIVERS OF THE MANDATORY MOVEMENT AHEAD SHALL BE WHITE.
3. A MANDATORY OR WARNING DIRECTION ARROW SHALL NOT BE USED IN ADVANCE OF A WIDENING OF THE ROADWAY TO A GREATER NUMBER OF LANES. THIS SHALL BE INDICATED, IF NECESSARY, BY USING BIFURCATION ARROWS.

ROAD MARKINGS:
MANDARORY DIRECTION ARROWS AND DIRECTION ARROW AHEAD

Not to Scale

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JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY

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MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT | DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
LONGITUDINAL ARROW MARKINGS

DRAWING STATUS CODES: P = PLANNING, T = TENDER, C = CONSTRUCTION, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN		A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	012	T	0

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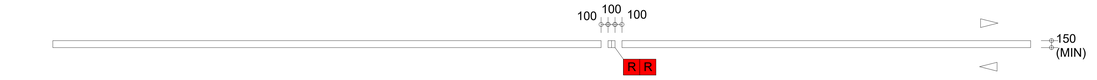
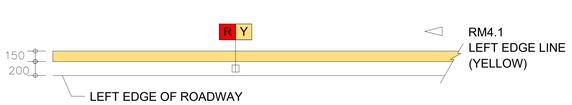
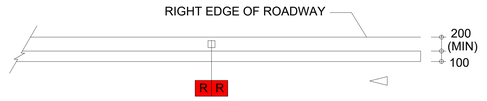


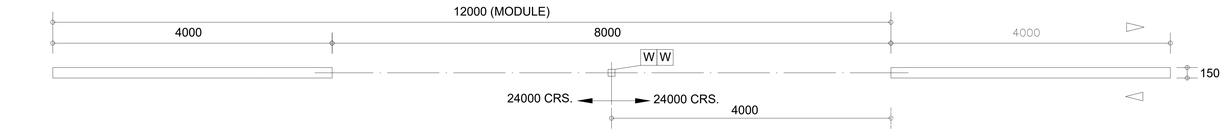
RM1
NO OVERTAKING LINE
(WHITE)



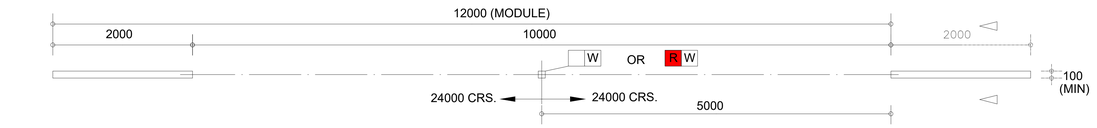
RM4.1
LEFT EDGE LINE
(YELLOW)



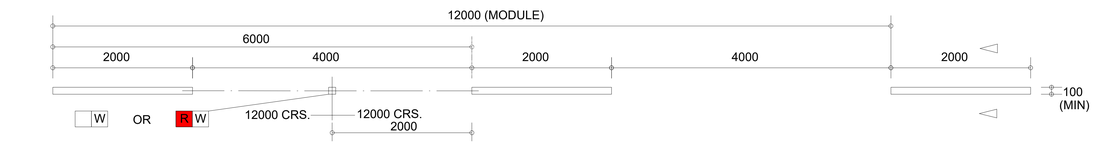
RM4.2
RIGHT EDGE LINE
(WHITE)



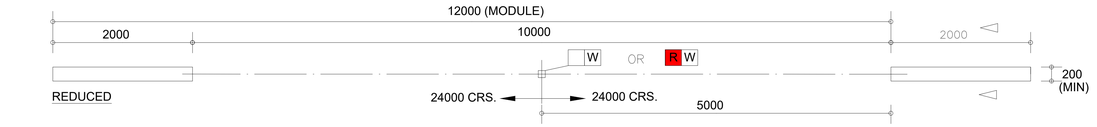
WM3
DIVIDING LINE
(WHITE)



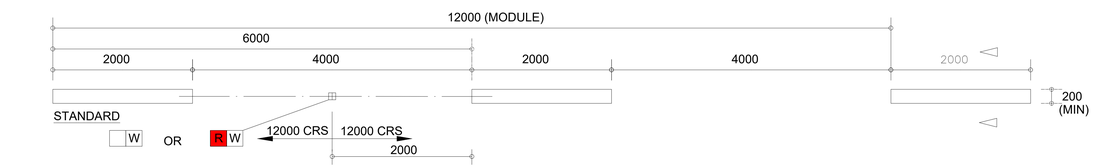
GM1-1
LANE LINE
(WHITE)



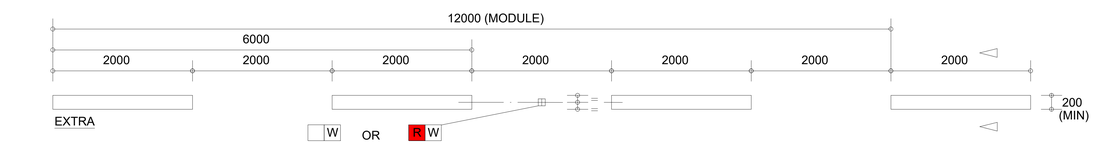
GM1-2
LANE LINE
(WHITE)



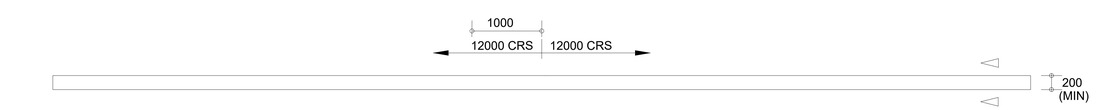
WM2-1
CONTINUITY LINE
(WHITE)



WM2-2
CONTINUITY LINE
(WHITE)



WM2-3
CONTINUITY LINE
(WHITE)



RM3
CHANNELISING LINE
(WHITE)

ROAD STUD LEGEND

R R	RED / RED
R Y	RED / YELLOW
R W	RED / WHITE

NOTES

1. DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO LINE MARKING INDICATED THUS > OR < .
2. A NO CROSSING LINE MAY BE USED AS A FORM OF DIVIDING LINE MARKING, IN PLACE OF A NO OVERTAKING LINE, TO PROHIBIT ACCESS TO OR FROM PROPERTIES AT THE SIDE OF AN URBAN ROAD. A PAINTED ISLAND MAY BE USED AS AN ALTERNATIVE MARKING FOR THIS PURPOSE.
3. A NO OVERTAKING LINE MAY BE USED TO REPLACE A DIVIDING LINE MARKING TO PROHIBIT OVERTAKING IN THE PATH OF ON-COMING TRAFFIC. A NO OVERTAKING LINE MAY BE USED IN COMBINATION WITH A LANE LINE.
4. A LEFT EDGE LINE MARKING SHALL NOT BE EXTENDED ACROSS THE POINT OF DEPARTURE FROM A THROUGH PORTION OF ROADWAY.
5. A RIGHT EDGE LINE MARKING IS ONLY REQUIRED TO DEMARCATE AN UNKERBED MEDIAN (A MEDIAN GUARDRAIL OR CONCRETE SEPARATOR BARRIER DOES NOT CONSTITUTE A KERBED MEDIAN).
6. THE DIVIDING LINE MARKING REPLACES THE PREVIOUS "CENTRE LINE" MARKING AND SHALL ONLY BE USED BETWEEN LANES CARRYING OPPOSING TRAFFIC FLOWS WHEN OVERTAKING IS PERMITTED.
7. A CONTINUITY LINE MAY BE SPECIFIED IN ONE OF THREE DENSITIES:
   1. REDUCED (WM2.1); 2. STANDARD (WM2-2) OR 3. EXTRA (WM2.3)
   A CONTINUITY LINE MAY BE USED TO DEFINE THE LIMIT OF THE THROUGH PORTION OF A ROADWAY EITHER AT A HIGH SPEED EXIT (OFF-RAMP OR OR SLIPROAD), A DEDICATED EXIT LANE ON A FREEWAY, OR AT-GRADE ROAD (RIGHT OR LEFT TURN).
8. A CHANNELISING LINE RM3 MAY BE USED AS AN EXTENSION OF A CONTINUITY LINE OR INSTEAD OF A PAINTED ISLAND TO CHANNELISE TRAFFIC MOVEMENTS WHERE SPACE IS LIMITED. THE WIDTH F THE CHANNELISING LINE SHALL BE THE SAME AS THE PRECEDING GM1 WM2 LINES.
9. A LANE LINE, CONTINUITY LINE OR CHANNELISING LINE SHALL NOT BE USED BETWEEN OPPOSING TRAFFIC MOVEMENTS.
10. THE WIDTHS OF LINES SHOWN ARE RECOMMENDATIONS ONLY.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
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7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

ROAD MARKINGS
RURAL LONGITUDINAL LINE TYPES

Not to Scale

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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DISCIPLINE: ROADS & STORM WATER

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21 IRWIN STREET
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0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
LONGITUDINAL LINE MARKINGS

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN		A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	013	T	0

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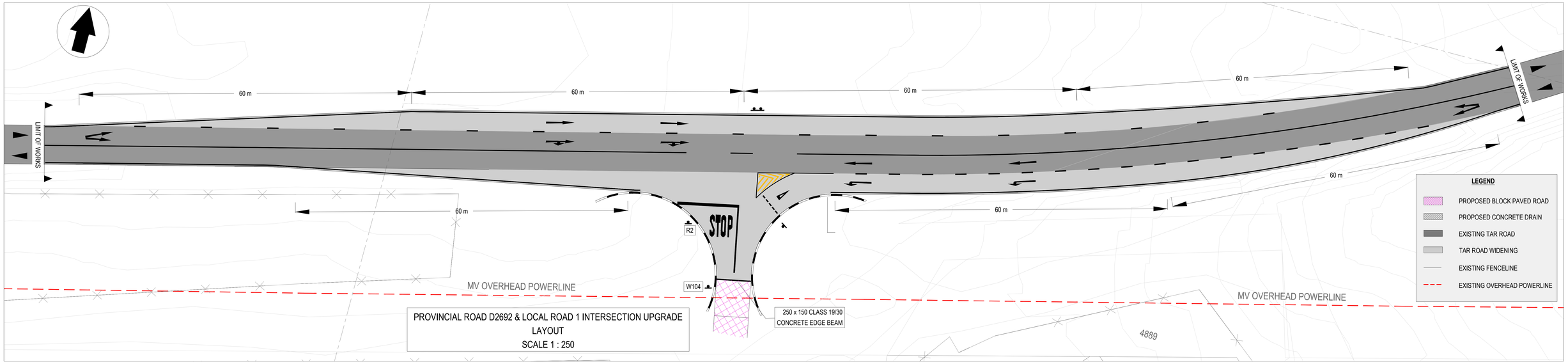
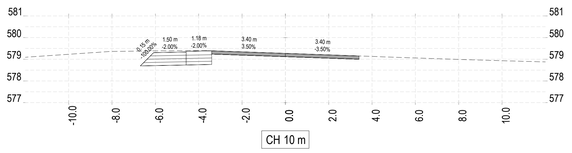
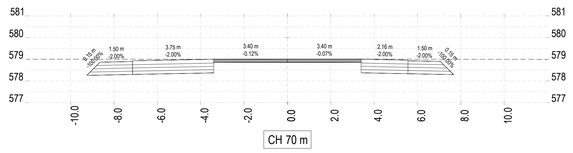
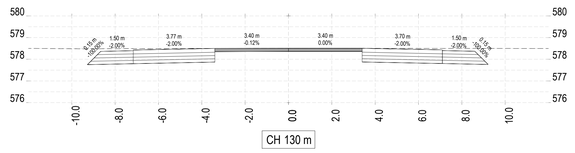
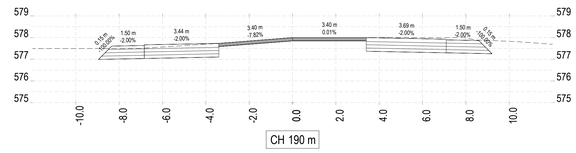


