



STELLENBOSCH
STELLENBOSCH • PNIEL • FRANSCHHOEK
MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

BSM 19/25

**CONSTRUCTION OF SCHOOL STREET & NMT FACILITIES IN JAMESTOWN
PROCUREMENT DOCUMENT**

NAME OF TENDERER:	Construction of School Street and NMT Facilities in Jamestown		
Total Bid Price (Inclusive of VAT) <i>(refer to page 122):</i>			
COMPLETION PERIOD IN WORKING DAYS:			
BBBEE LEVEL			
CLAIM POINTS FOR	LOCALITY	YES	NO

NOVEMBER 2024

PREPARED AND ISSUED BY:

Directorate: Finance:
Supply Chain Management Unit
Stellenbosch Municipality,
PO Box 17, Stellenbosch, 7599

**CONTACT FOR ENQUIRIES REGARDING
SPECIFICATIONS:**

Mr. Yugen Pillay
Project Lead
The BMK Group
Tel. Number: +27 31 566 1160



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1. T1.1 TENDER NOTICE AND INVITATION TO TENDER

STELLENBOSCH MUNICIPALITY HEREBY INVITES YOU TO TENDER FOR: BSM 19/25 CONSTRUCTION OF SCHOOL STREET & NMT FACILITIES IN JAMESTOWN

TENDER NUMBER: **BSM 19/25**
DESCRIPTION: **CONSTRUCTION OF SCHOOL STREET & NMT FACILITIES IN JAMESTOWN**
CLOSING DATE: **09 December 2024**
CLOSING TIME: **12h00: Bids will be opened in the Council Chambers or Supply Chain Management Boardroom.**
CIDB: **The following CIDB class of construction works will be applicable to the Tender, in accordance with the sum tendered or value determined in accordance with regulation 25(7A) of the Construction Industry Development Regulations, 2004 (as amended) – As at 23 May 2019 - Class of Construction Works: 6 CE or higher.**

INFORMATION:

Tender Specifications: Johan Fullard at 021 808 8207: e-mail: Johan.Fullard@stellenbosch.gov.za
SCM Requirements: Jeanette Williams at 021 808 8524 e-mail: Jeanette.Williams@stellenbosch.gov.za
Office hours for collection: 08h00-15h30

A Compulsory Clarification Meeting will be held on **18 November at 10h00 at Stellenbosch Municipality, Idasvalley Municipal Library, 33 Sonnebloem Street**. Tenderers who fail to attend the compulsory information session will be regarded as non-compliant, late comers will not be entertained.

Tenders may only be submitted on the Tender document issued by Stellenbosch Municipality and must be valid for **180 days** after tender closing. Late, electronic format, telephonic or faxed Tenders will not be considered, and Stellenbosch Municipality does not bind itself to accept the lowest bid or any of the tenders that has been submitted.

Sealed Tenders, with **BSM 19/25 “CONSTRUCTION OF SCHOOL STREET & NMT FACILITIES IN JAMESTOWN”** clearly endorsed on the envelope, must be deposited in the Tender box at the offices of the Stellenbosch Municipality, Town House Complex, Plein Street, Stellenbosch. The Tender box is accessible 24 hours a day and Tenders must be accompanied by the completed Tender documents. Tenders not accompanied by a complete Tender document, will not be considered.

NOTE: This tender will be evaluated in terms of the General Conditions of Contract, Supply Chain Management Policy and relevant specification as depicted in the document and the Stellenbosch Preferential Procurement Policy effective from 16 January 2023 in accordance with the Preferential Procurement Regulations that was promulgated by the Minister of Finance on 04 November 2022 in Government Gazette No 47452

The Preferential points system applied is as follows: 80/20 in terms of the approved policy.

Price	80
B-BBEE status level of contribution	10
Locality	10
Total points for Price; B-BBEE and locality	100

The following conditions to Tender exist (failure to comply may result in your Tender being disqualified):

1. This Tender is subject to the general conditions of contract (GCC) and special conditions for Tendering.
2. Relevant terms of reference.
3. Tenderers must be registered on the Central supplier database (CSD) if they wish to conduct business with the municipality.
4. No award will be made to tenderers whose tax status is non-compliant.
5. Tenders submitted must be in a sealed envelope clearly marked with the Tender number, placed in the tender box before closing time. Failure will result in the tender being invalid.

*Tender document, in English, are available free of charge on the website: www.stellenbosch.gov.za, alternatively hard copies of the documents are obtainable from the offices of the Supply Chain Management Unit, Stellenbosch Municipality, Town House Complex, 1st Floor, Plein Street, Stellenbosch, upon payment of a non-refundable fee of **R 1 012,00 per document**.*

Note: The Municipality will never contact you to pay money in exchange for the award of the tender

G Mettler (Ms)
MUNICIPAL MANAGER



TENDER KENNISGEWING

STELLENBOSCH MUNISIPALITEIT NOOI U OM TE TENDER VIR DIE VOLGENDE TENDER: BSM 19/25 KONSTRUKSIE VAN SKOOLSTRAAT & NGV FASILITEITE IN JAMESTOWN

TENDER NOMMER: **BSM 19/25**
BESKRYWING: **KONSTRUKSIE VAN SKOOLSTRAAT & NGV FASILITEITE IN JAMESTOWN**

SLUITINGSDATUM: **09 Desember 2024**
TYD VAN SLUITING: **12h00: Tenders sal oopgemaak word in die Raadsaal of in die Voorsieningskanaalbestuurs Raadsaal.**

KIOR: Die volgende KIOR klas vir konstruksiewerk, in ooreenstemming met die totale bedrag getender of waarde bepaal in ooreenstemming met regulasie 25 (7A) van die Konstruksie-industrie Ontwikkelingsraad, Regulasies, 2004 (soos gewysig) op 23 Mei 2019, sal op die bod van toepassing wees. Tendersaars moet 'n **geskatte KIOR kontrakgradering** van ten minste **6CE of hoër** hê

NAVRAE:

Tender spesifikasies: Johan Fullard by 021 808 8207: e-pos: Johan.Fullard@stellenbosch.gov.za
Vkb vereistes: Jeanette Williams at 021 808 8524 e-mail: Jeanette.Williams@stellenbosch.gov.za
Kantoor Ure: 08h00-15h30

'n Verpligte inligtingsessie sal gehou word op **18 November 2024** om **10:00** by Stellenbosch Munisipaliteit, Idasvalley Municipal Library, 33 Sonnebloem Straat. Tendersaars wat versuim om die verpligte inligtingsessie by te woon, sal as nie-nakoming beskou word, laatkomers sal nie onthaal word nie.

Tenders mag slegs ingedien word op die tenderdokumentasie verskaf deur Stellenbosch Munisipaliteit en moet geldig wees vir **180.dae** na die sluitingsdatum. Laat, elektroniese formaat of gefakse tenders sal nie aanvaar word nie en Stellenbosch Munisipaliteit is nie verplig om die laagste of enige tender wat ingedien word te aanvaar nie.

Verseëde tenders duidelik gemerk: **"BSM 19/25 KONSTRUKSIE VAN SKOOLSTRAAT & NGV FASILITEITE IN JAMESTOWN"**, op die koevert, moet geplaas word in tenderbus buite die kantore van Stellenbosch Munisipaliteit, Meenthuis Kompleks, Stellenbosch. Die tenderbus is 24 uur per dag beskikbaar en tenders moet vergesel word met die voltooië stel tenderdokumente. Tendersaanbiedinge wat nie deur die volledige tenderdokument vergesel word nie, sal nie oorweeg word nie.

LET WEL: Hierdie tender sal geëvalueer word ingevolge die Algemene Kontrakvoorwaardes, Voorsieningskanaal Bestuursbeleid and relevante spesifikasies, soos vervat in die tender dokument asook die Stellenbosch **Voorkeurverkrygingsbeleid** **effektief vanaf 16 Januarie 2023 in samewerking met die Voorkeurverkrygingsregulasies wat op 04 November 2022 deur die Minister van Finansies in Staatskoerant No 47452 afgekondig is.**

Die voorkeerpunte stelsel is soos volg gebaseer: 80/20 in terme van die goedgekeurde beleid:

Prys	80
BBSEB status	10
Ligging	10
Totale punte vir prys, BBSEB en ligging	100

Die volgende voorwaardes vir Tender soos volg: (versuim om te voldoen, kan veroorsaak dat u Tender gediskwalifiseer word):

1. Hierdie tender is onderworpe aan die algemene kontrakvoorwaardes (GCC) en spesiale voorwaardes vir die tender;
2. Toepaslike opdrag
3. Tendersaars moet geregistreer wees op Sentrale verskaffersdatabasis (SVD) as hulle met die munisipaliteit sake wil doen
4. Geen toekenning sal gemaak word aan diensverskaffers wie se Belasting status ongeldig is.
5. Die tender wat ingedien moet word, moet in 'n verseëde koevert wees wat duidelik gemerk is met die Tondernommer, wat in die tenderbus voor sluitingstyd geplaas word. Versuim sal tot gevolg hê dat die tender ongeldig is.

*Tenderdokumente, in Engels, verkrygbaar by die kantoor van die Voorsieningskanaalbestuursbeleid, Stellenbosch Munisipaliteit, Meenthuis Kompleks, 1ste Vloer, Pleinstraat, Stellenbosch na betaling van 'n nie-terugbetaalde tenderdeelnemersfooi van **1 012,00 per dokument**. Alternatiewelik mag die dokument gratis afgelaai word vanaf die webbaai: www.stellenbosch.gov.za*
Let wel: Die Munisipaliteit sal jou nooit kontak om geld te betaal in ruil vir die toekenning van die tender

G Mettler (Me)
Munisipale Bestuurder



**PART A
INVITATION TO BID**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF MUNICIPALITY/ MUNICIPAL ENTITY)					
BID NUMBER:	BSM 19/25	CLOSING DATE:	09 December 2024	CLOSING TIME:	12:00
DESCRIPTION	CONSTRUCTION OF SCHOOL STREET & NMT FACILITIES IN JAMESTOWN.				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MUST BE DEPOSITED IN THE BID BOX SITUATED AT **STELLENBOSCH MUNICIPALITY, TOWN HOUSE COMPLEX, PLEIN STREET, STELLENBOSCH**

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	☐ Yes ☐ No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
1. ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]		2. ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES, ANSWER PART B:3]	
3. TOTAL NUMBER OF ITEMS OFFERED			4. TOTAL BID PRICE	R	
5. SIGNATURE OF BIDDER			6. DATE		
7. CAPACITY UNDER WHICH THIS BID IS SIGNED					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			TECHNICAL INFORMATION MAY BE DIRECTED TO:		
DEPARTMENT	SCM		CONTACT PERSON	Johan Fullard	
CONTACT PERSON	Jeanette Williams		TELEPHONE NUMBER	021 808 8207	
TELEPHONE NUMBER	021 808 8524		FACSIMILE NUMBER		
FACSIMILE NUMBER			E-MAIL ADDRESS	Johan.Fullard@ Stellenbosch.gov.za	
E-MAIL ADDRESS	Jeanette.Williams@ Stellenbosch.gov.za				



PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:	
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.	
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED– (NOT TO BE RE-TYPED) OR ONLINE	
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE STELLENBOSCH SUPPLY CHAIN MANAGEMENT POLICY, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.	
2. TAX COMPLIANCE REQUIREMENTS	
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.	
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.	
2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.	
2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.	
2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.	
2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.	
2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.	
3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.	

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

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

DATE:

.....



2. T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of Government Gazette No. 42622 of 8 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause Number	Tender Data
---------------	-------------

C.1	General
------------	----------------

C.1.1	Actions
-------	----------------

C.1.1.1	<i>Add the following:</i>
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The parties agree that this tender, its evaluation and acceptance and any resulting contract shall also be subject to the Employer's Supply Chain Management Policy ('SCM Policy') that was applicable on the date the tender was advertised, save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract. Please refer to this document contained on the Employer's website.

Abuse of the supply chain management system is not permitted and may result in the tender being rejected, cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other remedies available to it as described in the SCM Policy.

The Employer is the **Stellenbosch Municipality**, represented by the **Roads and Stormwater Department**.

Communication and employer's agent

Delete the first sentence of the clause and replace with the following:

Verbal or any other form of communication, from the Employer, its employees, agents or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer, unless communicated by the Employer in writing to suppliers by its Director: Supply Chain Management or his nominee.

The Employer's agent is:

Name: **The BMK Group**
Address: Office 218, Ridgeside Office Park
45 Richefond Circle, Umhlanga Ridge
Umhlanga
Durban, 4319
Tel: +27 31 566 1160
Fax: N/A
Contact: Mr. Yugen Pillay
Email: yugen@bmkgroupco.com

C.1.5	Cancellation and Re-Invitation of Tenders
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*Delete the full stop at the end of C.1.5.1 d) and replace with,
Add the following after C.1.5.1 d):*

e) the parties are unable to negotiate market related pricing.

C.1.6.2	Competitive negotiation procedure
---------	--

Add the following to C.1.6.2.1:

A competitive negotiation procedure will not be followed.



C.1.6.3 Proposal procedure using the two-stage system

Add the following between C.1.6.3 and C.1.6.3.1:

A two-stage system will not be followed.

C.1.6.5 Objections, complaints, queries and disputes/ Appeals in terms of Section 62 of the Systems Act/ Access to court

C.1.6.5.1 Disputes, objections, complaints and queries

In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 – Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):

- a) Persons aggrieved by decisions or actions taken by the Stellenbosch Municipality in the implementation of its supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint or query or dispute against the decision or action.

C.1.6.5.2 Appeals

- a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the Stellenbosch Municipality, may appeal against that decision by giving written notice of the appeal and reasons to the SCM Manager within 21 days of the date of the notification of the decision.
- b) An appeal must contain the following:
- i) Must be in writing
 - ii) It must set out the reasons for the appeal
 - iii) It must state in which way the Appellant's rights were affected by the decision;
 - iv) It must state the remedy sought; and
 - v) It must be accompanied with a copy of the notification advising the person of the decision.
- c) The relevant City appeal authority must consider the appeal and may confirm, vary or revoke the decision that has been appealed, but no such revocation of a decision may detract from any rights that may have accrued as a result of the decision.

C.1.6.5.3 Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000

The sub- clauses above do not influence any affected person's rights to approach the High Court at any time or its rights in terms of the Promotion of Administrative Justice Act and Promotion of Access to Information Act.

C.2 Tenderer's obligations

C.2.1 Eligibility

Add the following to C.2.1.1:

C.2.1.1 Delete the clause and replace with the following:

Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions eligibility criteria and contract conditions will be declared responsive.

C.2.1.1.1 Centralised Supplier Database

No Bids will be awarded to a bidder who is not registered on the Centralised Supplier Database (CSD).

The CSD supplier number starting with (MAAA) number is automatically generated by the Central Database System after successful registration and validation of a prospective service provider. This number is now a mandatory requirement, as referred to in regulation 14(1) (b) of the Municipal Supply Chain Management Regulations, as part of the listing criteria for accrediting a prospective service provider. Prospective suppliers should self – register on the CSD website at www.csd.gov.za Registration on the CSD will be compulsory in order to conduct business with the STELLENBOSCH MUNICIPALITY.

Centralised Supplier Database No. MAAA



C.2.1.1.2 Construction Industry Development Board (CIDB) Registration

Only those tenderers who are registered with an active status with the CIDB, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a CE class of construction work, are eligible to have their tenders evaluated.

Joint Ventures are eligible to submit tenders provided that:

- every member of the joint venture is registered with an active status with the CIDB;
- the lead partner has a contractor grading designation of not lower than one level below the required grading designation in the CE class of construction work; and
- the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

Notwithstanding the above, tenderers who are capable of being so registered with an active status with the CIDB prior to the evaluation of submissions may be evaluated at the sole discretion of the Employer (the evaluation of tenders takes place when the Employer's Bid Evaluation Committee meets to make a final recommendation to the Bid Adjudication Committee).

C.2.1.1.3 Pre-requirements for this tender:

Contractors experience:

Only those tenderers who has a **CIDB contractor grading of 6CE** or higher are eligible to have their tenders evaluated.

Only those tenderers with project experience, minimum experience listed below, are eligible to have their tender evaluated.

A **minimum of four (4) road projects** with at least one project having a value of **R18 Million (incl. Vat)** and a combined construction value greater **R35 Million** (incl. Vat) successfully completed by the tenderer. Reference checks will be carried out.

Add the following after C.2.1.2:

C.2.1.3 Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to the Employer, by whom the offer has been made and what the offer constitutes, will be declared responsive.

C.2.1.4 Only those tenders that satisfy the following criteria will be declared responsive:

C.2.1.4.1 **Compulsory clarification meeting**

Tenderers are required to attend a compulsory clarification meeting at which they may familiarise themselves with aspects of the proposed work, services or supply and pose questions.

Details of the meeting(s) are stated in the General Tender Information.

Only those tenders submitted by tenderers whose attendance at this meeting have been recorded will be declared responsive.

C.2.1.4.2 **Good standing with Bargaining Council**

Only those tenders submitted by tenderers who are in good standing with the **Civil Engineering Bargain Council** at the time of the tender award will be declared responsive. Tenderers must attach such proof



to the schedule titled **Declaration in Respect of Compliance with Labour Legislation** or obtain such upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.

C.2.1.4.3 Track record of Tenderer

The tendering entity, (i.e. including sub-contractors) is to submit a list of at least four successfully completed projects covering the construction of roads and related stormwater infrastructure of a similar nature as described in the Scope of Works and shown on the applicable drawings. Contact details of references are to be provided and attached to Schedule 9. Sub-contractor agreements need to be provided where the tenderer is making use of a specialist contractor in order to comply with this requirement. These are also to be attached to Schedule 9 (if applicable).

C.2.1.4.4 Key Personnel

In order to be considered for an appointment in terms of this tender, the tenderer must have the following key personnel in its permanent employment at the close of tender. Alternatively, a signed undertaking from a specialist contractor/firm having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a sub-contractor agreement, will be acceptable. Such an undertaking must be attached to Schedule 12, Part T2.2: Returnable Schedules.

Unless otherwise indicated below different individuals must be identified for each of the key personnel listed below and on Schedule 12.

A **Contracts Manager, Site Agent/Construction Manager** each with minimum experience of 4 (four) successfully completed road projects in their proposed position for this project. The Site Agent/Construction Manager must have experience as a designated Site Agent (or higher, e.g. Contract Manager, Director) and the Contract Manager must have experience as a Contract Manager (or higher, e.g. Director). At least one project must have a value of **R18 Million incl. Vat** and a combined construction value greater **R35 Million** (incl. VAT)

The **Site Agent/Construction Manager** shall be a suitably qualified as described above and shall be the Contractor's Representative who will be the single point in accountability and responsibility for the management of the construction works.

The Site Agent shall mean having acted as the Site Agent or Construction Manager in terms of SAICE GCC 2010 or 2015 (Clause 4.12.2 in both cases), or the equivalent Contractor's Representative in the FIDIC GCC.

A Contract Manager shall mean having acted as the Site Agent's/Construction Manager's direct supervisor/senior in the company structure.

If the company has different internal designations for these positions, they are to clarify which designation is equivalent to the required positions stated above. Information provided with alternative designations without the required clarification shall be ruled to be non-responsive.

The Curriculum Vitae of the Key Personnel including contactable references needs to be attached to Schedule 12. Only the personnel submitted on Schedule 12 will be evaluated for responsiveness.

The Employer reserves the right to request the Curriculum Vitae of the Key Personnel. Should it become necessary to replace any of the key personnel listed at the time of tender or during the course of this contract, they may only be replaced by individuals with equal or better qualifications and experience, who satisfy the minimum requirements and then only with the approval of the Employer.

C.2.3 Check documents

Delete the clause and replace with the following:

The Tenderer should check the tender documents on receipt for completeness, missing or duplicated pages, indistinct figures or writing and any obvious errors. The Tenderer must notify the Employer's agent at once of any such problems identified.

C.2.7 Clarification meeting

Add the following after the second sentence:

The arrangements for the site visit/clarification meeting are as stated on the General Tender Information page and in the Responsiveness Criteria (if applicable).

Tenderers should be represented at the site visit/clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.



C.2.8 Seek Clarification

Add the following after the first sentence:

The tenderer warrants that it has:

- a) inspected the Specifications and read and fully understood the Conditions of Contract.
- b) read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted itself with the nature of the goods proposed and generally of all matters which may influence the Contract.
- c) visited the site(s) where delivery of the proposed works will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby.
- d) requested the Employer to clarify the requirements contained in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the tenderer.
- e) received any notices to the tender documents which have been issued in accordance with the Employer's SCM Policy.

The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.

Request clarification of the tender documents, if necessary, by notifying the Employer's agent at least five working days before the closing time stated in the tender data.

C.2.11 Alterations to documents

Delete the first sentence and replace with the following:

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer in writing, or necessary to correct errors made by the tenderer.

C.2.12 Alternative tender offers

Add the following to C.2.12.1 to C.2.12.3 with the following:

"Alternative tender offers are not allowed."

C.2.13 Submitting a tender offer

Add the following to C.2.13.1 at the end of the first sentence:

C.2.13.1 Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

C.2.13.3 *Delete the clause and replace with the following:*

Parts of each tender offer communicated on paper shall be submitted as an original, plus 0 (nought) copies.

C.2.13.4 The tender shall be signed by a person duly authorized to do so. Tenders submitted by joint ventures of two or more firms shall be accompanied by the document of formation of the joint venture, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorized to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning.

Number	Heading
T2.2	Returnable Schedules
C2.2	Bills of Quantities
	All other attachments submitted by bidder

C.2.13.5 *Delete the clause and replace with the following:*

The tender submission details are all described on the General Tender Information page. If it is not possible to submit the original tender and the required copies (see C.2.13.3) in a single envelope, then seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY" in addition to the aforementioned tender submission details.

Add the following to C.2.13.6:

C.2.13.6 A two-envelope procedure will **not** be followed (C.3.5).



Add the following after C.2.13.9:
C.2.13.10 By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

C.2.13.11 The Employer shall not formally issue tender documents in electronic format and shall only issue tender documents in hardcopy. An electronic version of the issued tender documents, or elements thereof, may be made available to the tenderer at the Employer's discretion, upon written request in terms of this clause, subject to the following:

- a) Electronic copies of the issued tender documents, or parts thereof, will only be provided to tenderers who have been issued with the tender documents as contemplated in C.1.2 in hardcopy.
- b) The electronic version shall not be regarded as a substitute for the issued tender documents.
- c) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered, provided that printed Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer, may be submitted with the tender as stated in C.2.13.2.
- d) Where Addenda have been issued which amend the Bills of Quantities, then the printed Bills of Quantities shall take these into account. The pages of the issued Bills of Quantities should not be removed from the tender document.
- e) The Employer accepts no responsibility or liability arising from any reliance on or use of the electronic version provided in terms of this clause. Tenderers are alerted to the fact that electronic versions of the tender documents may not reflect any notices or addenda that amend the tender document.
- f) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in C.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.
- g) In requesting the electronic version of the tender documents or parts thereof, the tenderer is deemed to have read, understood and accepted all of the above conditions.

C.2.15 **Closing time**

Add the following to C.2.15.1 after the first sentence:
C.2.15.1 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

C.2.16 **Tender offer validity**

Add the following to C.2.16.1 after the first sentence:
C.2.16.1 The tender offer validity period is **45 weeks (180 Calendar days)**.

C.2.17 **Clarification of tender offer after submission**

Add the following to C.2.17 at the end of the third sentence:
A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.

C.2.18 **Provide other material**

Delete the following word in C.2.18.1:
C.2.18.1 notarized

Add the following to C.2.18.1 at the end of the first paragraph:

Provide, on written request by the Employer, where the transaction value (tendered amount) inclusive of VAT **exceeds R 10 million:**

- a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing;
- b) a certificate signed by the tenderer certifying that the tenderer has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days;
- c) particulars of any contracts awarded to the tenderer 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;
- d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.



Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

Add the following after C.2.18.2:

- C.2.18.3 Tenderers shall fully cooperate with the Employer's external service provider appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the Employer.

Failure to fully cooperate could result in a tender being declared as non-responsive.

- C.2.18.4 **Compliance with Occupational Health and Safety Act, 85 of 1993**

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit with his tender or upon request, appended to in T2.2: Returnable Schedules, a draft Health and Safety Plan in respect of the Works in sufficient detail to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C3.5 Management in the Scope of Work.

- C.2.23 **Certificates**

Add the following after the first sentence:

The tenderer is required to submit the following, all schedules and documents listed in Tender Data, which among other listed below:

- C.2.23.1 **Evidence of tax compliance**

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant subject to the requirements of clause C.2.1.4.2.h. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Clearance Certificate issued by SARS to the Employer included with this tender. The tenderer must also provide its Tax Compliance Status PIN number on the **Compulsory Enterprise Questionnaire**

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate.

Before making an award, the Stellenbosch Municipality must verify the bidder's tax compliance status. Where the recommended bidder is not tax compliant, the bidder should be notified of the non-compliant status and be requested to submit to the Stellenbosch Municipality, within 7 working day, written proof from SARS that they have made arrangement to meet their outstanding tax obligations. The proof of tax compliance submitted by the bidder must be verified by the Stellenbosch Municipality via CSD or e-Filing. The Stellenbosch Municipality should reject a bid submitted by the bidder if such bidder fails to provide proof of tax compliance within the timeframe stated herein.

Only foreign suppliers who have answered "NO" to all the questions contained in the Questionnaire to Bidding Foreign Suppliers section on the **Details of Tenderer** pages of the tender submission, are not required to register for a tax compliance status.

- C.2.23.2 **Broad-Based Black Economic Empowerment Status Level Documentation**

In order to qualify for preference points, it is the responsibility of the tenderer to submit documentary proof, either as certificates, sworn affidavits or any other requirement prescribed in terms of the B-BBEE Act, of its B-BBEE status level of contribution in accordance with the applicable Codes of good practise as issued by the Department of Trade and Industry to be included with the tender submission.

Consortiums/Joint Ventures will qualify for preference points, provided that the **entity** submits the relevant certificate/scorecard in accordance with the applicable codes of good practise. Note that, in the case of unincorporated entities, a verified consolidated B-BBEE scorecard must be submitted in the form of a certificate with the tender.

Tenderers are further referred to the content of the **Preference Schedule** for the full terms and conditions applicable to the awarding of preference points.

The applicable code for this tender is the **Amended Codes for Measuring Broad-Based Black Economic Empowerment in the Construction Sector**.

The tenderer shall indicate in Section 4 of the **Preference Schedule** the Level of Contribution in respect of the enterprise status or structure of the tendering entity (the supplier).



Add the follow new clause after C.2.23.2

C.2.24 Proposed Deviations and Qualifications

Where the tenderer cannot tender in all respects in accordance with the provisions contained in the tender documents, all deviations therefrom shall be clearly and separately listed in the schedule titled **Proposed Deviations and Qualifications by Tenderer** in T2.2 Returnable Schedules, or in a tenderer's covering letter expressly referenced in this schedule.

The tenderer accept that the Employer will examine such deviations in terms of clause C.3.8.2 and shall not be bound to accept any such deviations or qualifications.

It must be clearly stated by the tenderer whether the sum tendered in the Tender Offer includes for all such deviations or qualifications listed or referred to in the schedule titled **Proposed Deviations and Qualifications by Tenderer** or not.

**C.2.24: Add Clause:
General**

C.2.24.1 Sealed tenders, with the "Tender Number and Title" clearly endorsed on the envelope, must be deposited in the tender box at the offices of the Stellenbosch Municipality, Plein Street, Stellenbosch.

C.2.24.2 The tender must be lodged by the Tenderer in the tender box in the Main Hall Entrance, Stellenbosch Municipal Offices, Plein Street, Stellenbosch

PLEASE NOTE:

Tenders that are deposited in the incorrect box will not be considered.

- Mailed, telegraphic or faxed tenders will not be accepted.
- Documents may only be completed in non-erasable ink.
- The use of correction fluid/tape is not allowed.
 - In the event of a mistake having been made, it shall be crossed out in ink and be accompanied by an initial at each and every alteration.
 - Alterations or deletions not signed by the Tenderer may render the tender invalid.
- All bids must be submitted in writing on the official forms supplied (not to be re-typed)
- All prices shall be quoted in South African currency and be INCLUSIVE of VAT.

C.2.24.3 **Where the value of an intended contract will exceed R1 000 000, 00 (R1 million) it is the bidder's responsibility to be registered with the South African Revenue Service (SARS) for VAT purposes in order to be able to issue tax invoices. The municipality will deem the price above R 1 000 000,00 (R1 million) to be VAT inclusive even if it is indicated that no VAT is charged. Please ensure that provision is made for VAT in these instances.**

C.2.24.3.1 It is a requirement of this contract that the amount of value-added tax (VAT) must be shown clearly on each invoice.

C.2.24.3.2 The amended Value-Added Tax Act requires that a Tax Invoice for supplies in excess of R3 000 should, in addition to the other required information, also disclose the VAT registration number of the recipient, with effect from 1 March 2005. The VAT registration number of the Stellenbosch Municipality is 4700102181.

C.2.24.4 Any Tender received after the appointed time for the closing of Tenders shall not be considered but shall be filed unopened with the other Tenders received or may be returned to the Tenderer at his request.

C.2.24.5 Tenders may not be telefaxed to the Municipality and therefore any tenders received by fax will not be considered.

C.2.24.6 Tenders shall be opened in public at the Stellenbosch Municipal Offices as soon as possible after the closing time for the receipt of tenders.



- C.2.24.7 The Municipality shall have the right to summarily disqualify any Tenderer who, either at the date of submission of this tender or at the date of its award, is indebted to the Municipality in respect of any rental, levies, rates and/or service charges; ALTERNATIVELY;
- C.2.24.7.1 That an agreement be signed whereby the Tenderer agrees that a percentage or fixed amount at the discretion of the Municipality, be deducted from payments due to him for this tender, until the debt is paid in full.
- C.2.24.7.2 The tenderer shall declare all the Municipal account numbers in the Stellenbosch Area for which the enterprise or the proprietors or directors in their personal capacity is/ are responsible or co-responsible.



C.3 The Employer's undertakings

C.3.2 Issue Addenda

Delete the first sentence and replace with:

If necessary, issue addenda in writing that may amend or amplify the tender documents to each tenderer during the period from the date the tender documents are available until one week before the tender closing time stated in the Tender Data. The Employer reserves its rights to issue addenda less than one week before the tender closing time in exceptional circumstances.

Add the following to C.3.2 at the end of the paragraph:

Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.

C.3.4 Opening of tender submissions

Add the following to C.3.4.2 at the end of the paragraph:

The location for opening of the tender offers is the Tender Submission Office at the address as stated on the General Tender Information page.

C.3.8 Test for responsiveness

C.3.8.2 *Replace the final sentence of C.3.8.2 with the following:*

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the material deviation.