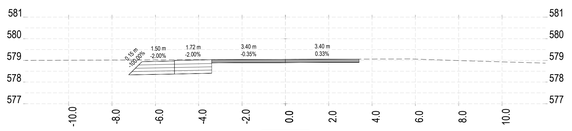
PROVINCIAL ROAD D2692 & LOCAL ROAD 1 INTERSECTION UPGRADE
LAYOUT
SCALE 1 : 250

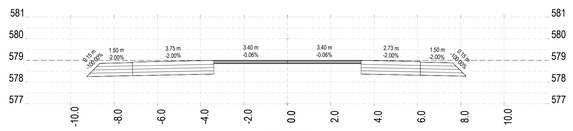


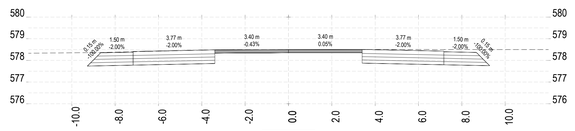


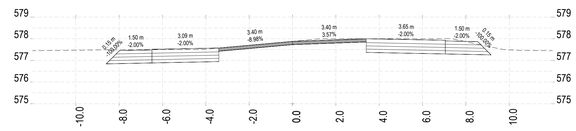


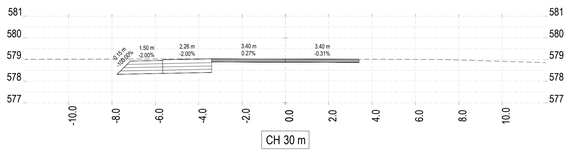


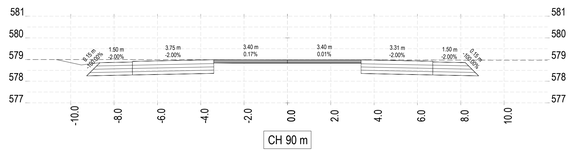


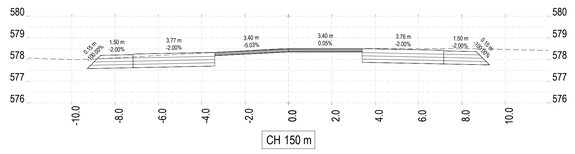


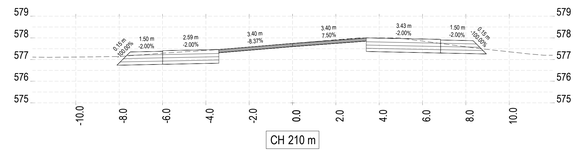


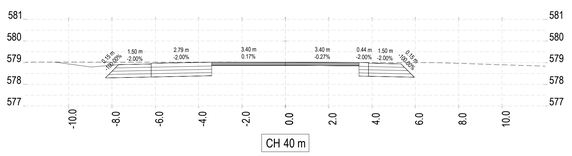


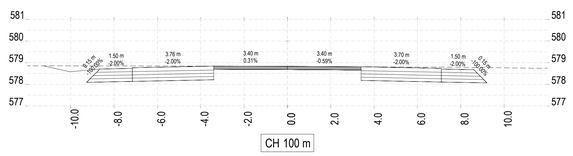


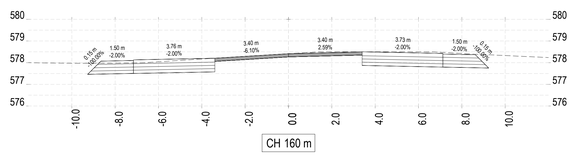


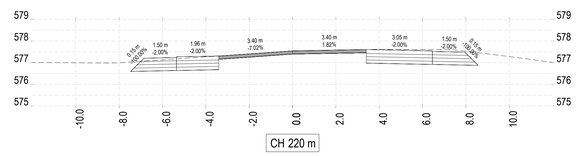


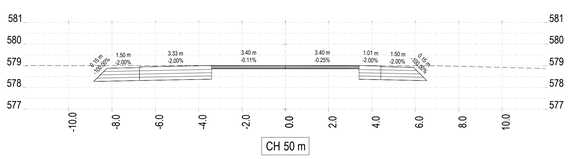


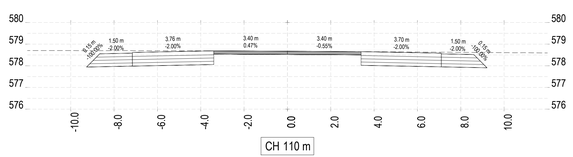


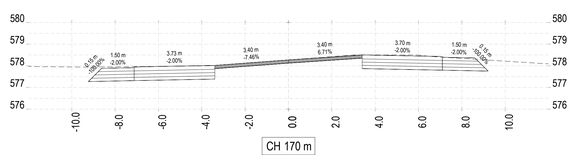


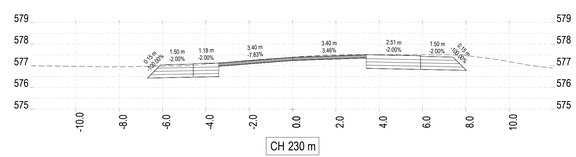


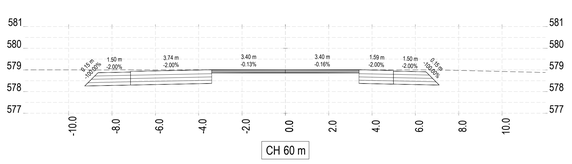


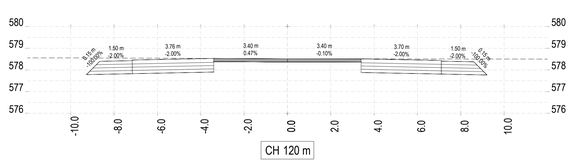


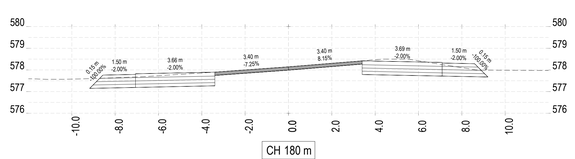


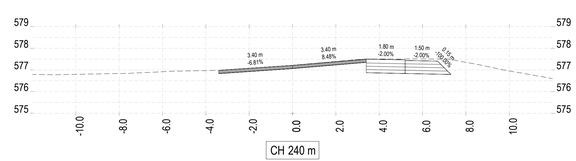












DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
ROAD 1 & D2692 INTERSECTION UPGRADE:
CROSS SECTIONS

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN		A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	014	T	0

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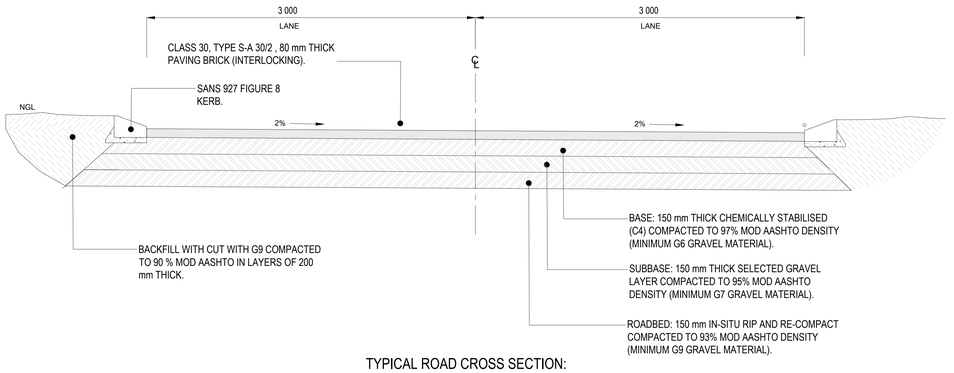
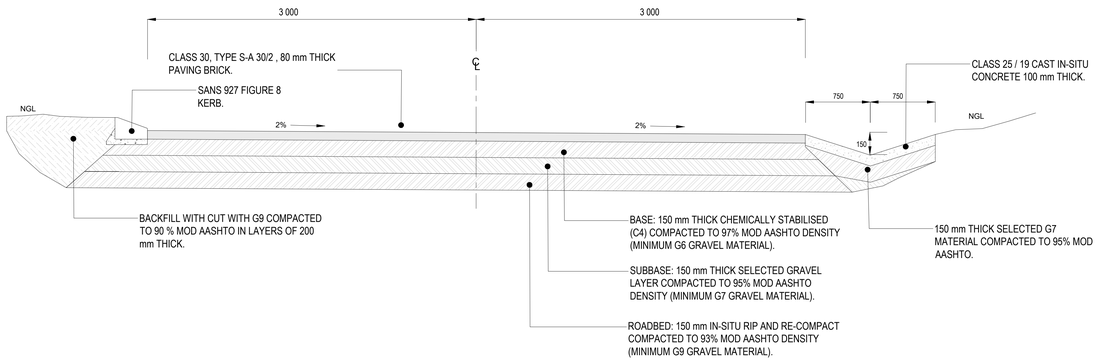


TYPICAL ROAD CROSS SECTION:
SCALE 1 : 20



TYPICAL ROAD CROSS SECTION WITH CONCRETE SIDE DRAIN:
SCALE 1 : 20

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
4. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

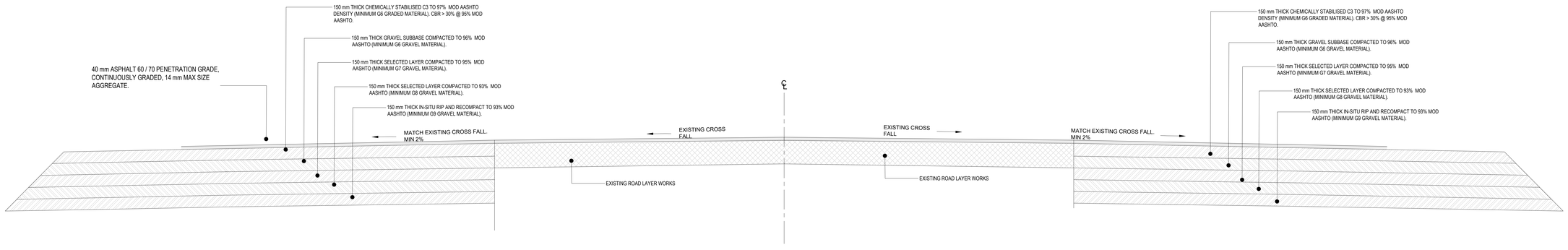
1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

PROPOSED

EXISITNG



TYPICAL CROSS SECTION:
LOCAL ROAD 1 AND ROAD D2692 INTERSECTION
SCALE 1 : 20

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT | DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL PAVEMENT DESIGN

DRAWING STATUS CODES:		SCALE:	SHEET	SIZE:
P = PLANNING	T = TENDER	AS SHOWN	1 OF 1	A0
C = CONSTRUCTION	A = AS BUILT			

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	015	T	0

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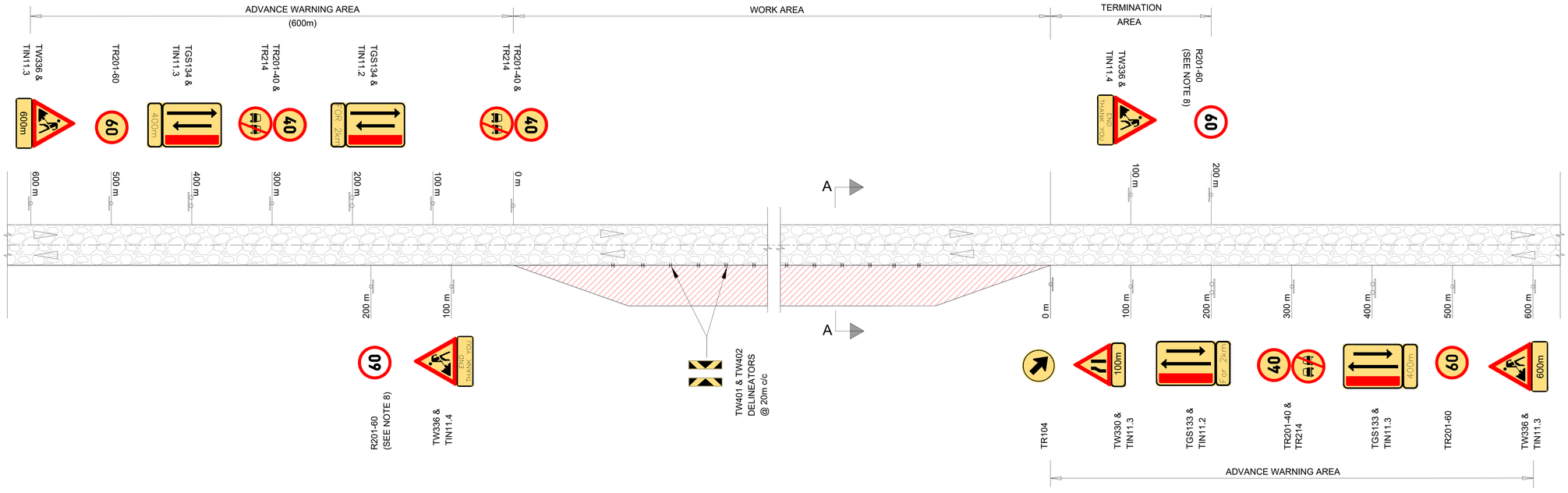

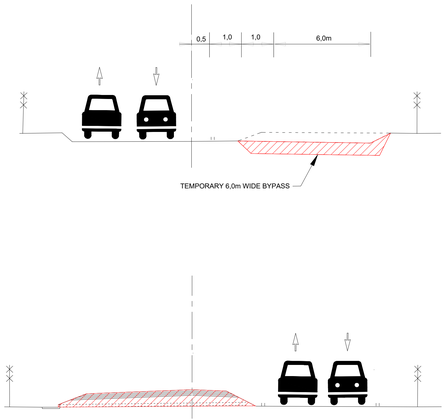

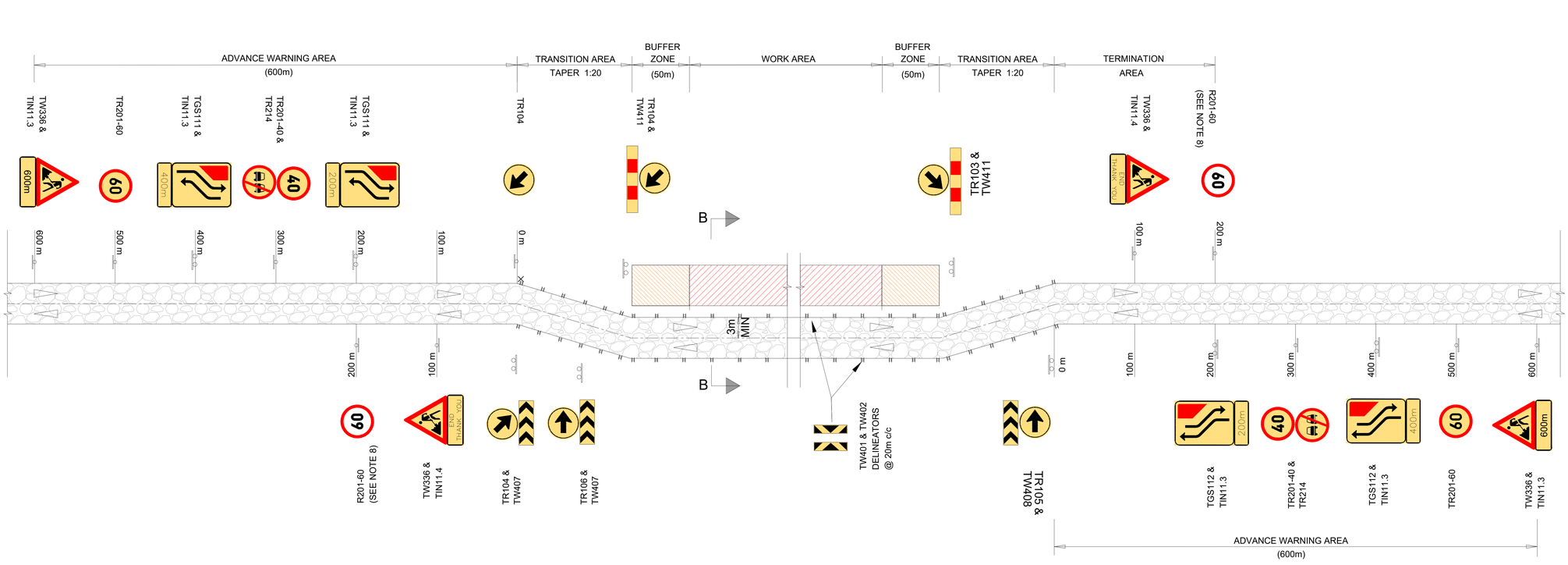

NOTES

1. TEMPORARY ROAD SIGN LAYOUTS SHOWN HERE DEPICT THE ACCOMMODATION OF TRAFFIC ON THE TYPICAL SECTION OF SINGLE CARRIAGEWAY ROADS UNDER FULL WIDTH CONSTRUCTION CONDITIONS.
2. ACTUAL ACCOMMODATION OF TRAFFIC PROPOSALS TO BE USED ON THE WORKS SHALL BE SUBMITTED TIMEOUSLY FOR THE ENGINEER'S APPROVAL. SUCH PROPOSALS SHALL TAKE DUE CONSIDERATION OF ACTUAL CONDITIONS ON THE ROAD. PARTICULAR ATTENTION SHALL BE GIVEN TO ACCESSES AND INTERSECTING ROADS WHERE NECESSARY.
4. ALL TEMPORARY ROAD SIGNS SHALL COMPLY WITH THE SOUTH AFRICAN ROAD TRAFFIC REGULATIONS AND THE SA ROAD TRAFFIC SIGNS MANUAL, 2012. (SARTSM, VOL 2 OF 2012).
5. ALL ROAD WORK DELINEATOR SIGNS (TW401 AND TW402) SHALL BE MANUFACTURED FROM A FLEXIBLE MATERIAL AND SHOULD COMPLY WITH SANS 1555 AND BE OF A 200mm x 800mm NOMINAL SIZE WITH CLASS III RETROREFLECTIVE MATERIAL ON THE BLADE FACING THE ONCOMING TRAFFIC.
6. MINIMUM SIZES OF SIGNS :
   TRIANGULAR : 1200mm SIDE LENGTH
   CIRCULAR : 900mm DIAMETER
   RECTANGULAR : HIGH VISIBILITY BACKGROUND : 1200mm x 1800mm.
   TIN11.X : 400mm HIGH, LENGTH TO FIT PRIMARY SIGN.
   TW411 : 400mm x 1200mm.
7. ROADWORK DELINEATOR SIGNS (TW401 AND TW402) SHOULD BE SO POSITIONED THAT ENCROACHMENT ON THE ADJACENT RUNNING LANE IS AVOIDED AS FAR AS POSSIBLE.
8. THE R201 SIGNS BEYOND THE WORK AREA SHALL AGREE WITH THE SPEED LIMIT ON THE SUBSEQUENT SECTION OF ROAD.
9. THE SPEED LIMIT IN THE WORK AREA SHALL BE SET AT A REALISTIC LEVEL. IN AREAS WHERE TRANSITION TAKES PLACE THE SPEED LIMIT COULD BE REDUCED LOCALLY, TO BE REVISED WHERE TRAFFIC FLOW CONDITIONS STABILIZED AT MORE UNIFORM LEVELS.
10. ALL SIGN REFERENCE NUMBERS REFER TO THOSE USED IN THE SARTSM, 2012.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:
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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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MUSINA
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TEL: 015 534 6100
EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER
FOR CLIENT
DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL TRAFFIC ACCOMMODATION

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	016	T	0

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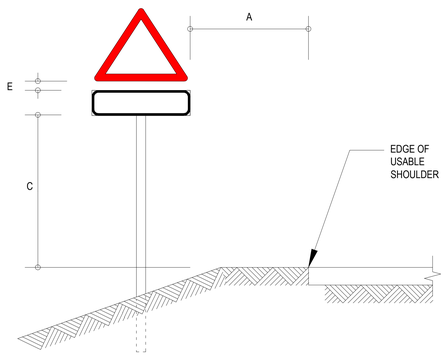

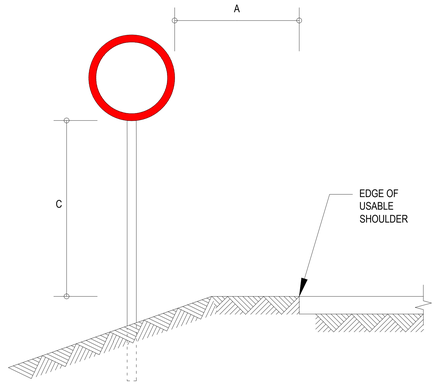

REGULATORY AND WARNING SIGNS

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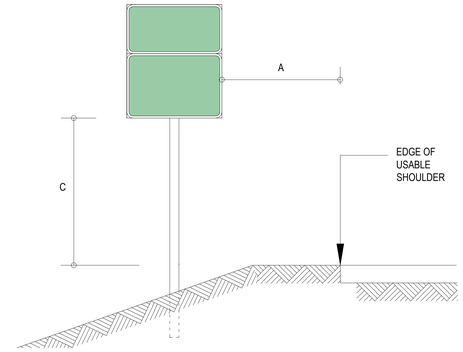
NOT TO SCALE



SMALL TO MEDIUM SIZED GUIDANCE AND INFORMATION SIGNS

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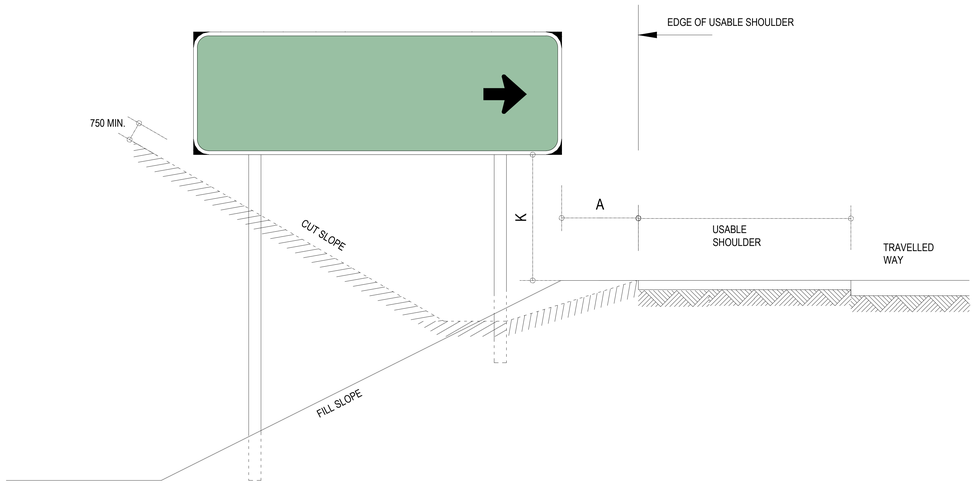
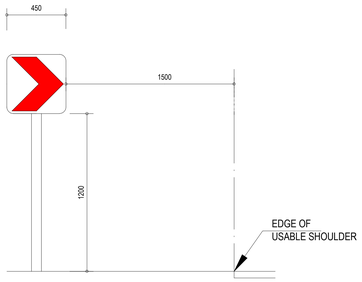


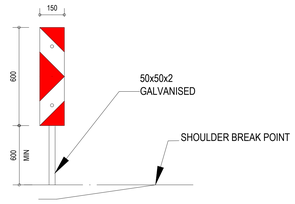
DIRECTION SIGNS

NOT TO SCALE



SHARP CURVE CHEVRON SIGN

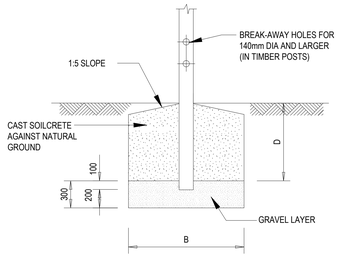
SEE TABLE 2 FOR
SPACING REQUIREMENTS



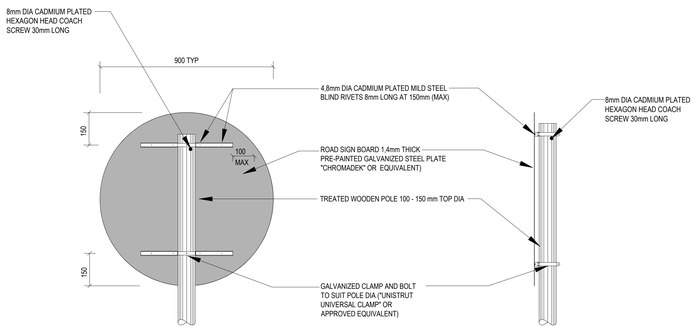
W401

TABLE 2	
SHARP CURVE CHEVRON SPACING	
RADIUS OF CURVE R(m)	SPACING S(m)
60	8-15
150	15-25
300	25
600	25

TABLE 1			
PERMANENT SIGN PLACEMENT DIMENSIONS			
POSITIONING VERTICAL	LATERAL	PREFERRED (mm)	RANGE (mm)
	A	1500	1200-2000
B		2100	600-2500
C		0	0-200



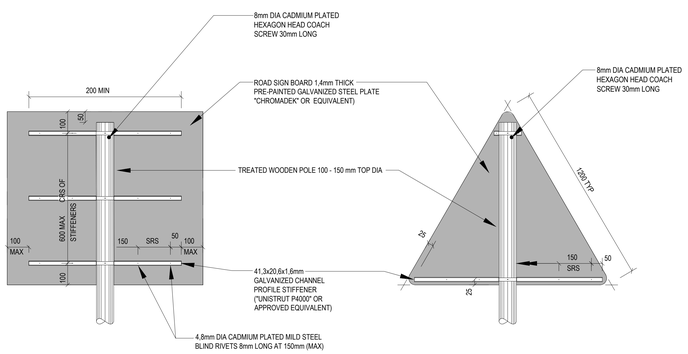
FOUNDATION DETAIL



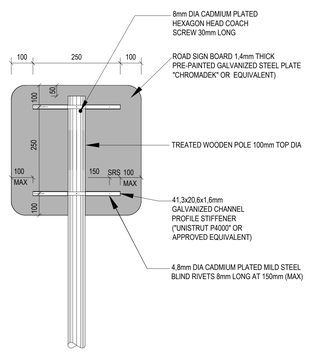
REAR ELEVATION **TYPICAL SIDE ELEVATION**

REGULATORY AND WARNING SIGNS

Not to Scale



REAR ELEVATION **REAR ELEVATION**



SHARP CURVE CHEVRON

REAR ELEVATION

NOTES:

1. WHEN SHARP CURVE CHEVRON SIGNS ARE USED AROUND A LONG CURVE THEY SHOULD BE ARRANGED SO THAT AT LEAST THREE SIGNS CAN BE SEEN BY THE DRIVER AT ANY TIME.
2. IT IS RECOMMENDED THAT THE FIRST SIGN TO BE POSITIONED SHOULD BE PLACED ON THE APPROXIMATE LINE OF SIGHT OF DRIVERS APPROACHING THE TANGENT TO THE CURVE. SUBSEQUENT SIGNS SHOULD THEN BE SPACED A DISTANCE "S" BACKWARDS AND FORWARDS FROM THIS SIGN ALONG THE CURVE SO THAT THE LAST SIGN IN EACH DIRECTION IS POSITIONED APPROXIMATELY AT THE TANGENT POINT TO THE CURVE.

HAZARD MARKER SIGNS

Not to Scale

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DRAWING CHECKED	MJM	
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FOR CLIENT DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL SIGN ERECTION

DRAWING STATUS CODES: P = PLANNING C = CONSTRUCTION T = TENDER A = AS BUILT	SCALE:	SHEET	SIZE:
	AS SHOWN	1 OF 1	A0

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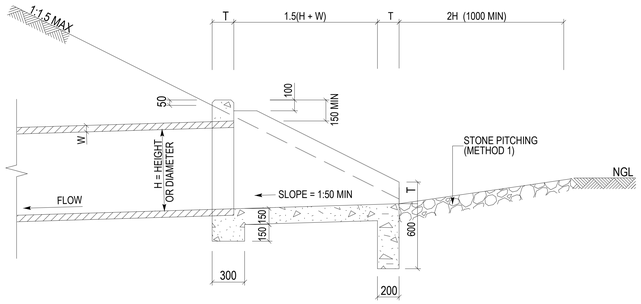
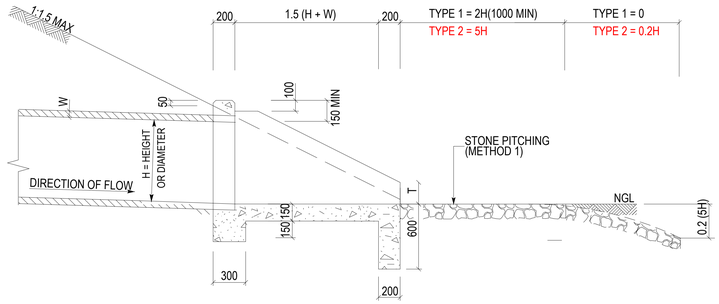


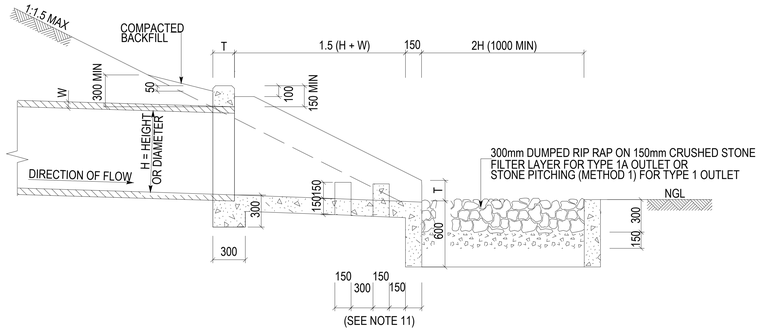
SECTION A-A (WHERE Θ = 90° TO 120°)

SCALE 1:20



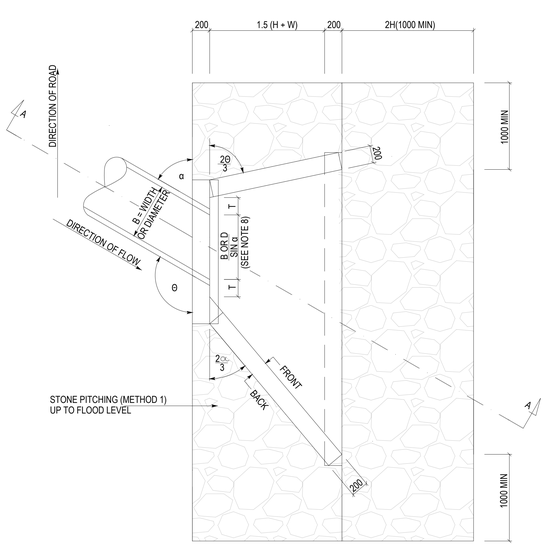
SECTION B-B (WHERE Θ = 90° TO 120°)

SCALE 1:20



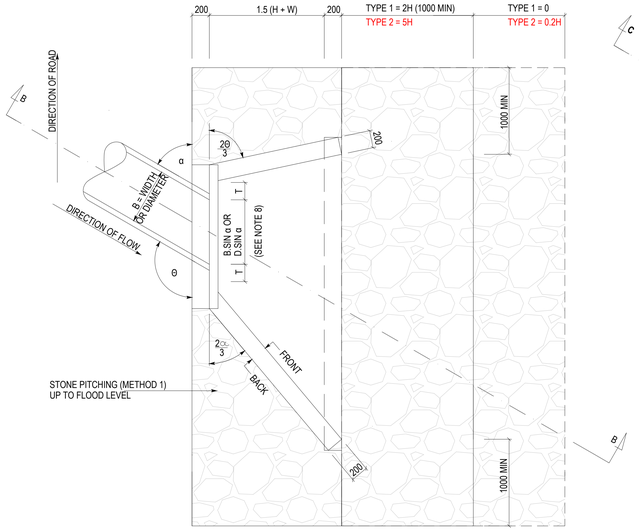
SECTION C-C (WHERE Θ = 90° TO 120°)

SCALE 1:20



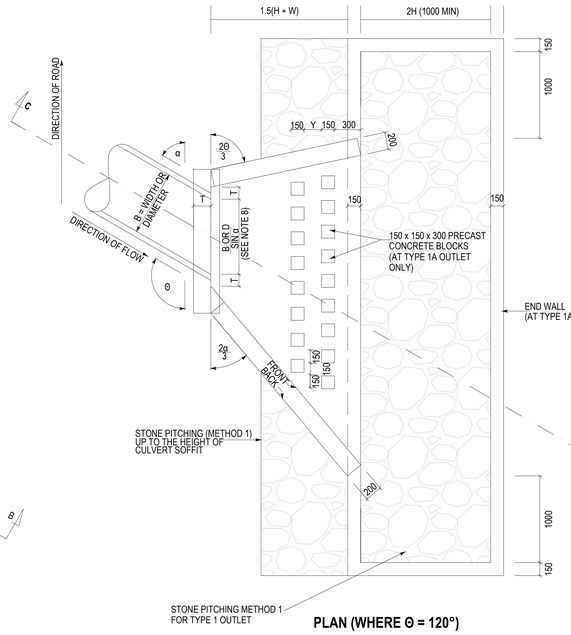
PLAN (WHERE Θ = 90 ° TO 120°) TYPE 1 INLET