Add the following after clause C.3.8.2

C.3.8.3 The Employer reserves the right to accept a tender offer which does not, in the Employer's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

Add the following two sub-clauses after C.3.8.2: C.3.8.3

C.3.8.3 Tenders will be considered non-responsive if, inter alia:

- i) the tender is not in compliance with the Scope of Work;
- ii) has not signed authority to sign bid certificate
- iii) the tenderer does not comply with the CIDB registration (active status) and contractor grading designation specified in C.2.1.1.2 above;
- iv) the tenderer has failed to clarify or submit any supporting documentation within the time for submission stated in the Employer's written request as stated in C.2.17;
- v) the tendering entity's experience, and tenderer's key staff and their experience as tendered in Schedules 18 and 21 has failed to achieve the minimum requirements in terms of criterion as stated in C.2.1.1.3 and C.2.1.1.4.
- vi) the tenderer has failed to register and attend the compulsory virtual tender clarification meeting and failed to attach the signed certificate.

Tenders may also be declared non-responsive if it is determined on reasonable grounds or evidence that the tenders are submitted by:

- vii) tenderers who, notwithstanding having submitted duly completed certificates of independent tender determination are nevertheless deemed to have knowledge of the contents of any other tenderer's offer and/or a certificate is not true and correct in every respect;
- viii) tenderers in a horizontal relationship which has the effect of substantially preventing or lessening competition in a market, subject to the exceptions as set out in section 4(1)(a) of the Competitions Act, 89 of 1998;
- ix) tenderers who are presumed to be firms engaged in a restrictive horizontal practice as contemplated in section 4(1)(b) read with section 2 of the Competitions Act, 89 of 1998;
- x) tenderers in a vertical relationship which has the effect of substantially preventing or lessening competition in a market, subject to the exceptions as set out in section 5(1) of the Competitions Act, 89 of 1998.



C.3.9 Arithmetical errors, omissions and discrepancies

Add the following after clause C.3.9.2

- C.3.9.3** In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are not priced, either excessively low or high, or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer in accordance with this clause.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as non-responsive.

C.3.10 Clarification of a tender offer

Delete the clause and replace with the following:

The Employer may, after the closing date, request additional information or clarification from any tenderer, in writing on any matter affecting the evaluation of the tender offer or that could give rise to ambiguity in a contract arising from the tender offer, which written request and related response shall not change or affect their competitive position or the substance of the tenderer's offer. Such a request may only be made in writing by the Director: Supply Chain Management using any means as appropriate.

C.3.11 Evaluation of tender offers

Add the following to Clause C.3.11:

"This tender will be evaluated according to Clause 4.2.2.1 Table 1 Standard Procurement Procedure PP2B Open Procedure according to the specific method presented in Clauses C.3.11.2 to C.3.11.8 below."

C.3.11.1 General

Add to Clause C.3.11.1 the following:

"Tenders that are eligible and responsive will be evaluated in terms of the preference points system prescribed in the following sections. The eligible tenderers will be evaluated based on the method: Price and Preference defined in C.3.11.2 to C.3.11.5."

Add the following new sub-clauses:

"C.3.11.2 Method: Price and Preference

The tenderer is evaluated on a balance between the price and preference. Points are scored for the financial offers and preference. The weighting of each component and the method of summation of points are presented in the Tender Data below.

The tenderer with the highest number of tender evaluation points is recommended for the award of the contract, unless there are compelling and justifiable reasons not to do so as described in C.3.11.6.

C.3.11.3 Scoring Financial Offers

Score price of responsive tender offers using the following formula:

$$W_F = W_1 \times (1 - (P - PM) / PM)$$

where:

W1 is the percentage score given to the financial offer and equals 80.

Pm is the comparative offer of the most favourable tender offer.

P is the comparative offer of tender offer under consideration.

C.3.11.4 Scoring preferences



Confirm that tenderers are eligible for the preferences claimed in accordance with Schedule 7 and reject all claims for preferences where tenderers are not eligible for such preferences.

Up to 20 preference evaluation points (WP) will be awarded to tenderers who are eligible for preferences in terms of Schedule MBD6.1: Preferencing Schedule (where preferences are granted in respect of B BBEE contribution) which is included in T2.2 Returnable Schedules. The terms and conditions of Schedule 7 shall apply in all respects to the tender evaluation process.

C.3.11.5 Total points and rank tenders

Calculate the total number of tender evaluation points (TEV) in accordance with the following formula:

$$T_{EV} = W_C + W_P$$

Rank tender offers from the highest number of tender evaluation points to the lowest.

Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

C.3.11.6 Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the Employer will perform a risk analysis in respect of the following:

- a) reasonableness of the financial offer
- b) reasonableness of unit rates and prices
- c) the tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the tenderer can demonstrate that he/she possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, capacity, experience, reputation, personnel to perform the contract, etc.; the Employer reserves the right to consider a tenderer's existing contracts with the Stellenbosch Municipality in this regard.

No tenderer will be recommended for an award unless the tenderer has demonstrated to the satisfaction of the Employer that he/she has the resources and skills required."

C.3.13 Acceptance of tender offer

Delete first sentence of C.3.13 and replace with the following):

Accept the tender offer, if in the opinion of the employer, it does not present any material risk and only if the tenderer:

Delete C.3.13 a) and replace with the following):

- a) is not under restrictions, has any principals who are under restrictions, or is not currently a supplier to whom notice has been served for abuse of the supply chain management system, preventing participation in the employer's procurement,

Add the following below C.3.13 f)

If an award cannot be made in terms of anything contained herein, the Employer reserves the right to consider the next ranked tenderer(s).

- C.3.13.1** The Employer reserves the right not to make an award, or revoke an award already made, where the implementation of the contract may result in reputational risk or harm to the Stellenbosch Municipality as a result of (inter alia):

- a) reports of poor governance and/or unethical behaviour;
- b) association with known family of notorious individuals;
- c) poor performance issues, known to the Stellenbosch Municipality;
- d) negative social media reports; and
- e) adverse assurance (e.g. due diligence) report outcomes.

- C.3.13.2** The Employer reserves the right to nominate an alternative bidder at the time when an award is made and in the event that a contract is terminated during the execution thereof, the Stellenbosch Municipality



may consider the award of the contract, or non-award, to the alternative bidder in terms of the procedures included in its SCM Policy.

C.3.13.3 The Employer shall notify the successful tenderer in writing of the decision of the Employer's Bid Adjudication Committee to award the tender to the successful tenderer. No rights shall accrue to the successful tenderer in terms of this notice.

C.3.13.4 The Employer shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.

C.3.17 **Provide copies of the contract**

Add the following after the first sentence:

The number of paper copies of the signed contract to be provided by the Employer is one.

Add the following after C.3.18

"C.3.19 Notice to successful and unsuccessful tenderers

C.3.19.1 Before accepting the tender of the successful tenderer the Employer shall notify the successful tenderer in writing of the decision of the Employer's Bid Adjudication Committee to award the tender to the successful tenderer. No rights shall accrue to the successful tenderer in terms of this notice, and only once the processes described in C.3.13.2 and C.3.13.3 above have been completed can the Employer sign the Acceptance part of the Form of Offer and Acceptance.

C.3.19.2 The Employer shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.

The additional conditions of tender are:

C.4.1 Unbundling of Municipal Infrastructure Assets

As part of the project close-out, for certain projects the contractor must assist the Municipal Project Manager with unbundle the assets. This will entail the grouping of various items in the bill of quantities that will make up the various capital asset components. See additional information contained in the Contract Data for more details.



T1.3 TENDER CONDITIONS (STANDARD CONDITIONS OF TENDER (CIDB))

C.1 General

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note:

- 1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*
- 2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

- i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
- ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
- iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;



C.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An organ of state may, prior to the award of the tender, cancel a tender if-

- (a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or
- (b) funds are no longer available to cover the total envisaged expenditure; or
- (c) no acceptable tenders are received.

C.1.5.2 The decision to cancel a tender must be published in the CIDB website and in the government Tender Bulletin for the media in which the original tender invitation was advertised.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2



C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

C2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

C.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

C.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the tender offer



- C.2.10.1** Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.
- C.2.10.2** Show VAT payable by the employer separately as an addition to the tendered total of the prices.
- C.2.10.3** Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.
- C.2.10.4** State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

C.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12 Alternative tender offers

- C.2.12.1** Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.
- C.2.12.2** Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.
- C.2.12.3** An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

- C.2.13.1** Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
- C.2.13.2** Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.
- C.2.13.3** Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
- C.2.13.4** Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
- C.2.13.5** Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.6** Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.7** Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
- C.2.13.8** Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9** Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

C.2.14 Information and data to be completed in all respects



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.

C.2.15 Closing time

C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

C.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20 Submit securities, bonds and policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

C.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

C.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates



Include in the tender submission or provide the employer with any certificates as stated in the tender data.

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of tender submissions

C.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its B-BBEE status level and time for completion for the main tender offer only.

C.3.4.3 Make available the record outlined in C.3.4.2 to all interested persons upon request.

C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on B-BBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

C.3.7 Grounds for rejection and disqualification



Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

C.3.9 Arithmetical errors, omissions and discrepancies

C.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.

C.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 C.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.

C.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 tendered or accept the corrected total of prices.

C.3.9.4 **Where** the tenderer elects to confirm the tender offer as tendered, 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 of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.



C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

C.3.13 Acceptance of tender offer



Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- c) has the legal capacity to enter into the contract,
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- e) complies with the legal requirements, if any, stated in the tender data, and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,
- b) inclusion of some of the returnable documents, and
- c) other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information, which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.



Part T2: Returnable Documents

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T2.2 Additional Returnable Documents	75 - 93



T2.1 Returnable Schedules

- T 2.1.1 Authority of Signatory
- T 2.1.2 Payments of Municipal Accounts
- T 2.1.3 Valid Tax Clearance
- T 2.1.4 Proof of Registration with Central Supplier Database
- T 2.1.5 Business Registration Documents
- T 2.1.6 MBD5 – Declaration for Procurement above R10 Million (VAT Included)
- T 2.1.7 VAT Registration Certificate
- T 2.1.8 Broad Based Black Economic Empowerment (BBBEE) Certificate
- T 2.1.9 Joint Venture (JV) Agreement
- T 2.1.10 Form MBD 6.1: Preference Points Claim Form in terms of the Preferential Procurement Regulations 2022
- T 2.1.11 Status of Concern Submitting Tender
- T 2.1.12 Proof of Registration with the Construction Industry Development Board (in the applicable category or higher)
- T 2.1.13 Declaration of Interest in Tender of Persons in Service of the State
- T 2.1.14 Compulsory Enterprise Questionnaire
- T 2.1.15 Declaration of Tenderer's Past Supply Chain Management (SCM) Practices
- T 2.1.16 Declaration Concerning Fulfilment of the Construction Regulations, 2014
- T 2.1.17 Certificate of Independent Bid Determination
- T 2.1.18 Declaration of Indemnity
- T 2.1.19 Record of Addenda to Tender Documents
- T 2.1.20 Schedule of Contracts Awarded to Tenderer by Organs of State if Tender is Greater than R10 million
- T 2.1.21 Schedule of Plant and Equipment
- T 2.1.22 Schedule of Proposed Subcontractors
- T 2.1.23 Schedule of Work Experience of The Tenderer – Current Contracts
- T 2.1.24 Schedule of Work Experience of The Tenderer – Completed Contracts
- T 2.1.25 Clarification meeting Certificate
- T 2.1.26 Declaration by Tenderer
- T 2.2.1 Company Information for Tenders Greater than R10 million
- T 2.2.2 Financial References
- C 1.1: Form of Offer and Acceptance
- C 1.2b Contract Data (Part 2) – Specified by the Contractor
- C 2.2 Bill of Quantities
- C 2.3 Summary page of the Bill of Quantities



CHECKLIST

The following schedules are to be completed and returned, as they constitute the tender. Whilst many of the returnable schedules are required for the purpose of evaluating the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that tenderers return **all information requested**.

T 2.1.1	Authority of Signatory	Tick if completed and submitted
T 2.1.2	Payments of Municipal Accounts	Tick if completed and submitted
T 2.1.3	Valid Tax Clearance	Tick if completed and submitted
T 2.1.4	Proof of Registration with Central Supplier Database	Tick if completed and submitted
T 2.1.5	Business Registration Documents	Tick if completed and submitted
T 2.1.6	MBD5 – Declaration for Procurement above R10 Million (VAT Included)	Tick if completed and submitted
T 2.1.7	VAT Registration Certificate	Tick if completed and submitted
T 2.1.8	Broad Based Black Economic Empowerment (BBBEE) Certificate	Tick if completed and submitted
T 2.1.9	Joint Venture (JV) Agreement	Tick if completed and submitted
T 2.1.10	Form MBD 6.1: Preference Points Claim Form in terms of the Preferential Procurement Regulations 2022	Tick if completed and submitted
T 2.1.11	Status of Concern Submitting Tender	Tick if completed and submitted
T 2.1.12	Proof of Registration with the Construction Industry Development Board (<i>in the applicable category or higher</i>)	Tick if completed and submitted
T 2.1.13	Declaration of Interest in Tender of Persons in Service of the State	Tick if completed and submitted
T 2.1.14	Compulsory Enterprise Questionnaire	Tick if completed and submitted
T 2.1.15	Declaration of Tenderer's Past Supply Chain Management (SCM) Practices	Tick if completed and submitted
T 2.1.16	Declaration Concerning Fulfillment of the Construction Regulations, 2014	Tick if completed and submitted
T 2.1.17	Certificate of Independent Bid Determination	Tick if completed and submitted
T 2.1.18	Declaration of Indemnity	Tick if completed and submitted
T 2.1.19	Record of Addenda to Tender Documents	Tick if completed and submitted
T 2.1.20	Schedule of Contracts Awarded to Tenderer by Organs of State if Tender is Greater than R10 million	Tick if completed and submitted
T 2.1.21	Schedule of Plant and Equipment	Tick if completed and submitted
T 2.1.22	Schedule of Proposed Subcontractors	Tick if completed and submitted
T 2.1.23	Schedule of Work Experience of The Tenderer – Current Contracts	Tick if completed and submitted



T 2.1.24	Schedule of Work Experience of The Tenderer – Completed Contracts	Tick if completed and submitted
T 2.1.25	Clarification meeting Certificate	Tick if completed and submitted
T 2.1.26	Declaration by Tenderer	Tick if completed and submitted
T 2.2	Additional Returnable Schedules	Tick if completed and submitted
C 1.1:	Form of Offer and Acceptance	Tick if completed and submitted
C 1.2b	Contract Data (Part 2) – Specified by the Contractor	Tick if completed and submitted
C 2.2	Bill of Quantities	Tick if completed and submitted
C 2.3	Summary page of the Bill of Quantities	Tick if completed and submitted



T2.1.1. AUTHORITY TO SIGN A BID

1. SOLE PROPRIETOR (SINGLE OWNER BUSINESS) AND NATURAL PERSON

1.1. I, _____, the undersigned, hereby confirm that I am the sole owner of the business trading as _____.

OR

1.2. I, _____, the undersigned, hereby confirm that I am submitting this tender in my capacity as natural person.

SIGNATURE:		DATE:	
PRINT NAME:			
WITNESS 1:		WITNESS 2:	

2. COMPANIES AND CLOSE CORPORATIONS

2.1. If a Bidder is a **COMPANY**, a certified copy of the resolution by the board of directors, duly signed, authorising the person who signs this bid to do so, as well as to sign any contract resulting from this bid and any other documents and correspondence in connection with this bid and/or contract on behalf of the company **must be submitted with this bid**, that is, before the closing time and date of the bid

2.2. In the case of a **CLOSE CORPORATION (CC)** submitting a bid, a **resolution by its members**, authorizing a member or other official of the corporation to sign the documents on their behalf, **shall be included with the bid**.

PARTICULARS OF RESOLUTION BY BOARD OF DIRECTORS OF THE COMPANY/MEMBERS OF THE CC

Date Resolution was taken	
Resolution signed by (name and surname)	
Capacity	
Name and surname of delegated Authorised Signatory	
Capacity	
Specimen Signature	

Full name and surname of ALL Director(s) / Member (s)			
1.		2.	
3.		4.	
5.		6.	
7.		8.	
9.		10.	
Is a CERTIFIED COPY of the resolution attached?		YES	NO

SIGNED ON BEHALF OF COMPANY / CC:		DATE:	
PRINT NAME:			



WITNESS 1:		WITNESS 2:	
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3. PARTNERSHIP

We, the undersigned partners in the business trading as _____ hereby authorize Mr/Ms _____ to sign this bid as well as any contract resulting from the bid and any other documents and correspondence in connection with this bid and /or contract for and on behalf of the abovementioned partnership.

The following particulars in respect of every partner must be furnished and signed by every partner:

Full name of partner		Signature	
SIGNED ON BEHALF OF PARTNERSHIP:		DATE:	
PRINT NAME:			
WITNESS 1:		WITNESS 2:	

4. CONSORTIUM

We, the undersigned consortium partners, hereby authorize _____ (Name of entity) to act as lead consortium partner and further authorize Mr./Ms. _____ To sign this offer as well as any contract resulting from this tender and any other documents and correspondence in connection with this tender and / or contract for and on behalf of the consortium.

The following particulars in respect of each consortium member must be provided and signed by each member:

Full Name of Consortium Member	Role of Consortium Member	% Participation	Signature
SIGNED ON BEHALF OF PARTNERSHIP:		DATE:	
PRINT NAME:			
WITNESS 1:		WITNESS 2:	



T2.1.2. MBD 10 – CERTIFICATE FOR PAYMENT OF MUNICIPAL SERVICES

DECLARATION IN TERMS OF CLAUSE 112(1) OF THE MUNICIPAL FINANCE MANAGEMENT ACT (NO.56 OF 2003)

I, _____, _____ (full name and ID no.), hereby acknowledge that according to SCM Regulation 38(1)(d)(i), the Municipality may reject the tender of the tenderer if any municipal rates and taxes or municipal service charges owed by the Tenderer or any of its directors/members/partners to the Stellenbosch Municipality, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months.

I declare that I am duly authorised to act on behalf of _____ (name of the firm) and hereby declare, that to the best of my personal knowledge, neither the firm nor any director/member/partner of said firm is in arrears on any of its municipal accounts with any municipality in the Republic of South Africa, for a period longer than 3 (three) months.

I further hereby certify that the information set out in this schedule and/or attachment(s) hereto is true and correct. The Tenderer acknowledges that failure to properly and truthfully complete this schedule may result in the tender being disqualified, and/or in the event that the tenderer is successful, the cancellation of the contract.

PHYSICAL BUSINESS ADDRESS(ES) OF THE TENDERER	MUNICIPAL ACCOUNT NUMBER

FURTHER DETAILS OF THE BIDDER'S Director / Shareholder / Partners, etc.:

Director / Shareholder / partner	Physical address of the Business	Municipal Account number(s)	Physical residential address of the Director / shareholder / partner	Municipal Account number(s)

NB: Please attach certified copy (ies) of ID document(s) and Municipal Accounts if the entity or any of its Directors/Shareholders/Partners, etc. rents/leases premises, a copy of the rental/lease agreement must be submitted with this tender.

- **PLEASE SUBMIT MUNICIPAL ACCOUNTS FOR THE FOLLOWING TWO MONTHS AFTER BID CLOSURE TO THE RELEVANT SCM PRACTITIONER SHOULD THE BID NOT BE AWARDED YET.**

Signature	Position	Date



T2.1.3. VALID TAX CLEARANCE

In terms of Clause 14(1)(b) of the Municipal Supply Chain Management Policy, tenderers must ensure that they are up-to-date with their payments of taxes.

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 the South African Revenue Service (SARS) to meet with the bidder's tax obligations.

1. The tenderer must submit a Tax Compliance Status PIN to allow Supply Chain Management to verify the real-time compliance status.

Tax Compliance Status PIN	
---------------------------	-------

Tax Compliance Status PIN	
---------------------------	-------

2. In the case of a joint venture between two or more firms, the tenderer shall attach the PIN for each of the joint venture partners.
3. Copies of the TCC 001 form are available from any SARS branch office nationally or on the website, www.sars.gov.za
4. Applications for the TCC 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.
5. The above requirements are also applicable to foreign bidders / individuals who wish to submit bids.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			



T2.1.4. PROOF OF REGISTRATION WITH THE CENTRAL SUPPLIER DATABASE (CSD)

All businesses and suppliers wishing to conduct business with the Stellenbosch Municipality must register on the Central's Supplier Database.

MAAA



T2.1.5. BUSINESS REGISTRATION DOCUMENTS

Attach as part of your tender submission proof of valid registration to the companies and intellectual property commission documents of incorporation of company, close corporation, partnership, sole proprietor or a joint venture.

In the case of a joint venture, the tenderer shall include all the documents of all the entities involved in the joint venture.

Sole proprietors are exempted and are only required to submit a copy of their identification document and bidders tax clearance certificate.



**T2.1.6. MBD5 – DECLARATION FOR PROCUREMENT ABOVE R10 MILLION
(VAT INCLUDED)**

For all procurement expected to exceed R10 million (VAT 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 past three years.				
2. Do you have any outstanding undisputed commitments for municipal services towards a municipality or any other service provider in respect of which payment is overdue for more than 30 days?	YES		NO	
2.1. If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days.				
2.2. If yes, provide particulars.				
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				
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 form is correct.

I accept that the state may act against me should this declaration prove to be false.

SIGNATURE		DATE	
NAME (PRINT)			
CAPACITY			
NAME OF FIRM			

T2.1.7. VAT REGISTRATION CERTIFICATE

Tenderers must attach hereto a copy of their VAT registration as proof that they are a VAT vendor. In the case of a joint venture a VAT registration certificate must be submitted for the registered joint venture.

VAT REGISTRATION NO.....

T2.1.8. BROAD BASED BLACK ECONOMIC EMPOWERMENT (BBBEE) CERTIFICATE

1. Valuation of preference points is based on tenderers' scorecards in accordance with the Construction Sector Codes of Practice promulgated in Gazette 32305 on 5 June 2009. In terms of Government Notice 810 of 31 July 2009, only BBBEE Verification Certificates issued by Accredited Verification Agencies or Verification Agencies that are in possession of a valid pre-assessment letter from the South African National Accreditation System (SANAS) will be valid.
2. However, despite the above, all Verification Certificates issued by non-accredited Verification Agencies before 1 February 2010 will be valid for 12 (twelve) months from the date of issue on condition that the Verification Agency is registered with ABVA (see www.abva.co.za for details)
3. Tenderers shall therefore submit their company's scorecard by attaching to this page a valid BBBEE Verification Certificate. The BBBEE Verification Certificate must indicate the OWNERSHIP (Bo) details.
4. The Verification Certificate must be current, meaning that it must have been issued more recently than 12 (twelve) months prior to the tender closing date.
5. In the event of a Joint Venture (JV), a consolidated BBBEE Verification Certificates must be submitted for the JV or a score of zero points will be applied.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			



T2.1.9. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by JOINT VENTURES

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize Mr./Ms. _____
_____ authorized signatory of the Company/Close
Corporation/Partnership (name) _____, acting
in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it
on our behalf.

(i) Name of firm (Lead partner)			
Address			
		Tel. No.	
Signature		Designation	

(ii) Name of firm			
Address			
		Tel. No.	
Signature		Designation	

(iii) Name of firm			
Address:			
		Tel. No.	
Signature		Designation	

(iv) Name of firm			
Address			
		Tel. No.	
Signature		Designation	

NOTE: A copy of the Joint Venture Agreement showing clearly the percentage contribution of each partner to the Joint Venture, shall be appended to this Schedule.



**T2.1.10. MBD6.1 – PREFERENCE POINTS CLAIM FORM IN TERMS OF THE
PREFERENTIAL PROCUREMENT REGULATIONS 2022 –
PURCHASES/SERVICES 80/20**

NB:

Before completing this form, bidders must study the general conditions, definitions and directives applicable in respect of B-BBEE, as prescribed in the Preferential Procurement Regulations, 2022 and the Stellenbosch Preferential Procurement Policy 2022/23

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution and any other applicable preference

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- 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

- a) The value of this bid is estimated to be less than R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable.

1.3 Points for this bid shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contributor.
- (c) Locality of supplier

1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	10
Locality	10
Total points for Price, BBBEE and Locality (It must not exceed 100)	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.6 Failure on the part of a bidder to submit proof of Locality together with the bid, will be interpreted to mean that preference points for Locality are not claimed.

1.7 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state

for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;

- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“Locality”** means the local suppliers and/or service providers that business offices are within the Municipal area of Stellenbosch (WC024).
- (h) **“price”** includes all applicable taxes less all unconditional discounts;
- (i) **“proof of B-BBEE status level of contributor”** means:
 - 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (j) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (k) **“Specific goals”** means specific goals as contemplated in section 2(1)(d) of the Act which may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994;
- (l) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

4. POINTS AWARDED FOR PRICE

4.1 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
$Ps = 80 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)$	or	$Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)$

Where

Ps = Points scored for price of bid under consideration
 Pt = Price of bid under consideration
 Pmin = Price of lowest acceptable bid

4.2 FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME-GENERATING PROCUREMENT

4.3 POINTS AWARDED FOR PRICE

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

80/20	or	90/10
$Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$	or	$Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmax = Price of highest acceptable bid

5. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

- 5.1 In terms of Regulation 4 (2) and 5 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining a specific goal specified for the tender
- 5.2 The tendering conditions will stipulate the specific goals, as contemplated in section 2(1)(d)(ii) of the Preferential Procurement Act, be attained.
- 5.3 A maximum of 20 points (80/20 preference points system) or 10 (90/10) preference points system), must be allocated for specific goals. These goals are :
- (a) contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability;
 - (b) Promotion of enterprises located in the municipal area (WCO24)
- 5.4 Regarding par 5.3 (a) at least 50% of the 20/10 points must be allocated to promote this goal and points will be allocated in terms of the BBBEE scorecard as follows.

B-BBEE Status Level of Contributor	Number of Points for 80/20 Preference Points System	Number of Points for 90/10 Preference Points System
1	20	10
2	18	9
3	16	8
4	12	5
5	8	4
6	6	3
7	4	2
8	2	1
Non-compliant contributor	0	0

- 5.5 A tenderer must submit proof of its BBBEE status level contributor.
- 5.6 A tenderer failing to submit proof of BBBEE status level of contributor –
- 5.6.1 may only score in terms of the 80/90-point formula for price; and
 - 5.6.2 scores 0 points out of 10/5 BBBEE status level of contributor, which is in line with section 2 (1) (d) (i) of the Act, where the supplier or service provider did not provide proof thereof.
- 5.7 Regarding par 5.3 (b) a maximum of 50% of the 20/10 points must be allocated to promote this goal. Maximum points will be allocated as follows.

Locality of supplier	Number of Points for 80/20 Preference Points System	Number of Points for 90/10 Preference Points System
Within the boundaries of the municipality	10	N/A
Outside of the boundaries of the municipality	0	0

The maximum will be proportionately adjusted depending on the number of points allocated for this goal. E.G., 40% will equate to 8/4 points.

6. BID DECLARATION

- 6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution and/or Locality must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

7.1 B-BBEE Status Level of Contributor: . =(maximum of 10 points)

(Points claimed in respect of paragraph 7.1 must be substantiated by relevant proof of B-BBEE status level of contributor.)

7.2 Within the boundaries of Stellenbosch Municipality (WC024)?

YES		NO	
-----	--	----	--

Address -

.....

.....

(Points claimed in respect of paragraph 7.2 must be substantiated by relevant proof that the business premises is situated in the Municipal area of Stellenbosch (WC024). A valid municipal account or proof of valid lease agreement must be attached)

8. SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES		NO	
-----	--	----	--

8.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES		NO	
-----	--	----	--

- v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

Designated Group: An EME or QSE which is at last 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

9. DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of company/firm:.....

9.2 VAT registration number:.....

9.3 Company registration number:.....

9.4 TYPE OF COMPANY/ FIRM



- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

.....

9.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated:

Registered Account Number:

Stand Number:.....

9.8 Total number of years the company/firm has been in business:.....

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we 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 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding 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 bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury 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.



SIGNATURE OF BIDDER(S):			
WITNESS 1:		WITNESS 2:	
DATE:			
ADDRESS:			



**PLEASE COMPLETE IN FULL TO CLAIM POINTS, YOUR OWN
SWORN AFFIDAVIT**

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE – GENERAL (DRAFT EXAMPLE)

(DO NOT USE)

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner (Select one) of the following enterprise and am duly authorised to act on its behalf:

NB!

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Vat Number (If applicable)	
Enterprise Physical Address:	
Type of Entity (CC, (Pty)Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the



	<p>Employment Equity Act;</p> <p>(d) Black people living in rural and under developed areas;</p> <p>(e) Black military veterans who qualifies to be called a militaryveteran in terms of the Military Veterans Act 18 of 2011;"</p>
--	---

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned using the flow-through principle as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
 - Black Youth % = _____%
 - Black Disabled % = _____%
 - Black Unemployed % = _____%
 - Black People living in Rural areas % = _____%
 - Black Military Veterans % = _____%

- Based on the Audited Financial Statements/Financial Statements and other information available on the latest financial year-end of _____ (DD/MM/YYYY), the annual Total Revenue was R10,000,000.00 (Ten Million Rands) or less
- Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognitionlevel)	
At least 51% Black Owned	Level Two (125% B-BBEE procurement recognition level)	
Less than 51% Black Owned	Level Four (100% B-BBEE procurement recognitionlevel)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.
5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date : _____

Commissioner of Oaths
Signature & stamp

NB! ORIGINALLY CERTIFIED/ NOT COPY



T2.1.11. STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner, a joint venture or a co-operative:

(Mark the appropriate option below)

Public Company

Private Company

Closed Corporation

Partnership

Sole Proprietary

Joint Venture

Co-operative

2. Information To Be Provided

If the Tendering Entity is a:		Documentation to be submitted with the tender
1	<u>Closed Corporation</u> , incorporated under the Close Corporation Act, 1984, Act 69 of 1984.	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members.
2	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973. (Including Companies incorporated under Art 53 (b)).	Copies of: a) CIPRO CM 1 - Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) Shareholders Certificates of all Members of the Company.
3	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 in which any, or all, <u>shares are held by another</u> Closed Corporation or company with, or without, share capital.	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies.
4	<u>Public Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (Including Companies incorporated under Art 21)	A signed statement of the Company's Secretary confirming that the Company is a public Company. Copy of CM 29.
5	Sole Proprietary or a Partnership	<u>Copy of the Identity Document of:</u> a) Such Sole Proprietary, or b) Each of the Partners in the Partnership



If the Tendering Entity is a:		Documentation to be submitted with the tender
		Copy of the Partnership agreement.
6	Co-operative	CIPRO CR2 - Copies of Company registration document. (The percentage of work to be done by each partner must clearly be indicated on Form RDB1 (or RDB2 as applicable) of the tender document: MBD6.1 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2017).
7	Joint Venture	All the documents (as described above) as applicable to each partner in the JV as well as a copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement).

Note:

1. If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.
2. Include a copy of the Certificate of Change of Name (CM9) if applicable.

3. Registered for Vat Purposes in Terms of the Value-Added Tax Act, (Act No. 89 of 1991)

(Make an X in the appropriate space below)

Yes

☐

No

☐

Registration number:

.....



T2.1.12. PROOF OF REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB)

CIDB Contractor Registration Certificate

A Certificate of Contractors Registration issued by the Construction Industry Development Board (CIDB) shall be attached to this schedule.

Where a tenderer satisfies CIDB Contractor Grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)			
CRS Number:			
SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.1.13. DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF STATE

1. No bid will be accepted from persons in the service of the state¹.
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 connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest.
3. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid:

3.1.	Full Name of bidder or his or her representative												
3.2.	Identity Number												
3.3.	Position occupied in the Company (director, shareholder ² etc.)												
3.4.	Company Registration Number												
3.5.	Tax Reference Number												
3.6.	VAT Registration Number												

3.7.	Are you presently in the service of the state?	YES		NO	
3.7.1.	If so, furnish particulars:				
3.8.	Have you been in the service of the state for the past twelve months?	YES		NO	
3.8.1.	If so, furnish particulars:				

¹ MSCM Regulations: "in the service of the state" means to be –

- a. a member of –
 - i. any municipal council;
 - ii. any provincial legislature; or
 - iii. the National Assembly or the National Council of Provinces;
- b. a member of the board of directors of any municipal entity;
- c. an official of any municipality or municipal entity;
- d. an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- e. an executive member of the accounting authority of any national or provincial public entity; or
- f. an employee of Parliament or a provincial legislature.

² "Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.



3.9.	Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?	YES		NO	
3.9.1.	If so, furnish particulars:				
3.10.	Are you aware of any relationship (family, friend, other) between a bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?	YES		NO	
3.10.1.	If so, furnish particulars:				
3.11.	Are any of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO	
3.11.1.	If so, furnish particulars:				
3.12.	Is any spouse, child or parent of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO	
3.12.1.	If so, furnish particulars:				
3.13.	Do you or any of the directors, trustees, managers, principal shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract?	YES		NO	
3.13.1.	If so, furnish particulars:				



3.14.	Please provide the following information on ALL directors/shareholders/trustees/members below:		
Full Name and Surname	Identity Number	Personal Income Tax Number	Provide State ³ Employee Number

<p>NB:</p> <p>a) PLEASE ATTACH CERTIFIED COPY(IES) OF ID DOCUMENT(S)</p> <p>b) PLEASE PROVIDE PERSONAL INCOME TAX NUMBERS FOR ALL DIRECTORS / SHAREHOLDERS / TRUSTEES / MEMBERS, ETC.</p>
--

4. DECLARATION

I, the undersigned (name) _____, certify that the information furnished in paragraph 3 above is correct.

I accept that the state may act against me should this declaration prove to be false.

SIGNATURE		DATE	
NAME OF SIGNATORY			
POSITION			
NAME OF COMPANY			

³ MSCM Regulations: "in the service of the state" means to be –

- a. a member of –
 - i. any municipal council;
 - ii. any provincial legislature; or
 - iii. the National Assembly or the National Council of Provinces;
- b. a member of the board of directors of any municipal entity;
- c. an official of any municipality or municipal entity;
- d. an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- e. an executive member of the accounting authority of any national or provincial public entity; or
- f. an employee of Parliament or a provincial legislature.



T2.1.14. COMPULSORY ENTERPRISE QUESTIONNAIRE

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

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

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

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 6: Record of service of the state

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

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

If any of the above boxes are marked, disclose the following: (insert separate page if necessary)

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		current	Within last 12 months

* Insert separate page if necessary



Section 7: Record of spouses, children and parents in the service of the state

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

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

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

* Insert separate page if necessary

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

- authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			

T2.1.15. DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal Bidding Document must form part of all bids invited.
2. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
4. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

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



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

5. CERTIFICATION

I, the undersigned (full name), _____, certify that the information furnished on this declaration form true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			



T2.1.16. DECLARATION CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014

In terms of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 07 February 2014 in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

Tenderers shall answer the questions below:

1. I confirm that I am fully conversant with the Regulations and that my company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations.

(Tick)

YES	
NO	

2. Indicate which approach shall be employed to achieve compliance with the Regulations.

(Tick)

Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) - Specify:	
.....	
.....	
.....	
.....	
.....	
.....	

3. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CVs to be attached):

.....

.....

.....

.....

4. Provide details of proposed training (if any) that will be undergone:

.....

.....



.....

5. List potential key risks identified and measures for addressing risks:

.....

.....

.....

.....

.....

.....

6. I have fully included in my tendered rates and prices (in the appropriate payment items provided in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period

(Tick)

YES	
NO	

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS TENDER:

1.

ID NO:

(Name in Print):

2.

ID NO:

(Name in Print):



T2.1.17. CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).⁴ Collusive bidding is a *per 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:
 - 3.1. take all reasonable steps to prevent such abuse;
 - 3.2. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - 3.3. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

CERTIFICATE OF INDEPENDENT BID DETERMINATION:

In response to the invitation for the bid made by:

STELLENBOSCH MUNICIPALITY

I, the undersigned, in submitting the accompanying bid, hereby make the following statements that I certify to be true and complete in every respect:

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - 5.1. has been requested to submit a bid in response to this bid invitation;
 - 5.2. could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - 5.3. provides the same goods and services as the bidder and/or is in the same line of business as the bidder

⁴ Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.



6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium⁵ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - 7.1. prices;
 - 7.2. geographical area where product or service will be rendered (market allocation)
 - 7.3. methods, factors or formulas used to calculate prices;
 - 7.4. the intention or decision to submit or not to submit, a bid;
 - 7.5. the submission of a bid which does not meet the specifications and conditions of the bid; or
 - 7.6. bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			

⁵ 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.



T2.1.18. DECLARATION OF INDEMNITY

I,, the undersigned for an on behalf of (herein referred to as "the Contractor") indemnify and safeguard the Nelson Mandela Bay Municipality and its Employees against all action, suits, proceedings, claims, demands, costs and expenses whatsoever which may be instituted, brought or sent, or may be incurred or be payable by the Council arising out of or in connection with any damage, death or injury caused or alleged to have been caused by or as a result of any act, omission by the contractor and/or the Contractors Employees or Employees arising out of work done in connection with or arising out of the following contract.

Contract number :

Contract description :
:
:
:

Full name and Surname: Signature:

Place: Date:

Capacity:

For and on behalf of:

To completed by a Commissioner of Oath:

I hereby declare that the above Declaration was made before me.

Full Name and Surname of Commissioner of Oath:

ID number:

Signature:



T2.1.19. RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications were received from the Employer before the submission of this tender offer, amending or amplifying the tender documents, have been taken into account in this tender offer:

No.	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

Attach additional pages if more space is required.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			



T2.1.20. SCHEDULE OF CONTRACTS AWARDED TO TENDERER BY ORGANS OF STATE IF GREATER THAN R10 MILLION (Organs of State include any Local, Provincial or National Government Authority)

The following is a statement of similar work successfully executed by myself/ourselves:

Employer, contact person and telephone number	Description of Contract	Value of Work Inclusive of VAT (Rand)	Date Completed

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE:		NAME (PRINT):	
CAPACITY:		DATE:	
NAME OF FIRM:			



T2.1.21.

SCHEDULE OF PLANT AND EQUIPMENT

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

DETAILS OF MAJOR EQUIPMENT THAT IS OWNED BY AND IMMEDIATELY AVAILABLE FOR THIS CONTRACT.

QUANTITY	DESCRIPTION	SIZE	CAPACITY

Attach additional pages if more space is required.

DETAIL OF MAJOR EQUIPMENT THAT WILL BE HIRED, OR ACQUIRED FOR THIS CONTRACT IF MY / OUR TENDER IS ACCEPTED.

QUANTITY	DESCRIPTION,	SIZE	CAPACITY

Attach additional pages if more space is required.

Number of sheets appended by the tenderer to this schedule (If nil, enter **NIL**)

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.1.22. SCHEDULE OF SUBCONTRACTORS

I/we the tenderer, notify the Stellenbosch Municipality that it is our intention to employ the following Subcontractors for work in this contract.

SUBCONTRACTORS				
Category / Type	Subcontractor Name; Address; Contact Person; Tel. No.		Items of work (pay items) to be undertaken by the Subcontractor	Estimated cost of Work (Rand)
1.	Name of firm			
	Contact person			
	Tel No			
	Address			
2.	Name of firm			
	Contact person			
	Tel No			
	Address			
3.	Name of firm			
	Contact person			
	Tel No			
	Address			
4.	Name of firm			
	Contact person			
	Tel No			
	Address			
5.	Name of firm			
	Contact person			
	Tel No			
	Address			
Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)				

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed above being approved by the Engineer.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.1.23. SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – CURRENT CONTRACTS

CURRENT CONTRACTS						
EMPLOYER (Name, Tel, Fax, Email)		Contact Person (Name, Tel, Fax, Email)		NATURE OF WORK	VALUE OF WORK (INCL. VAT)	DATE COMPLETED
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Name		Name				
Tel		Tel				
Fax		Fax				
Email		Email				
Attach additional pages if more space is required. Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)						
SIGNATURE		NAME (PRINT)				
CAPACITY		DATE				
NAME OF FIRM						



T2.1.24. SCHEDULE OF WORK EXPERIENCE OF THE TENDERER – COMPLETED CONTRACTS

The following is a statement of similar work successfully executed by myself / ourselves:

COMPLETED CONTRACTS					
EMPLOYER (Name, Tel, Fax, Email)		Contact Person (Name, Tel, Fax, Email)		NATURE OF WORK	VALUE OF WORK (INCL. VAT)
Name		Name			
Tel		Tel			
Fax		Fax			
Email		Email			
Name		Name			
Tel		Tel			
Fax		Fax			
Email		Email			
Name		Name			
Tel		Tel			
Fax		Fax			
Email		Email			
Name		Name			
Tel		Tel			
Fax		Fax			
Email		Email			
Name		Name			
Tel		Tel			
Fax		Fax			
Email		Email			

Attach additional pages if more space is required.

Number of sheets appended by the tenderer to this schedule (If nil, enter NIL)	
--	--

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.1.25. CLARIFICATION MEETING CERTIFICATE

I / We*, the undersigned, certify that I / we* have examined the Site for the Works and its surroundings for which I / we* am / are* submitting this Tender and have, as far as practicable possible, familiarized myself / ourselves* with all information, risks, contingencies and other circumstances which may influence or affect my / our* tender.

NAME & SURNAME			
CAPACITY			
NAME OF FIRM			
ADDRESS			
TELEPHONE NO		FAX NO:	
E-MAIL		SIGNATURE	

NB: Please note that no latecomers will be allowed.

*For all compulsory briefing sessions/site meetings/clarification meetings, bids received from interested bidders that did not attend the meeting or arrived later than predetermined date and time, will be **disqualified**.*



T2.1.26. DECLARATION BY TENDERER

I / We acknowledge that I / we am / are fully acquainted with the contents of the conditions of tender of this tender document and that I / we accept the conditions in all respects.

I / We agree that the laws of the Republic of South Africa shall be applicable to the contract resulting from the acceptance of *my / our tender and that I / we elect *domicillium citandi et executandi* (physical address at which legal proceedings may be instituted) in the Republic at:

I / We accept full responsibility for the proper execution and fulfillment of all obligations and conditions devolving in me / us under this agreement as the principal liable for the due fulfillment of this contract.

I / We furthermore confirm I / we satisfied myself / ourselves as to the corrections and validity of my / our tender; that the price quoted cover all the work / items specified in the tender documents and that the price(s) cover all my / our obligations under a resulting contract and that I / we accept that any mistake(s) regarding price and calculations will be at my / our risk.

I / We furthermore confirm that my / our offer remains binding upon me / us and open for acceptance by the Purchases / Employer during the validity period indicated and calculated from the closing date of the bid.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			
WITNESS 1		WITNESS 2	



T2.2 Additional Returnable Schedules

T 2.2.1	Company Information for Tenders Greater than R10 million
T 2.2.2	Financial References
T 2.2.3	Estimated Monthly Cash Flow
T 2.2.4	Personnel Schedule
T 2.2.5	Quality Management Systems
T 2.2.6	Preliminary Program of the Works
T 2.2.7	Company Profile
T 2.2.8	Contract Organogram
T 2.2.9	Key Personnel Assigned to the Contract
T 2.2.10	Curriculum Vitae of Contracts Manager
T 2.2.11	Curriculum Vitae of Construction Manager
T 2.2.12	Curriculum Vitae of General Foreman
T 2.2.13	Curriculum Vitae of Health and Safety Officer
T 2.2.14	Completion Certificates
T 2.2.15	Letter of Good Standing with Compensation Fund



CHECKLIST

The following schedules are to be completed and returned, as they constitute the tender. Whilst many of the returnable schedules are required for the purpose of evaluating the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that tenderers return **all information requested**.

T 2.2.1	Company Information for Tenders Greater than R10 million	Tick if completed and submitted
T 2.2.2	Financial References	Tick if completed and submitted
T 2.2.3	Estimated Monthly Cash Flow	Tick if completed and submitted
T 2.2.4	Personnel Schedule	Tick if completed and submitted
T 2.2.5	Quality Management Systems	Tick if completed and submitted
T 2.2.6	Preliminary Program of the Works	Tick if completed and submitted
T 2.2.7	Company Profile	Tick if completed and submitted
T 2.2.8	Contract Organogram	Tick if completed and submitted
T 2.2.9	Key Personnel Assigned to the Contract	Tick if completed and submitted
T 2.2.10	Curriculum Vitae of Contracts Manager	Tick if completed and submitted
T 2.2.11	Curriculum Vitae of Construction Manager	Tick if completed and submitted
T 2.2.12	Curriculum Vitae of Health and Safety Officer	Tick if completed and submitted
T 2.2.13	Completion Certificates	Tick if completed and submitted
T 2.2.14	Letter of Good Standing with Compensation Fund	Tick if completed and submitted



T2.2.1. COMPANY INFORMATION FOR TENDERS GREATER THAN R10 MILLION

1. The tenderer is required by law to prepare annual financial statements for auditing and is therefore requested to provide audited annual financial statements: (Tick)

YES	
NO	

- for the past three years; or
- since their establishment if established during the past three years.

Indicate whether these have been included in the tender:

2. Does the tenderer have any undisputed commitments for Municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days?

(Tick)

YES	
NO	

If so, state particulars

.....

3. Has any contracts been awarded to the tenderer by an organ of state during the past five years?

(Tick)

YES	
NO	

If so, state particulars

.....

4. Has there been any material non-compliance or dispute concerning the execution of such contract?

(Tick)

YES	
NO	

If so, state particulars



5. Is any portion of the goods or services expected to be sourced out from outside the Republic?

(Tick)

YES	
NO	

If so, state what portion and whether any portion of payment from the Municipality is expected to be transferred out of the Republic.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.2. FINANCIAL REFERENCES

The tenderer shall attach to this form a letter from the bank at which he/she declares he/she conducts his/her account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. Failure to provide the required letter with the submission may render the tenderer's offer unresponsive in terms of the tender condition F3.8.

The tenderers banking details as they appear below shall be completed.

In the event that the tenderer is a joint venture enterprise, details of all members of the joint venture shall be similarly provided and attached to this form.

Description	Details
Name of account holder	
Account number	
Name of bank	
Branch name	
Branch code	
Bank rating (current rating, attach letter from bank)	
Bank and branch details	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.3. ESTIMATED MONTHLY CASH-FLOW

The Tenderer shall state below the estimated value of work to be completed every month, based on his preliminary programme, his tendered unit rates and submission of his Payment certificate to the Employer. The amounts for Contingencies and Contract Price Adjustment must not be included. The Tenderer must make note of any cash-flow restrictions.

Payment Certificate No.	Amount (VAT Included)					
	a	b	a-b			Cumulative cash flow
	Payments Received	Expenditure		Net cash flow		
1	None		d		j=d	
2			e		k=j+e	
3			f		l=k+f	
4			g		m=l+g	
5			h		n=m+h	
6			etc		etc	
7						
8						
9						
10						
11						
12						
13						
14						
15						
Maximum negative cash flow: take the largest negative number in the last column and write it here						

From what sources will you fund the above amount (e.g. funds internally available, bank overdraft, loan, partner (his source), etc.)



The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.4. PERSONNEL SCHEDULE

Tenderer to insert number of personnel he proposes employing on this contract

Job Description	Permanent Staff	Temporary staff from local community
Contract Manager		
Construction Manager		
Health and Safety Officer		
Quantity Surveyor		
Surveyors		
General Foremen		
Bridge Foreman		
Clerks		
Operators		
Bricklayers		
Learner Bricklayers		
Steel fixers		
Watchmen		
Labourers		
* Other		
* Other		
* Other		
* Other		
* Other		

* To be filled in by Tenderer

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.5. QUALITY MANAGEMENT SYSTEMS

Briefly describe the construction quality system incorporated by the tenderer in his organisation and which will be applicable to this Contract.

	Internal	External	Name of responsible Company /or Person (In case of Person give years' experience and qualification)
Survey: Setting out of the works and control			
SANAS accredited Testing Laboratory			
Additional quality systems			

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.6. PRELIMINARY PROGRAM OF THE WORKS

The tenderer must attach to this page the preliminary program of the works.



T2.2.7. COMPANY PROFILE

The tenderer must attach to this page the company profile.



T2.2.8. CONTRACT ORGANOGRAM

The tenderer must attach to this page the organogram for the contract of the personnel he intends using.



T2.2.9. KEY PERSONNEL ASSIGNED TO THE CONTRACT

Curriculum vitae (CV) and certified qualifications must be submitted for each of the key personnel proposed in the table below. The CV must specifically include the qualifications, years of experience, courses completed and experience in construction contracts of a similar value and higher and nature. Contactable referees must also be provided.

Each key person shall be cross referenced to and labelled to correspond to the organogram as per schedule T2.2.8 so as to indicate which role the person in question is proposed to fulfil in the Contract.

Job Description	Full Name	Qualification	Years of Experience
Contracts Manager			
Construction Manager (contractors' representative in terms of clause 4.12.2 of the GCC 2015)			
General Foreman			
Health and Safety Officer			

* - To be filled in by Tenderer

SIGNATURE		NAME (PRINT)	
CAPACITY		DATE	
NAME OF FIRM			



T2.2.10. CURRICULUM VITAE OF CONTRACTS MANAGER

The tenderer shall attach to the page the Curriculum vitae (CV) and certified qualifications as stipulated in the Tender Data for the Contracts Manager.

All experience by the proposed contracts manager must be shown. Relevant experience as a contracts manager must be highlighted.



T2.2.11. CURRICULUM VITAE OF CONSTRUCTION MANAGER

The tenderer shall attach to page the Curriculum vitae (CV) and certified qualifications as stipulated in the Tender Data for the Construction Manager.

All experience by the proposed construction manager must be shown. Relevant experience as a construction manager must be highlighted.

T2.2.12. CURRICULUM VITAE OF HEALTH AND SAFETY OFFICER

The tenderer shall attach to page the Curriculum vitae (CV) and certified qualifications as stipulated in the Tender Data for the Health and Safety Officer.

All experience by the proposed health and safety officer must be shown. Relevant experience as a health and safety officer must be highlighted.



T2.2.13. COMPLETION CERTIFICATES

The tenderer shall attach to this page at least one completion certificate in similar value and similar scope of work as prescribed in terms of the additional conditions of tender.



T2.2.14. LETTER OF GOOD STANDING WITH COMPENSATION FUND

The tenderer must attach to this page a copy of the letter of good standing with the Compensation Fund



Part C1: Agreements and Contract Data

	Pages
C1.1 Form of Offer and Acceptance	94 – 96
C1.2a Contract Data (data provided by the Employer)	97 – 108
C1.2b Contract Data (data provided by the Contractor)	109
C1.3 Form of Guarantee for Construction	110 – 112
C1.4 Occupational Health and Safety Agreement	113
C1.5 Protection of the Environment Declaration.....	114
C1.6 Insurance Broker’s Warranty	115
C1.7 Contract of Temporary Employment as Community Liaison Officer	116 - 118

C1.1 Form of Offer and Acceptance

Offer

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

CONTRACT NO. BSM 19/25: CONSTRUCTION OF SCHOOL STREET AND NMT FACILITIES IN JAMESTOWN

The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable 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:

Rand

..... (in words);

R (in figures)

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature(s)

Name(s)

Capacity

for the tenderer

(Name of organization/tenderer)

(Address of organization/tenderer)

Name and
signature
of witness

Date

For official use.

**INITIALS OF OFFICIALS AT TENDER
OPENING**

1.	2.	3.
----	----	----



Schedule of Deviations

Notes:

1. 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.
2. A tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1 Subject

Details

.....

.....

.....

2 Subject

Details

.....

.....

.....

3 Subject

Details

.....

.....

.....

4 Subject

Details

.....

.....

.....

By the duly authorised representatives signing this agreement, the employer and the tenderer 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 returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.



C1.2a Contract Data

Contract Data provided by the Employer

The General Conditions of Contract for Construction Works, Third Edition, (2015) published by the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House, 1685, is applicable to this contract and is obtainable from www.saice.org.za

Copies of these conditions of contract may be obtained on the tenderer's own cost from the SAICE Tel: 011-805 5947

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract:

No.	Clause	Description
1	1.1.1.5	The commencement date shall be the date on which the contractor receives a copy of the signed form of offer and acceptance and schedule of deviations if applicable, unless otherwise agreed.
2	1.1.1.13	The Defects Liability Period is 12 months , measured from the date of the Certificate of Completion.
3	1.1.1.14	The time for achieving Practical Completion is 12 months calculated from the Commencement Date.
4	1.1.1.15	Name of Employer is: STELLENBOSCH MUNICIPALITY , represented by the Director: Infrastructure Services and/or such other person or persons duly authorised thereto by the Employer in writing and is referred to in this Contract Document by the terms "Employer", "Stellenbosch Municipality" or "Council" as the context provides.
5	1.1.1.16	The Employer's agent is The BMK Group represented by an employee authorised to do so. Add the following to the clause: Any reference to the term "Engineer" in this Contract shall mean "Employer's Agent" and vice versa.
6	1.1.1.17	Add the following to the clause: Any reference to the term "Engineer's Representative" in this Contract shall mean "Employer's Agent's Representative" and vice versa
7	1.1.1.26	The pricing strategy is: Re-measurement Contract.
8	1.1.1.35	Add the following additional definition to Clause 1.1: "Cost" means all expenditure reasonable incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
9	1.1.1.36	Add the following additional definition to Clause 1.1: Letter of Notification means the letters of formal notification (for placement onto the Municipality's Roads and Stormwater Contractor Panel) signed by the Employer, of the decision of the Municipality's Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderers Offers and no rights shall accrue."
10	1.2.1.2	The address of the Employer is: <u>Physical address:</u> 71 Plein Street STELLENBOSCH 7600 <u>Postal address:</u> PO Box 17 STELLENBOSCH 7599



No.	Clause	Description
		<p><u>The Employer is represented by:</u></p> <p>Senior Manager: Roads, Transport, Stormwater & Traffic Engineering Services Mr Johan Fullard Telephone: 021 808 8207 Email: Johan.Fullard@ Stellenbosch.gov.za</p>
11	1.2.1.2	<p>The Employer's Agent address for receipt of communications and notices is:</p> <p>Telephone: +27 31 566 1160 Facsimile: N/A Address (Postal): same as physical Address (Physical): Office 218, Ridgeside Office Park, 45 Richefond Circle, Umhlanga Ridge Umhlanga, Durban, 4319</p>
12	3.2.3	<p>The Employer's Agent shall obtain specific approval from the Employer before carrying out any of his functions or duties according to the following Clauses of the General Condition of Contract:</p> <p>New Clause 3.2.3.1: "For expenditure on the Contract to exceed the Contract Price".</p> <p>Existing Clauses:</p> <p>3.2.1 Nomination of person as Employer's Agent Representative. 5.7.2 Night Work 5.8 Non-working times. 5.12 Granting of extension of time excluding Clause 5.12.2.2 (Abnormal climatic conditions). 5.13 Reduction of penalty for delay. 5.14.2 The issue of a Certificate of Practical Completion. 5.14.4 The issue of a Certificate of Completion. 5.16.1 The issue of a Final Approval Certificate. 6.3 Variations of a value greater than R15 000 or when any of the contingencies will be utilised. 6.6 Instruction to expend on Provisional and Prime Cost Sums 6.11 Adjustment of General Items & Approval of Claims. 8.2.2.2 Order to repair and make good damage arising from any "excepted" risk.</p>
13	3.2.5	<p>Add the following sub- clause:</p> <p>The Employers Agent shall have the authority to suspend, without any additional cost, portions of the Works if there are any acceptance test results outstanding, as required in terms of the relevant standardised or project specific specifications.</p>
14	4.3.1	<p>Add the following to the clause:</p> <p>The contractor shall comply with:</p> <ul style="list-style-type: none"> • The Basic Conditions of Employment Act of 1997 (Act No 75 of 1997), as per Government Notice R63 of 25 January 2002. • National Environmental Management Act (NEMA), Act 107 of 1998 • Occupational Health and Safety Act, Act No. 85 of 1993. • Construction Regulations, 2014.



No.	Clause	Description
		<ul style="list-style-type: none"> Site specific health & Safety Specification and Baseline risk assessment prepared by the Employer in terms of the construction regulations 2014. Environmental Management Programme and General Authorisation. Any and all other relevant & applicable laws, regulations, statutory provisions and agreements.
15	4.3.3	<p>Add the following new clause:</p> <p>Contractor's Designer</p> <p>The Contractor and his designer shall accept full responsibility and liability for compliance with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations, 2014, for the design of the Temporary Works and those parts of the Permanent Works which the Contractor is responsible to design in terms of the Contract.</p>
15A	4.4.8	<p>Add the following new sub- clause:</p> <p>Subcontracting:</p> <p>Local labour sourced from the local community must be utilised for all unskilled labour requirements. A database of unskilled labour will be made available to the Contractor</p>
16	4.12.2	<p>The contractors appointed Health & Safety Officer, Construction Manager and General Foreman shall be on site at all times when work is being performed.</p> <p>Notwithstanding the requirements of this clause, the Contractors appointed Construction manager, General Foreman and Health & Safety Officer shall be solely dedicated to this contract and shall be on site at all times when work is being performed.</p>
17	4.12.4	<p>Add the following new sub- clause:</p> <p>The Contractor shall submit a comprehensive progress report at least 48 hours prior to the monthly site meetings. The progress report shall consist of at least the following documents:</p> <ul style="list-style-type: none"> Approved programme indicating the base programme, actual and planned percentage complete of each item including the "time now" line; A summary of the progress to date; Updated realistic cash flow; Any delays encountered or anticipated, including rainfall statistics for the month; An information required schedule indicating any information or drawings required; Plant and Labour Report; <p>Failure to submit the complete progress report will result in a fine of R10,000 being deducted from the next payment certificate by the Employers Agent.</p>
18	4.12.5	<p>As-built records</p> <p>The Contractor shall prepare, and keep up-to-date, a complete set of 'as-built' records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be kept on the Site and shall be used exclusively for the purposes of this Clause. Two copies shall be supplied to the Employer's Agent prior to the commencement of the Tests on Completion.</p> <p>In addition, the Contractor shall supply to the Employer's Agent as-built drawings of the Works, showing all Works as executed, and submit them to the Employer's Agent for review. The Contractor shall obtain the consent of the Employer's Agent as to their size, the referencing system, and other relevant details.</p> <p>The Works shall not be considered to be completed for the purposes of the issuing of the Completion Certificate</p>



No.	Clause	Description
19	5.3.1	<p>The documentation required before Commencement of the Works is carried out:</p> <ul style="list-style-type: none"> • Health and Safety Plan (Refer to Clause 4.3) • Initial Programme (Refer to Clause 5.6) • Security (Refer to Clause 6.2) • Insurance (Refer to Clause 8.6) • Letter of good standing with the Compensation Commission • Letter of Good Standing with the Civil Engineering Bargain Council • CV's & qualifications of key personnel <p>Commencement of work shall take place within 28 days of the commencement date.</p>
20	5.4.2	<p>Access to and possession of the Site shall not be exclusive to the Contractor, but as set out in section below.</p> <p>The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purposes of the Works.</p> <p>The contractor shall upon approval of clause 5.3.1 requirements be granted access to establish site (site camp). Upon 100% completion of the site (site camp) or to the Employers Agent satisfaction, access to and possession to the remainder of the site will be granted.</p>
21	5.8.1	<p>Delete the words "between sunset and sunrise" in the first line and replace with "outside normal working hours".</p> <p>Normal working hours shall be those as stated in the applicable Sectorial Determination applicable to a 5 (five) day week (Monday to Friday) from 07:00 to 17:00. Stop/Go traffic control will however be required 12 hours a day, 7 days a week.</p> <p>Non-working days are Saturdays and Sundays.</p> <p>Special non-working days are :</p> <ul style="list-style-type: none"> • Public holidays, • Election day of local government and national elections (when applicable), and • The official builder's holiday up to a maximum of 25 calendar days per holiday (including special non-working days).
22	5.8.1.5	<p>Add the following to the clause:</p> <p>The cost of supervision by the Employer's Agent or his representatives outside of normal working hours (Monday to Friday) in accordance with this Clause shall be to the Contractor's account.</p>
23	5.11.2	<p>Add the following additional clause:</p> <p>The Employer's Agent reserves the right to suspend portions of the Works if there are any test results outstanding (including level control), as required in terms of the relevant standardised or project specific specifications.</p>
24	5.12.2.2	<p>Add the following to the clause:</p> <p>No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature.</p> <p>However, in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 5.12.</p>