SCALE 1:20



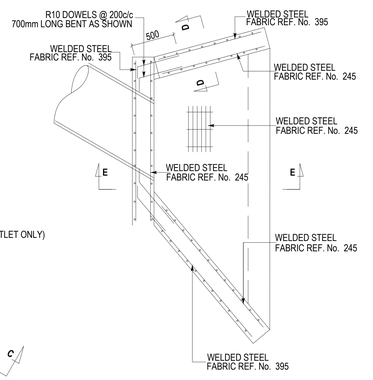
PLAN (WHERE Θ = 90° TO 120°) TYPE 1 OR TYPE 2 OUTLET

SCALE 1:20



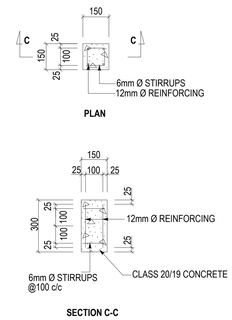
PLAN (WHERE Θ = 120°) TYPE 3 OUTLETS

NOTES:



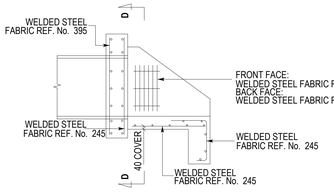
REINFORCEMENT DETAILS

SCALE 1:20



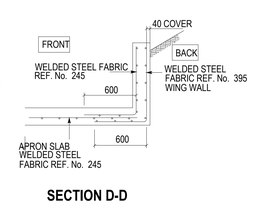
DETAIL OF PRECAST CONCRETE BLOCKS

SCALE 1:10



SECTION E-E

SCALE 1:20



SECTION D-D

SCALE 1:20

SCALE 1:20

1. ALL CONCRETE SHALL BE CLASS 20/19.
2. ALL EXPOSED CORNERS SHALL HAVE A CHAMFER OF 25mm.
3. WHERE REQUIRED BY THE ENGINEER, BERMS SHALL BE CONSTRUCTED DOWNSTREAM FROM THE CULVERTS.
4. THE UPPER LEVEL OF THE FILL ALWAYS PASSES THROUGH A POINT 50mm BELOW THE TOP OF THE HEAD WALL.
5. REINFORCEMENT IN WING WALLS AND HEAD WALLS FOR INLET AND OUTLET STRUCTURES:
   ON THE FRONT OF THE WALLS: No 245 (6.3 DIA - 200x200)
   ON THE BACK OF THE WALLS: No 395 (8.0 DIA - 200x200)
   IN THE FLOOR SLAB: No 245 (6.3 DIA - 200x200)
   WITH 600mm BASE FOOTING LENGTHS IN BOTH CASES.
   (SEE SECTION D-D)
6. FOR THE POSITIONS OF INLETS AND OUTLETS SEE DRAINAGE SCHEDULES
7. CONCRETE COVER TO REINFORCEMENT SHALL BE 40mm.
8. WHERE MORE THAN ONE CONCRETE PIPE CULVERT OR PORTAL CULVERT ARE BUILT INTO THE SAME HEAD WALL, DIMENSION B SHALL BE THE MAXIMUM DISTANCE BETWEEN THE INTERNAL WALL OF THE EXTERNAL CULVERTS.
9. THE MAXIMUM SLOPE OF EARTHWORKS SURROUNDING A CULVERT INLET OR OUTLET SHALL BE 1:1.5.
10. WHERE THE TOP OF THE HEAD WALL IS LESS THAN 500mm BELOW THE SHOULDER BREAKPOINT OF THE ROAD, THE TOP OF THE WALL SHALL BE CONSTRUCTED AT THE SAME LONGITUDINAL GRADIENT AS THAT OF THE ROAD.
11. IF THE CULVERT HEIGHT OR DIAMETER < 600, THEN Y=150mm OTHERWISE Y=250mm.

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NAME	SIGNATURE	DATE

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DISCIPLINE: ROADS & STORM WATER

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DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL CULVERT INLET AND OUTLET DETAILS

DRAWING STATUS CODES: P = PLANNING, T = TENDER, C = CONSTRUCTION, A = AS BUILT

SCALE:	SHEET	SIZE:
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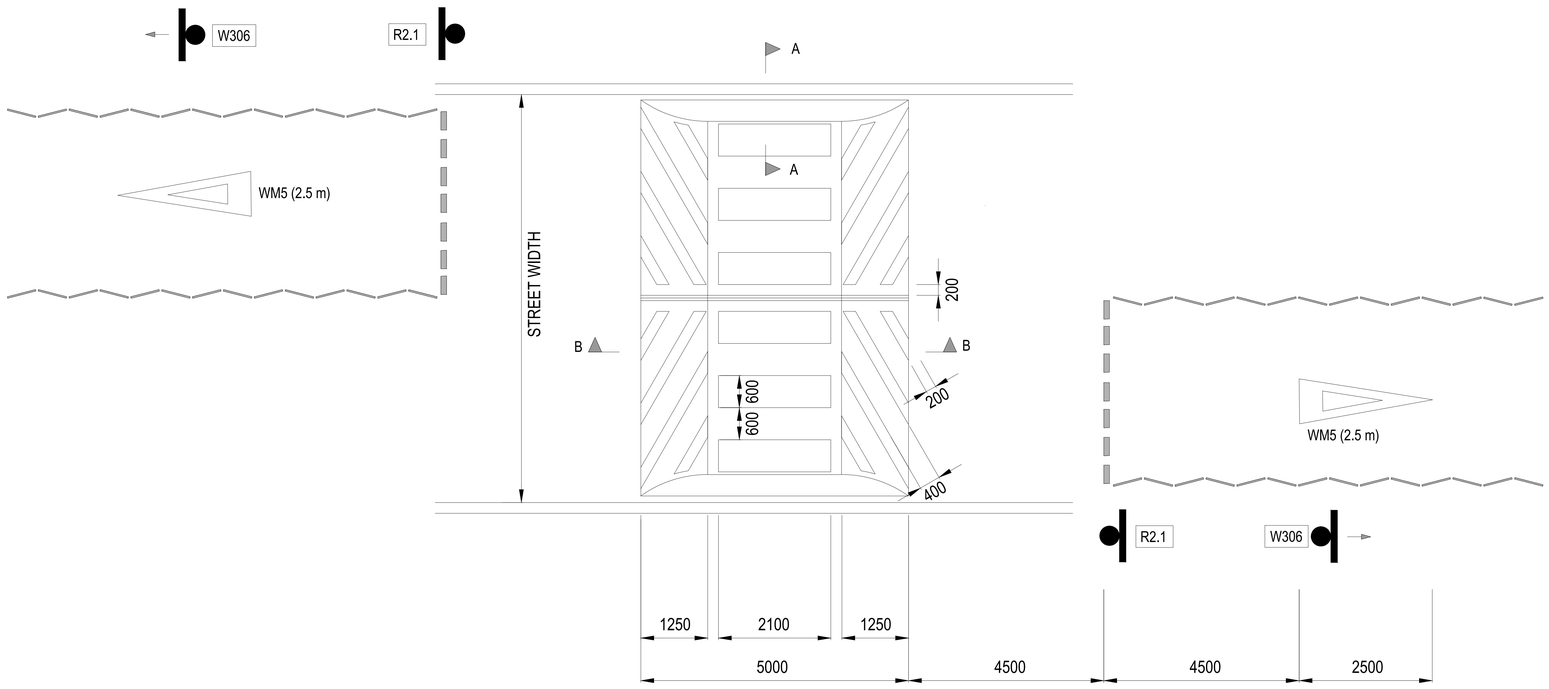
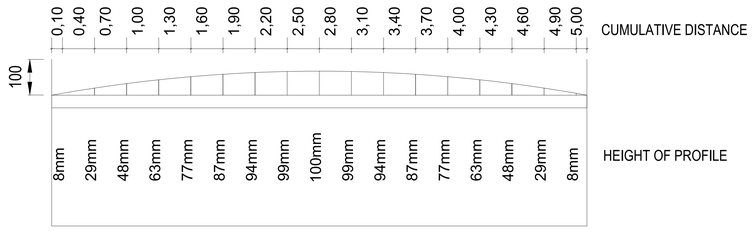
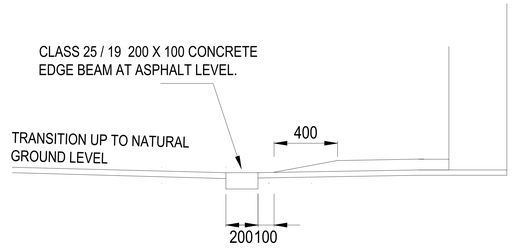


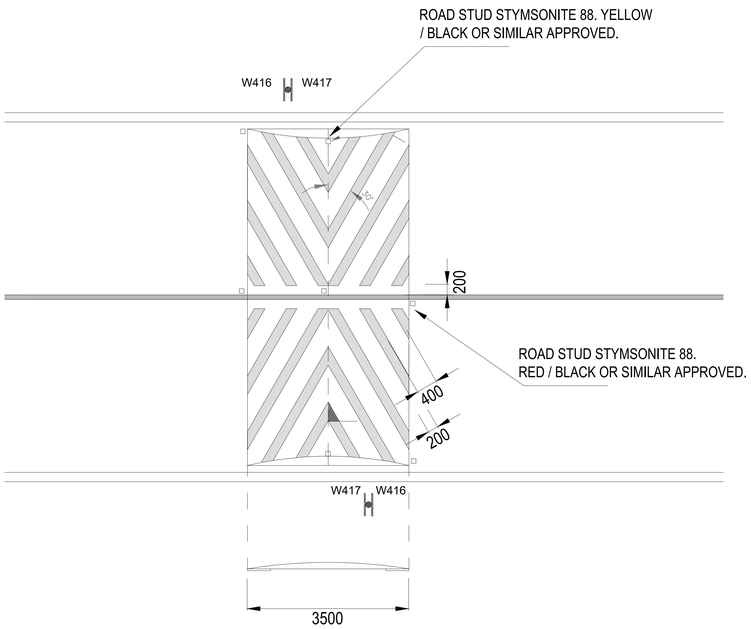
PLAN LAYOUT
RAISED BLOCK PEDESTRIAN CROSSING



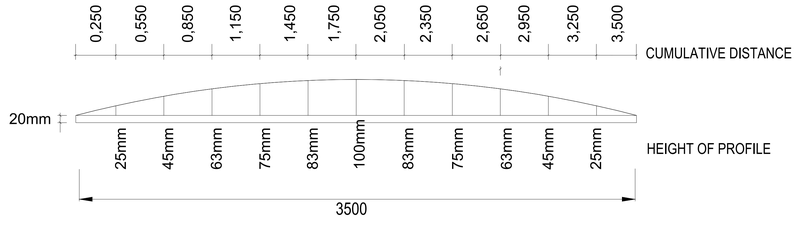
FORMING OF THE RAISED BLOCK
PEDESTRIAN CROSSING



SECTION AA
EDGE OF RAISED BLOCK PEDESTRIAN
CROSSING



PLAN OF SPEED HUMP
NOT TO SCALE



SIDE ELEVATION

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DRAWING CHECKED	MJM	

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NAME	SIGNATURE	DATE

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MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL SPEED HUMP DETAILS

DRAWING STATUS CODES: P = PLANNING, T = TENDER, C = CONSTRUCTION, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

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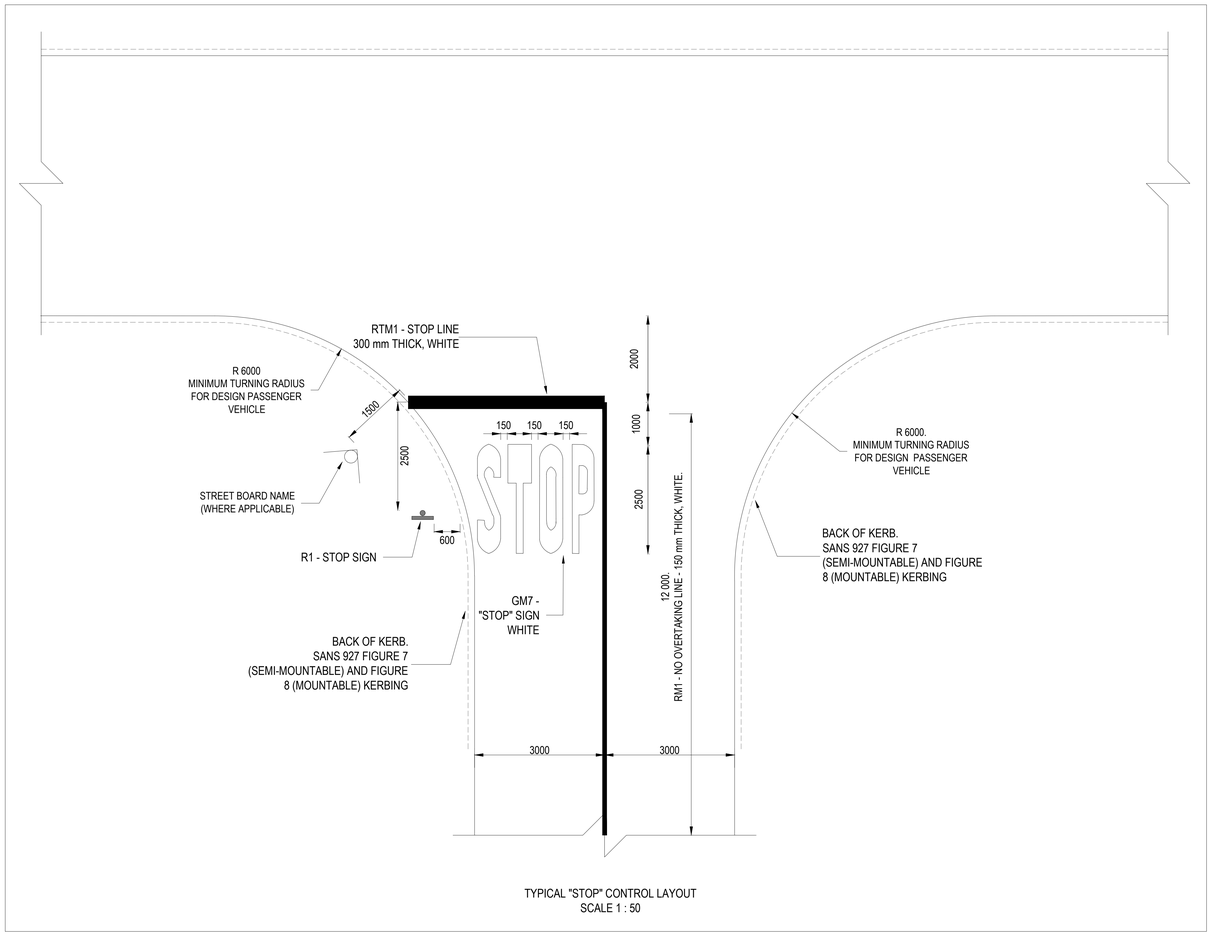
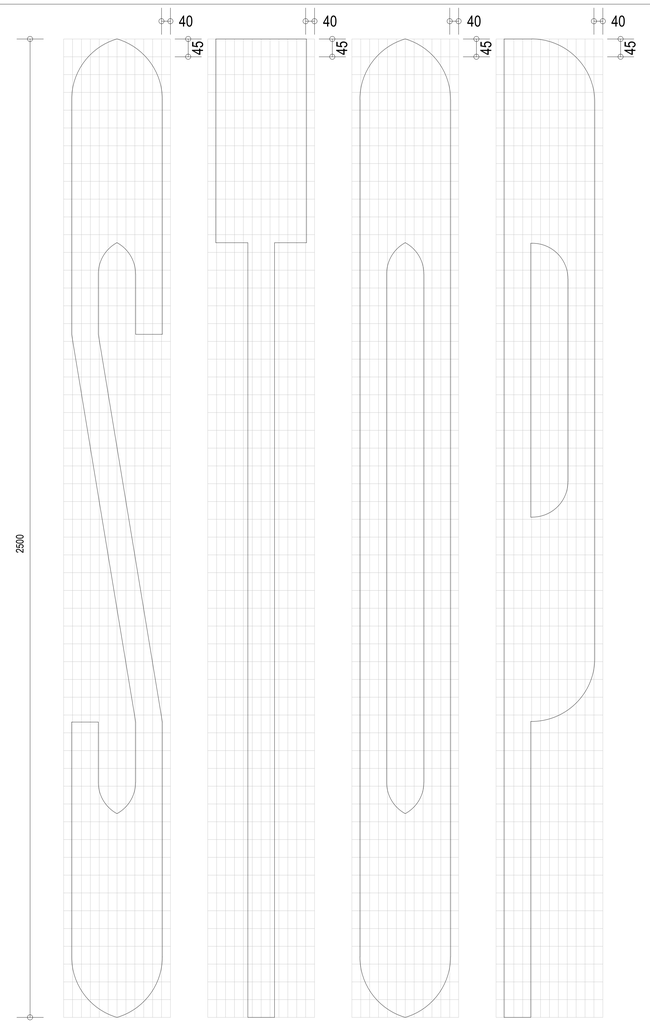
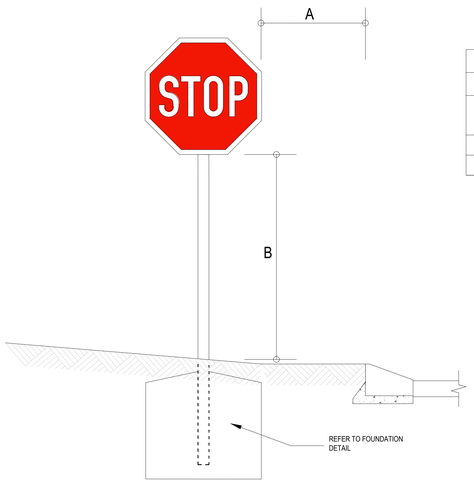