No.	Clause	Description
		<p>During the execution of the Works, the Employer's Agent's Representative will certify a day lost due to rainfall only if at least 75% of the work force and plant on site could not work during that specific working day.</p> <p>The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work.</p> <p>January 2 days February 2 days March 3 days April 4 days May 8 days June 9 days July 9 days August 8 days September 5 days October 4 days November 2 days December 2 days</p> <p>Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced. Extension of time as a result of rainfall shall be calculated monthly being equal to the number days certified by the Employer's Agent's Representative as lost due to rainfall, less the number of days allowed for above, which could result in a negative figure for certain months. The total extension of time for which the Contractor may apply, shall be the cumulative algebraic sum of the monthly extensions. Should the sum thus obtained be negative, the extension of time shall be taken as NIL. It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained.</p>
25	5.12.2.4	<p>Amend the clause to read as follows:</p> <p>Any disruption which is entirely beyond the Contractor's control except for internal (contractors own or his subcontractors labour) unrest, disruptions, strikes, lock-outs, etc.</p>
26	5.12.3	<p>Delete clause 5.12.3 and replace with the following:</p> <p>"If an extension of time is granted, the Contractor shall be paid such proven additional costs based on tendered rates including for special non-working days, if applicable, as are appropriate regarding any other compensation which may have already been granted in respect of the circumstances concerned."</p>
27	5.12.5	<p>Add the following to Clause 5.12</p> <p>5.12.5 Critical Path Provision</p> <p>A delay in so far as extension of time is concerned, will be regarded as a delay only if, on a claim by the Contractor in accordance with the General Conditions of Contract, the Employer's Agent rules that all progress on an item or items of work on the critical path of the approved programme for the carrying out of the Works by the Contractor, has been brought to a halt. Delays on normal working days only, based on a working week of five normal working days, will be taken in account for the extension of time.</p>
28	5.13.1	<p>The penalty for failing to complete the whole of the Works is R20,000.00 per calendar day.</p>
29	5.14.1	<p>The requirements for achieving Practical Completion will be determined by the Employer's Agent in consultation with the Contractor and Employer, but will as a minimum entail the following:.</p>



No.	Clause	Description
		<ul style="list-style-type: none"> Full access to the completed works by the Employer.
30	5.16.3	<p>The latent defect period is 10 years.</p> <p>The latent defects period shall commence on the date of the final approval certificate.</p>
31	5.14.5.5	<p>Delete Clause 5.14.5.5 and replace with:</p> <p>"Insurance of the works shall continue until the expiration of the Defects Liability Period, in terms of the new Clause 8.6 contained in this Contract Data."</p>
32	6.2.1	<p>Replace the wording "as selected" in Clause 6.2.1 with "as stated".</p> <p>The security to be provided by the Contractor shall be a fixed performance guarantee of ten per cent (10%) of the Contract Sum.</p> <p>The fixed performance guarantee shall be from an approved Insurance Company or Financial institution that is registered with the Financial Services Board in terms of the Financial Intelligence Centre Act.</p> <p>The fixed performance guarantee shall be jointly and severally bound with the Contractor, in accordance with the provisions of the Form of Guarantee. Any other form of security including a retention money guarantee is not permitted.</p> <p>The wording of the fixed performance guarantee shall be identical to the pro-forma provided under Clause C1.3: Form of Performance Guarantee."</p>
33	6.2.2	<p>Replace the entire contents of Clause 6.2.2 with the following:</p> <p>"If the Contractor fails in his obligations to provide the stated security within the period stated in Clause 5.3.2, or if the fixed performance guarantee shall differ from the pro-forma provided under Clause C1.3: Form of Performance Guarantee of the Contract Data, the Employer may terminate the Contract in terms of Clause 9.2."</p>
34	6.2.3	<p>Replace the entire contents of Clause 6.2.3 with the following:</p> <p>"The Contractor shall ensure that the fixed performance guarantee remains valid and enforceable until the issue of the Certificate of Completion."</p>
35	6.8.2	<p>The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:</p> <p>The value of "x" is 0.15</p> <p>The values of the coefficients are:</p> <p>a = 0.15 [Labour] b = 0.20 [Contractor's equipment] c = 0.55 [Material] d = 0.10 [Fuel]</p> <p>The urban area nearest the site is Stellenbosch.</p> <p>Data for the Contract Price Adjustment Schedule</p> <p>The indices for "L", "P", "M" and "F" are the following as published by Statistics South Africa.</p> <p>"L" is the "<u>Labour Index</u>" and shall be the Consumer Price Index (Additional Tables), Table 4 – CPI for the Western Cape, for All Items as published in the Statistical Release P0141 by Statistics South Africa.</p> <p>"P" is the "<u>Plant Index</u>" and shall be the Construction Materials Price Indices, Table 4 – Mining and Construction Plant and Equipment, for Plant and Equipment as published in the Statistical Release P0151.1 of Statistics South Africa.</p>



No.	Clause	Description
		<p>"M" is the "<u>Materials Index</u>" and shall be the Construction Materials Price Indices, Table 6 – Civil Engineering Material, for Civil Engineering Material - Total as published in the Statistical Release P0151.1 of Statistics South Africa.</p> <p>"F" is the "<u>Fuel Index</u>" and shall be the Producer Price Index, Table 1 - PPI for Final Manufactured Goods for Diesel as published in the Statistical Release P0142.1 of Statistics South Africa.</p> <p>The base month is the month prior to the tender closing.</p>
36	6.8.3	<p>Variation in cost of special material</p> <p>The Contract Price shall be subject to price adjustment for variations in the cost of special materials. The following material is classified as special material:</p> <ul style="list-style-type: none"> ○ Net bitumen content of all penetration grade bituminous products, measured in ton. ○ MC-30 Cut back Bitumen, measured in ton <p>The net amount of any variation incurred shall be determined from the ex-refinery rate for bitumen at time of purchase relative to that of the base month for the supplier (refinery) of bitumen actually used to produce the relevant bituminous product.</p>
37	6.10.1.5	The percentage advance on materials on site not yet built into the Permanent Works is 80%.
38	6.10.1.7	<p>Add the following to sub-clause 6.10.1.7:</p> <p>"... or any other fines or penalties that become due under the Contract."</p>
39	6.10.3	<p>Replace the entire contents of Clause 6.10.3 with the following:</p> <p>"Payment of the amounts referred to in Clauses 6.10.1.1, 6.10.1.2, 6.10.1.3 and 6.10.1.4 shall be subject to a retention by the Employer of an amount (called the "retention money"), being the percentage retention stated in the Contract Data, of the said amounts due to the Contractor, until the retention money reaches the "Limit of retention money" stated in the Contract Data."</p> <p>The percentage retention shall be ten per cent (10%) of payments due up to the "Limit of retention money" which shall be five per cent (5%) of the contract sum.</p>
40	6.10.4	<p>Amend the following clause:</p> <p>Replace the wordings "within 7 days" and "within 28 days" in Clause 6.10.4 with the wording "within 5 working days" and "within 30 days".</p>
41	7.2.1	<p>Add at the end of Clause 7.2.1:</p> <p>Unless otherwise directed in writing by the Engineer, materials for the Permanent Works shall be new and unused.</p>
42	8.3	<p>Amend sub-clause 8.3.1.12 of clause 8.3 as follows:</p> <p>"The design, specification or instruction of the Employer's Agent, Employer (represented by an employee authorised to do so), or defects in the materials supplied by the Employer for incorporation in the Works".</p>
43	8.6.3	<p>In the event of any occurrence which is likely to give rise to a claim under the insurance arranged by the Employer, the Contractor or sub-Contractor shall</p> <ul style="list-style-type: none"> (a) in addition to any statutory requirement or other requirements contained in the Conditions of Contract, immediately notify the Employer's Insurance Brokers by telephone or in writing giving the circumstances, nature and an estimate of the loss or damage. (b) complete a Claims Advice Form available from the Insurance Brokers to whom the form shall be returned without delay – a copy shall be sent to the Employer's Agent. (c) negotiate the settlement of claims with the Insurers through the Employer's Insurance Brokers, subject to the settlement being approved by the Employer.



No.	Clause	Description
		The Employer and Insurers shall have the right to make all and any enquiries, either on the site or elsewhere, as to the cause and results of any such occurrence and the Contractor shall give full facilities for carrying out such enquiries.
44	8.6.4	Any amount which becomes payable as a result of a claim by the Contractor under the insurance effected by the Employer shall be paid net of the deductibles to the Employer, who shall pay the said amount to the Contractor upon rectification, repair or reinstatement of the loss or damage, but this provision shall not in any way affect the Contractor's obligations, liabilities and responsibilities in terms of the Contract.
45	8.6.5	Submission of a Tender shall be deemed as acceptance by the Contractor that he is satisfied with the scope of the insurances effected by the Employer.
46	8.6.6	<p>The Contractor and/or Sub-Contractor shall provide, as a minimum, the following:</p> <ul style="list-style-type: none"> (a) Proof of registration with the Department of Labour as an employer, in terms of the Compensation for Occupational Injuries and Diseases Act 1993, as amended (b) Common Law Liability Insurance for the duration of the Contract Period and with a minimum Limit of Indemnity of not less than R1 000 000 for any one accident (c) Insurance on an All Risks basis for construction plant, equipment and other things (except those intended to incorporation into the works) brought onto the site to the full value of such construction plant, equipment and other things (d) Motor Vehicle Liability Insurance, comprising a minimum of Balance of Third Party motor risks, including Passenger Liability, subject to a minimum limit of R2,5 million (e) Where the Contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the site, the Contractor shall satisfy the employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication, then such interest shall be noted by endorsement to the Contractor's Policies of Insurance (f) Imported equipment or component parts or materials to be supplied in terms of this Contract which require any process of assembly or finishing in South Africa prior to delivery to the site are to be insured by the Contractor up to the commencement of transit to site of the assembled or finished equipment, component parts or materials, unless special arrangements are made with the Employer. <p>These insurances shall be maintained in force for the duration of the Contract, including any Defects Liability Period and in respect of Sub-Contractors, the Contractor shall be deemed to have complied with the provisions of the requirements relating to insurance by ensuring that the Sub-Contractors have effected such insurance.</p>
48	8.6.7	The Contractor may effect, at his own cost, any insurance additional to that effected by the Employer which he deems necessary in his own interests. The Employer reserves the right to call for full information regarding such insurances.
49	8.6.8	The insurances to be provided by the Contractor and Sub-Contractor shall be effected with Insurers on terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, if required by the employer, produce to the employer the Policy or Policies of insurance and the receipts for payment of the current premiums.
50	8.6.9	If the Contractor fails to effect and keep in force the insurances referred to, then the employer may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and, from time to time, deduct the amount paid by the Employer from any monies due or which may become due to the Contractor or recover same as a debt from the Contractor.
51	8.6.10	<p>Where the Contractor is responsible for the appointment of Sub-Contractors, then the Contractor shall</p> <ul style="list-style-type: none"> (a) ensure that potential and appointed Sub-Contractors are aware of the whole content of this Special Conditions of Contract Clause; and



No.	Clause	Description
		(b) ensure the compliance of Sub-Contractors with this Special Conditions of Contract clause, where applicable.
52	8.6.11	The Contractor warrants that he shall give all notices and shall observe all the terms and conditions and requirements of all insurances applicable to this Contract.
53	9.1.4	<p>Replace Clause 9.1.4 with the following:</p> <p>“Up to the time of termination of the contract by either party in terms of this Clause, or until the Contractor gives notice in terms of this Clause to terminate the contract and the Contractor is precluded from exercising his right to terminate the contract because the Employer agrees to bear any resultant additional costs provided for in Clause 9.1.2.2 hereof, the Contractor:</p> <p>a) will be entitled to an extension of calendar time for working days lost as may be approved by the Employers Agent, and</p> <p>b) will be reimbursed the cost of delay to be agreed with the Employers Agent.</p> <p>Where the circumstances described in Clauses 9.1.1 and 9.1.2 are applicable only to a certain portion of the contract, the Engineer will decide after consulting the Contractor, to what extent the contract as a whole is affected and whether or not a claim in terms of this Clause can be submitted.</p> <p>No payment will be made in terms of this Clause after the expiry of the due completion date.</p>
54	10.3.2	Amicable settlement in terms of Clause 10.4 shall be contemplated for all disputes prior to referring any dispute to adjudication or arbitration. The parties may appoint an impartial third party to assist with the amicable settlement, but this is optional and is subject to written agreement between the parties.
55	10.5.1	Dispute resolution shall be by ad-hoc adjudication.
56	10.5.3	The number of Adjudication Board Members to be appointed is one (1).
57	10.7.1	The determination of disputes which are unresolved in terms of Clause 10.5.3 shall be by arbitration.
58		<p>Add the following additional:</p> <p>1. Details to be confidential</p> <p>“The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Employers Agent .”</p> <p>2. Unbundling of Municipal Infrastructure Assets</p> <p>The unbundling or componentization of the Property, Plant and Equipment (PPE) assets is required to update the Fixed Asset Register (FAR) as well as for effective asset maintenance and provision of services. The FAR will annually be updated for all assets and components. All new assets to be recorded on the FAR would therefore have to be unbundled into its constituent components and all components be recorded on the FAR under the parent asset. The unbundling of primary assets into secondary components will be to a level that is sufficient for GRAP 17 compliance. Generally, the componentization of the PPE assets will be based on the component value, type of component (civil, electrical & mechanical) as well as anticipated lifespan of the component.</p> <p>The unbundling of projects may only commence once the project is complete, all cost is known, including retention fees, and the following documents are available:</p> <ul style="list-style-type: none"> ○ Final bill of quantities; ○ As-built plans; ○ Completion certificate; and ○ Final payment certificate.



No.	Clause	Description																																																																								
		<p>All capital expenditure per project or per capital suspense must be verified in order to ensure that the total expenditure on a project is included, that is professional fees, actual cost, retention fees and all other relevant expenditure.</p> <p>Once the final cost is determined, then the unbundling of the project commences. The total project cost should be broken down to a component level.</p> <p>The following information should be provided for each component of the capital asset once the project has been unbundled:</p> <ul style="list-style-type: none"> ○ Asset description; ○ Original cost; ○ Capital suspense account; ○ WIP Asset code; ○ Expected useful life; ○ Acquisition date (Equal to the date of last expenditure, except retention); ○ Start depreciation date; ○ Asset Class as per Asset hierarchy <p>All unbundled capital assets must be captured spatially by geo referencing it in ESRI or Arcmap or a compatible spatial program. In doing so the replaced or upgraded capital assets must be identified.</p> <p>When a replacement or upgrade is identified, the following information must be provided, the asset code, the portion in units that is replaced or in the case of a complete replacement an indications to this extend.</p> <p>The GIS layer for as-built plans must be updated independently for the capital asset register layer. All information must be made available in electronic format to the Asset and IT section</p> <p>Find below list of generic components per asset type is listed below for ROADS, but additional/ special components would however also have to be considered when unbundling assets.</p> <p style="text-align: center;"><u>MFMA — Local Government Capital Asset Management Guideline</u></p> <div style="text-align: right;">  </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">USEFUL LIFE IN YEARS</th> </tr> <tr> <th>MIN</th> <th></th> <th>MAX</th> </tr> </thead> <tbody> <tr> <td colspan="3">ROADS (Roads, Pavements, Bridges & Storm Water)</td> </tr> <tr> <td colspan="3">BRIDGES</td> </tr> <tr> <td colspan="3">Vehicle</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>60</td> <td>-</td> <td>80</td> </tr> <tr> <td>40</td> <td>-</td> <td>50</td> </tr> <tr> <td>25</td> <td>-</td> <td>40</td> </tr> <tr> <td colspan="3">Pedestrian</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>60</td> <td>-</td> <td>80</td> </tr> <tr> <td>40</td> <td>-</td> <td>50</td> </tr> <tr> <td>25</td> <td>-</td> <td>40</td> </tr> <tr> <td colspan="3">Railway</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>60</td> <td>-</td> <td>80</td> </tr> <tr> <td>40</td> <td>-</td> <td>50</td> </tr> <tr> <td>25</td> <td>-</td> <td>40</td> </tr> <tr> <td colspan="3">Reinforced retaining walls</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>-</td> <td>15</td> </tr> <tr> <td>25</td> <td>-</td> <td>30</td> </tr> <tr> <td>15</td> <td>-</td> <td>20</td> </tr> </tbody> </table>	USEFUL LIFE IN YEARS			MIN		MAX	ROADS (Roads, Pavements, Bridges & Storm Water)			BRIDGES			Vehicle						60	-	80	40	-	50	25	-	40	Pedestrian						60	-	80	40	-	50	25	-	40	Railway						60	-	80	40	-	50	25	-	40	Reinforced retaining walls						10	-	15	25	-	30	15	-	20
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C1.2b Contract Data

Data provided by the Contractor

No.	Clause	Description
1	1.1.1.9	The Contractor is:
	1.2.1.2	The Contractor's address for receipt of communications and notices is :
		Telephone: Facsimile:
		Address (Postal) : Address (Physical) :
		
		
		
2	6.4.1.3, 6.5.1.2.3	The percentage allowance to cover mark-up charges (incl. profit and overheads) is 7.5%



C1.3 Form of Guarantee for Construction

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Third Edition, (2015).

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" 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.

"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:

Type of Performance Guarantee: Fixed

"Expiry Date" means: Date of issue of the Certificate of Completion



CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

1. FIXED PERFORMANCE GUARANTEE

- 1.1. Where a fixed PERFORMANCE Guarantee has been selected. The Guarantor's liability shall be limited to the amount of the Guarantee Sum.
- 1.2. The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.
- 1.3. The Employer's Agent 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.

2. CONDITIONS APPLICABLE TO FIXED PERFORMANCES GUARANTEES:

- 2.1. The Guarantor hereby acknowledges that:
 - 2.1.1. 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.
 - 2.1.2. Its obligation under this Performance Guarantee is restricted to the payment of money.
- 2.2. Subject to the Guarantor's maximum liability referred to in 1.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 2.2.1 to 2.2.3:
 - 2.2.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 2.2.2;
 - 2.2.2. A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 2.2.1 and the sum certified has still not been paid;
 - 2.2.3. A copy of the aforesaid payment which entitles the Employer to receive payment in terms of the Contract of the sum certified in 2.2.
- 2.3. Subject to the Guarantor's maximum liability referred to in 1.1, 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:
 - 2.3.1. The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 2.3; or
 - 2.3.2. 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 2.3; and
 - 2.3.3. The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provision liquidation court order.
- 2.4. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 2.2 and 2.3 shall not exceed the Guarantor's maximum liability in terms of 1.1.
- 2.5. Where the Guarantor has made payment in terms of 2.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of the Performance Guarantee shall bear interest at the prime overdraft rate by the Employer's Bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 2.6. Payment by the Guarantor in terms of 2.2 or 2.3 will only be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.



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- 2.7. Payment by the Guarantor in terms of 2.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 2.8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have right to claim his from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 2.9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 2.10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.2, 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.
- 2.11. This Performance Guarantee, with the required demand notices in terms of 2.2 or 2.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 2.12. Where the 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 No 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 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)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

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C1.4 Occupational Health and Safety Agreement

TO BE COMPLETED ON AWARD OF CONTRACT

AGREEMENT MADE AND ENTERED INTO BETWEEN THE STELLENBOSCH MUNICIPALITY (HEREINAFTER CALLED THE "EMPLOYER") AND

..... ,
(Contractor/Mandatory/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS AMENDED.

I, , representing

..... , as an employer
in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number:

OR Compensation Insurer: Policy No.:

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

Signed at on the day of 20

Witness

Mandatory

Signed at on the day of 20

Witness

for and on behalf of
STELLENBOSCH MUNICIPALITY



C1.5 Protection of the Environment Declaration

TO BE COMPLETED ON AWARD OF CONTRACT

The Contractor will not be given right of access to the Site until this form has been signed

CONTRACT NO.: BSM 19/25

CONTRACT TITLE: CONSTRUCTION OF SCHOOL STREET ROAD AND NMT FACILITIES IN JAMESTOWN

I/ we,.....{Contractor} record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.
2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
3. I/ we declare that I/ we have read and understood the contents of the Environmental Management Programme (which is comprised of the Environmental Management Specification and its Annexures) for this Contract, and that I/ we understand my/our responsibilities in terms of enforcing and implementing the Environmental Management Programme. I/ we also declare that I/ we have made appropriate provision in my/ our pricing of the Bills of Quantities items for the Environmental Management Programme.
4. I/ we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Employers Agent shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:
 - 4.1 The Employers Agent, in determining the amount of such fine, shall take into account, *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences
 - 4.2 The Employers Agent shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Employers Agent has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed
CONTRACTOR

Date.....



C1.6 Insurance Broker's Warranty

TO BE COMPLETED ON AWARD OF CONTRACT

Pro Forma

Logo

Letterhead of Contractor's Insurance Broker

Date _____

STELLENBOSCH MUNICIPALITY
PO Box 17
Stellenbosch
7600

Dear Sir

CONTRACT NO.: BSM 19/25

CONTRACT TITLE: CONSTRUCTION OF SCHOOL STREET AND NMT FACILITIES IN JAMESTOWN

NAME OF CONTRACTOR: _____

I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the Stellenbosch Municipality with regard to the abovementioned contract, and that all the insurances and endorsements, etc., are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____



C1.7 CONTRACT OF TEMPORARY EMPLOYMENT AS COMMUNITY LIAISON OFFICER

Construction Contract No.: **BSM 19/25**

PROJECT: CONSTRUCTION OF SCHOOL STREET AND NMT FACILITIES IN JAMESTOWN

AGREEMENT made between the CONTRACTOR
and the Community Liaison Officer.....
hereafter referred to as the CLO, for the appointment and employment of a CLO for the duration of the work
in respect of the above named construction contract.

1. THE PARTIES HAVE AGREED THAT

The CLO will be employed by the CONTRACTOR on a temporary basis for the duration of the work
from the date of signing this agreement to the date of practical completion as defined in the Contract,
subject to all the conditions set out below.

2. THE DUTIES OF THE COMMUNITY LIAISON OFFICER SHALL BE:

1. to keep the community informed on the progress of the project;
2. to keep the Contractor informed on relevant Community affairs and possible grievances;
3. to manage the recruitment of workers from the Sub-Council Job-Seekers Database;
4. to assist the Contractor's supervisory staff in the management of the workers.

3. THE FOLLOWING CONDITIONS OF EMPLOYMENT SHALL APPLY:

The Conditions of Temporary Employment as applicable on this Contract for the workers recruited
from the Community shall apply equally to the CLO, except that the rate of remuneration shall be
R350.00 per working day. These conditions that apply are listed below as they appear in the Contract
of Temporary Employment:

3.1 If required to work on a statutory public holiday or Sunday the payment will be double the
amount stated in the previous paragraph.

3.2 Maximum hours of work:

- (i) 9¼ hours per day
- (ii) 45 hours per week;
- (iii) 5 days per week;
- (iv) 5 hours without an interval, whereupon there shall be an interval of at least 30 minutes;
- (v) A spread-over period of 12 hours.

3.3 The CLO shall be entitled to payment where he is prevented from working by reasons which
are within the control of the Contractor.

3.4 On days when it is raining the Contractor may, before 9 a.m., decide not to open the site
and there will be no pay.

If the Contractor closes the site between 9 a.m. and 1 p.m., the CLO will be paid half the daily wage.

If the site works later than 1 p.m., the CLO will be paid the full daily wage.

3.5 Workers and the CLO will not be permitted to work under conditions of:

- (i) undisciplined or unruly behaviour;
- (ii) insubordination to Team Leader, Supervisors or Management;
- (iii) abuse of intoxicating substances;
- (iv) criminal actions by the employee;



-
- (v) strike action or political stay-aways.
- 3.6 Workers, including the CLO, may be dismissed after two official written warnings for the following behaviour:
- (i) undisciplined or unruly behaviour;
 - (ii) insubordination to Team Leader, Supervisors or Management;
 - (iii) abuse of intoxicating substances;
 - (iv) willful or negligent damage to or loss of machines or equipment.
- The Contractor shall ensure that he has statements from at least two witnesses concerning any of the above situations.
- The Contractor shall inform the CLO within 24 hours of any warning issued to workers employed from the Job-Seekers Database.
- 3.7 The CLO will be paid on a Friday afternoon every two weeks, one week in arrears.
- 3.8 The CLO shall be given a statement with each payment on which is recorded:
- (i) the name of the Contractor;
 - (ii) the CLO's name;
 - (iii) the number of days worked by the CLO;
 - (iv) the rate per day;
 - (v) the details of any deductions made;
 - (vi) the actual amount paid to the CLO.
- 3.9 No deduction shall be made from the remuneration except where the CLO consents in writing or unless the Contractor is permitted or required to do so by law or the order of any competent court.
- 3.10 The CLO shall be supplied free of charge with all health and safety equipment required by the Occupation Health and Safety Act. The equipment shall remain the property of the Contractor.
- 3.11 The Contractor must give the CLO at least one week's notice of the termination of the Contract of Temporary Employment. If this is not done, the CLO must be paid earnings for five days. This condition does not apply if the CLO is dismissed.
- 3.12 At the end of the period of temporary employment, the Contractor shall provide a Certificate of Service recording the Contractor's name, the CLO's name and address, the period of service, the type of work on which the CLO was engaged and the rate of remuneration on termination.

4. TERMINATION OF AGREEMENT

- 4.1 If the CLO can no longer perform and execute his/her duties as detailed in this agreement, this agreement will be terminated without prejudice to any rights under this agreement.

5. THE CONDITIONS OF THIS AGREEMENT

- 5.1 The parties expressly declare that this agreement contains all the conditions negotiated between them, and no condition or stipulation not contained herein shall be binding upon the parties.



6. **THUS AGREED AND SIGNED BY THE PARTIES:**

Contractor:

.....

Community

Liaison

officer:

.....

Date: |



Part C2: Pricing Data

	Pages
C2.1 Pricing Assumptions.....	119 - 121
C2.2 Bills of Quantities.....	122 - 151



1. C2.1 Pricing Assumptions

C2.1.1 Measurement and payment shall be in accordance with the relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Road Authorities (1998 edition) as amended in the Scope of Works.

C2.1.2 The units of measurement described in the Pricing Schedule are metric units. Abbreviations used in the Pricing Schedule are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC Sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000kg)
W/day	=	Work day

C2.1.3 For the purpose of the Pricing Schedule, the following words shall have the meanings assigned to them:

Unit:	The unit of measurement for each item of work as defined in the COLTO Standard Specification for Road and Bridge Works for State Road Authorities (1998 edition).
Quantity:	The number of units of work for each item.
Rate:	The payment per unit of work for which the Service Provider tenders to do the work.
Amount:	The product of the quantity and the rate tendered for an item.
Lump Sum:	An amount tendered for an item, the extent of which is described in the Pricing Schedule, the Scope of Work or elsewhere, but of which the quantity of work is not measured in units.
Prime cost:	Is a specific type of Provisional Sum where payment is made on the production of invoices showing the cost price of the implementation or installation of the service required. Services rendered in this manner carry a mark-up for which a rate is offered at tender stage to cover all the tenderer's handling, supervision and liability costs in providing the item or services. Any percentage adjustment or lump sum mark-up against the Prime cost for handling fee, profits, etc. shall not be negative.



	<p>Provisional Sum: Means a sum (if any) which is specified in the contract as a provisional sum, for the execution of any part of the works or the supply of plant, materials or services under sub-clause 13.5 (Provisional sums). Any percentage adjustment or lump sum mark-up against the Provisional Sum for handling fee, profits, etc. shall not be negative.</p>
C2.1.4	Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
C2.1.5	It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.sabs.co.za for information standards)
C2.1.6	The prices and rates in the Pricing Schedule are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out. A complete breakdown of all rates in electronic format (Excel) on a separate CD must be submitted with the completed pricing schedule. The rates are to be clearly referenced to the relevant pay item numbers, with each rate broken down into its labour, materials, plant, fuel, overhead charges and profit components.
C2.1.7	Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items.
C2.1.8	An item against which no price is entered will be considered to be covered by the other prices or rates in the Pricing Schedule. A single lump sum will apply should a number of items be grouped together for pricing purposes.
C2.1.9	The quantities set out in the Pricing Schedule are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Pricing Schedule.
C2.1.10	Reasonable compensation will be received where no pay item appears in the Pricing Schedule in respect of work required in terms of the Contract and which is not covered in any other pay item.
C2.1.11	The short descriptions of the items of payment given in the Pricing Schedule are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
C2.1.12	The item numbers appearing in the Pricing Schedule refer to the corresponding item numbers in the COLTO Standard Specification for Road and Bridge Works for State Road Authorities (1998 edition)



C2.2 Bills of Quantities

Bid specifications may not make any reference to any particular trade mark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words "or equivalent".