TYPICAL "STOP" CONTROL LAYOUT
SCALE 1 : 50

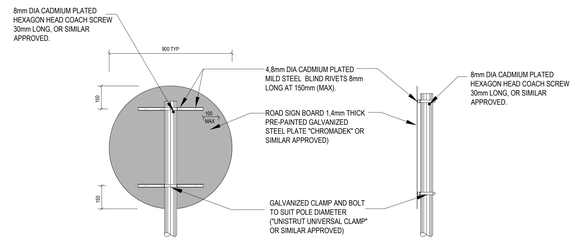


GM7 - "STOP" SIGN
NOT TO SCALE



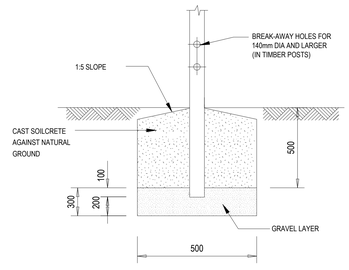
REGULATORY SIGN R1 - FRONT ELEVATION
NOT TO SCALE

TABLE 1			
PERMANENT SIGN PLACEMENT DIMENSIONS			
POSITIONING VERTICAL	POSITIONING LATERAL	PREFERRED (mm)	RANGE (mm)
	A	600	600-2000
B		2100	2000-2500



REAR ELEVATION
NOT TO SCALE

TYPICAL SIDE ELEVATION
NOT TO SCALE



FOUNDATION DETAIL
NOT TO SCALE

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
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DRAWING CHECKED	MJM	
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FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL "STOP" SIGN LAYOUT

DRAWING STATUS CODES:		SCALE:	SHEET	SIZE:
P = PLANNING	T = TENDER	AS SHOWN	1 OF 1	A0
C = CONSTRUCTION	A = AS BUILT			

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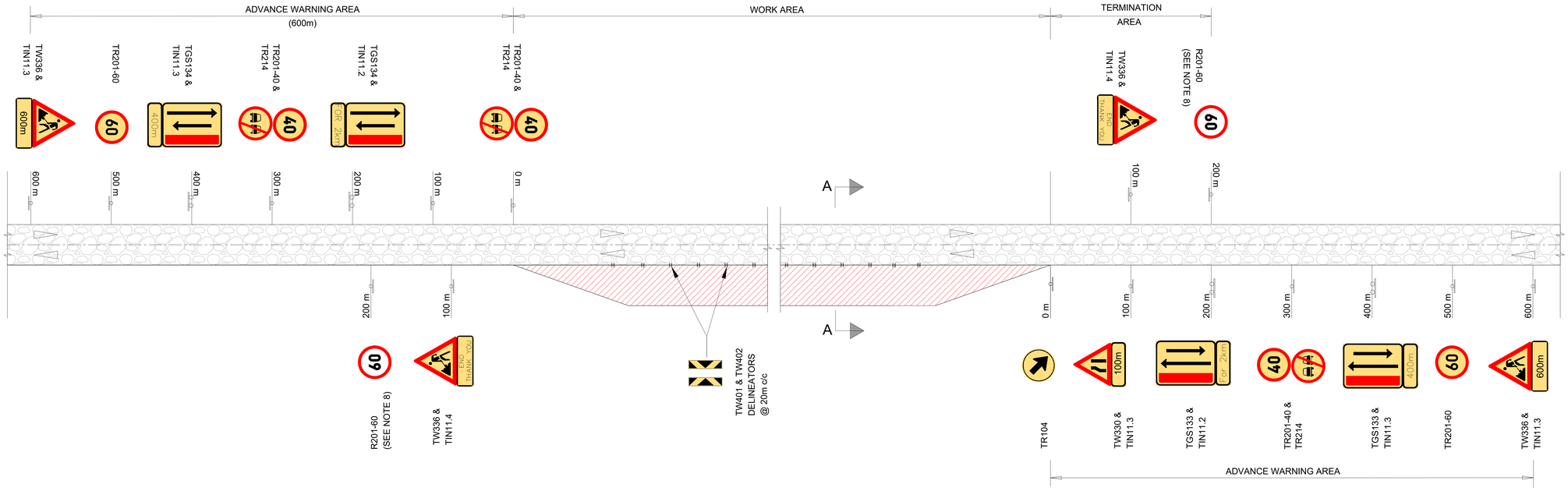

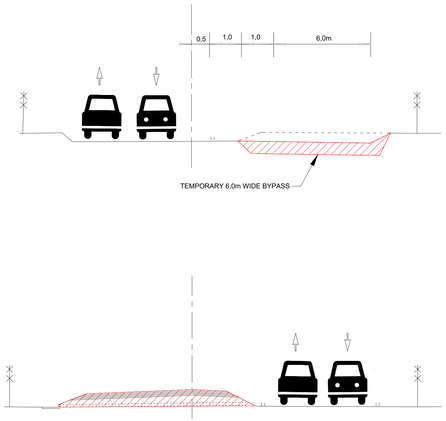

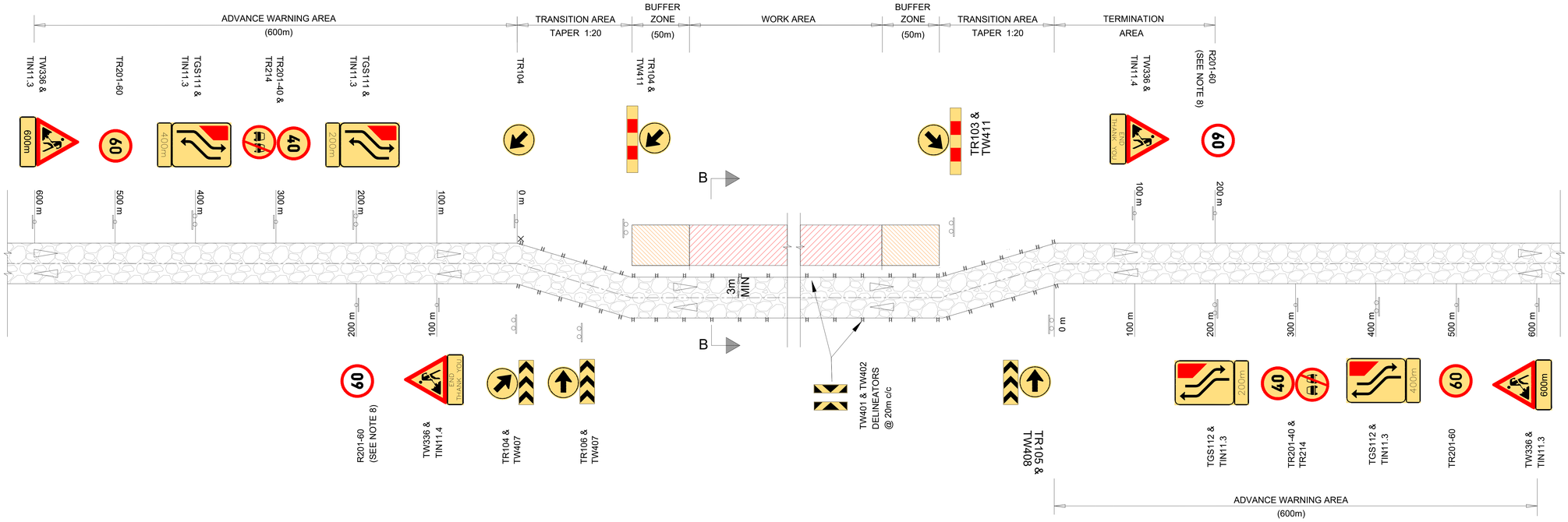

NOTES

1. TEMPORARY ROAD SIGN LAYOUTS SHOWN HERE DEPICT THE ACCOMMODATION OF TRAFFIC ON THE TYPICAL SECTION OF SINGLE CARRIAGEWAY ROADS UNDER FULL WIDTH CONSTRUCTION CONDITIONS.
2. ACTUAL ACCOMMODATION OF TRAFFIC PROPOSALS TO BE USED ON THE WORKS SHALL BE SUBMITTED TIMEOUSLY FOR THE ENGINEER'S APPROVAL. SUCH PROPOSALS SHALL TAKE DUE CONSIDERATION OF ACTUAL CONDITIONS ON THE ROAD. PARTICULAR ATTENTION SHALL BE GIVEN TO ACCESSES AND INTERSECTING ROADS WHERE NECESSARY.
4. ALL TEMPORARY ROAD SIGNS SHALL COMPLY WITH THE SOUTH AFRICAN ROAD TRAFFIC REGULATIONS AND THE SA ROAD TRAFFIC SIGNS MANUAL, 2012. (SARTSM, VOL 2 OF 2012).
5. ALL ROAD WORK DELINEATOR SIGNS (TW401 AND TW402) SHALL BE MANUFACTURED FROM A FLEXIBLE MATERIAL AND SHOULD COMPLY WITH SANS 1555 AND BE OF A 200mm x 800mm NOMINAL SIZE WITH CLASS III RETROREFLECTIVE MATERIAL ON THE BLADE FACING THE ONCOMING TRAFFIC.
6. MINIMUM SIZES OF SIGNS :
   TRIANGULAR : 1200mm SIDE LENGTH
   CIRCULAR : 900mm DIAMETER
   RECTANGULAR : HIGH VISIBILITY BACKGROUND : 1200mm x 1800mm.
   TIN11.X : 400mm HIGH, LENGTH TO FIT PRIMARY SIGN.
   TW411 : 400mm x 1200mm.
7. ROADWORK DELINEATOR SIGNS (TW401 AND TW402) SHOULD BE SO POSITIONED THAT ENCROACHMENT ON THE ADJACENT RUNNING LANE IS AVOIDED AS FAR AS POSSIBLE.
8. THE R201 SIGNS BEYOND THE WORK AREA SHALL AGREE WITH THE SPEED LIMIT ON THE SUBSEQUENT SECTION OF ROAD.
9. THE SPEED LIMIT IN THE WORK AREA SHALL BE SET AT A REALISTIC LEVEL. IN AREAS WHERE TRANSITION TAKES PLACE THE SPEED LIMIT COULD BE REDUCED LOCALLY, TO BE REVISED WHERE TRAFFIC FLOW CONDITIONS STABILIZED AT MORE UNIFORM LEVELS.
10. ALL SIGN REFERENCE NUMBERS REFER TO THOSE USED IN THE SARTSM, 2012.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:
1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS
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0900
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DISCIPLINE: ROADS & STORM WATER
FOR CLIENT
DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL TRAFFIC ACCOMMODATION

DRAWING STATUS CODES: P = PLANNING, C = CONSTRUCTION, T = TENDER, A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	ROADS	020	T	0

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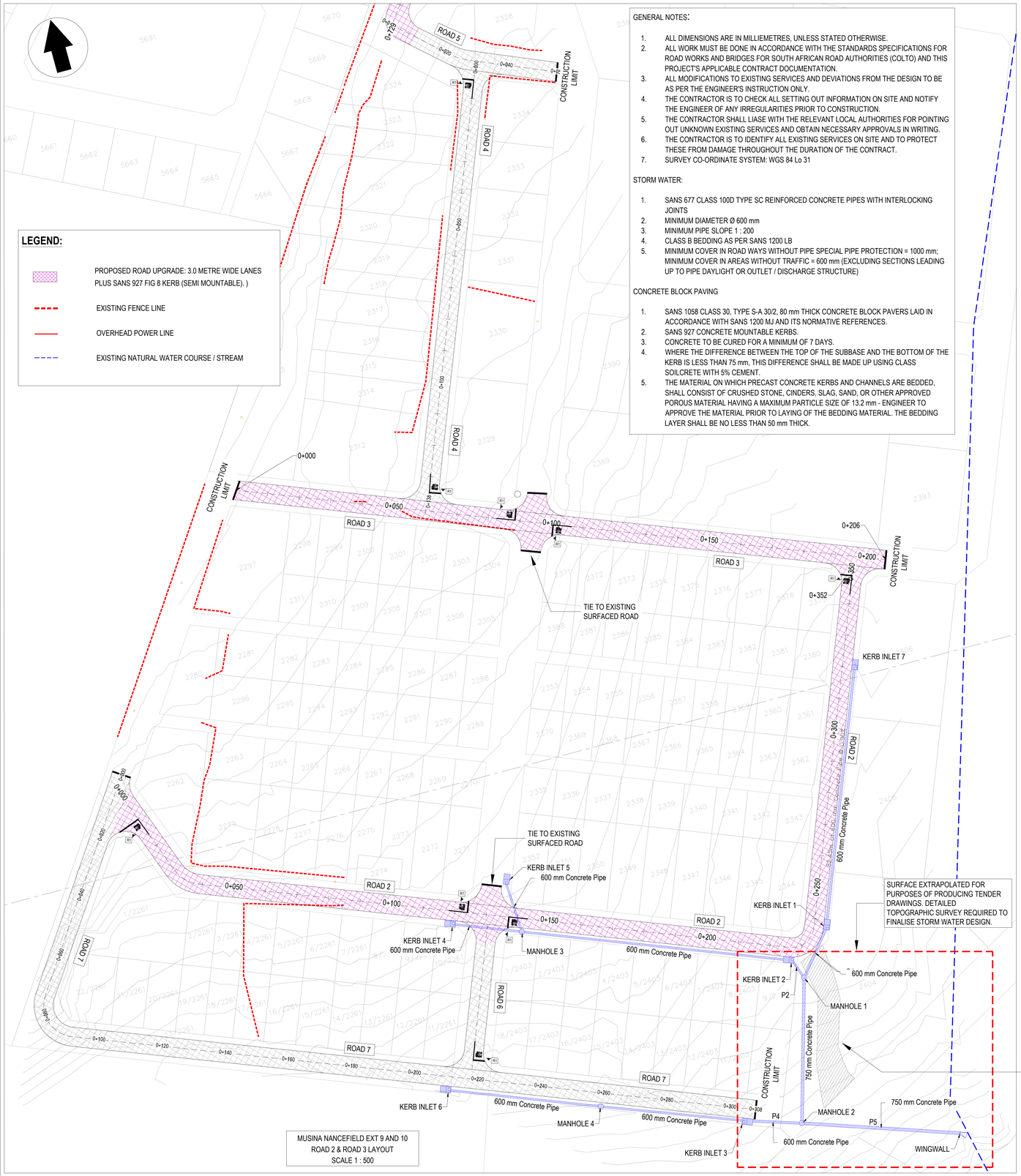