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Schedule 1

GENERAL REQUIREMENTS AND PROVISIONS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
B12.01	LI	Relocation and protection of existing services				
	LI	(a) Provisional Sum for existing services to be relocated and/or protected during construction	Prov sum	1.0	1 000 000.00	1 000 000.00
		(b) Handling cost and profit in respect of sub item B12.01 (a) above	%	1 000 000.00		
B12.02		Construction of Survey Beacons				
		(a) Provisional Sum for new survey beacons to be constructed or for existing survey beacons to be protected during construction	Prov sum	1.0	25 000.00	25 000.00
		(b) Handling cost and profit in respect of sub item B12.02 (a) above	%	25 000.00		
B12.03		As-built Topographic Survey				
		(a) Provisional Sum for as built survey	Prov sum	1.0	35 000.00	35 000.00
		(b) Handling cost and profit in respect of sub item B12.03 (a) above	%	35 000.00		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

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

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
13.00		CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS				
B13.01		Contractor's general obligations				
		(a) Fixed obligations	L/sum	1.0		
		(b) Value-related obligations	L/sum	1.0		
		(c) Time-related obligations	month	20.0		
B13.02		Community Liason Officer (CLO)	month	20.0		
B13.03		Sign Boards				
		Supply, transport to site and erect contract signboards	No	2.0		
B13.04		Health and Safety				
		(a) Fixed obligations for the preparation of risk assessments, safe work procedures, the project H & S file, the H & S plan and any other H & S matters that the contractor deems necessary.	L/sum	1.0		
		(b) Fixed obligations for completing and checking the Project H & S file and handing over to the Client on completion of the works.	L/sum	1.0		
		(c) Time related obligations for updating and amending the risk assessments, safe work procedures, the project H & S file, the H & S plan and full compliance with all H & S matters during the construction of the works under the contract.	month	20.0		
Total Carried Forward To Summary						



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Schedule 1

SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEERS SITE PERSONNEL

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
14.00		HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL				
14.01		Office and laboratory accommodation				
		(a) Offices (interior floor space only)	m ²	20.0		
		(e) Ablution units	No	2.0		
14.02		Office and laboratory furniture				
		(a) Chairs	No	6.0		
		(d) Desks, complete with drawers and locks	No	6.0		
		(e) Drawing tables	No	1.0		
		(f) Conference tables	No	1.0		
14.03		Office and laboratory fittings Installations and equipment				
		(a) Items measured by number				
		(1) 220/250 volt power points	No	1.0		
		(2) 400/231 volt 3-phase power points	No	1.0		
		(3) Double 80 watt fluorescent light fittings complete with ballast and tubes	No	1.0		
		(4) Double 55 watt fluorescent light fittings complete with ballast and tubes	No	1.0		
		(5) Single incandescent light fittings complete with 100 watt globes	No	1.0		
		(6) Hand wash basins complete with taps and drains	No	1.0		
		(10) Fire extinguishers, 9,0 kg, all purpose dry powder type, complete, mounted on wall with brackets	No	1.0		
		(11) Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection	No	1.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 1400: HOUSING, OFFICES AND LABORATORY FOR THE ENGINEERS SITE PERSONNEL

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
Brought Forward						
14.08		(14) General-purpose steel cupboards with shelves	No	1.0		
		(16) Refrigerators	No	1.0		
		(17) Bookcases	No	1.0		
		(b) Prime-cost items and items paid for in a lump sum:				
		(1) Provision of telephone service, including the cost of calls in connection with contract administration and telephone rental	Prov sum	1.0	7 500.00	7 500.00
		(2) Handling costs and profit in respect of sub-item 14.03(b)(1) above	%	7 500.00		
		(c) Items measured by area				
		Services				
		(a) Services at office and laboratories				
		(1) Fixed costs	L/sum	1.0		
14.10		(2) Running costs	month	20.0		
		Provision of printer, scanner & photostat facilities	month	20.0		
Total Carried Forward To Summary						

BSM19/25 - Jamestown School Street



Schedule 1

SECTION 1500: ACCOMODATION OF TRAFFIC

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
15.00		ACCOMODATION OF TRAFFIC				
B15.01		Accommodating traffic and maintaining temporary deviations	km	1.0		
B15.02		Earthworks for temporary deviations				
		(a) Shaping of temporary deviations	km	1.5		
		(b) Cut and borrow to fill	m ³	1000.0		
B15.03	LI	Temporary traffic-control facilities				
	LI	(a) Flagmen	man-day	250.0		
	LI	(b) Portable STOP and GO-RY signs	No	2.0		
		(c) Temporary traffic-control signals	No	2.0		
		(e) Road signs, R- and TR-series, (1200mm diameter)	No	2.0		
		(f) Road signs, TW-series, (1200mm diameter)	No	2.0		
		(g) Road signs, STW-, DTG-, TGS- AND TG-series (excluding delineators and barricades)	No	4.0		
		(h) Delineators (DTG50J):				
		(1) Single	No	10.0		
		(j) Traffic cones (500mm)	No	6.0		
15.05		Gravelling and repair of temporary deviations and existing gravel shoulders used as temporary deviations:				
		(a) Temporary deviations	m ³	650.0		
15.06		Watering of temporary deviations	kℓ	200.0		
B15.07		Blading by road grader of:				
		(a) Temporary deviations	km-pass	2.0		
		(b) Existing roads used as temporary deviations	km-pass	2.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street**Schedule 1****SECTION 1500: ACCOMODATION OF TRAFFIC**

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
Brought Forward						
		(c) Existing gravel shoulders used as temporary deviations	km-pass	2.0		
15.08		Repairs, alterations and/or additions to existing roads used as temporary deviations	Prov sum	1.0	30 000.00	30 000.00
15.10		Accommodation of traffic where the road is constructed in half-widths	km	1.2		
Total Carried Forward To Summary						



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Schedule 1

SECTION 1600: OVERHAUL

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
16.00		OVERHAUL				
B16.02		Overhaul on material hauled in excess of 1,0 km (ordinary overhaul)	m ³ -km	32 500.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 1700: CLEARING AND GRUBBING

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
17.00		CLEARING AND GRUBBING				
B17.01		Clearing and grubbing	ha	2.6		
17.02	LI	Removal and grubbing of large trees and tree stumps				
	LI	(a) Girth exceeding 0m up to and including 1m	No	12.0		
17.04	LI	Clearing and grubbing at inlets and outlets of hydraulic structures	m ²	30.0		
Total Carried Forward To Summary						



Schedule 1

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
21.00		DRAINS				
21.02	LI	Clearing and shaping existing open drains	m³	275.0		
21.03	LI	Excavation for subsoil drainage systems: (a) Excavating soft material situated within the following depth ranges below the surface level: (1) 0 m up to 1,5 m (2) Exceeding 1,5 m and up to 3,0 m (b) Extra over subitem 21.03(a) for excavation in hard material irrespective of depth	m³ m³ m³	655.0 280.0 110.0		
21.04		Impermeable backfilling to subsoil drainage systems	m³	125.0		
21.06		Natural permeable material in subsoil drainage systems (crushed stone): (b) Crushed stone obtained from commercial sources	m³	120.0		
21.07		Natural permeable material in subsoil drainage systems (sand): (b) Sand from commercial sources	m³	60.0		
21.08	LI	Pipes in subsoil drainage systems:				
	LI	(b) Unplasticised PVC pipes and fittings, normal duty complete with couplings				
	LI	(1) 110 mm internal dia. perforated or slotted	m	1 350.0		
21.10	LI	Synthetic-fibre filter fabric				
	LI	(a) Grade C or similar	m²	2 080.0		
21.12	LI	Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems:				
	LI	(a) Outlet structures	No	4.0		

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Contract
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Schedule 1

SECTION 2100: DRAINS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
Brought Forward						
	LI	(b) Manholes boxes	No	4.0		
	LI	(c) Junction boxes	No	4.0		
	LI	(d) Cleaning eyes	No	4.0		
21.13	LI	Concrete caps for subsoil drain pipes	No	4.0		
21.14		Repairing or replacing existing drainage systems	Prov sum	1.0	100 000.00	100 000.00
21.15		Overhaul for material hauled in excess of 1,0 km free-haul (normal overhaul)	m ³ -km	6500.00		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 2200: PREFABRICATED CULVERTS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
22.00		PREFABRICATED CULVERTS				
22.01		Excavation				
		(a) Excavating soft material situated within the following depth ranges below the surface level:				
		(1) 0 m up to 1.5 m	m ³	1 387.0		
		(2) Exceeding 1,5 m and up to 3,0 m	m ³	464.0		
22.02		Backfilling:				
		(a) Using the excavated material	m ³	975.0		
		(b) Using imported selected material	m ³	410.0		
22.03		Concrete pipe culverts:				
		(b) On class B bedding				
		(1) 450mm dia. Spigot and Socket 100D	m	845.0		
22.07	LI	Cast in situ concrete and formwork				
	LI	(c) In inlet and outlet structures, skewed ends, catchpits, manholes, thrust and anchor blocks, excluding formwork but including class U2 surface finish				
	LI	(1) Class 30/19	m ³	46.0		
	LI	(d) Formwork of concrete under subitem 22.07(c) above				
	LI	(1) Vertical formwork for F1 surface finish	m ²	68.0		
22.10	LI	Steel reinforcement				
	LI	(c) Welded fabric mesh ref. 193	kg	638.0		
22.12		Removing existing concrete				
		(a) Plain concrete	m ³	10.0		
		(b) Reinforced concrete	m ³	110.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 2200: PREFABRICATED CULVERTS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
Brought Forward						
22.17	LI	Manholes, catchpits, precast inlet and outlet structures complete irrespective of depth including brickwork, plaster, benching and all accessories				
	LI	(a) Manholes				
	LI	(1) Stormwater Manhole: Type C	No	11.0		
	LI	(b) Catchpits				
	LI	(1) Type A	No	14.0		
	LI	(2) Type B	No	4.0		
		(d) Extra over or less than subitem 22.17(b) for variations in the depths of catchpits from the standard depth designated for tendering purposes (standard depth and type of catchpit indicated)	m	50.0		
22.25		Overhaul on excavated material carted to spoil, backfill material (but excluding Portland cement in the case of soil cement), existing structures demolished and removed to spoil, and removing and relaying, and removing and stacking existing prefabricated culverts, for haul in excess of the free-haul distance	m ³ -km	5 700.0		
22.26	LI	Hand excavation to determine the positions of existing services	m ³	350.0		
22.27		Protection, location and/or reinstatement of existing services	Prov sum	1.0	100 000.00	100 000.00
22.28	LI	Connect new stormwater to existing stormwater manhole or catchpit	No	3.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
23.00	LI	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS				
23.01	LI	Concrete kerbing				
	LI	(a) Precast kerbing to SABS 927				
	LI	(6) Type BK2 kerb with C1 channel	m	910.0		
23.02	LI	Concrete kerbing channeling combination				
	LI	(6) Type BK2 kerb without channel	m	860.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 3100: BORROW MATERIALS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
31.00		BORROW MATERIALS				
31.01		Excess overburden	m ³	500.0		
31.02		Excess overburden in borrow pits for obtaining crushed stone for pavement layers				
		(a) Overburden in soft or intermediate excavation	m ³	1 000.0		
		(b) Overburden in hard excavation	m ³	500.0		
31.03		Finishing-off borrow areas in:				
		(a) Hard material	ha	2.0		
		(b) Intermediate material	ha	2.0		
		(c) Soft material	ha	2.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 3300: MASS EARTHWORKS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
33.00		MASS EARTHWORKS				
B33.01		Cut and borrow to fill, including free-haul up to 1.0km				
		(a) Gravel material in compacted layer thickness of 200 mm and less:				
		(2) Compacted to 93% of modified AASHTO density	m ³	5 360.0		
		(e) Pioneer layer	m ³	450.0		
33.03		Extra over item 33.01 for excavating and breaking down material in:				
		(a) Intermediate excavation	m ³	2502.0		
		(b) Hard excavation	m ³	1252		
B33.04		Cut to spoil, including free-haul up to 0,5 km. Material obtained from:				
		(a) Soft excavation	m ³	1183.0		
		(b) Intermediate excavation	m ³	1183.0		
		(c) Hard excavation	m ³	594.00		
B33.07		Removal of unsuitable material (including free haul of 0.5 km):				
		(b) In layer thicknesses exceeding 200mm				
		(1) Stable material	m ³	405.0		
		(2) Unstable material	m ³	280.0		
33.10		Roadbed preparation and the compaction of material				
		(b) Compaction to 93% of modified AASHTO density	m ³	210.0		
33.11		Three-roller-passes compaction:				
		(a) Vibratory roller	m ²	5 360.0		
Total Carried Forward						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 3300: MASS EARTHWORKS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
Brought Forward						
33.12		In situ treatment of roadbed:				Rate Only
		(a) In situ treatment by ripping	m ³	210.0		
		(b) In situ treatment by blasting	m ³	200.0		
33.13		Finishing-off cut and fill slopes, medians and interchange areas:				
		(a) Cut slopes	m ²	2 680.0		
		(b) Fill slopes	m ²	5 400.0		
33.14		Extra over item 33.01 for excavating material from the pavements and fills of existing roads:				
		(a) Non-cemented material	m ³	1 000.0		
33.18		Extra over items 33.10, 33.11 and 33.12 for preparing and/or treating the roadbed and compacting material in restricted areas:				
		(a) Item 33.10 for roadbed preparation and the compaction of material	m ³	230.0		
		(b) Item 33.11 for three roller passes compaction	m ²	5 360.0		
		(c) Item 33.12 for in situ treatment of roadbed	m ³	250.0		
33.19		Stockpiling of gravel material (G9 or better) for subgrade treatment layer. Rate to include stockpiling and then later placing and compacting to 93% Mod AASHTO	m ³	1 200.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
34.00		PAVEMENT LAYERS OF GRAVEL MATERIAL				
B34.01		<p>Pavement layers constructed from gravel taken from cut or borrow, including all haul:</p> <p>(c) Gravel layers (unstabilized gravel) compacted to:</p> <p>(2) 95% of modified AASHTO density (150mm G5) (School Street)</p> <p>(3) 93% of modified AASHTO density (150mm G7) (School Street)</p> <p>(4) 95% of modified AASHTO density (150mm G5) (NMT)</p> <p>(5) 93% of modified AASHTO density (150mm G7) (NMT)</p> <p>(6) 90% of modified AASHTO density (150mm G9) (NMT)</p> <p>Pavement layers constructed from gravel obtained from commercial sources, including</p> <p>(1) Type G5 material compacted to 95% of bulk relative density</p> <p>(1) Type G7 material compacted to 93% of bulk relative density</p> <p>(1) Type G8 material compacted to 90% of bulk relative density</p> <p>(1) Type G9 material compacted to 90% of bulk relative density</p>				
			m ³	1 166.0		
			m ³	1 480.0		
			m ³	310.0		
			m ³	505.0		
			m ³	550.0		
			m ³	250.0		
			m ³	290.0		
			m ³	100.0		
			m ³	50.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 3600: CRUSHED STONE BASE

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
36.00		CRUSHED STONE BASE				
36.01		Crushed-stone base (c) Constructed from type G2 material obtained from commercial sources and compacted to 98% of bulk relative density (1) 37mm nominal maximum size stone	m ³	1 131.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 4100: PRIME COAT

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
41.00		PRIME COAT				
41.01		Prime Coat:				
		(c) MC-30 cut-back bitumen (Nominal application rate of 0.8l/m2)	litre	6 162.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 4200: ASPHALT BASE AND SURFACING

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
42.00		ASPHALT BASE AND SURFACING				
42.01		Asphalt Base				
		(a) Using 80/100 pen. bitumen				
		(1) Continuously graded (maximum size 19mm)				
		(i) 30mm thick	m ²	12 350.0		
42.04		Tack coat of 30% stable-grade emulsion	litre	21 800.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 5100: PITCHING, STONWORK AND PROTECTION AGAINST EROSION

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
51.00	LI	PITCHING, STONWORK AND PROTECTION AGAINST EROSION				
51.01	LI	Stone pitching:				
	LI	(b) Grouted stone pitching	m ²	100.0		
51.05	LI	Concrete edge beams				
	LI	(a) Class 15/38	m ³	50.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 5600: ROAD SIGNS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
56.00	LI	ROAD SIGNS				
56.01	LI	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class 1 retro-reflective material, where the sign board is constructed from:				
	LI	(a) Aluminium sheet (2,0 mm thick)				
	LI	(1) Area not exceeding 2 m ²	m ²	60.0		
56.03	LI	Road sign supports (overhead road sign structures excluded):				
	LI	(c) Timber				
	LI	(1) 100 mm dia.	m	188.0		
	LI	(2) 150 mm dia.	m	90.0		
56.05	LI	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m ³	50.0		
56.06	LI	Extra over item 56.05 for cement-treated soil backfill	m ³	5.0		
56.07	LI	Extra over item 56.05 for rock excavation	m ³	10.0		
56.08	LI	Dismantling, storing and re-erecting road signs with a surface area of:				
	LI	(a) Up to 2 m ²	No	20.0		
56.09	LI	Dismantling and storing road signs with a surface area of:				
	LI	(a) Up to 2 m ²	No	10.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 5700: ROAD MARKINGS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
57.00	LI	ROAD MARKINGS				
57.01	LI	Road marking paint:				
	LI	(a) White lines (broken or unbroken)				
	LI	(1) 100 mm wide	km	2.7		
	LI	(2) 150 mm wide	km	2.0		
	LI	(d) White lettering and symbols	m ²	140.0		
57.06	LI	Setting out and premarking the lines (Excluding traffic-island markings, lettering and symbols)	km	2.7		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
58.00		LANDSCAPING AND PLANTING PLANTS				
58.03		Preparing the areas for grassing:				
		(2) Topsoil obtained from other sources by the contractor (including all haul)	m ³	1 500.0		
		(f) Stockpiling of topsoil (free-haul 1,0 km)	m ³	1 500.0		
58.04		Grassing:				
		(b) Sodding by using the following types of sods:				
		(1) Nursery sods	m ²	3 600.0		
		(2) Veld sods	m ²	3 600.0		
		(c) Hydroseeding:				
		(3) Hydroseeding	ha	1.0		
58.05		Watering the grass when established by topsoiling only	kℓ	20.0		
58.10		Extra work for landscaping	Prov sum	1.0	15 000.00	15 000.00
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
59.00		FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS				
59.01		Finishing the road and road reserve: (b) Single carriageway road	km	2.0		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
81.00		TESTING MATERIALS AND WORKMANSHIP				
81.02		Other special tests requested by the engineer	Prov sum	1.0	150 000.00	150 000.00
		(a) Handling cost and profit in respect of sub item B12.03 (a) above	%	150 000.00		
Total Carried Forward To Summary						



BSM19/25 - Jamestown School Street

Schedule 1

DAYWORKS

Number	LIC	Item Description	Unit	Quantity	Rate	Amount R
D10.01		Dayworks				
		Personnel				
		(a) Unskilled labour	h	140.0		
		(b) Semi-skilled labour	h	50.0		
		(c) Skilled labour	h	40.0		
		(d) Ganger	h	40.0		
		(e) Flagmen	h	40.0		
		(f) Surveyor	h	20.0		
D10.03		Plant				
		(a) Bulldozer with rippers (minimum 125kW)	h	60.0		
		(b) Front end loader (minimum 60kW)	h	60.0		
		(c) Tractor loader backhoe 4 x 4 (50kW)	h	60.0		
		(d) Track excavator (125kW)	h	60.0		
		(e) Smooth drum roller (12 ton)	h	30.0		
		(f) Water bowser (10 000 litre)	h	30.0		
		(g) Tip truck 6 m³ capacity	h	30.0		
		(h) Tip truck 10 m³ capacity	h	30.0		
		(i) LDV (1600cc)	km	1.0		
		(j) Water pump (75mm diameter with 50m hose)	h	60.0		
		Total Carried Forward To Summary				



BSM19/25 - Jamestown School Street

Schedule 1

SUMMARY OF SECTIONS

Section	Description	Amount	
		R	c
1200	GENERAL REQUIREMENTS AND PROVISIONS		
1300	CONTRACTORS ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS		
1400	HOUSING, OFFICES AND LABORATORY FOR THE ENGINEERS SITE PERSONNEL		
1500	ACCOMMODATION OF TRAFFIC		
1600	OVERHAUL		
1700	CLEARING AND GRUBBING		
2100	DRAINS		
2200	PREFABRICATED CULVERTS		
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS		
3100	BORROW MATERIALS		
3300	MASS EARTHWORKS		
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL		
3600	CRUSHED STONE BASE		
4100	PRIME COAT		
4200	ASPHALT BASE AND SURFACING		
5100	PITCHING, STONWORK AND PROTECTION AGAINST EROSION		
5600	ROAD SIGNS		
5700	ROAD MARKINGS		
5800	LANDSCAPING AND PLANTING PLANTS		
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS		
8100	TESTING MATERIAL AND WORKMANSHIP		
D1000	DAYWORKS		
	SUBTOTAL		
	CONTINGENCIES @ 10%		
	SUBTOTAL		
	VAT @ 15%		
Total Carried Forward To Summary Of Schedules			



DECLARATION (In respect of completeness of Tender)

STELLENBOSCH MUNICIPALITY
PO Box 17
Stellenbosch
7600

I/we, the undersigned, do hereby declare that these are the properly priced Bills of Quantities forming Part C2.2 of this Contract Document containing 29 pages in consecutive order upon which my/our tender for **CONTRACT BSM 19/25: CONSTRUCTION OF SCHOOL STREET AND NMT FACILITIES IN JAMESTOWN** have been based. If I/we have submitted a printed version of the Bills of Quantities, I/we warrant that no amendments have been made to it from the original, other than amendments issued in any Addenda in terms of Clause C.3.2 in Part T1.2 Tender Data.

SIGNATURE OF TENDERER/S

DATE



PART C3: SCOPE OF WORK

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C3.2 Engineering	159
C3.3 Procurement	161
C3.4 Construction	162
C3.5 Management	235
C3.6 Annexes	248

Status

Should any requirement or provision in the parts of the Scope of Work conflict with any requirement of any Standardised Specification, or any drawings, the order of precedence, unless otherwise specified, is:

Drawings

Scope of Work (Parts C3.1, C3.4, C3.5 and C3.6)

Model Preambles for Trades 2008

C3.1 DESCRIPTION OF THE WORKS

CONTENTS

- 3.1.1 EMPLOYER'S OBJECTIVES
- 3.1.2 OVERVIEW OF THE WORKS
- 3.1.3 EXTENT OF THE WORKS
- 3.1.4 LOCATION OF THE WORKS
- 3.1.5 TEMPORARY WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Stellenbosch Municipality's objective is upgrading the existing School Street which is used as a daily thoroughfare for commuters to Weber Gedenk NGK Primary School. The upgrades shall include the construction of School Street, a tie into Pajaro Lane and Non-Motorised Transport (NMT) facilities, as well as the implementation of stormwater drainage infrastructure.

The completed roads and stormwater drainage infrastructure together with the additional facilities mentioned above will provide safer access to the community not only for vehicular access but also for pedestrians.

The track path of the existing roads is in a state of disrepair. Furthermore, allowance is made for non-motorized transport which represents a priority for pedestrians.

The description of the project contained in the Scope of Work is merely an outline of the Contract Works and shall not limit the work to be carried out by the Contractor under this Contract.

C3.1.2 OVERVIEW OF THE WORKS

C3.1.2.1 General Description

The completed roadway shall include an all-purpose wearing surface for commercial vehicles. The road is a Class 4, Local Distributor, commuter bus services are routed along this class of road. The road must be upgraded appropriately, to cater for heavy traffic loading. An access road to tie into Pajaro Lane from School Street is also required.

The scope of the work entails construction of approximately 622 m of School Street leading to the Route 5 Access Road to the entrances of Weber Gedenk Primary School and Stellenzicht Secondary School, 106 m road to tie into Pajaro Lane, 769 m of NMT facilities, and required stormwater drainage infrastructure.

The concept for implementation includes the construction of the roadway along the western portion of School Street between Pajaro Lane and Blakemore Street, to the south of the water servitude. This will include a turning circle at the Pajaro Lane and School Street intersection, a tie into Pajaro Lane from this turning circle, the formalization of the Helderberg Street and School Street intersection and a turning circle at the Blakemore Street and School Street intersection. The NMT for this portion of School Street

The construction activities essentially comprise but are not limited to the following:

3.1.2.2 Road Works

- Construction of re-aligned surfaced road (School Street)
- Construction of pavement layers and surfacing with a 30 mm asphalt layer for School Street and the tie into Pajaro Lane, and 20mm asphalt layer for the NMT facility.
- Construction of side drains (Kerb and channel)
- Construction of closed drainage system (stormwater pipe network)
- Removal of trees to accommodate construction of road and NMT facility.
- Installation of road signs and road marking.
- Construction of a boulder (pioneer) layer where considered necessary by the Employer's Agent.

C3.1.2.5 Key Activities

The general scope of works includes but is not limited to the following:

- Photographical record of the current state of existing road by the contractor.
- Site Establishment and de-establishment.
- Clearing the site.
- Obtaining of all necessary wayleaves and working permits.

- Obtaining all necessary approvals from local authorities for traffic accommodation of the Works.
- Verifying the location and protection of existing services.
- Survey to check controls.
- Method statements for connecting new works to existing works
- Traffic accommodation to construct road works
- Ancillary works
- Construction of re-aligned road
- Construction of storm water systems (SW pipes, kerb and channel)
- Construction of sidewalks and pedestrian facilities (NMT Facilities)
- Method statements and design details for construction of temporary works
- Storm water management of the site
- Dust and construction debris control (i.e. ensuring road surfaces are kept clean of construction spillage and debris).

C3.1.2.6 Location of the works

Jamestown is a small suburb situated south of Central Stellenbosch, to the east of the R44 as shown on the Locality Map in Figure 3.1. Jamestown consists of a variety of land uses including a residential area (approximately 825 dwelling units) with a shopping Centre, fuel station, a medical clinic, two schools and several smaller shops distributed throughout the suburb. Future residential developments are planned for the southern region of Jamestown. The envisioned development includes 571 approved residential units and a further 1,645 planned units. The proposed project is situated within the Stellenbosch Local Municipality.



Figure 3.1: Site location (Google Earth, 2020)

C3.1.2.7 Boundaries of the site

The successful tenderer(s) will be required to work within the existing road reserve, within the boundaries of the Stellenbosch municipal area as indicated on the layout drawing.

C3.1.2.8 Occupation of the site

Access to the site will be given to the Contractor on the Commencement Date of the Works.

The site of the works is on public open space and public roads, which will remain in use during the work. No road may be closed, and traffic shall be accommodated. Construction shall occur in half widths.

C3.1.3 EXTENT OF THE WORKS

Work that is to be carried out under the Contract is as provided for in the Bill of Quantities. However, if during construction conditions are found to differ from those anticipated, the Municipality reserves the right to modify the extent of the work to suit the prevailing conditions and circumstances. Variations introduced in this manner will be measured and paid for at the rates

tendered for appropriate items listed elsewhere in the Schedule of Quantities or in the absence of such rates, as extra work.

The work to be undertaken by the Contractor shall include the following:

C3.1.3.1 Accommodation of Existing Services

There could be several services that are located adjacent to the existing School Street and will need to be protected and / or relocated during construction. The Contractor will apply for wayleaves with the responsible service provider timeously, so that the relocation of services does not impact on the Works. The Contractor will make provision for all activities required for exposing and familiarising himself with the existing services as well as the protection and / or relocation of services falling inside the construction area.

Prior to any excavation by machine, the Contractor shall make every effort to obtain all relevant drawings, indicating the position of existing services. Where any existing services are anticipated, the Contractor shall be expected to excavate by hand to expose all such services and confirm location before commencing any work in their vicinity all in accordance with approved wayleaves. Care shall be taken to protect all existing services, unless these services are confirmed to be abandoned or be replaced as part of this project.

If any known existing service is damaged, the Contractor shall be held liable for the repair of that service to its original state. The contractor shall inform the owner (service provider) of such damages and repairs.

C3.1.3.2 Temporary Works

General

A photographic survey of existing infrastructure, that could be impacted by construction activities, must be concluded before any construction plant / equipment is established on site. This record will serve as proof of the state of the existing infrastructure pre-construction.

The Contractor is responsible to provide the Employer's Agent with a detailed survey of the installed services that form part of this project in electronic format (dwg format) before a Works Completion Certificate will be issued.

C3.1.3.3 Accommodation of traffic

Traffic will be controlled by flagmen under STOP/GO conditions.

In addition to the specifications given in the Contract Documentation all traffic accommodation arrangements shall also conform to the specifications and provisions given in the latest edition of the South African Road Traffic Signs Manual (SARTSM) and all other current legislation and regulations.

C3.1.3.4 Roadworks

(a) Road geometry

The total road width will be 7.4 m (3.7 m lane widths) and the circle lane widths will be 3.7 m to comply with Stellenbosch Municipality's Class 4 Road cross-section. The NMT Facility will have a width of 3 m.

(b) Pavement Layers

The existing track path is in a dilapidated state.

(c) Construction methodology

The following is the proposed method to carry out the construction works.

- 1) Remove topsoil and vegetation along the area of School Street, Pajaro Lane tie in to a width of average 11m and the NMT facility to a width of average 3m, all to a depth of average 150mm and stockpile.
- 2) Excavate and remove existing pavement and widening material to the required depth below the final ground surface, to stockpile.
- 3) School Street and Pajaro Lane tie in:
 - a) Import 150 mm thick G7 natural gravel and construct lower subbase to 93% mod AASHTO.
 - b) Import 150 mm thick G5 natural gravel and construct upper subbase to 95% mod AASHTO.
 - c) Import 150 mm thick G2 crushed stone and construct base to 98% mod AASHTO.
 - d) Pave 30 mm thick asphalt surfacing.
- 4) NMT Facility:
 - a) Import 150 mm thick G9 natural gravel and construct lower subbase to 90% mod AASHTO.
 - b) Import 150 mm thick G7 natural gravel and construct upper subbase to 93% mod AASHTO.
 - c) Import 150 mm thick G5 crushed stone and construct base to 95% mod AASHTO.

- d) Pave 30 mm thick asphalt surfacing.

Refer to Table 1 and Table 2 below for the proposed pavement layer works for the Road and the NMT facilities.

Table 1: School street Road Pavement Design

Layer No.	Layer Thick	Layer	COLTO Class	Description	Compaction
1	30	Surface	Asphalt (AC)	Continuously graded, Medium grade Asphalt using 50/70 penetration grade bitumen.	
2	150	Base	G2	G2 crushed stone	98% of Maximum Dry Density
3	150	Subbase	G5	G5 Natural Gravel	95% of Maximum Dry Density
4	150	Subgrade	G7	G7 Natural Gravel	93% of Maximum Dry Density

Table 2: School Street NMT Pavement Design

Layer No.	Layer Thick	Layer	COLTO Class	Description	Compaction
1	30	Surface	Asphalt (AC)	Continuously graded, Medium grade Asphalt using 50/70 penetration grade bitumen.	
2	150	Base	G5	G5 Natural Gravel	95% of Maximum Dry Density
3	150	Subbase	G7	G7 Natural Gravel	93% of Maximum Dry Density
4	150	Subgrade	G9	G9 Natural Gravel	90% of Maximum Dry Density

C3.1.3.7 Stormwater

- (a) Road drainage

- Manholes
- Kerb Inlets
- Stormwater pipes
- Drainage channels (Kerb and Channel)
- Subsurface drains

C3.1.3.8 Ancillary Works

- (a) Road Markings and road signs

Once the roadworks is completed, all new road markings and signs will be painted and installed as per SARTSM in accordance with the details on the drawings.

- (b) Pedestrian Walkway and NMT Facilities

Pedestrian walkways to be constructed according to the Drawings.

C3.1.3.9 Construction Constraints

The main construction constraints are:

- Working in half widths road closures.
- Working in close proximity to vehicular and pedestrian traffic
- Property accesses will need to be maintained at all times.
- Working in close proximity to protected trees.

C3.1.4 CONTRACTOR'S CAMP SITE, POWER SUPPLY AND OTHER SERVICES

The Stellenbosch Municipality will identify an area that can be used as a camp site. The campsite shall be fenced off and comprise of site offices, ablution facilities, a sheltered area for workers and an area to stockpile materials. The Contractor is responsible for making all the necessary arrangements for the acquisition, establishment and subsequent removal and reinstatement of his camp site. He is responsible for ensuring that the requirements of the relevant land owner and all authorities having powers of sanction over the area on which the camp site is established are met. The final location and layout of the camp site shall be approved by the Municipality before establishment commences.

The Contractor shall make his own arrangements concerning the provision of water, electricity and other services for the campsite and office facilities.

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.

C3.1.5 CONSTRUCTION IN CONFINED AREAS

If it is necessary for the Contractor to work within confined and restricted areas, no additional payment will be made for work done in such areas.

C3.1.6 WATER FOR CONSTRUCTION PURPOSES

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.

C3.1.7 WAYLEAVES AND PERMITS

The Contractor shall be responsible for ensuring that they obtain all wayleaves and permits from the relevant service authorities for working over, under or near services. In order to facilitate such approval the Employer will provide all available details, plans and drawings of the services on the site to the Contractor. The Employer will assist the Contractor to obtain necessary wayleaves, however this will not limit the Contractors obligations in terms of the Contract, to comply with the provisions or by-laws of any local statutory body.

C3.1.8 EXISTING SERVICES

The following shall apply for all construction activities.