MUSINA NANCEFIELD EXT 9 AND 10
ROAD 2 & ROAD 3 LAYOUT
SCALE 1 : 500

LEGEND:

- PROPOSED ROAD UPGRADE: 3.0 METRE WIDE LANES PLUS SANS 927 FIG 8 KERB (SEMI MOUNTABLE).)
- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
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5. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

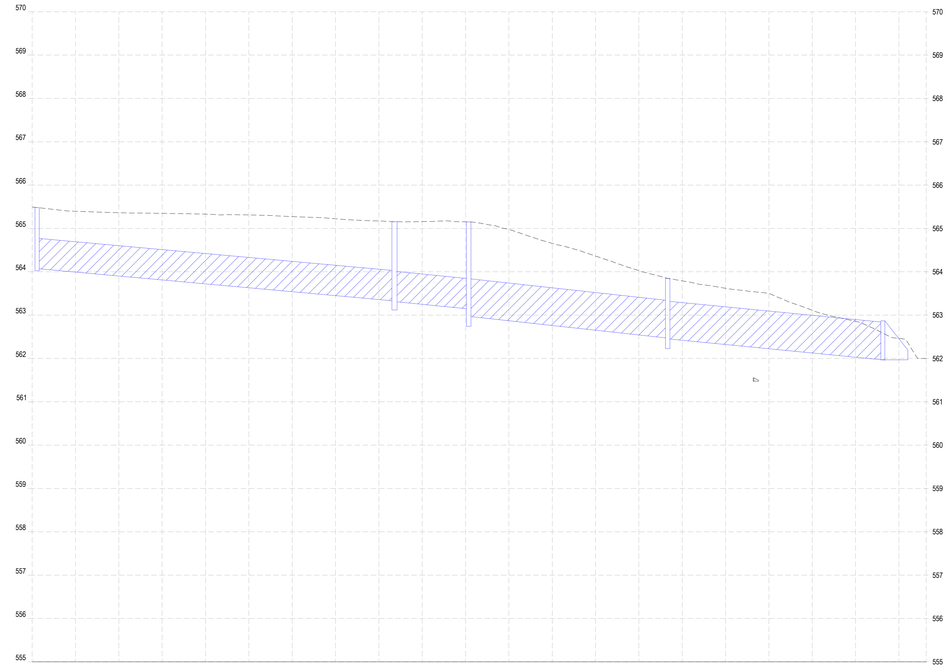
STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.

NANCEFIELD STORMWATER
LONGSECTION



BVC = BEGINNING OF VERTICAL CURVE
EVC = END OF VERTICAL CURVE

SCALE:
HORIZONTAL 1: 500
VERTICAL 1: 50

DATUM 555.000

FINISHED GRADE / EXISTING GROUND		565.396	565.383	565.348	565.329	565.313	565.273	565.223	565.173	565.157	565.153	564.979	564.654	564.363	564.025	563.790	563.619	563.501	563.111	562.857		562.462
STRUCTURE NAME DEPTH		KERB INLET 7 1.38 m								KERB INLET 1 1.94 m		MANHOLE 1 2.31 m				MANHOLE 2 1.52 m						WINGWALL 1.40 m
COVER	LENGTH (m)	0.63 m	81.71 m							1.05 m	16.36 m	1.24 m	45.09 m			0.42 m	49.31 m				-0.36 m	
	SLOPE (%)		0.90%							1.07 m	1.00%	1.22 m	1.09%			0.44 m	0.98%					
INVERT	DESCRIPTION	564.12 m	600 mm RC							563.38 m 563.36 m	600 mm RC	563.19 m 563.03 m	750 mm RC			562.53 m 562.51 m	750 mm RC				562.02 m	

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL

NAME	SIGNATURE	DATE

CONSULTANT: TSHAMBILA ENVIRONMENTAL CONSULTANTS

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43 BICCARD STREET, POLOKWANE
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DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY

21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT | DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
STORM WATER LAYOUT AND LONG SECTION

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 1	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	- STORM -	001	- T -	0

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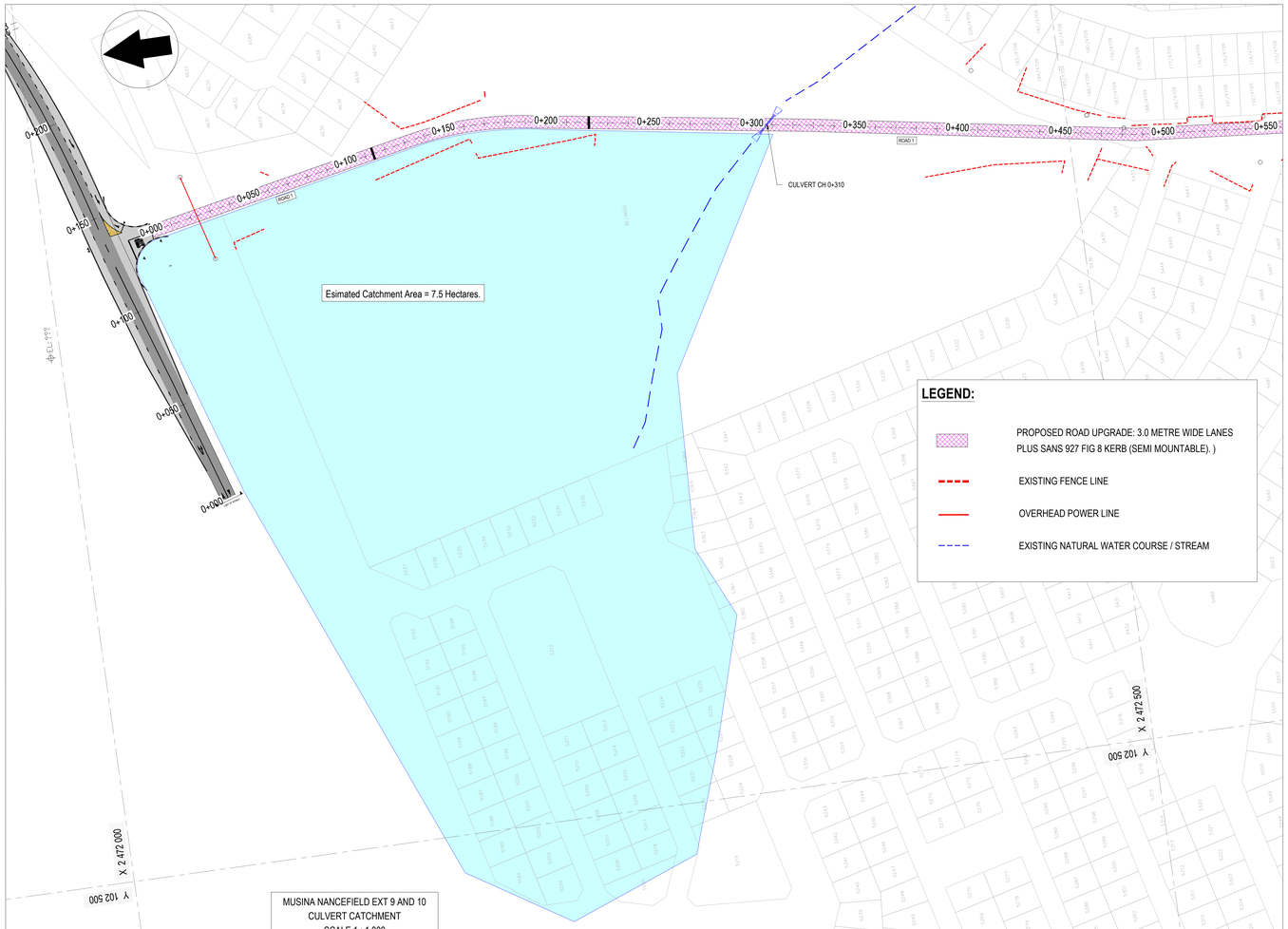
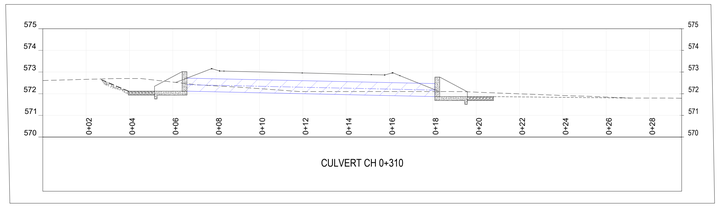


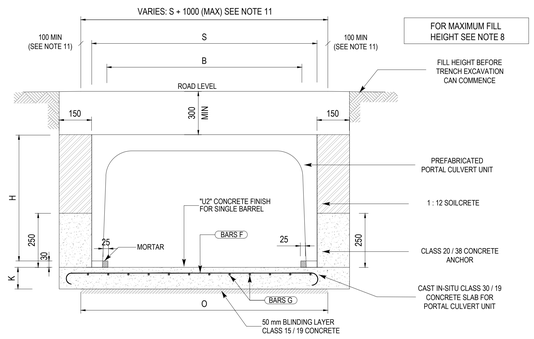
LEGEND:

- PROPOSED ROAD UPGRADE: 3.0 METRE WIDE LANES PLUS SANS 927 FIG 8 KERB (SEMI MOUNTABLE).)
- EXISTING FENCE LINE
- OVERHEAD POWER LINE
- EXISTING NATURAL WATER COURSE / STREAM

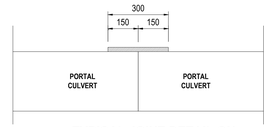
MUSINA NANCEFIELD EXT 9 AND 10
CULVERT CATCHMENT
SCALE 1 : 1 000

INLET DATA								HYDRAULICS					HYDROLOGY				
KILOMETRE DISTANCE	ANGLE (°)	CULVERT No.	SIZE | TYPE	INLET DATA		OUTLET DATA		HEADWATER / DEPTH RATIO	FREE BOARD TO SHOULDER BREAKPOINT (mm)	CAPACITY (m^3/ s)	VELOCITY (m / s)	FROUDE NUMBER	CATCHMENT AREA (ha)	TIME OF CONCENTRATION (hr)	RAINFALL INTENSITY (mm/hr)	RUNOFF COEFFICIENT	1 : 10 YEAR FLOOD (m / s)
				TYPE	INVERT LEVEL	TYPE	INVERT LEVEL										
ROAD 1 0+310	120 °	CULVERT CH 0+310	600 x 600 Box Culvert	TYPE 1	629.270 m	TYPE 1	571.867 m	1.00	0.3	1.3	3.10	1.21	7.5	15 minutes	112	0.32	0.80

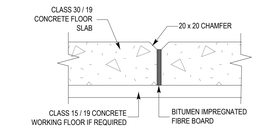




TYPICAL CROSS-SECTION OF SINGLE PORT CULVERT UNIT
N.T.S



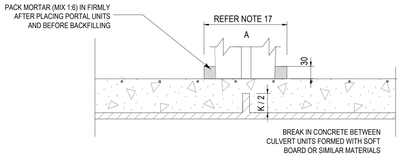
TYPICAL JOINT DETAIL ON PRECAST PORTAL CULVERTS (SEE NOTE 16)
N.T.S



DETAIL FOR TRANSVERSE JOINT IN FLOOR SLAB
N.T.S

SEE NOTE 9

DIMENSIONS					REINFORCEMENT					
B	H	S	O	K	BARS F	L	CUT LENGTH	BENDING	BARS G	
1 x 600	600	760	960	160	Y12 - 225	900	1100	PLACE HOOK AT ALTERNATIVE ENDS	4Y10 - 250	VARIES WITH CULVERT LENGTH — UNIT LENGTH NOT TO EXCEED 10 000
2 x 600		1600	1800	160	Y12 - 225	1760	1950		8Y10 - 250	
1 x 750	600	920	1120	170	Y12 - 180	1060	1250		5Y10 - 250	
2 x 750		1920	2120	170	Y12 - 180	2090	2300		9Y10 - 250	
1 x 2400	900,1200,1500	2720	2920	230	Y16 - 170	2840	3200		19Y10 - 150	
2 x 2400	1800 or 2400	5520	5720	230	Y16 - 170	5630	6000		37Y10 - 150	



DETAIL 1
N.T.S

LONGITUDINAL JOINTS IN FLOOR SLABS
N.T.S

LOAD STATEMENT

1) PREFABRICATED PORTAL CULVERTS WITH NOMINAL SIZE "n x B x H" ARE LOADED IN ACCORDANCE WITH ALL THE REQUIREMENTS OF TMH7.
2) ALL PREFABRICATED PORTAL CULVERTS TO BE ACCORDING TO SANS 986.
3) THE MAXIMUM HEIGHT OF FILL ABOVE PORTAL CULVERTS MAY NOT EXCEED THE VALUES GIVEN IN NOTE 8(a).