Before the Contractor commences operations, he must discuss with and have the approval of the Employer, authority or owner concerned regarding the method he proposes to use for relocating or safe guarding any services and existing works he may encounter during construction.

The Contractor is responsible for exposing and familiarising himself with all existing services such that he can safeguard any existing services or works he locates or may encounter during construction. The Contractor shall obtain clearance from the authority concerned before commencement of work in the proximity of the existing services.

The Contractor shall be responsible for wayleaves to repair any damaged services or existing works in the execution of this contract.

The Contractor shall be responsible for immediately notifying the Employer and the authorities concerned regarding any damage caused to public services and existing works.

Any alteration to services shall be carried out by the Authority concerned unless the Contractor is instructed otherwise.

The Contractor is not permitted to cut off any roots from any protected vegetation or tree roots identified which may cause the trees to become unstable, before consulting the Engineer or designated person.

The Contractor shall assume full responsibility for protection of the existing services, where any person in his service either directly or indirectly causes any damage to known services. The Contractor shall bear the cost of repair of any such damage.

C3.1.9 ACCOMMODATION OF TRAFFIC

Work shall only be executed, where possible, between sunrise and sunset on Mondays to Fridays, inclusive. Stop/Go traffic control will however be required 12 hours a day, 7 days per week.

The travelling public has 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 public roads.

Failure to maintain road signs, warning signs or flicker lights, etc. in good condition shall constitute ample reason for the Employer to bring the works to a stop until the above items etc., have been repaired to a good condition of his/her satisfaction.

The Contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of these specifications and Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual (SARTSM).

The Contractor shall submit proposals in connection with all signs and accommodation of traffic to the Employer's Agent for approval prior to the commencement of any construction work.

Traffic shall be accommodated by half width construction. Accommodation of traffic will generally be carried out by closing off one lane of traffic at a time and accommodating the traffic on the other lane. During the December - January break, the Contractor will be required to shut down normal construction activities and ensure that the total surfaced width is available to public traffic. Only emergency work will be allowed during this period. The Traffic Safety Officer will be required to patrol during these non-working periods and ensure that all temporary traffic-control facilities are in place and functional. This includes the non-working periods between sunset and sunrise. The accommodation of traffic team will be required to be on standby at all times.

The penalty, for each incident or event that deviates from the approved Traffic Accommodation Plans, shall be separately determined.

C3.2 ENGINEERING / DESIGN

CONTENTS

- 3.2.1 DESIGN SERVICES
- 3.2.2 DRAWINGS PREPARED BY THE EMPLOYER

3.2.1 DESIGN SERVICES

Unless otherwise stated, the Employer is responsible for the design of the permanent Works as reflected in the Contract documents, and for the production of the final Record Drawings.

The Contractor is responsible for the design of all necessary temporary works and their compatibility with the permanent Works and for the design and layout of traffic deviations, all subject to the guidelines and principles given in the Project Specifications and shown on the Drawings.

3.2.2 DRAWINGS PREPARED BY THE EMPLOYER

The work shall be carried out in accordance with the following drawings, that are included in Volume 4: Drawings for Road Works and Structures that form part of the Contract documents:

Discipline	Plan Title	Drawing Number
Civil	Overall Plan Layout (Sheet 1 of 1)	BMK-1770-JT-001
Civil	Road Layout Plan (Sheet 1 of 2)	BMK-1770-JT-002
Civil	Road Layout Plan (Sheet 2 of 2)	BMK-1770-JT-003
Civil	Stormwater Longsections (Sheet 1 of 2)	BMK-1770-JT-004
Civil	Stormwater Longsections (Sheet 2 of 2)	BMK-1770-JT-005
Civil	School Street Road Longitudinal Section 1	BMK-1770-JT-006
Civil	School Street Road Longitudinal Section 5	BMK-1770-JT-007
Civil	School Street Road Longitudinal Section 6	BMK-1770-JT-008
Civil	School Street Road Longitudinal Section 7	BMK-1770-JT-009
Civil	School Street Road Cross Sections (Sheet 3 of 7)	BMK-1770-JT-010
Civil	School Street Road Cross Sections (Sheet 4 of 7)	BMK-1770-JT-011
Civil	School Street Road Cross Sections (Sheet 5 of 7)	BMK-1770-JT-012
Civil	School Street Road Cross Sections (Sheet 6 of 7)	BMK-1770-JT-013
Civil	School Street Road Cross Sections (Sheet 7 of 7)	BMK-1770-JT-014
Civil	Jamestown School Street, Standard Details	BMK-1770-JT-015
Civil	Jamestown School Street, Standard Details	BMK-1770-JT-016
Civil	Jamestown School Street, Stormwater Standard Details	BMK-1770-JT-017
Civil	Jamestown School Street, Stormwater Standard Details	BMK-1770-JT-018

The Drawings that form part of the tender documents shall be used for tender purposes only.

The Contractor will be supplied with 3 unreduced paper prints of each of the Drawings required for construction. These copies are issued free of charge and the Contractor shall make any additional copies he may require at his own cost.

The levels given on the Drawings are subject to confirmation on site, and the Contractor shall submit all levels to the Employer for confirmation before they commence with any construction work. The Contractor shall also check all clearances given on the Drawings and shall inform the Employer of any discrepancies.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the Contract. The position of pipe bends, junction boxes, duct ends, and all other underground infrastructure shall be given by either co-ordinates or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the Contractor. This information shall be supplied to the Employer's Agent Representative on a regular basis.

The Completion Certificate shall not be issued until the Contractor has furnished the Employer's Agent Representative with all information that is required to complete the record Drawings.

C3.3 PROCUREMENT

CONTENTS

3.3.1 PREFERENTIAL PROCUREMENT

3.3.1. PREFERENTIAL PROCUREMENT

The Works shall be executed in accordance with the conditions associated with the granting of preferences detailed in the **Preference Schedule** where preferences are granted in respect of B-BBEE contribution.

Financial penalties shall be applied in the event that the Contractor is found to have breached any of the conditions contained in the **Preference Schedule** (unless proven to be beyond the control of the Contractor).

Notwithstanding the application of penalties, the Contractor's attention is drawn to other sanctions that may be applied by the Employer (listed in the **Preference Schedule**) with due consideration to the circumstances.

C3.4 CONSTRUCTION

CONTENTS

1. APPLICABLE STANDARDISED SPECIFICATIONS
2. WAYLEAVES, PERMISSIONS AND PERMITS

1. APPLICABLE STANDARDISED SPECIFICATIONS

Where reference is made to Standard Methods of Testing Road Construction Materials: Technical Methods for Highways (TMH1), 1979 in the Specifications or the Standard Specifications, it shall be replaced by the South African National Standards (SANS) 3000 series.

2. WAYLEAVES, PERMISSIONS AND PERMITS

The Contractor shall be responsible for obtaining all of the necessary wayleaves, permissions or permits applicable to working near any existing services or other infrastructure on Site, and shall ensure that any wayleaves, permissions or permits obtained by the Employer's Agent prior to the award of the contract are transferred into the Contractor's name.

The Contractor shall abide by any conditions imposed by such wayleaves, permissions or permits.

The Contractor shall ensure that all wayleaves, permissions and permits are kept on Site and are available for inspection by the relevant service authorities on demand.

The Contractor shall also ensure that any wayleaves in respect of electricity services are renewed timeously every three months.

C3.4 CONSTRUCTION: CONTENTS

- 3.4.1 PART A: SPECIFICATIONS
- 3.4.2 PART B: PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS
- 3.4.3 PART C: ENVIRONMENTAL SPECIFICATIONS
- 3.4.4 PART D: LABOUR AND TRAINING SPECIFICATIONS
- 3.4.5 PART E: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

C3.4.1 PART A: SPECIFICATIONS

The following Specifications, as listed below, are relevant and shall apply to this Contract:

(a) Standard Specifications

Where reference is made to the Standard Specifications in this contract, it shall mean the **COLTO Standard Specifications for Road and Bridge Works for State Road Authorities 1998**, prepared by the Committee of Land Transport Officials complete with any corrections and amendments applicable at the time of tendering.

The tenderer shall obtain / purchase it from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za. This document may also be inspected, by appointment, at the offices of the Employer and the Employer's Agent during normal office hours.

(b) Project Specifications

Amendments to, omissions from or additions to the Standard Specifications, as defined above, that may be required in connection with this specific Project are bound in Part B: Project Specifications referring to the Standard Specifications.

In addition, the following project specifications shall also apply to this Contract:

- (i) Specifications for environmental management bound in **Part C: Environmental Specifications**
- (ii) Specifications for labour and training requirements bound in **Part D: Labour and Training Specifications**
- (iii) Specifications for health and safety bound in **Part E: Occupational Health and Safety Specifications**

C3.4.2 PART B: PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS

Amendments to the standard specifications are included in this Part B: Project Specifications referring to the Standard Specifications.

- (i) The Project Specifications form an integral part of the Contract documents and supplement the Standard Specifications.
- (ii) The event of any discrepancy between the Project Specifications and a part of the Standard Specifications, the Schedule of Quantities, or the Drawings with regard to the scope or quality of the Works, the Project Specifications shall take precedence.
- (iii) The Standard Specifications, which form part of this Contract, have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular Contract.

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

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 payment item which does not form part of a clause or a payment item in the Standard Specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the Standard Specifications.

SECTION 1100: DEFINITIONS AND TERMS

B1115 GENERAL CONDITIONS OF CONTRACT

Replace clause 1115 with the following:

“The General Conditions of Contract for Construction Works (3rd Edition) 2015 (GCC 2015) published by the South African Institution of Civil Engineering, together with the Special Conditions of Contract forming part of the Contract.

All General Conditions of Contract references in the COLTO Standard Specifications for Road and Bridge Works are to the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities. Consequently, all references in the COLTO Standard Specifications have to be amended accordingly to reflect the appropriate General Conditions of Contract relevant for the contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, identified. Each COLTO clause reference is tabulated in Table 1115/1 below (context of reference is also given) together with the relevant equivalent clause in the SAICE General Conditions of Contract for Construction Works applicable for this contract.

Whereas every effort has been made to include all of the affected clauses in the Table, there may be some omissions. In every case, however, the SAICE General Conditions of Contract for Construction Works, as amended by the special conditions of contract in the contract data, shall apply and the contractor shall be responsible for interpretation of the equivalent clause.

Table 1115/1

REFERENCING COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2015					
COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE General Conditions of Contract for Construction Works: 3rd Edition 2015	
Clause No	Page No	Clause No	Description or Reference	Clause No	Description or Reference
1115	1100-2		Definition of GCC		Definition of SAICE
1204	1200-2	15	Construction programme	5.6	Programme
1115	1100-2		Definition of GCC		Definition of SAICE
1204	1200-2	15	Construction programme	5.6	Programme
1206	1200-3	14	Setting out of works and beacons		Omitted
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14	Completion
1212(l)	1200-7	49(2)	CPA on alternative designs	6.8.2	CPA on alternative designs
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion due to abnormal rainfall.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Price adjustment Item 13.01 (a)
1303(iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Price adjustment Item 13.01 (b)
1303(iii)	1300-1	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303(iii)	1300-2	53	Variations exceeding 20%		Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	5.2	Commencement of the Works
1303	1300-2	45	Payment Item 13.01 (c)	5.12	Payment Item 13.01 (c)
1403(c)(ii)	1400-4	40(1)	Variation for rented accommodation	6.4	Variation for rented accommodation
1505	1500-3	40(1)	Variation for temporary drainage	6.4	Variation for temporary drainage
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum

REFERENCING COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2015					
COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE General Conditions of Contract for Construction Works: 3rd Edition 2015	
Clause No	Page No	Clause No	Description or Reference	Clause No	Description or Reference
Note (2)	3100-4	40	Payment for prospecting for materials	6.5.2	Payment for prospecting for materials
3204(b)(iii)	3200-2	40	Payment for oversize material	6.5.2	Payment for oversize material
3303(b)	3300-2	2	Employer's Agent's decisions, with reference to materials classification	3.2	Employer's Agent's decisions, with reference to materials classification
5803(c)	5800-3	40	Variation, for landscaping	6.4	Variation, for landscaping
5805(d)	5800-4	40	Variation, for grassing	6.4	Variation, for grassing
Item 58.10	5800-10	48	Payment for Extra Work	6.4	Payment for Extra Work
8103(c)	8100-1	40	Variation, for testing material	6.4	Variation, for testing material
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site on completion, with reference to core drilling

Add the following new clauses:

B1156 OTHER DEFINITIONS

The COLTO Standard Specification for Roads and Bridges has been written for all Contractors, Employers and Employer's Agents. Similarly, the Works and the Site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower-case letters throughout.

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

- (a) **Contractor:** The Contractor and the contractor is the same persona defined under clause 1.1.1.9 of the General Conditions of Contract, but who will only be formally identified by the completed form of Acceptance C1.1.2 in this document and which will be bound into the final contract document.
- (b) **Employer:** The Employer and employer is the same persona, and is defined in C1.2.3 Contract Specific Data, and clause 1.1.1.15 of the General Conditions of Contract.
- (c) **Employer's Agent:** The Employer's Agent and engineer is the same persona, and is defined in the C1.2.3 Contract Specific Data, and clause 1.1.1.16 of the General Conditions of Contract.
- (d) **Schedule of quantities:** The terms "Schedule of Quantities", (used throughout the standard specifications) and "Bill of Quantities", (used in all other documents forming part of this contract), are synonymous.
- (e) **Specifications:** All specifications forming part of the Contract whether they appear in the standard specifications, the project specifications or on the drawings, or any other specifications referred to in the said Specifications, or be they written instructions given to the Contractor.
- (f) **Standard Specifications:** The Standard Specifications for Road and Bridge Works prescribed by the employer and forming part of the Contract.
- (g) **Project Specifications:** Any Specifications appearing under this heading and forming part of the Contract, and containing any amendments to, omissions from or additions to the Standard Specifications that may be required in connection with a specific project.

B1157 PROCESS CONTROL

Process control is the responsibility of the Contractor and refers to all testing requirements to be executed during the Works to ensure that the completed permanent Works comply with the Specifications and Drawings prior to proceeding with the following task or activity.

B1158 ACCEPTANCE CONTROL

Acceptance control is the responsibility of the Employer's Agent and refers to all testing requirements to be executed during the Works to determine the acceptability or otherwise of the materials and workmanship of the Works as executed by the Contractor.

It is the responsibility of the Contractor to ensure that completed work is presented in writing to the Employer's Agent timeously for acceptance in order to ensure that necessary sampling and testing can be performed as required.

B1159 AGGREGATE SIZE

Where reference is made in this Specification or the Standard Specifications to aggregate size, nominal aggregate size or maximum aggregate size, the aggregate size as listed shall be replaced with the new corresponding aggregate size as indicated in the following Table:

Aggregate size	New aggregate size
26,5	28
19	20
13,2	14
9,5	10
6,7	7
4,75	5
2,36	2
1,18	1

B1160 COMPACTION

The standard for compaction efforts shall change from Modified AASHTO Density as per TMH1 Test Method to Maximum Dry Density (MDD) as per SANS 3001. Where reference is made to compaction or of Modified AASHTO Density in the tender documentation or the Standard Specifications or wherever there is conflict between the tender documentation and the Standard Specifications, the SANS 3001 Specification and terminology shall govern.

B1161 SANS BITUMEN SPECIFICATIONS

Where reference is made in this Specification or the Standard Specifications to the SABS / SANS bitumen Specifications, the following new SANS Specification shall apply:

SANS 4001-BT1:2014 - Penetration Grade Bitumen's
SANS 4001-BT2:2012 - Cutback Bitumen
SANS 4001-BT3:2014 - Anionic Bitumen Road Emulsion
SANS 4001-BT4:2014 - Cationic Bitumen Road Emulsion
SANS 4001-BT5:2014 - Inverted Bitumen Emulsion

On this Contract where a SANS Specification exists, all products shall conform to the Specification and shall bear the inspection seal or brand mark of the SABS (South African Bureau of Standards)."

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following after the first paragraph of clause 1202 of the specifications:

“Various types of services, both overhead and underground, exist within the boundaries of the site. It is envisaged that it will be necessary for the Contractor to arrange for the removal, relocation or protection of existing services. Should any work become necessary due to unforeseen circumstances then all work shall be done strictly in accordance with the requirements of the relevant service owner and in accordance with the requirements of these project specifications and the standard specifications where applicable.”

Table B1202/1

CONTACT DETAILS OF SERVICE PROVIDERS			
Service Description	Service Provider	Contact Person	Contact Details
Water Network	Stellenbosch Municipality	Mr Leandro Hendricks	0846452506 / Leandro.Hendricks@stellenbosch.gov.za
Sewer Network		Mr Boeta Lotter	0766757291 / Boeta.Lotter@stellenbosch.gov.za
Road and Stormwater	Stellenbosch Municipality	Mr Justin Leitch	0629546455 / Justin.Leitch@stellenbosch.gov.za
Electricity	Stellenbosch Municipality	Mr Greg Nimb	0832853455 / Greg.Nimb@stellenbosch.gov.za

Add the following:

“EXISTING SERVICES

Prior to commencing work, the Contractor shall confer with all service providers and authorities concerned and obtain the necessary permits, authorisations and wayleaves for working in close proximity to overhead and underground services and shall satisfy himself that he has obtained all the relevant information required to complete the contract safely and successfully. The Contractor is to carry out his works with the minimum interference to existing services. He shall co-operate with all service providers and authorities concerned and he shall be solely responsible for carrying out the following operations and checks:

- (i) He shall inform all service providers and authorities in good time before the correct stage of the construction is reached for the laying and/or relaying of any particular services.
- (ii) He shall set out the lines and levels of kerbs, pipes, culverts and any other necessary features of the Contract in order that service providers and authorities are able to lay and/or relay services correctly.

It shall be clearly understood that obtaining the necessary permits, authorisations and wayleaves and any extra work, such as the removal of any portion of the works already executed either by the Contractor or other service providers or/and authority and its subsequent re-execution, which is caused by the Contractor's failure to observe and carry out his responsibilities as specified, will be at his own cost.

The Contractor shall clearly indicate on his programme, when he intends to submit his applications/notifications, when he requires a response and when he intends to commence work on or near an affected service, for each service provider and/or service line. In the event that one or more of these activities is delayed, in the opinion of the Contractor, by the service provider or authority concerned, the Contractor shall notify the Employer's Agent within one working day of the delay commencing of the type and extent of the delay.

As a nominal allowance, the Contractor shall allow at the least the following periods for the dealing with services:

Electrical, water, sewer and telecommunications services:

Obtain work permit: 1 month from date of application.

Obtain quotation for relocation of services: 1 month.

Identify subcontractor/mobilisation of service provider to relocate services: 3 months.

Relocation of services: dependent on service, Contractor to determine.

Commissioning of service: 1 week.

The cost of repairing any damage to services, due to miscalculations or negligence on the part of the Contractor or his failure to carry out the duties set out in this clause, shall be borne by the Contractor.

Protection of overhead and underground services

Services and sub-surface obstructions likely to be affected by the work, based on available records and surveys, have been shown on the drawings. Although every care has been exercised in the presentation of the available data, the Employer cannot and does not vouch for the accuracy or completeness of the information shown. Whenever the Contractor deems it necessary to determine the exact location of an existing service or obstruction, he shall, make any examination that he and the Employer's Agent consider desirable in advance of the work. The Employer does not accept any liability for loss, damage or delay to the Contractor as a result of the non-location or inaccurate location of services or obstructions.

Where no underground services are shown on the drawings or scheduled, but the possibility of their presence can be reasonably inferred, the Contractor shall in collaboration with the Employer's Agent, search for such services to establish their positions well in advance of the work. A full report shall then be submitted in good time to the Employer's Agent, to enable the necessary arrangements for the protection, removal or diversion of the services before work is commenced in their vicinity.

In the event of damage to existing services, the Contractor shall take such immediate action as is necessary to prevent further damage or danger to life or property and shall immediately notify the Employer's Agent who will issue instructions as to the necessary repairs or protective measures to be taken. The cost thereof shall be borne by the Contractor irrespective of whether the repairs or protective measures were carried out by him or by or on behalf of the service authority or department concerned.

As soon as an underground service not shown on the drawings is discovered, it shall be deemed to be a known service and the Contractor will be held responsible for any subsequent damage to it. If such service is damaged during the course of its discovery, the Contractor will be reimbursed for the cost of making good such damage, unless it is established by the Employer's Agent that the Contractor did not exercise reasonable diligence and care and that the damage was avoidable.

(b) Existing services

Existing services shall include any service which has been temporarily taken out of service to allow for the execution of the Works or which has been taken out of service as a result of an event which necessitated the execution of the Works.

(c) Condition of existing services

The Contractor acknowledges that he has inspected and examined all known existing services and all existing services subsequently discovered, as contemplated in (a) above and is satisfied that all such services were in an acceptable and serviceable state at the commencement of the Works, alternatively, upon discovery thereof as contemplated in (a) above.

In the event of a dispute as to the acceptability and/or serviceability of an existing service at the commencement of the Works or upon the discovery of such service, the Contractor shall bear the onus of proving that the service in question was not in an acceptable and/or serviceable state at the commencement of the Works.

(d) Maintenance, protection and relocation of existing services

During the course of the Works, all existing services including traffic signals, watermains, sewers and stormwater reticulation, electricity transmission and telephone lines, cables, poles and conduits whether in service or not shall be identified by the contractor, protected and / or relocated, supported and maintained to the satisfaction of the service authority or department concerned and the Employer's Agent. The Contractor shall bear the cost of protection and limitations on working processes, in accordance with the service providers requirements, as a result of working over, under or near services, and for all known services affected by the scope of works.

Where a bank of underground ducts, cables, etc are crossed over a distance of less than 1.0 m they shall be regarded as a single crossing. Hydrants under pressure, watermain valve covers and manholes shall be kept unobstructed and accessible at all times.

Where the existing stormwater system is affected by the roadworks, drainage pipes and structures will have to be upgraded, adapted or demolished and new drainage pipes and structures constructed.

The covers and frames of service manholes and catch pits will have to be adjusted where they are affected by the roadworks.

(e) Work in close proximity to existing services

The Contractor shall note that as a general provision work within three (3) meters of telecommunications and electrical services is restricted and the use of mechanical plant in these areas is generally prohibited. No pegs or stakes shall be driven into the ground in the vicinity of underground services unless their exact positions have been determined.

The Contractor shall take the above into account in the drawing up of his construction programme and in the calculation of

his tendered rates, and shall note that no additional payment or compensation will be allowed for any additional costs or delays incurred as a result of compliance with any regulations, except as measured and paid under the items listed in the Bill of Quantities.

The Contractor shall allow all reasonable access to the representatives of any provider or authority for the purpose of maintaining, laying and/or relaying any services, cables or mains during the period of the Contract.

Permanent alterations to existing services ordered in writing by the Employer's Agent, and for which no separate provision has been made in the Bill of Quantities, will be paid for under Dayworks if required.

B1202 CONSTRUCTION OF SURVEY BEACONS AND PROTECTION OF EXISTING SURVEY BEACONS

(a) Provisional sum for new survey beacons to be constructed or for existing survey beacons to be protected during construction

(b) Handling cost and profit in respect of sub item B12.02 (a) above

Expenditure under this item shall be made in accordance with clause 48 of the General Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under sub item B12.02 (a), which shall include full compensation for the handling costs of the Contractor, and the profit in connection with the construction of new survey beacons or the protection of existing survey beacons.

B1204 PROGRAMME OF WORK

(a) General requirements

Delete the first paragraph and replace with the following:

"The Contractor shall submit his programme to the Employer's Agent for approval within the time stated in the Contract data. The programme shall be in the form of a bar chart (Gantt chart) or any other time-activity form acceptable to the Employer's Agent, and shall clearly show:

(i) The proposed rate of progress in order to complete the Works within the required period as tendered, showing the various activities, their durations and proposed resourcing levels (major plant and labour) for each element of the Works. Sufficient detail shall be provided to enable the Employer's Agent to be able to gauge construction progress. All activities, including establishment on site, trimming and finishing and the completion of all minor ancillary works are to be included in the programme.

(ii) A work breakdown structure that identifies all major work activities, scheduled start and end dates for each activity, the linkage of activities and any dependencies (time or resource related) between them.

(iii) The sequence of activities clearly identifying floats and those activities that fall on the critical path. Key dates in respect of work to be carried out, information required or due delivery,

(iv) The anticipated value of work to be done during each month.

When drawing up his programme, the Contractor shall, inter alia, shall clearly indicate and make allowance as separate items for:

- All special non-working days, shut-down periods and breaks defined in the Contract Data.
- Expected weather conditions and their effects.
- Known physical conditions and artificial obstructions.
- The accommodation and safeguarding of public traffic.
- Dealing with, altering and installing services.
- All other actions required in terms of this contract.

The following details shall be submitted together with the programme:

- The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.

- The overall labour and major plant resource levels on which the programme is based.
- The detailed traffic accommodation proposals on which the programme is based (road or lane closures, lengths of sections to be worked, timing etc.).

The Contractor shall base his initial programme of work on the scope of the work as described in the Project Specification and the Schedule of Quantities. This programme shall be reviewed on a regular basis by the Contractor in accordance with changing circumstances, delays and amendments to the work ordered by the Employer's Agent as a result of further examinations made by him.

Minor revisions to the approved programme may be introduced from time to time by mutual agreement between the Contractor and the Employer's Agent. Should the Employer's Agent believe that a major revision of the programme is required, the Contractor will be notified in writing and a revised programme shall be submitted within two weeks of receipt of such notification.

It should be noted that the Contractor shall provide a detailed programme giving detail on times allowed for the various activities as well as resource or other limitations affecting the programme, since the approved programme may be used to evaluate any claims in terms of the general conditions of contract for extensions of time. **The programme must indicate the task or item considered essential for the successful completion of the Works and which must commence within 28 days of the Contractor being awarded access to the Site.** Approval of the initial programme by the Employer's Agent shall only be confirmation that all the requirements and restrictions have been incorporated and that the Contractor has shown that he is capable of completing the Works before the Completion Date and to serve as the basis for the determining the effect of any delays on the Period of Completion.

The Contractor shall submit to the Employer's Agent, at least one working day before each monthly site meeting copies of the following:

- The Contract programme with progress charts and programme graphs updated to reflect the actual progress to date and a summary of progress on site over the month preceding the Site meeting. The programme is to be submitted/provided in both .pdf and an activated MS Project (2007)(.mpp) format, or other similar approved. If the programme is not provided in MS Project (2007)(.mpp) format, the Contractor shall provide two (2) licensed copies of the proprietary software programme used to the Employer's Agent and make allowance for training two (2) personnel from the Employer's Agent on operating and reviewing the software. The costs of providing such licenses and training shall be borne by the Contractor and shall be deemed to be included in the Contractor's rates.
- Details of activities running late, indicating what steps have been or will be taken to ensure that the Work is completed within the specified time.
- A report on all labour, plant and materials on site.

The Employer's Agent shall open and maintain a comprehensive list of all delays, detailing the reason for the delay, the date and time the delay commenced, the duration, the activities affected by the delay and whether the delay is attributable to the Contractor or the Employer.

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following to the second paragraph:

“The Contractor's commercial laboratories shall be subject to approval by the Employer's Agent. The Contractor's attention is also drawn to the requirements in section 8100 for the submission to the Employer's Agent and Employer for prior approval of certain materials and mix designs accompanied by the relevant test results.”

Replace the third paragraph with the following:

“The intensity of control and of tests to be conducted by the Contractor in terms of these obligations shall meet but, not be limited to, that specified in clause B8209 and shall be adequate to ensure that proper control is being exercised.”

Insert the following paragraph between the third and fourth paragraph:

“Within two weeks of the site handover, the Contractor shall submit to the Employers Agent or his approval, the quality assurance system he proposes using. The Contractor shall discuss and agree with the Employer's Agent any proposed changes before their instigation. The system shall record the lines and levels of responsibility and indicate the method by which testing procedures will be conducted.”

Add the following at the end of this clause:

“The Employer’s Agent shall, for the purpose of acceptance control on products and workmanship, assess test results and measurements in accordance with the provisions of Section 8200 of the Standard Specifications (Quality Control Scheme 1, Judgement Plan B). 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.

The Employer’s Agent will not pay claims for delays to the Works resulting from the awaiting of test results. Testing shall be arranged as promptly as possible, and it will be in the Contractor’s own interest to submit material samples, concrete cubes or other components for testing in good time to avoid delays.”

B1206 THE SETTING-OUT OF THE WORK AND PROTECTION OF BEACONS

Replace the first paragraph with the following:

“Any basic reference pegs and benchmarks established on the Site by the Employer’s Agent shall be given to the Contractor with the particulars thereof in sufficient time to enable the contractor to meet his approved programme. The Contractor shall comply with all legal provisions in regard to surveying and setting out work.”

“It may be required that the Contractor establish additional reference and control beacons for the setting-out and control of the works. The position of the works shall generally be as indicated on the drawings but shall be confirmed on site by the Employer’s Agent.”

Add the following at the end of the fourth paragraph:

“Existing road markings, particularly road junction / intersection lines, the divergent/convergent lines of ramp at interchanges and no overtaking barriers are also elements of the road that require proper setting out. The Contractor shall prove to the Employer’s Agent that critical reference points have been satisfactorily recorded for later reinstatement before any work commences that will obliterate the existing markings.”

Add the following at the end of the fifth paragraph:

“Property beacons and trigonometrical survey beacons that have been displaced or destroyed without the consent of the Employer’s Agent, shall be replaced by a registered land surveyor, who shall certify such replacement, and the cost thereof shall be borne by the Contractor.” tender rates.”

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

Replace the second paragraph with the following:

“At each end of the Works at locations determined by the Employer’s Agent, the Contractor shall provide and erect contract signboards of sound, weatherproof construction, painted by an approved firm of sign writers in accordance with the details shown on the drawings.”

Delete the final paragraph and replace with the following:

“All signboards erected in accordance with the drawings or as approved advertisements for the Contractor’s establishment, shall be removed at the same time as the Contractor’s disestablishment. The Completion Certificate shall not be issued and payment under Subitem 13.01(a) for the final instalment of 15% of the tendered lump sum shall not be made unless all the Contract signboards, advertisements, notices and temporary signs have been removed.

B1209 PAYMENT

(b) Rates to be inclusive

Add the following:

“No value added tax shall be included in the Contractor’s tendered rates or amounts. Payment of value added tax (VAT) shall be made under a separate item in the Summary of Schedule(s) in C2.2 Bill of Quantities in C2 Pricing Data.”

(c) The meanings of certain phrases in payment clauses

(i) Procuring and furnishing ... (material)

Add the following:

“Payment for procuring and furnishing material from commercial sources shall include for all transport costs, irrespective of distance hauled.”

(e) Materials on the site

Add the following:

"No material in borrow pits shall qualify for payment as materials on site. The Employer's Agent may at his sole discretion allow payments under "Materials on Site" in respect of any construction materials if stored off-site, providing that:

The Site selected for this purpose is approved by the Employer's Agent.

The Site is physically separated from any production plant or operation.

Only materials for use under this contract are stockpiled on such site/land.

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.

A suitable payment guarantee, as required in terms of Clause 6.10 of General Conditions of Contract"

Add the following new subclauses:

“(g) Work in confined areas

Except where provided for in the Specifications and the Schedule of Quantities in the pricing data no extra payment shall be made nor shall any claim for additional payment be considered for construction in confined areas. The omission of standard pay items from the Schedule of Quantities shall be taken to be deliberate and any additional costs incurred shall be included in the bulk rate.

(h) Trade names

Where materials are specified under trade names, tenders must be based on these materials. Equivalent materials may be submitted as alternative tender offers in the tender and the Employer's Agent may, after receipt of tenders, approve the use of equivalent materials.

(i) Payment certificates

With reference to Clause 6.10.1 of the General Conditions of Contract, the Contractor shall, at his own expense, submit to the Employer's Agent one set of A4-sized paper copies of the monthly statement for payment."

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Add the following paragraphs after item (h):

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

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

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.

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.

Any information in the Contractor's possession, which is required by the Employer's Agent and has been requested in writing, has been supplied.

B1211 TRAFFIC OVER COMPLETED PAVEMENT LAYERS

Add the following:

"Should the Contractor propose in his Traffic Accommodation Plan to accommodate traffic on completed pavement layers, the final decision regarding the timing of opening of the completed pavement layers to traffic shall rest with the Employer's Agent. Repair work required to the completed pavement layers shall be included in the rates for accommodation of traffic and no additional payment will be made for work required to repair damage.

Completed asphalt surfacing shall not be opened to traffic until the asphalt has sufficiently cooled. The Contractor shall not allow construction equipment or public traffic, which is likely to cause damage, over the completed asphalt surfacing.

Notwithstanding any other requirement to the contrary, completed seal work shall not be opened to traffic while the surface temperature of the road is less than the minimum temperature for the type of seal application constructed for a period of at least 24 hours after the seal has been completed. In the event that temperatures have dropped, or are likely to drop, below the minimum temperature during the initial period, but after the road has been opened to traffic, the road shall be closed to traffic until the temperatures rise above the minimum once again."

B1212 ALTERNATIVE DESIGNS AND OFFERS

Add the following to the end of subclause 1212(m):

"The provision for contract price adjustment in the original Tender Summary must not under any circumstances be altered in an alternative offer."

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

Under Subclause (e) replace the opening paragraph with:

"Should the Contractor use land not provided by the Employer for the purpose of his own establishment, Employer's Agent's offices, or storing of equipment or materials required for construction or disposal, it shall be subject to the following:"

and add the following sub-subclauses:

"(vi) That lease agreements are concluded with the owner or owners of such land for the full period that such areas are required. The leases shall provide for possible extensions to match the duration of the Contract. The lease agreements shall also provide for the Contract being terminated by Contractor's default or liquidation and the resulting possibility for them to be taken over by a succeeding Contractor.

(vii) That copies of lease agreements shall be submitted to the Employer's Agent prior to signature by the signing parties, and copies lodged with the Employer's Agent after signing. Notwithstanding the Employer's Agent's approval of the conditions of a lease the Contractor shall be solely responsible for adhesion to the terms of the agreements.

(viii) Adherence to the principles of the environmental management plan and legal obligations.

(xi) Compliance with the conditions as imposed by the Water Use Licence (as applicable)"

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

In the heading of this clause replace the word "RAINFALL" with "WEATHER"

Delete the entire clause and replace with the following:

"No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that weather related delays to critical activities exceed the number of working days listed in Table B1215/1 for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 5.12.2.2 of the General Conditions of Contract.

The number of days quoted in Table B1215/1 shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work.

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced.

It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained.

For the purposes of calculating an extension of time due to climatic conditions in terms of Clause 5.12.2 as amended of the General Conditions of Contract, the number of days in excess of the number of working days anticipated to be lost due to climatic conditions shown in Table B1215/1 shall be taken into account:

Table B1215/1

ANTICIPATED DAYS LOST DUE TO NORMAL CLIMATIC CONDITIONS			
Month	"n" Working days	Month	"n" Working days

January	2	July	9
February	2	August	8
March	3	September	5
April	4	October	4
May	8	November	2
June	9	December	2

The Employer's Agent will certify a day lost due to climatic conditions only if:

no work on the critical path according to the latest approved programme for completion of the Works could be carried out during that specific working day or if;

only 30% or less of the work force and plant planned for that specific day, could work.

The extension of time as a result of climatic conditions will be calculated monthly as being equal to the number of days certified by the Employer's Agent as lost due to climatic conditions, less the number of days in table B1215/1, provided the resultant value is a positive number otherwise the extension of time is taken to be nought.

The total extension for the Contract will be the sum of the monthly extensions. Extension of time for six-day working weeks and parts of a month shall be calculated pro rata.

The Contractor shall submit to the Employer's Agent claims for all time lost due to inclement weather within 1 working day of the claim day. A record of inclement weather shall be kept by the Contractor and recorded at site meetings on a regular basis. The onus is on the Contractor to prove these claims."

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

Renumber the existing paragraph (g) to become paragraph (h) and insert the following new paragraph (g):

"(g) Concrete elements adjoining a surface which is to receive a sprayed bituminous application or slurry application shall be covered with protective material prior to such operations to prevent the concrete from being stained with bituminous binder."

Add the following:

"(i) Prior to the start of any excavation in the existing pavements on any part of the Works, the Contractor shall submit to the Employer's Agent 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 program 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 shall 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 Employer's Agent for approval, or to adhere to approved precautionary measures.

(j) All rehabilitation shall be in accordance with the controls as set in the approved EMP"

B1219 WATER

Add the following:

"The Contractor shall make the necessary arrangements and connections for the provision of water required by him for the execution of the Works.

The Contractor shall note that the necessary permission must be obtained from the Department of Water and Sanitation for the abstraction of water from streams and rivers, should this be the source of water.

The Contractor shall arrange for chemical tests to be carried out to confirm the suitability of his proposed water sources for use as drinking water and for use in the concrete batching and the construction of layerworks. The Contractor shall ensure that these tests also include testing for salinity and sugar content levels."

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Amend the heading to read: "THE HANDING-OVER AND OCCUPATION OF THE SITE"

Add the following:

"The Site of the Works shall consist of the entire road reserve inclusive of road junctions and farm accesses required for construction of the Works as defined by the limits of construction shown on the Drawings. It shall also include any additional lengths of road required for the placement of advanced warning road signs and/or traffic accommodation measures beyond the limits of construction as shown on the Drawings. Where consistent with the context, the Site shall also include areas outside of the road reserve required for construction camps, borrow areas, spoil areas and stockpile areas. The exact extent of the site and its boundaries will be verified once the Site is handed over to the Contractor.

Upon being given access to the site the Contractor shall immediately assume responsibility for the entire site as defined in the specifications and verified. Personnel and plant shall not enter property beyond the boundary of the Site irrespective of whether or not the boundary is fenced.

Prior to the commencement of work the Contractor and the Employer's Agent shall together carry out a joint inspection of the road section. During such an inspection, notes shall be made of all damaged fences, guardrails, signs and any other notable problems or features that exist at the time of gaining access or hand-over. The following matters should be agreed at the time of handing-over:

- (i) The limits, lengths, widths and areas of construction.
- (ii) The location of kilometre markers and reference beacons
- (iii) The scope of remedial / repair or preparatory work measures (patching, crack sealing, etc.) to be executed by the Contractor.
- (iv) The location of stockpile areas and the responsibilities of the Contractor with regard to the road reserve area and the stockpile sites (fencing, re-establishment, height of stockpile, etc.).
- (v) The method of accommodation of public traffic with regard to safety, sight distances, interference with existing road signs and road markings both within the work area and providing advance warning before the work area.
- (vi) The method of construction and supervisory control measures
- (vii) The protection of existing concrete kerbs/channels, rumble strips and road studs where necessary.
- (viii) Sign-off in terms of compliance with the Environmental Management Programme and relevant conditions of the environmental authorisation and the water use licence (as applicable)."

B1229 SABS CEMENT SPECIFICATIONS

Add the following to this clause:

"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 EN 197-1 "Cement compositions, specifications and conformity criteria.

Part 1: Common cements.

Cement Grade	Cement Type	Approximate old product name	New Alpha	New Blue Circle	New NPC	New PPC	New Slagment
52.5	CEM I	Rapid hardening	Rapid Hard	Duracast	Eagle Super	-	-
42.5R	CEM I	Rapid hardening	-	-	-	Rapo	-
42.5	CEM I	OPC*	Portland cement	Duratech	-	OPC	-
	CEM I	LASRC	-	-	-	LASRC	-
	CEM II A-S	PC 15SL	-	-	Eagle Plus	-	-
	CEM II B-S	RH30SL	-	-	Eagle Plus	-	-
32.5R	-	-	-	-	-	-	-
32.5	CEM II A-V	PC 15FA	All Purpose Cement	-	-	Surebuild	-



Cement Grade	Cement Type	Approximate old product name	New Alpha	New Blue Circle	New NPC	New PPC	New Slagment
	CEM II A-W	PC15FA	-	-	-	Surebuild	-
	CEM II A-L	-	All purpose Cement	-	-	Surebuild	-
	CEM II B-V or W	PC25FA/PFAC*	-	Structrete	-	Surecrete	-
	CEM IIIA	PBFC	-	BFC	Eagle Pro	-	PBFC
	CEM IIIA	RHSL	-	-	-	-	RHSL
22.5	MC 22.5X	PFAC***	Multi Purpose Cement	Durabuild	-	-	-
	MC22.5X	PFAC***	-	Buildcrete	-	-	-
12.5	MC 12.5	Walcrete	Mortar Cement	Wallcrete	-	Masonry	-
	MC 12.5	Mortacem	-	-	-	-	-

Notes: * OPC cements previously performed approximately as CEM 1 32,5R products
 ** PC25FA cements under the old standards achieved lower compressive strengths than the OPC's of the time
 *** Some PFAC cements meet the new standard for MC 22,5X. Others required modification before meeting the requirements for MC 22,5X

B1230 MATERIALS

Add the following:

The Contractor, when using materials that are required to comply with any Standard Specification, shall, if so ordered, furnish the Employer's Agent 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 Employer's Agent 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 Employer's Agent.

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 within the road reserve, or in borrow areas shall not become the property of the Contractor, but will be at his disposal only in so far as they are approved for use on the Contract.

Existing structures on the site shall remain the property of the Employer and except as and to the extent required elsewhere in the Contract, shall not be interfered with by the Contractor in any way.

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

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

The Contractor shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the Specification.

B1202 MEASUREMENT AND PAYMENT

B12.01 Provisional sums

Part C3: Scope of Works

Protection, relocation or reinstatement of servicesPrime Cost (PC) Sum

Handling cost and profit in respect of subitem B13.02(a)percentage (%)

The Prime Cost Sums allowed shall be controlled and expended as stipulated in Clause 6.6 of the Conditions of Contract.

The Prime Cost Sum allowed under item (a) shall be expended to cover the costs of the protection, relocation and/or reinstatement of existing services by service owners or using approved selected subcontractors in accordance with the General Conditions of Contract. Only items of work ordered by the Employer's Agent for which there is no applicable measurement and payment item in the Bill of Quantities will be measured and paid for under this item.

Payment of above Prime Costs shall not be subject to contract price adjustment.

B1200 PAYMENT

Item	Unit
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B1200 Provisional Sums

Add the following pay subitem.

"(a) Allow provisional sum for relocation and/or protection of services.....	Sum
"(b) Handling costs and profit on {(a)}.....	%
"(c) Allow provisional sum for new survey beacons.....	Sum
"(d) Handling costs and profit on {(c)}.....	%

B12.03 PROVISION FOR SURVEY

Item	Unit
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B12.03

Add the following pay subitem:

"(a) Additional Survey Requested by the Engineer	Sum
"(b) Handling costs and profits on (a).....	%

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

B1302 GENERAL REQUIREMENTS

(a) Camps, constructional plant and testing facilities

Add the following after the first paragraph:

"The Contractor shall liaise with the landowners to use the Site camp. No separate payment shall be made and costs shall be included in the rates provided.

The Contractor shall make his own arrangements concerning establishment of the camp site, supply of water, electrical power and all other services. No direct payment will be made for the provision of water, electrical and other services and 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."

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

Add the following as a second paragraph:

"There has been recent legislation promulgated by Government that imposes mutual obligations on the employer and contractor in the performance of their duties to society and to the built and natural environment. To assist the Contractor in understanding and assessing his obligations, and thus to make allowances for the cost of compliance with this legislation, the following additional specifications are included in the Project Specifications:

Part C of C3.4 Construction of the Scope of Works contains the Environmental Management Programme for this project. Its provisions regulate the contractor's construction methods to ensure responsible conduct and treatment of the environment relevant to the project. No separate payment mechanism has been made available for the Contractor to allow for his compliance with relevant environmental legislation. Separate payment items are included in these provisions. However, non-compliance with these provisions may lead to the imposition of penalties and the potential for a formal rectification process (depending on the nature of the non-compliance) in terms of Section 24G of the National Environmental Management Act (Act No. 107 of 1998) (as amended).

Part D of C3.4 Construction of the Scope of Works contains provisions that regulate the Contractor's construction methods for compliance with Government's initiatives towards the use of local labour in construction, black economic empowerment and the use of targeted enterprises and labour (local resources). Separate pay items for labour obligations and training are included in these provisions. However, non-compliance with these provisions may lead to the imposition of penalties.

Section E of C3.4 Construction of the Scope of Works contains the Specification that regulates the Contractor's construction methods so far as to ensure health and safety of his Employees and of the public. Separate new pay item(s) are included in these provisions to allow the Contractor to make separate provision for the cost of health and safety measures during the construction process."

Add the following new subclauses:

(d) Housing

The Contractor shall not erect any housing or other accommodation facilities on the Site of the Works and shall make all the necessary arrangements for accommodation of his personnel and site staff off the Site of the Works.

(e) Services

The Contractor shall at his own expense, make the necessary connections to any utility services required by him for the execution of the Works.

(f) Contractor's ablution facilities

The Contractor shall provide a portable chemical latrine unit at each temporary traffic control facility. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the Employer's Agent. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the Contractor's time-related obligations."

(g) Moveable items

All new moveable items provided by the Contractor and purchased through the tender for the purposes of the Contract, shall when they are no longer required by the Employer's Agent, revert to the Stellenbosch Municipality.

B1303 Community Liaison Officer

Democratically elected village members who in turn have representation on the overall Project Steering Committee (PSC) represents the residents being served by the project. The Contractor will be required to liaise through the CLO for any matters to do with the community. The CLO shall be paid an amount of **R10 000.00 per month** throughout the contract.

B1303 MEASUREMENT AND PAYMENT

Item	Unit
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B13.01 The Contractor's general obligations:

In the 17th paragraph (the fourth last paragraph) under item 13.01 replace the second sentence with the following:

"The tendered rate will be paid monthly, pro rata for parts of a month from the Commencement Date of the Contract in terms of clause 5.2 of the General Conditions of Contract, until the Due Completion Date as defined in clause 1.1.1.14 of the General Conditions of Contract, provided that – "

Add the following after the fourth paragraph:

"The combined total tendered for subitems (a), (b) and (c) shall not exceed 15% of the Tender Sum (excluding CPA, contingencies and VAT)."

Add the following after the fifth paragraph:

"Measurement of the initial 50% component of the fixed P&G's will not be released until the following information has been provided to the satisfaction of the Employer's Agent:

- (i) Training Plan;
- (ii) Contract Participation Goal (CPG) Plan;
- (iii) Environmental Management Plan;
- (iv) Traffic Accommodation Plan;
- (v) Quality Assurance Plan;
- (vi) Site facilities for the Employer's Agent including the laboratory is provided and commissioned/calibrated;
- (vii) Instruction to Commence Works has been issued."

Add the following after the eleventh paragraph:

"Measurement of the monthly time related P&G amount shall be measured as the progress of the Works on the critical path items on the latest approved programme, provided that no additional payment in this regard shall be made if;

- (i) Health and Safety issues reported at the most recent audit have not been resolved and closed out to the satisfaction of the Employers Agent in this regard;
- (ii) Environmental issues reported at the most recent audit have not been resolved and closed out to the satisfaction of the Employer's Environmental Control Officer in this regard;
- (iii) All information requested by the Employer's Agent in writing to be provided before the certificate measurement date, has not been provided;
- (iv) And Quality Control issues reported to contractor have not been resolved and closed out to the satisfaction of the Employer's Agent."

Add the following payment items:

Item	Unit
B13.03 Contract signboards	number (No)

The unit of measurement shall be the number of contract signboards provided in accordance with the drawings and erected at the locations as instructed by the Employer's Agent.

The tendered rate shall include full compensation for procuring and furnishing all materials, and for the manufacturing of the Contract signboards complete as specified on the Drawings. It shall also include for the delivery and erection of the signs complete as specified at the locations instructed by the Employer's Agent, and for their removal on completion of the Contract."

B13.04 (a) OHS Obligations - Fixed

- (a) Fixed obligations for the preparation of risk assessments, safe work procedures, the project H & S file, H & S plan and any other H & S matters that the contractor deems Necessary.....Lump Sum

Item	Unit
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B12.10 (b) OHS Obligations – Fixed

- (b) Fixed obligations for completing and checking the Project H & S file and handing over to the client on completion of the works.....Lump Sum

B12.10 (c) OHS Obligations – Time Related

- (c) Time related obligations for updating and amending the risk assessments, safe work procedures, the project H & S file, the H & S plan and full compliance with all H & S matters during the construction of the works under the contract.....Month

Payment of the lump sums tendered under sub item (a) and (b) and the rate per month for sub item (c) shall, for the three sub items together, include full compensation for all the contractors charges in respect of compliance with the OHS Act and Construction Regulations.

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

B1402 OFFICES

(a) General

Add the following after the fifth paragraph of this subclause:

"The offices shall be provided with electricity 24 hours per day, suitable voltage regulators to prevent damage due to voltage spikes and a short-term (minimum 3 hours) backup power supply to bridge periods of load shedding and to provide uninterrupted power supply for all electrical equipment, lighting, wireless router, PCs and other computer equipment such as printer/copier/fax machines at the Contractor's expense."

Add the following:

"Suitable description, designation or name boards as directed by the Employer's Agent with lettering 35 mm in height shall be affixed to each of the Employer's Agent site personnel offices."

All furniture, equipment and fittings provided by the Contractor shall be new unless otherwise agreed beforehand with the Employer's Agent."

(b) Offices

Add the following at the end of the first paragraph:

"The Employer's Agent's supervisory site staff offices shall comprise of two (2) individual offices, and a large space suitable for use as conference room/mess area."

Separate male/female ablution facilities need to be provided for the exclusive use of the Employer's Agent's personnel at the offices.

Amend subclause (x) to read as follows:

"Each drawing table shall be 0.9 m x 1.8 m x 0.9 m high fitted with a smooth inclined top and secured to the office wall."

Replace subclause (xii) with the following:

"A complete telephone service with one exchange line independent of the Contractor shall be provided for the use of the Employer's Agent and his staff. The line should have five extensions including ADSL line with wireless router and internet connection with minimum line speed of 4Mbps shall be provided. In addition, a separate exchange line shall be provided for the facsimile machine. The facsimile machine shall be located in the Employer's Agent's office."

The cost of all telephone and cellular phone calls in connection with contract administration, monthly subscriber fees, rentals, including installation and final disconnections, shall be reimbursed through the Prime Cost Sums provided for under subitem B14.03(b)."

A complete telephone service with a minimum of five extensions including ADSL line with wireless router and internet connection with minimum line speed of 4Mbps shall be provided. The prime cost sum shall also include for the cost of the internet facility and all telephone calls made in connection with contract administration."

(c) Areas around offices

Add the following:

"All offices shall be provided with burglar bars on all windows and security locks on all doors. The provision of the above-mentioned security measures shall be deemed to be included in the rates tendered for the items concerned."

The Contractor is to provide gate keys to the Employer's Agent's site personnel.

The offices shall be illuminated at night by security lighting consisting of lamps installed 8 m above ground level on suitable poles to provide illumination not less than 20-lux measured at ground level.

The Contractor shall provide adequate security and this may entail but shall not be limited to:

Strict guarded control of access to the complex on a 24-hour basis, including weekends and public holidays."

(d) Ablution units

Delete and substitute the following:

"Ablution units shall be constructed as specified for the offices and provision shall be made for sewerage as specified in clause 1404.

They shall be incorporated in the Employer's Agent's Representative offices and shall have a floor area of at least 6 m² with electric lighting and be equipped with the following:

- (i) Two vitreous enamel w.c. pan with PVC seat and cover and flush cistern in separate lockable cubicles.
- (ii) One vitreous enamel urinal with flush cistern.
- (iii) One vitreous enamel wash and hand basin with hot and cold water supply.
- (iv) Mirror and towel hanger.

When a ladies toilet unit is required it shall be similar to the above but without a urinal."

Add the following subclauses:

(e) Moveable items

All new moveable items provided by the Contractor and purchased through the tender for the purposes of the Contract, shall when they are no longer required by the Employer's Agent, revert to the Stellenbosch Municipality.

B1408 SERVICES

(a) Water, electricity and gas

Add the following:

"The supply of electricity, water and gas to the offices of the Employer's Agent's supervisory staff shall be maintained 24 hours per day. A generator shall be supplied as a back-up during power outages. 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 equipment and related machinery during power surges. Payment for the voltage regulator shall be deemed to be included in the rates tendered for the supply of power. In the event of damage to the office equipment and related machinery, because of a faulty voltage regulator, the Contractor shall be liable for payment of all repair or replacement costs of such damaged items."

(b) Maintenance

Add the following:

"The Contractor shall supply soap, toilet paper, linen roller towels, cleaning aids and a refuse removal service to keep the offices, ablution and other facilities clean and tidy at all times. Cleaners and sanitary personnel shall be provided for this purpose. All the Employer's Agent's site personnel offices as well as the conference room shall be vacuum cleaned at least every second day."

The Contractor shall also keep the grounds around the offices and all access roads to these facilities, carports and surface drains clean and neat and in a condition acceptable to the Employer's Agent."

The following new subclause shall be added to clause 1408 of the Specifications:

(c) First Aid

"The Contractor shall provide a first aid kit at the site offices. No separate payment will be made and the Contractor shall allow for this in his tendered rates."

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

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

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

It also covers the accommodation of traffic along existing roads and shoulders where no temporary deviations are required."

B1502 GENERAL REQUIREMENTS

Insert the following:

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

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

(a) Safety

Replace the full stop at the end of the first paragraph and continue with the following:

"... flow of traffic, including the prohibition of his, and his subcontractor's, construction plant from disregarding the stop/go accommodation of traffic control facilities.

Add the following paragraphs:

"The Contractor shall be responsible for maintaining the existing road surface both within the works area and the advance warning and termination areas in a safe and trafficable condition for the duration of the Contract.

The Contractor shall within 7 (seven) working days after receipt of a 3rd party claim acknowledge receipt to the claimant. The Employer's Agent shall be copied on all correspondence regarding 3rd party claims. The Contractor shall at the monthly site meeting report on the status and outcome of the 3rd party claims.

The Contractor shall be fully responsible for all the traffic accommodation on site, including for work undertaken by sub-contractors, e.g., at guardrails etc.

The Contractor must obtain approval of the Employer's Agent in consultation with Stellenbosch Municipality and municipal traffic authorities regarding traffic accommodation.

During the non-working hours, or when construction is not taking place on a certain section of road all obstructions to the traffic shall be removed and all signs no longer applicable to the situation shall be removed to an approved safe location or effectively covered.

No equipment or vehicles shall be stored or parked on the shoulder/verge or on the road side during non-working hours except if protected or demarcated and only if approved by the Employer's Agent.

When requested by the Employer's Agent, the Contractor shall provide lane closures for the purpose of road inspection. This must be done in advance of the actual programmed time for the work."

(b) Access to properties

Add the following:

"Where the alignment of the new road coincides with the alignment of the existing road, where accesses to private properties are affected, property access 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."

(c) Traffic Safety Officer

Add the following to the end of the second paragraph:

"The Contractor shall submit a CV of the candidate to the Employer's Agent for approval before the candidate is appointed as the Traffic Safety Officer."

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

"make himself available to discuss road safety and traffic accommodation matters whenever required by the Employer's Agent and shall be responsible..."

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

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

These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the Traffic Safety Officer, and shall be signed by the Traffic Safety Officer before being submitted to the Employer's Agent.

The records shall be amended whenever changes are made in the field and the revised detailed sketches shall be submitted to the Employer's Agent. This shall include the recording of the position of flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used.

(iii) Personally inspect the position and condition of each traffic-control facility on the whole site of works four times each day, to record all irregularities discovered and the remedial action taken. The Traffic Safety Officer shall sign off as correct and submit to the Employer's Agent such record sheets within 2 hours of each inspection the Traffic Safety Officer shall keep a duplicate book for this specific purpose.

The Traffic Safety Officer shall also submit to the Employer's Agent by 10:00 each morning, a record of all matter pertinent to site safety and traffic accommodation throughout the site of works the previous day. He shall also record the daily labour returns of flagmen, stop/go and traffic signal control men employed."

Add the following duties:

"(ix) Ensure that all obstructions related to the Contractor's activities be removed before nightfall where applicable and instructed by the Employer's Agent and that the roads are safe for night traffic.

The vehicles shall also be equipped with flashing amber LED lights or with flashing amber LED light bars of an approved design. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

The Traffic Safety Officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the Contract.

(x) The Traffic Safety Officer shall, in addition to the duties listed in paragraph 1502 (i), also be responsible to arrange for the removal of stationary or broken-down vehicles off the roadway in conjunction with the routine maintenance contractor and/or traffic authorities 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

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

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

The vehicles shall also be equipped with flashing amber LED lights or with flashing amber LED light bars of an approved design. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

The Traffic Safety Officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the Contract.”

Add the following sub-clauses:

(d) Crossing the median or carriageway centreline

No vehicle or item of equipment shall be allowed to cross the centreline of a single carriageway unless the traffic accommodation and signage specifically allows for this and is approved by the Employer’s Agent as safe.

(e) Moving and display of signs

The Contractor shall adhere strictly to the sign layout and spacing shown on the Drawings or directed by the Employers Agent. Any sign not required for or which is in contradiction with the prevailing situation, shall be removed or covered with opaque material without delay. Where permanent signs are to be covered it shall be done with non-plastic material.

(f) Safety of the travelling public

The safety of the travelling public is of utmost importance and every effort shall be made to ensure that all warning signs, barricades, flagmen and speed controls are maintained and effective and that courtesy is extended to the public at all times.

The travelling public shall have right of way on public roads. The Contractor shall arrange his activities so as to bring about the least possible disruption to the traffic on the roads on which he works.

Failure or refusal on the part of the Contractor to take the necessary steps to ensure the safety and convenience of the public in accordance with these specifications or as required by the Employer’s Agent or the traffic authorities shall be sufficient cause for the closing down of all work under this Contract until all provisions prescribed have been complied with to the satisfaction of the Employer’s Agent.

(g) Site personnel

The Contractor shall ensure that all his 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 near to the travelled way. Any person found not wearing a reflective jacket under these circumstances shall be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are, in the opinion of the Employer’s Agent, ineffective shall be immediately replaced by the Contractor.

(h) Overnight parking of plant

During non-working hours all obstructions to traffic shall be removed from the road and all signs no longer applicable to the situation shall be removed or effectively covered with opaque material.

No overnight parking of construction plant within the road reserve will be permitted due to the narrow roadway. The construction plant shall be parked at the site camp overnight.

Vehicles shall be checked for leakage of any hazardous substances (i.e. oil, fuel, brake fluid) and drip trays shall be used to catch such leaks if evidence of leakage is found.

(i) Penalty events

Whenever the following events occur, the Contractor shall be subjected to penalty conditions.

(j) Non-compliance with accommodation of traffic specifications

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

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

In addition, a time-related penalty of **R1000,00** 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 Employer’s Agent has given an instruction to this effect. The Employer’s Agent’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.

(k) Handing over the Site

The road reserves of all the roads to be constructed under this Contract will be handed over to the Contractor at commencement of the Contract. The Contractor will be permitted to work on any structure or service provided that a free and safe flow of traffic is maintained at all times and that the requirements of the Specifications are complied with.

The Contractor's programme for the accommodation of traffic and any proposed deviation from the approved programme shall be subject to the Employer's Agent's approval.

(l) Use of the road by the public

The Contractor shall plan and conduct his activities so as to bring about the least possible disruption to the traffic on the roads on which he works. No detours outside of the road reserve for construction traffic and for the public are envisaged. Where there is no working space off the road, construction vehicles may be parked on the shoulder in which case flagmen and traffic cones shall be employed. All temporary lane closures and halting of traffic will require the prior approval of the Employer's Agent and shall be pre-arranged with the appropriate traffic authorities.

(m) Other requirements

The following other requirements must be adhered to for the entire contract period:

- (i) 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.
- (ii) 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."

B1503 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 these special provisions and as shown on the Drawings and in the SARTSM and remove them when no longer required. It shall be incumbent upon the Contractor to see to it that the abovementioned traffic-control devices are present where required at all times and are functioning properly."

Add the following after the first paragraph:

"The Contractor shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to the absence or improper functioning or placement of road traffic signs, barricades, traffic-control facilities, channelization devices and warning devices."

Replace the last sentence of the second paragraph with the following:

"Traffic-control facilities no longer required at the site of a deviation or a lane closure shall be moved for re-use. Traffic-control facilities lost or damaged by the Contractor shall be replaced at his own cost. Where it can be proved that loss of or damage to such facilities is beyond the Contractor's control and not the result of his actions or omissions, the Employer's Agent may order the facilities to be replaced and paid for at scheduled rates."

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."

(a) Traffic-control devices

Add the following after the first sentence of the first paragraph:

"At each signalised traffic control point, an all-weather shelter of at least three (3) square metres capable of accommodating two operators, with a clear window, a stable door, two chairs and a portable chemical toilet that shall be regularly maintained, shall be provided. The provision shall include for a sufficient continuous power supply to operate each traffic control point. Included in the establishment and operation of the traffic control devices shall be a communication system that allows the operators to communicate with each other.

At each traffic control point, plastic moveable barriers, fitted with STOP signs to both sides, shall be provided to prevent vehicles from utilising the closed road lanes. These barriers shall be moved to open and close the relevant lanes for road

users.”

(b) Road signs and barricades

Add the following:

“The Contractor shall be responsible for the protection and maintenance of all signs.