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIEMETRES, UNLESS STATED OTHERWISE.
2. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COLTO) AND THIS PROJECT'S APPLICABLE CONTRACT DOCUMENTATION.
3. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
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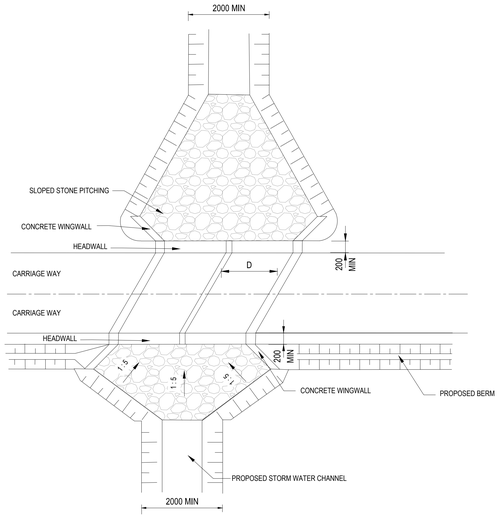
6. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
7. SURVEY CO-ORDINATE SYSTEM: WGS 84 Lo 31

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

CONCRETE BLOCK PAVING

1. SANS 1058 CLASS 30, TYPE S-A 30/2, 80 mm THICK CONCRETE BLOCK PAVERS LAID IN ACCORDANCE WITH SANS 1200 MJ AND ITS NORMATIVE REFERENCES.
2. SANS 927 CONCRETE MOUNTABLE KERBS.
3. CONCRETE TO BE CURED FOR A MINIMUM OF 7 DAYS.
4. WHERE THE DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE KERB IS LESS THAN 75 mm, THIS DIFFERENCE SHALL BE MADE UP USING CLASS SOILCRETE WITH 5% CEMENT.
5. THE MATERIAL ON WHICH PRECAST CONCRETE KERBS AND CHANNELS ARE BEDDED, SHALL CONSIST OF CRUSHED STONE, CINDERS, SLAG, SAND, OR OTHER APPROVED POROUS MATERIAL HAVING A MAXIMUM PARTICLE SIZE OF 13.2 mm - ENGINEER TO APPROVE THE MATERIAL PRIOR TO LAYING OF THE BEDDING MATERIAL. THE BEDDING LAYER SHALL BE NO LESS THAN 50 mm THICK.



LAYOUT
TYPICAL PORTAL CULVERT CROSSING LAYOUT
N.T.S

GENERAL NOTES

1) STRUCTURAL CONCRETE IS CLASS 30/19
2) REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF SANS 920 TYPE C, CLASS 2, GRADE 1.
3) CONCRETE COVER TO STEEL IS 40 mm
4) DESIGN DENSITY OF THE FILL MATERIAL IS 1900kg/m³
5) LOAD FACTOR FOR PROOF LOAD OF SANS 986 = 1.25
6) HIGH YIELD STRESS REINFORCEMENT (Y) YIELD STRESS = 450 MPa
7) PREFABRICATED PORTAL CULVERTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 986 AS WELL AS THE ADDITIONAL TEST LOADING AND CRITICAL TEST LOAD COMBINATION FOR THE TEST OF SHEAR RESISTANCE
8) DIMENSIONS AND REINFORCEMENT FOR CAST IN SITU FLOOR SLABS ARE VALID ONLY IF:
   a) THE HEIGHT OF THE FILL IS LESS THAN SPECIFIED BELOW AND THE CORRESPONDING CLASS OF CULVERT IS USED

DIMENSION B (mm)	MAXIMUM HEIGHT OF FILL (m)	CLASS OF CULVERT
600	5.6	200S
750	4.9	175S
900	4.8	175S
1200	4.1	150S
1500	2.9	100S
1800	2.4	75S
2100	2.4	75S
2400	2.4	75S
3000	2.4	75S

   b) WHERE THE TYPE OF MATERIAL UNDER THE BASE SLAB IS NOT ROCK
9) THE DIMENSIONS IN THE TABLE MAY NOT CONFORM TO ALL MARKETED UNITS AND IT MAY BECOME NECESSARY TO REVISE THE TABULATED DIMENSIONS.
10) THE MAXIMUM SPACING OF TRANSVERSE JOINTS IN THE FLOOR SLAB IS 10m.
11) THE EXCAVATION WIDTH MAY BE REDUCED FROM (S+1000) TO (S+200) MINIMUM WHERE SOILCRETE BACKFILL IS USED.
12) FOR HANDLING AND INSTALLATION OF CULVERT REFER TO "CONCRETE PIPE AND PORTAL CULVERT INSTALLATION MANUAL" FROM THE CONCRETE SOCIETY OF SOUTHERN AFRICA.
13) WHEN THE HEIGHT OF THE PORTAL CULVERT IS 1,5m OR MORE, TEMPORARY PROPS MUST BE PLACED BETWEEN THE LEGS DURING BACKFILLING OPERATION.
14) PREFABRICATED CULVERT SHALL BE INSTALLED BY THE "TRENCH METHOD" EXCEPT WHERE OTHERWISE REQUIRED BY THE ENGINEER.
15) IF CONSTRUCTION VEHICLES IMPOSE IN EXCESS OF DESIGN LOADINGS, CULVERTS MUST BE PROTECTED BY PROVIDING ADDITIONAL TEMPORARY COVER OR BY APPROVED MEANS.
16) TWO LAYERS OF FILTER FABRIC STRIPS IMPREGNATED WITH BITUMEN EMULSION MUST BE PLACED ON ALL JOINTS BETWEEN PRECAST UNITS (HORIZONTAL AND VERTICAL)
17) FOR H < 1,5m, THE WIDTH = 130mm + 2 x WIDTH OF PORTAL LEG
    FOR H > 1,5m, THE WIDTH = 150mm + 2 x WIDTH OF PORTAL LEG

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

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FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	

CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY
21 IRWIN STREET
MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
ROAD 1 CULVERT

DRAWING STATUS CODES:		SCALE:	SHEET	SIZE:
P = PLANNING	T = TENDER	AS SHOWN	1 OF 1	A0
C = CONSTRUCTION	A = AS BUILT			

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	STORM	002	T	0

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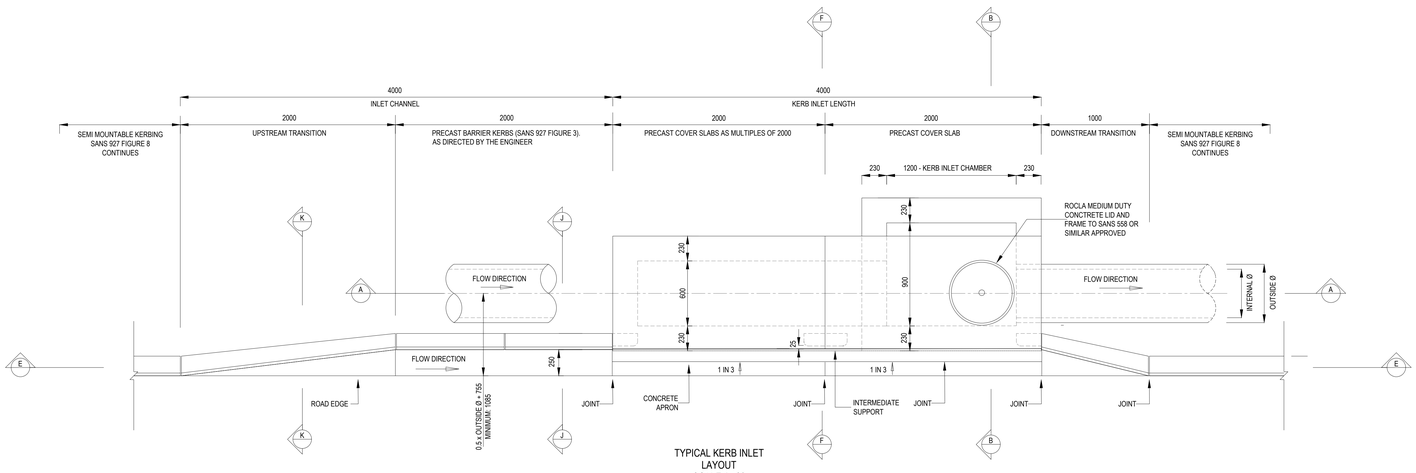
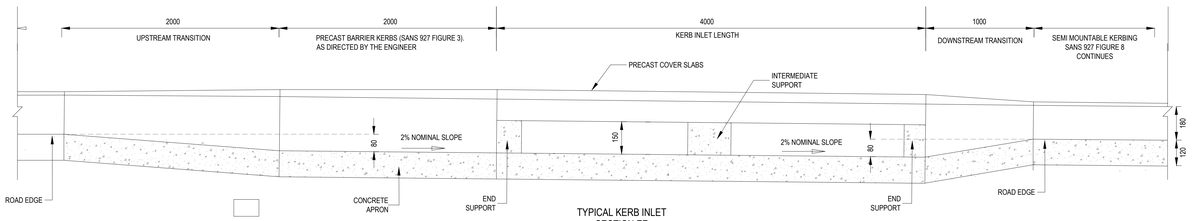
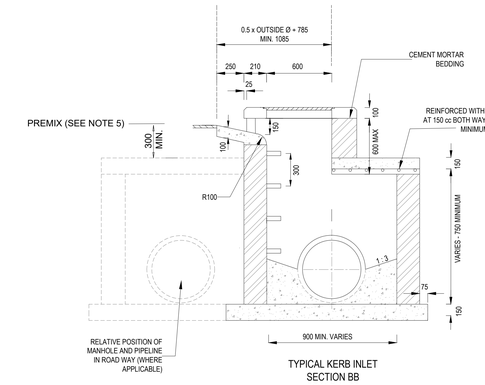


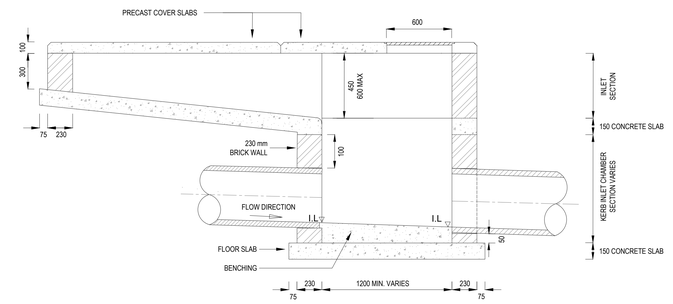
TYPICAL KERB INLET
LAYOUT
SCALE 1 : 20



TYPICAL KERB INLET
SECTION EE
HORIZONTAL SCALE 1 : 20
VERTICAL SCALE 1 : 10



TYPICAL KERB INLET
SECTION BB
SCALE 1 : 20



TYPICAL KERB INLET
SECTION BB
SCALE 1 : 20

STORM WATER:

1. SANS 677 CLASS 1000 TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. DO NOT SCALE THIS DRAWING.
3. CO-ORDINATE SYSTEM: WG 31
4. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COTO) AND THIS PROJECTS APPLICABLE CONTRACT DOCUMENTATION.
5. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
6. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
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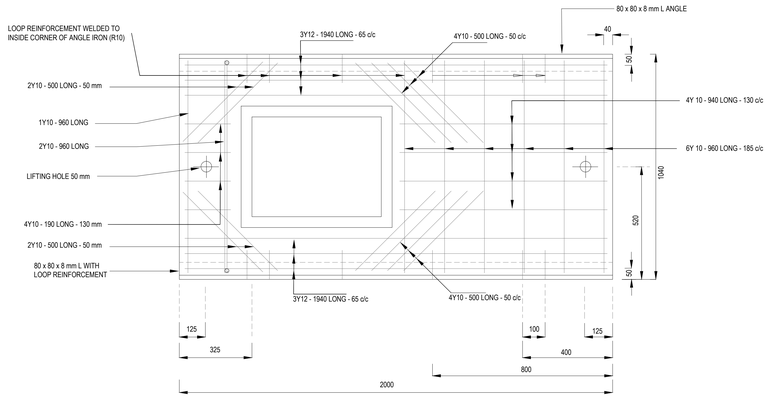
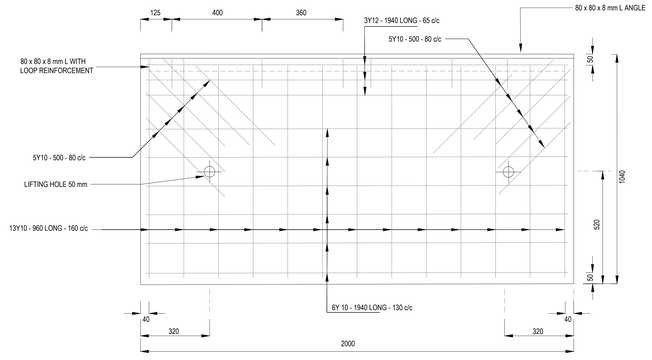
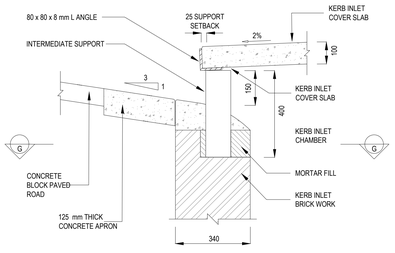
8. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
9. POSITION OF CONCRETE DRIFT TO BE AGREED ON SITE WITH THE ENGINEER.



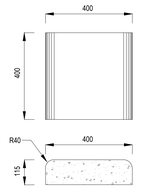
TYPICAL KERB INLET
REINFORCEMENT LAYOUT - COVER SLAB WITH MANHOLE
SCALE 1 : 10



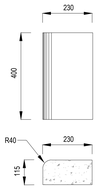
TYPICAL KERB INLET
REINFORCEMENT LAYOUT - COVER SLAB
SCALE 1 : 10



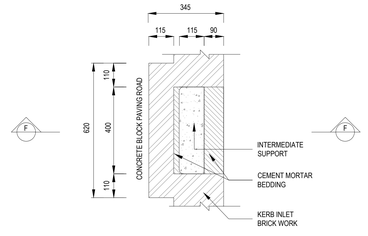
SECTION FF
SECTION THROUGH APRON AND INTERMEDIATE SUPPORT
SCALE 1 : 10



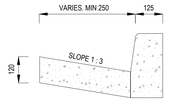
INTERMEDIATE SUPPORT
FOR COVER SLAB
SCALE 1 : 10



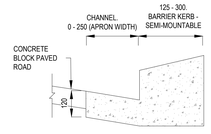
END SUPPORT
FOR COVER SLAB
SCALE 1 : 10



SECTION GG
HORIZONTAL SECTION THROUGH INTERMEDIATE SUPPORT
SCALE 1 : 10



SECTION JJ
BARRIER KERB SECTION
SCALE 1 : 10



SECTION KK
TRANSITION SECTION
SCALE 1 : 10

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:

1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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DISCIPLINE: ROADS & STORM WATER

CLIENT: MUSINA LOCAL MUNICIPALITY

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MUSINA
0900
TEL: 015 534 6100
EMAIL: info@musina.gov.za

FOR CLIENT

DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL STORM WATER DETAILS SHEET 1

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	1 OF 2	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	STORM	003	T	0

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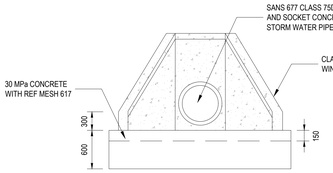
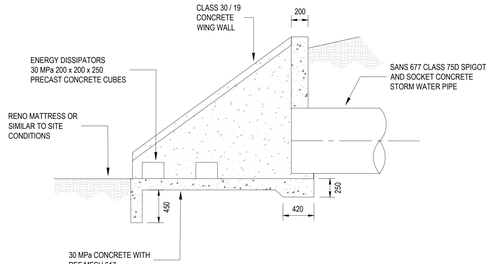
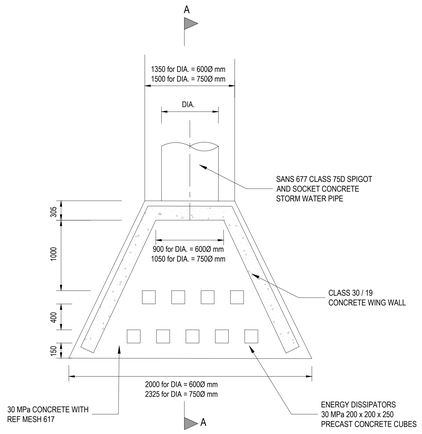


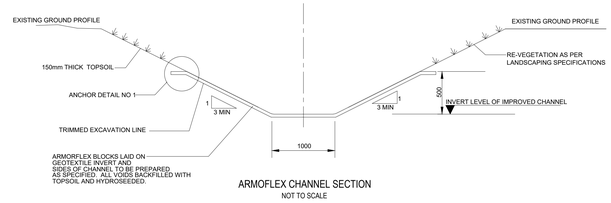
FRONT VIEW
HEADWALL - TYPICAL OUTLET STRUCTURE
(FOR MUNICIPAL STORM WATER LINE)
NOT TO SCALE



SECTION AA - ELEVATION VIEW
HEADWALL - TYPICAL OUTLET STRUCTURE
(FOR MUNICIPAL STORM WATER LINE)
NOT TO SCALE



PLAN VIEW
HEADWALL - TYPICAL OUTLET STRUCTURE
(FOR MUNICIPAL STORM WATER LINE)
NOT TO SCALE



ARMOFLEX CHANNEL SECTION
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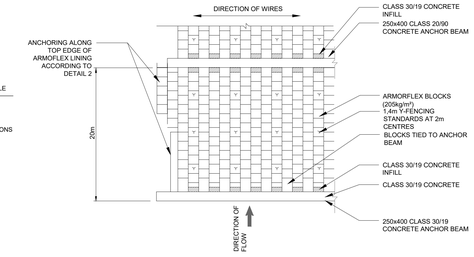
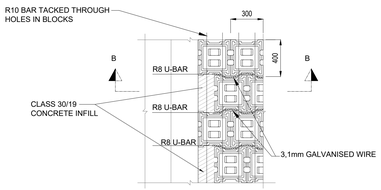
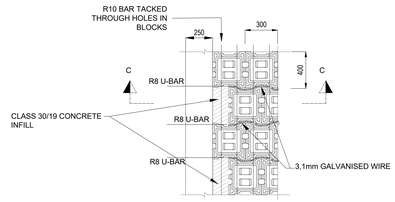


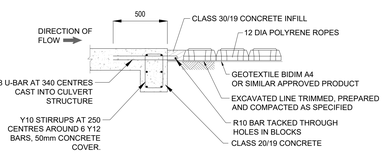
ARMOFLEX CHANNEL PLAN
NOT TO SCALE



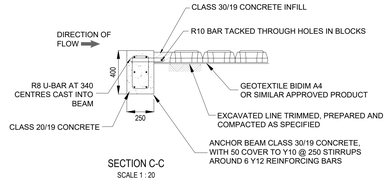
DETAIL FOR CONNECTION TO CULVERT
OUTLET STRUCTURE
SCALE 1 : 20



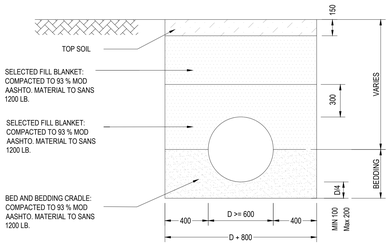
DETAIL FOR CONNECTION TO ANCHOR
BEAM
SCALE 1 : 20



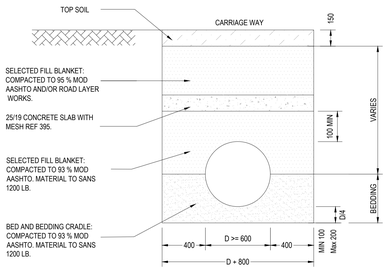
SECTION B-B
SCALE 1 : 20



SECTION C-C
SCALE 1 : 20



CLASS B BEDDING.
TYPICAL TRENCH FOR
RIGID PIPES IN UNTRAFFICKED
AREAS
SCALE 1 : 20



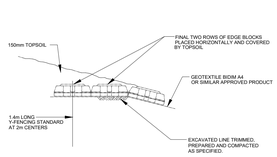
CLASS B BEDDING.
PROPOSED TYPICAL PIPE
PROTECTION
ROAD CROSSING COVER < 1000 mm
SCALE 1 : 20

PLAN
A CHANGE IN FLOW
(SHOWN WITHOUT LID)
SCALE 1 : 20

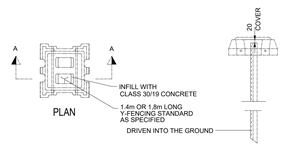
DIAMETER (mm)	DISTANCE (P) (mm)
450 Ø TO 750 Ø	800
825 Ø	825
900 Ø	850
1050 Ø	870
1200 Ø	925
1500 Ø	1000

PLAN
A CHANGE IN FLOW
(SHOWN WITHOUT LID)
SCALE 1 : 20

PLAN
JUNCTION FOR TWO PIPES
(SHOWN WITHOUT LID)
SCALE 1 : 20



ANCHOR DETAIL NO. 1
NOT TO SCALE



SECTION A-A
SCALE 1 : 20

NOTES FOR THE INSTALLATION OF ARMORFLEX BLOCKS

1. INTRODUCTION

1.1 ARMORFLEX BLOCKS 205 OR SIMILAR WILL BE LAID IN ACCORDANCE WITH THIS SPECIFICATION. EACH BLOCK SHALL BE FACTORY PRODUCED, FROM COMPRESSED CONCRETE, WITH VERTICAL HOLES AND TWO HORIZONTAL CABLE DUCTS. CONCRETE USED IN THE MANUFACTURE OF THE BLOCKS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 30MPA. OUTSIDE DIMENSIONS IN MILLIMETERS SHALL BE 340 x 300 x 110h. EACH BLOCK SHALL HAVE A MASS OF APPROXIMATELY 17.1KG. THE INTERLOCKED BLOCKS SHALL HAVE A UNIT MASS OF 205kg/m^2

1.2 ARMORFLEX BLOCKS TO BE LAID BY HAND UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

1.3 3.1mm GALVANIZED WIRE SHALL BE USED. THE WIRES ARE TO RUN AT RIGHT ANGLES TO THE DIRECTION OF FLOW.

2. PREPARATION OF EXPOSED SURFACES OF CANAL

2.1 THE BASE OF THE CANAL WILL BE PREPARED IN ACCORDANCE WITH THE LINES INDICATED ON THE DETAIL DRAWINGS. THE FINISHED LEVEL SHALL NOT DEVIATE MORE THAN 25mm ON A 3m STRAIGHT EDGE. IN CUT THE TRIMMED EXCAVATION MUST BE TO LINE AND LEVEL. FILL MUST BE COMPACTED TO 90% MOD AASTHO DENSITY BEFORE BEING TRIMMED TO LINE AND LEVEL. THE SURFACE SHOULD BE LIKE A GRADER TYPE FINISH FREE FROM PROTUDING ROOTS, TREE STUMPS, ROCKS, ETC.

3. GEOTEXTILE

3.1 A GEOTEXTILE SIMILAR TO BIDIM A4 SHALL BE PLACED ON THE PREPARED SURFACE TO THE LINES SHOWN ON THE DRAWINGS. OVERLAPS MUST AT LEAST BE 250mm.

4. LAYING OF INTERLOCKING BLOCKS

4.1 AFTER THE GEOTEXTILE HAS BEEN APPROVED AND LAID, THE ARMORFLEX BLOCKS SHALL BE LAID BY A HALF BOND INTERLOCKING PATTERN. THE CABLE DUCTS WILL BE AT RIGHT ANGLES TO THE DIRECTION OF WATER FLOW OF THE CANAL AND THE SHORTER DIMENSION OF THE BLOCKS SHALL BE IN THE DIRECTION OF FLOW. THE MINIMUM AMOUNT OF BLOCKS SHOULD BE CUT ALONG CORNERS AND BENDS. LAYING SHALL ALWAYS COMMENCE ON THE FLOOR OF THE CANAL. ONCE A GRID OF BLOCKS HAS BEEN LAID, THE WIRES SHALL BE FED THROUGH THE CABLE DUCTS.

THE WIRES SHALL BE OF 3.1mm DIAMETER HOT DIPPED GALVANIZED FENCING WIRE. THE LENGTH OF THE WIRES SHALL BE SUFFICIENT TO ALLOW THEEXPOSED ENDS TO BE EFFECTIVELY JOINTED. THE WIRES MUST BE JOINTED BY TWISTING THE ENDS NEATLY FOR A TWISTED STRETCH OF MINIMUM 100mm. THE FINISHED LEVEL OF THE ARMORFLEX BLOCKS MAY NOT DEVIATE MORE THAN 25mm ON A 3m STRAIGHT EDGE. NO INDIVIDUAL BLOCK MAY PROTRUDE MORE THAN 10mm PROUD OF ANY ADJACENT BLOCKS

5. ANCHORING

5.1 ANCHORING BY MEANS OF Y-FENCING STANDARDS
THE BLOCKS WILL BE ANCHORED IN A 2m GRID WITH 1.4m LONG Y-FENCING STANDARDS DRIVEN INTO THE GROUND IF SO INDICATED ON THE DETAIL DRAWINGS OR SPECIFIED BY THE ENGINEER.

5.2 ANCHORING WITH ANCHOR BEAM
SPECIFIED BY THE ENGINEER ALONG A STRAIGHT SECTION OF THE CANAL. THE CONCRETE SHALL 400mm DEEP AND THE BEAM SHALL BE AT LEAST 400mm DEEP AND 250mm WIDE. THE CONCRETE SHALL HAVE A 28 DAY STRENGHT OF ATLEAST 20MPa. R8 U-BARS AT 340 CENTRES SHALL BE CAST INTO THE BEAM.

5.3 ANCHORING ALONG THE SIDES OF THE CANAL
ANCHORING ALONG THE TOP EDGE OF THE ARMOFLEX LINING SHALL BE ACCORDING TO DETAIL 1 OR 2, AS SPECIFIED.

DETAIL 1: THE UPPER TWO ROWS OF EDGE BLOCKS SHALL BE PLACED HORIZONTALLY AND COVERED BY TOPSOIL AS SHOWN ON THE DRAWINGS. THE LAST LINE OF BLOCKS SHALL BE ANCHORED BY MEANS OF Y-FENCING STANDARDS DRIVEN INTO THE GROUND EVERY 2m ALONG THE EDGE OF THE CANAL.

DETAIL 2: A 200 DEEP x 150 WIDE CLASS 20/19 INSITU CONCRETE BEAM, ANCHORED WITH 1.8m LONG Y-FENCING STANDARDS AT 2m CENTRES, SHALL R10 BAR, TACKED THROUGH THE WIRE, SHALL BE CASTED INTO THE BEAM.

5.4 CONSTRUCTION JOINTS SHALL BE PROVIDED AT 5m CENTRES ALONG ANCHOR AND OTHER CONCRETE BEAMS.

6. BACKFILLING AND GRASSING

AS SOON AS THE BLOCKS HAVE BEEN LAID, WIRED UP AND THE ANCHORS PROVIDED TO THE SATISFACTION OF THE ENGINEER, THE OPEN CELLS AND JOINT AREAS SHALL BE FILLED WITH TOPSOIL AND THE AREA

HYDROSEEDED ACCORDING TO THE SPECIFICATION. FERTILIZER AS APPROVED BY THE ENGINEER SHALL BE MIXED INTO THE SOIL BEFORE BACKFILLING. IMMEDIATELY AFTER HYDROSEEDING THE HYDROSEEDED AREA SHALL BE WATERED.

7. MAINTENANCE

THE GRASS SHALL BE MAINTAINED DURING THE DURATION OF THE CONTRACT BY WATERING. DAMAGED AREAS SHALL BE REPAIRED.

STORM WATER:

1. SANS 677 CLASS 100D TYPE SC REINFORCED CONCRETE PIPES WITH INTERLOCKING JOINTS
2. MINIMUM DIAMETER Ø 600 mm
3. MINIMUM PIPE SLOPE 1 : 200
4. CLASS B BEDDING AS PER SANS 1200 LB
5. MINIMUM COVER IN ROAD WAYS WITHOUT PIPE SPECIAL PIPE PROTECTION = 1000 mm; MINIMUM COVER IN AREAS WITHOUT TRAFFIC = 600 mm (EXCLUDING SECTIONS LEADING UP TO PIPE DAYLIGHT OR OUTLET / DISCHARGE STRUCTURE)

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. DO NOT SCALE THIS DRAWING.
3. CO-ORDINATE SYSTEM: WG 31
4. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS FOR ROAD WORKS AND BRIDGES FOR SOUTH AFRICAN ROAD AUTHORITIES (COTO) AND THIS PROJECTS APPLICABLE CONTRACT DOCUMENTATION.
5. ALL MODIFICATIONS TO EXISTING SERVICES AND DEVIATIONS FROM THE DESIGN TO BE AS PER THE ENGINEER'S INSTRUCTION ONLY.
6. THE CONTRACTOR IS TO CHECK ALL SETTING OUT INFORMATION ON SITE AND NOTIFY THE ENGINEER OF ANY IRREGULARITIES PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL LIASE WITH THE RELEVANT LOCAL AUTHORITIES FOR POINTING OUT UNKNOWN EXISTING SERVICES AND OBTAIN NECESSARY APPROVALS IN WRITING.
8. THE CONTRACTOR IS TO IDENTIFY ALL EXISTING SERVICES ON SITE AND TO PROTECT THESE FROM DAMAGE THROUGHOUT THE DURATION OF THE CONTRACT.
9. POSITION OF CONCRETE DRIFT TO BE AGREED ON SITE WITH THE ENGINEER.

DATE	STATUS	REV	REVISION DESCRIPTION	REF. DRAWING No.:	REFERENCE DRAWING TITLE
JAN 2024	P	A	FOR PRELIMINARY DESIGN APPROVAL		
MAY 2024	T	0	FOR TENDER		

NOTES:
1. THE MASTER OF THIS DRAWING IS HELD AT TSHAMBILA OFFICE IN POLOKWANE AND BEARS THE ORIGINAL SIGNATURE OF APPROVAL.

FUNCTION	NAME	SIGNATURE
DESIGNED	NTN	
DRAWN	LR	
DESIGN CHECKED	MJM	
DRAWING CHECKED	MJM	
CONSULTANT APPROVAL		
NAME	SIGNATURE	DATE

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EMAIL: info@musina.gov.za

DISCIPLINE: ROADS & STORM WATER
FOR CLIENT
DATE:

PROJECT NAME:
NANCEFIELD EXT 9 AND 10 INTERNAL STREET UPGRADE

DRAWING TITLE:
MUSINA NANCEFIELD EXT 9 AND 10:
TYPICAL STORM WATER DETAILS SHEET 2

DRAWING STATUS CODES:
P = PLANNING T = TENDER
C = CONSTRUCTION A = AS BUILT

SCALE:	SHEET	SIZE:
AS SHOWN	2 OF 2	A0

CONSULTANT DRAWING NUMBER

PROJECT NO:	DISCIPLINE	NUMBER	STATUS	REVISION
NF9_10	STORM	004	T	0

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