Where so directed by the Employer’s Agent, the temporary road signs that shall be in use for long periods at any given time shall be mounted onto poles. In all other cases they 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 for in the tendered rates for the various types of temporary road signs.

The traffic-control devices, temporary signs and devices required in the Contract are those designated in Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual.

No work may proceed on any section where accommodation of traffic is required until such time as the relevant requirements with regards to signposting are met and written approval of the Employer’s Agent is obtained. The Contractor shall keep sufficient surplus signs, delineators and barricades on the site to allow for the immediate replacement of damaged or missing items, in any case, within three hours of instructions having been given by the Employer’s Agent. Delineators shall be of the flexible plastic reversible variety and not of the rigid metal variety.

Should the Contractor fail to respond to an instruction to re-erect a road sign within three hours or fail to comply to the requirements, the work on that section will be suspended without any compensation to the Contractor.

The covering of permanent road signs, if applicable, shall be by utilizing a suitable and durable covering that shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials 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.”

(c) Channelization devices and barricades

Add the following:

“The use of drums as channelization 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 250 mm 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 m² and ballasted by its own weight or with sandbags filled 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.

On section of road where the centreline has been obliterated, delineators shall be provided on both road edges at minimum 200 m spacing on straight sections and at least 3 (three) visible on all curves.”

(e) Warning devices

Add the following:

“All construction vehicles and plant used on the Works shall be equipped with flashing amber LED lights or with flashing amber LED light bars and warning boards as specified. All vehicles and plant before being allowed onto the site shall obtain

a clearance permit from the Employer's Agent. The warning devices shall be visible from the front and back of the vehicle.

(i) Vehicle mounted flashing lights

Flashing lights shall be amber LED lights or amber LED light bars of an approved design and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic within the work areas.

All LDVs and cars operating on site shall also be equipped with flashing amber lights which shall be placed so as to be highly visible from all directions and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic within the work areas.

Flashing lights and the "Construction Vehicle" signs on the Contractor's vehicles and plant shall not be paid for separately but shall be included in the rates covering the use of the vehicles.

The Contractor shall apply and maintain lights together with temporary mounting brackets, to the approval of the Employer's Agent. Vehicles and plant that do not comply with these requirements shall be removed from the site.

Add the following sub-clauses:

“(g) Other traffic control measures ordered by the Employer's Agent

The Employer's Agent may instruct the Contractor to provide any other road sign, reflective tape, etc. not measured in standard pay items. Such road signs shall conform to the requirements of the SARTSM, or specification provided by the Employer's Agent. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation of traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Employer's Agent may arrange for advertising in the press and/or for other forms of publicity.

(h) Flagmen

Flagmen shall be provided, as required by the Specification or the requirements of the SARTSM. During the daytime, at least two flagmen shall be provided at each traffic control point in addition to the STOP/GO sign operator, one flagman at the first speed reduction sign and a second roving flagman at least a 100 m behind the last vehicle in the queue to indicate to the traffic to stop. Where the shoulder of the road is closed to traffic, flagmen shall be provided at the leading ends of closures during daytime. These flagmen shall be provided at the first speed reduction sign to warn the traffic about the closure. No flagmen shall be on duty for a period of more than 10 hours per day.

No separate payments shall be made for flagmen or sign operators at half width construction, lane drops, shoulder closures, intersections or accesses and the Contractor shall include the costs under the relevant payment items provided in the bills of quantities.

Flagmen and sign operators shall be paid for if other traffic control measures are ordered by the Employer's Agent or to assist with accident scenes.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM (refer to figure 13.23 of detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilizing retro-reflective and/or fluorescent panels in red, yellow and/or white.

Flagmen shall have in their possession, at all times, certification that they have attended and passed an accredited course in flagging techniques before being allowed onto the construction site.

Flags shall be made from bright red or red-orange material and shall be square with a minimum side length of 600 mm. The flag shall be attached to a staff at least 1,0 m in length.

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand-alone.”

(l) Cleaning of traffic control facilities

All traffic control facilities shall be kept clean and visible at all times. All dust, mud, concrete, bituminous or other foreign material shall be removed by the Contractor on a regular basis to the satisfaction of the Employer's Agent.”

B1517 MEASUREMENT AND PAYMENT

Insert the following paragraph after the heading:

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

Amend item 15.01 to read as follows:

"Item	Unit
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B15.01 Accommodating traffic and maintaining temporary deviations:

(a) On Access road	kilometre (km)
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Replace the first paragraph with the following:

"The unit of measurement shall be the kilometre, measured along the centre lines of the road, and accesses where construction work is carried out. Accommodation of traffic shall be measured once only, that is no separate payments shall be made for lane and shoulder rehabilitation, asphalt overlay, side drains, patching, switching closed traffic to the opposite half width, etc. Only the net distance of the road shall be measured and overlapping distances during staged construction shall not be measured. A distinction shall be made between accommodation of traffic on the through road and accommodation of traffic on the intersections and accesses.

In the second paragraph, replace the comma after "half widths" at the start of the third line with a full stop and delete the remainder of this first sentence. Also delete the whole of the second sentence, which refers to compensation for the Traffic Safety Officer.

In the third paragraph second sentence, insert a full stop after "use" and delete the remainder of the sentence."

Add the following to the end of the first sentence of the second paragraph:

"Flagmen as indicated on South African Road Traffic Signs Manual (SARTSM) shall not be paid for separately and shall be included in Item B15.01."

Add the following to the last paragraph:

"In the event of an approved extension of time due to special circumstances, payment will be adjusted pro rata based on the actual approved extension of the completion time."

Item	Unit
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B15.03 Temporary traffic-control facilities:

(a) Flagmen	man-day
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Amend item 15.03(a) as follows:

"Additional flagmen requested by the Employer's Agent, at designated access points and to direct and regulate traffic will be paid under Item B15.03. The unit of measurement shall be a man-day worked per flagman.

A normal work day shift is nine (9) hours. A shift of eight (8) hours in a 24 hour cycle is also one (1) man-day (person day). Three (3) shifts of eight (8) hours per flagman in a 24 hour cycle equates to three (3) man-days.

The tendered rate for this item shall include amongst other necessary requirements, full compensation for the provision of flags, safety jackets."

Add the following clause:

B1518 ACCOMMODATION OF PEDESTRIAN TRAFFIC

The Contractor shall pay specific attention to the accommodation of pedestrian traffic along the cross roads, intersections and accesses where the safety of pedestrians could be compromised as a result of the Works.

Where pedestrians have to cross the Site, the Contractor shall ensure that the pedestrians are safeguarded and shall be able to cross the site without being endangered. The pedestrians should not be able to enter areas where works are taking place.

Should a walkway be required, it shall have a clear opening of at least 1,2 m wide. The surface of the walkway shall be free from obstructions and shall be clearly signposted to guide the pedestrians towards the walkway. If steps are required to reach the level of the walkway, these shall comply with the OHS Act and relevant Regulations and have proper handrails. No ramps shall be steeper than 1 in 8.

Payment for compliance to this requirement shall be deemed to be included in the rates tendered for accommodation of traffic."

SECTION 1600: OVERHAUL

B1602 DEFINITIONS

(b) Overhaul

Replace the sub-clause with:

“Payment shall only be made for material hauled in excess of 1 kilometre. Overhaul shall be measured as the product of the volume of material hauled and the overhauled distance.

(d) Free-haul distance

Replace the last sentence with:

“This distance shall be 1 kilometre in the case of all overhaul materials”.

SECTION 1700: CLEARING AND GRUBBING

Add the following:

"This section also covers the removal of topsoil and the temporary stockpiling thereof."

B1700 DESCRIPTION OF WORK

Clearing

Add to first paragraph:

"The Contractor is to liaise with the Employer's Agent prior to commencing with his clearing operation to decide and agree on areas to be cleared, and other areas to be left undisturbed. The intention is to disturb the vegetation (excluding alien) within the road reserve as little as possible, and at the very least attempt to retain an undisturbed strip along the inside of the reserve.

In the event that an area outside any area agreed between the Employer's Agent and the Contractor for clearing, is disturbed by the Contractor's employees or plant, the Contractor shall reinstate to original state and to the Employer's Agent's satisfaction at his own cost.

In addition, and as is required by the EMP, before the Contractor commences with any clearing, including existing side drains an environmental specialist chosen by the Employer and paid for separately is to carry out a plant 'search and rescue', as well as removing and replanting plants of interest. As soon as the Contractor has established a presence on site, and in order not to delay any 'clearing and grubbing', he must call for the search and rescue operation to be carried out."

(c) Conservation of Topsoil

Add to the end of the 1st paragraph:

"The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work."

Replace the second paragraph of this clause with the following:

"After clearing and grubbing, all topsoil shall be removed to either windrows alongside the construction area or to stockpile. Where ordered by the Employer's Agent, any topsoil that shall be required for the top soiling of new banks and cuts, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities. The moving of topsoil from windrow or the loading of topsoil from temporary stockpiles and the placing and spreading of thereof on cut or fill slopes or on borrow pit spoil sites, is covered in Section 5800.

B1702 EXECUTION OF WORK

(a) Areas to be cleared and grubbed

Delete "normally" in the second line of the second paragraph.

(b) Disposal of material

Replace the second paragraph with the following:

"The Contractor shall dispose of all trees, tree stumps, rubble, undesirable material removed from hydraulic structures, refuse, and all non-combustible rubbish at approved dumping sites identified by the Contractor. The material disposed of shall be covered up with soil or gravel. No extra-over or additional payment will be made for disposing of and covering up material and full compensation for this work will be deemed to be included in the rate tendered for Item B17.01."

B1704 MEASUREMENT AND PAYMENT

Item	Unit
------	------

Add the following payment items:

Item	Unit
------	------

B17.01	Clearing and grubbing	hectare (ha)
---------------	------------------------------------	--------------

Add the following to the measurement and payment paragraphs:

"Clearing and grubbing of the construction site camp / office shall not be measured separately and shall be deemed to be included in the rates tendered for item B13.01".

SECTION B1800: DAY WORK

Add the following section to Series 1000: General of the Standard Specifications:

“SECTION B1800: DAY WORK

CONTENTS

- B1801 SCOPE**
- B1802 GENERAL REQUIREMENTS**
- B1803 LABOUR**
- B1804 MATERIALS**
- B1805 PLANT**
- B1806 MEASUREMENT AND PAYMENT**

B1801 SCOPE

This section covers the listing of Daywork items in accordance with the General Conditions of Contract Clause 6.5, for the use in determining payment for work which cannot be quantified in specific units in the Bill of Quantities, or work ordered by the Employer's Agent in writing during the construction period which was not foreseen at tender stage and for which no applicable rate exists in the Bill of Quantities.

B1802 GENERAL REQUIREMENTS

Work will be classified as Daywork only if the Employer's Agent considers no other rate in the Schedule of Quantities appropriate for payment purposes.

Only work ordered in writing by the Employer's Agent to be executed as Daywork shall be measured and paid for at the rates tendered in the Bill of Quantities.

The Contractor shall keep and submit records of the work performed in accordance with the requirements of clause 6.5.4 (GCC 2015) of the General and/or Special Conditions of Contract.

B1803 LABOUR

The tendered rates for labour to be included as Daywork charges shall include the salaries and wages of gangers or charge of hands working with their gangers, but shall exclude the costs of the time of the foremen or supervisors which will be deemed to have been included in the sums tendered for the relevant items in Section 1300 of the Schedule of Quantities.

Prior to the commencement of any work by the personnel described under item B18.01 the Contractor must obtain written consent from the Employer's Agent regarding their classification in terms of "unskilled", semi-skilled" and "skilled" personnel.

Personnel will be classified using the following as a guide:

- (i) Unskilled labour shall be labour using hand tools/labour only.
- (ii) Semi-skilled labour shall be capable of using power tools such as drills and operating pedestrian rollers.
- (iii) Skilled labour shall be capable of constructing formwork or laying bricks etc.
- (iv) A ganger shall be capable of supervising a team of at least 6 labourers.

Gross remuneration, as specified in subclause 6.5.1.2.1 (GCC 2015) of the General and/or Special Conditions of Contract, will be deemed to include the following:

- a) Basic salary/wage
- b) Overhead charges such as fringe benefits not reflected in basic salary and wages which may include:
 - normal annual bonus
 - employer's contribution to medical aid
 - group life assurance premiums
 - employer's contribution to pension/provident fund
 - all other costs as per letter of appointment
 - and costs payable due to statutory requirements, which may include:
 - Workmen's Compensation Fund contribution
 - Unemployment Insurance Fund contributions
 - District Council levies or the equivalent thereof

The rates tendered for labour shall include for the actual cost of salaries and wages, all overhead charges, profit, liabilities, obligations, risks and incidentals for all workmen to execute work by dayworks.

B1804 MATERIALS

The nett cost price of materials (exclusive of VAT) actually delivered to the site to be included as Daywork charges shall include the costs of delivery to the usual points at which materials are received on the Site.

Before ordering any material, the Contractor shall submit quotations to the Employer's Agent for his approval, and shall submit such receipts or vouchers to the Employer's Agent as may be necessary for proving the amount claimed.

The percentage tendered as an on-cost on the nett cost price of materials shall include for all handling, overheads, profit, liabilities, obligations, risks, incidentals and other on-costs for the supply, delivery and distribution of material for daywork to the individual site(s) where Daywork is in progress.

B1805 PLANT

The full inclusive hourly cost of operational plant which is available on site or which has been removed without written authorization of the Employer's Agent, to be included as Daywork charges will be taken to be the tendered rate which, in the opinion of the Contractor, will be applicable in all respects to the situation and terms of the Contract.

The hourly rate tendered or agreed shall constitute the Daywork rate for the plant and will be deemed to include all costs for plant operators, consumable stores, fuel, maintenance, depreciation, ground-engaging tools and all other incidentals necessary to operate the plant for the purposes for which it was designed.

Failure on the part of the Contractor to state in the Schedule of Quantities the plant on which his tender is based, shall be considered as a firm agreement on the part of the Contractor that he waives all rights to distinguish between the different types and capacities of plant falling within the description and/or category given, and the Employer's Agent shall have the right to call upon the Contractor to supply any such plant to the site and perform the work as directed by him at the particular tendered rate.

Sixty percent (60 %) of the hourly rate tendered or agreed will be paid in respect of plant which is being employed for Daywork, but standing idle on the specific instructions of the Employer's Agent, as full compensation for idle costs of Daywork plant.

For plant not on site, the costs of establishing items of plant on the site for Daywork on specific instruction of the Employer's Agent will be negotiated with the Contractor at the time that such Daywork is contemplated.

B1806 MEASUREMENT AND PAYMENT

Item	Unit
-------------	-------------

B18.01 Labour charges

- | | |
|--|----------|
| (i) Unskilled labourer..... | hour (h) |
| (ii) Semi-skilled labourer..... | hour (h) |
| (iii) Skilled labourer | hour (h) |
| (iv) Chargehand or ganger..... | hour (h) |
| (v) Surveyor, including survey assistants, equipment and transport | hour (h) |

The unit of measurement shall be the hour of time worked by the particular employee on the designated work on instruction by the Employer's Agent.

The Daywork rates submitted for labour in the Schedule of Quantities shall be the cost of labour for each skill level and shall apply only to the number of workers approved in writing by the Employer's Agent.

The rates shall be for normal working hours and shall be increased pro rata for overtime at the standard rate applicable if the work performed outside working hours is approved in writing by the Employer's Agent.

The tendered rates shall include full compensation for all costs for salaries and wages, use and maintenance of tools and equipment, sick pay, leave pay, holidays with pay and financial charges of any description incurred by the Contractor and his subcontractors as well as for all insurance, accommodation, travelling, travelling time, supervision, overheads, profit, obligations, risks and any other emoluments and incidentals necessary for labour to execute work as Daywork.

Item	Unit
-------------	-------------

B18.03 Plant charges

- | | |
|--|----------|
| (a) Bulldozer with rippers (minimum 125kW) | hour (h) |
| (b) Front-end loader (Minimum 60kW)..... | hour (h) |

- (c) Tractor loader backhoe 4 x 4 (50kW).....hour (h)
- (d) Track excavator (125kW).....hour (h)
- (e) Smooth drum roller (12 ton).....hour (h)
- (h) Water bowser (10 000 litre).....hour (h)
- (i) Tip truck 6 m³ capacity.....hour (h)
- (k) Tip truck 10 m³ capacity.....hour (h)
- (l) LDV (1600cc).....hour (h)
- (m) Water pump (75mm diameter with 50m hose).....hour (h)

The unit of measurement shall be the hour actually worked by each item of plant (vehicle, machine or equipment) on the designated work on instruction by the Employer's Agent.

The Contractor and the Employer's Agent will agree on the method of recording the working hours prior to the commencement of work. Any long period of idling at any one time which in the opinion of the Employer's Agent or his representative is beyond that required for normal operating conditions will not be paid for as working time. Non-working hours for any reason shall not be measured for payment.

The tendered rates include full compensation for furnishing and using the plant, including the cost of plant operators, consumable stores, fuel, ground-engaging tools, maintenance and for all other incidentals necessary to execute the authorised Daywork as specified.

Where there is ambiguity between the power developed at the flywheel and mass of machine, the power shall govern the measurement category.

SECTION 3300: MASS EARTHWORKS

B3306 CUT AND BORROW

(a) Dimensions of cuts

Replace the second sentence of the third paragraph with the following:

"No additional or extra over payment will be made for widening existing or partly completed cuttings along the road. The widening of such cuttings shall be measured and paid for as 'cut and borrow to fill' (item 33.01) or 'cut to spoil' (item 33.04) as instructed by the Employer's Agent."

B3307 FILLS

(d) Benching

Replace the first sentence of the second paragraph with the following:

"The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be subject to the Employer's Agent's approval."

Add the following:

"The payment for the temporary cutting of the initial benches to windrow/stockpile shall not be made separately but shall be deemed to be included in the various payment items for fill material."

B3308 FINISHING THE SLOPES

(d) General

Add the following:

"Where existing cut and fill slopes are excessively eroded or where slippages occurred in slopes, the slopes are to be reinstated by means of backfilling with suitable gravel material. All loose material and vegetation shall first be removed from the eroded cut and fill slopes before backfilling may commence from the bottom of the cut or fill. The backfill material shall be benched into the existing slopes and compacted to 90% of modified AASHTO density, using suitable small compaction equipment e.g. Bomag walk-behind rollers or approved equivalent or hand-held compaction tools. Benching shall be executed to the dimensions shown on the Drawings. Upon completion of the backfilling operation the cut and fill slopes shall be neatly finished as specified. No additional payment will be made for finishing-off cut and fill slopes except where provided for in the pricing schedule. The Contractor must allow for this in his cut and fill rates."

B3311 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following sentence after the last paragraph:

"The in-situ sand layer for roadbed preparation will be tested for compaction once the gravel selected layer has been constructed. A hole will be excavated through the selected gravel layer to test the underlying sand layer for acceptance."

B3312 MEASUREMENT AND PAYMENT

General directions

(3) Work in restricted areas

Delete the existing text and replace with the following:

"While mass earthworks may be undertaken in restricted areas, item 33.15 and 33.18 are excluded in the Bill of Quantities. The tendered rate for item B33.01 shall be deemed to also include full compensation for work in restricted areas."

B33.01 Cut and borrow to fill, including free-haul up to 1,0 km:

In the fifth line of the fifth paragraph of the payment description delete "0,5" and insert "1,0".

B33.04 Cut to spoil, including free-haul up to 1,0 km. Material obtained from:

In the fourth line of the fourth paragraph of the payment description delete "0,5" and insert "1,0".

Replace the fourth measurement and payment paragraph with the following:

"The tendered rates for cut to spoil shall include full compensation for excavating from the road prism and roadbed in the various classes of excavation, for loading, transporting the material over the haul distance, off-loading and disposing of the material as specified, including shaping and levelling-off any piles of spoil material. It shall also, where applicable, allow for spoiling at sites where borrowing is taking place at the same time. No additional payment for temporary stockpiling or double handling will be made."

B33.07 Removal of unsuitable material (including free-haul of 1,0 km):

In the last line of the fourth paragraph of the payment description delete "0,5" and insert "1,0".

SECTION 3400 : PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

Add to Clause 3402(a) the following:

The pavement for the road shall consist of:

Subgrade	150mm G7 crushed gravel from local borrow pit sources.
Subbase	150mm G5 crushed gravel from commercial sources
Base	150mm G2 crushed gravel from commercial sources
Surface	30mm Asphalt from commercial sources

Add to Clause 3402(b) the following:

The pavement for the NMT facility shall consist of:

Subgrade	150mm G9 crushed gravel from local borrow pit sources.
Subbase	150mm G7 crushed gravel from commercial sources
Base	150mm G5 crushed gravel from commercial sources
Surface	30mm Asphalt from commercial sources

(b) Compaction Requirements

Add to Clause 3402(c) the following:

The compaction requirements of the road pavement layers shall be:

Subgrade	93% of modified AASHTO density for natural gravel subgrade
Subbase	95% of modified AASHTO density for natural gravel subgrade
Base	98% of modified AASHTO density for natural gravel subgrade

The compaction requirements of the NMT facility pavement layers shall be:

Subgrade	90% of modified AASHTO density for natural gravel subgrade
Subbase	93% of modified AASHTO density for natural gravel subgrade
Base	95% of modified AASHTO density for natural gravel subgrade

SECTION 4100: PRIME COAT

B4102 MATERIALS

(b) Aggregate for blinding

Add the following sentence:

"Blinding of the primed surface with aggregate shall only be permitted to facilitate vehicular access to adjoining properties."

B4103 EQUIPMENT

Add the following before the first paragraph:

"Before any storage, dilution or spraying operations commence the Contractor has to provide a safety and security and environmental protection method statement for approval of the Employer's Agent. All personnel involved, including brooming, prime distributor, storage and production yard operators and labour shall wear the necessary protective clothing. Appropriate fire extinguishers and medical aid devices must be provided in working order. The Employer's Agent reserves the right to stop the Contractor's operation or order any person from the Site who does not adhere to the above."

B4104 WEATHER AND OTHER LIMITATIONS

Replace Subclause (g) with the following:

"(g) When the moisture content of the upper 50 mm of the crushed-stone base or a granular base layer, determined according to TMH1 Method A7, is more than 50% of the optimum moisture content."

B4106 APPLICATION OF THE PRIME COAT

Add the following to Subclause (c):

"The nominal application rate of the prime shall be 0.7 litre / m². Unless directed otherwise by the Employer's Agent or indicated on the Drawings, the width of the primed surface shall be 150 mm wider than the edges of the surfacing on each side where no kerbs are installed."

Add the following Subclauses:

"(j) Application in areas treated by reworking and construction of a new base shall be primed using a mechanical distributor complying with Subclause 4103(a). The edges of the previously constructed or existing surfacing shall be adequately protected by approved means to ensure that an overlap of prime not exceeding 50 mm is sprayed onto the previously constructed or existing surfacing."

The application of the prime coat on the roadway will not be permitted using hand-held equipment. Restricted areas where only hand-held equipment can be used at accesses, intersections and rest areas should be submitted to the Employer's Agent for approval. No separate payment will be made for work in restricted areas

(k) Where the prime coat is utilised as a curing membrane the prime shall be applied within 24 hours or as soon as the moisture content of the covering layer so permits."

B4108 TOLERANCES

Replace the first paragraph with the following:

"The actual spray rates measured at spraying temperature shall not deviate by more than 8.0% from that ordered by the Employer's Agent. The Employer's Agent may, at his discretion, conditionally accept application rates falling outside this tolerance at reduced payment in accordance with Table B4108/1."

Table B4108/1:
Payment reduction factors for conditionally accepted prime coat

Deviation specified spray rate at spraying temperature. (%)	Payment reduction factor of tendered rate.
±8,0	1.00
±9,0	0.97
±10,0	0.95
±11,0	0.90
±12,0	0.85
±13,0	0.80

Any deviation outside these limits shall not be paid for, however, the Employer's Agent shall have the right to instruct the Contractor to make up any deficiency, or blind excessive prime without additional payment.

Where so instructed, the material for blinding shall consist of approved, but shall consist of screened 4,75 mm nominal single size aggregate. The use of crusher dust for blinding shall not be permitted. If under-spraying occurs, and it is accepted by the Employer's Agent, only the actual quantities applied shall be paid for

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

B5801 SCOPE AND DEFINITION

(a) *Delete this paragraph and replace with*

"This section includes all areas affected by construction activities. It includes landscaping, grassing, rehabilitation, erosion protections and planting trees and shrubs.

(b) **Definition**

WEEDS

Delete the following:

"(as listed in bulletin 413 issued by the Department of Agriculture, Directorate of Agricultural Information)"

and replace it with:

"(as listed in the Conservation of Agricultural Resources Act)"

B5802 MATERIALS

(e) **Grass sods**

Delete "until they are placed" and add "once placed for planting".

(i) Nursery-grown sods

Add the following:

"The sods shall be free of weeds, weed seeds, insects and fungal diseases."

(ii) Veld sods

Add the following:

"The sods shall be free of weeds, weed seeds, insects and fungal diseases."

(g) **Topsoil**

Add the following at the end of the first paragraph:

"The Contractor shall be responsible for the control of any germination of weed seeds within topsoil used on site."

Add the following at the end of the second paragraph:

"Areas such as stockpiles, borrow pits and spoil sites shall be stripped of all topsoil before work may commence within the area. Should a larger site for any of the above be required during construction, the Contractor shall refer to the Dedicated Environmental Officer (DEO) for best practice methods on ensuring the preservation of the additional stripped topsoil."

Add the following paragraph:

"The topsoil shall be kept free of all foreign material generated during construction. This shall include all stone and bituminous products. Topsoiling shall not be accepted should it contain any of the above material."

B5804 PREPARING THE AREAS FOR PLANTS

(b) **Areas which do not require topsoil**

Replace:

"50 mm" with "20 mm" and "15 mm" with "20 mm"

Add the following:

"In areas with large natural rock, i.e. not blasted or excavated rock, these rocks may be placed so as to look like a natural part of the landscape"

Add the following sub-clause:

“(g) Removal of undesirable vegetation

During the course of the Contract the Employer’s Agent may instruct the Contractor to physically remove undesirable vegetation from within the road reserve. Such an operation will take place before the flowering stage of the undesirable vegetation upon written instruction from the Employer’s Agent, but shall not relieve the Contractor of his obligation towards weeding sodded, grassed areas as described under 5806(a) and any area directly affected by any construction activity. Should the Contractor fail to respond to the written instruction from the Employer’s Agent for the removal of the aforementioned undesirable vegetation before flowering, the Contractor shall be held contractually responsible for any growth or seeding of said vegetation for a period of not less than twenty-four (24) months in the affected area.”

B5805 GRASSING

(a) Planting grass cuttings

2nd paragraph – remove “be covered with 30 mm of approved soil”. Replace with:

“have the root system of the grass cuttings thoroughly planted within the topsoil layer to ensure good growth. No part of the grass root system shall be left protruding from the topsoil”.

Remove “and, when sufficiently dry, shall be rolled with a light agricultural roller”

(b) Sodding

Add the following:

“Grass sods obtained from a commercial grass farm shall be used for the following:

A 1m wide strip shall be placed next to the road edge where no gravel shoulder exists.

A 0,5m wide strip shall be placed adjacent to all concrete-lined drains. Full sodding must be used for grass-lined drains. This sodding shall extend over the entire drainage channel, including the tops of the sides. The use of grass sods will commence from the point of acceptance of water, up to the safe discharge of water. No area shall be left without grass sods within the drainage channel should it provide a risk of erosion.

A minimum of a 1m wide strip shall be placed over the shoulder breakpoint for all fill slopes.

Full sodding to be used for all slopes steeper than 1:2. Any slope that exceeds 3m in width shall be sodded, the type of which shall be determined by the slope.”

(f) Sowing by hand

Delete the following:

“If approved by the engineer,”

Replace the second sentence with:

“The top 20mm of prepared topsoil shall be raked away in sections, the seed shall then be spread uniformly within the prepared area. The top 20 mm topsoil shall then be raked over the seedbed, ensuring an even thickness. This method is to be systematic, and where applicable, follow the contours of any slopes.”

Add the following:

“The thickness of the topsoil layer shall be as specified by the Employer’s Agent. The preparation of the soil for areas to be grassed is to include scarifying just before sowing the grass seed. Should erosion of any kind (by animal, wind or rain) have occurred before the Contractor applies the grass seed, the slope shall be re-instated, at the Contractor’s cost, to its original, erosion free state before seeding.

The types and mixtures of seeds to be used shall be as specified in the Project Specifications. The Contractor shall be solely responsible for establishing an acceptable grass cover, and any approval by the Employer’s Agent of seed mixtures intended for use by the Contractor shall not relieve him of his responsibility”.

B5807 TREES AND SHRUBS

(a) Positions of trees and shrubs

Add the following:

“(x) No median shall be planted with shrubs, should the median width be less than 10m wide.”

B5808 GENERAL

Add the following subitems:

“(f) Weeding

The Contractor shall maintain all areas affected by construction activities free of all undesirable plant species. They shall be removed before the flowering stage of each species. Should the Contractor fail to remove the alien plant species before flowering he shall be held responsible for alien plant removal within the affected area, for an additional period of one year, over and above the contractual one-year Defects Liability Period.

The method for the removal of undesirable plant species shall be either by hand, which shall include the removal of the complete root system, or by chemical means, through the use of a registered selective herbicide. A registered, licensed pest control operator, licensed for the industrial application of herbicides, shall only administer the application of the herbicide.

g) Establishment of vegetation within areas disturbed by construction activities

The Employer's Agent shall assess any area within the construction boundaries that has been disturbed by construction activities, but which is not scheduled for formal revegetation within the Contract. The assessment shall include whether re-vegetation is required. These disturbed areas, none the less remain the Contractor's responsibility for the removal of alien vegetation.

SECTION 8200 : QUALITY CONTROL (SCHEME 1)

B 8201 SCOPE

Add the following paragraph:

Quality Control Scheme 1 as specified in Section 8200 shall apply to this contract.

B8204 GENERAL REQUIREMENTS

(d) Outliers

(ii) Method 2, shall apply to this contract using the critical values for the different value of n from the following added tables for the different product properties.

Table B8204(d)3

Critical C-values for the outlier test for granular material ($C_{0,99}(N)$ – sigma values)									
No	Compaction %	Sieve Size (only for G1 & G2 basecourse), mm							PI
		26.5	19.0	13.2	4.75	2.00	0.425	0.075	
4	4.1	6.1	8.5	8.5	7.3	5.6	3.6	3.2	2.4
5	4.4	6.4	9.0	9.0	7.7	5.9	3.9	3.3	2.5
6	4.6	6.7	9.4	9.4	8.0	6.2	4.0	3.5	2.7
7	4.7	6.9	9.7	9.7	8.3	6.3	4.1	3.6	2.8
8	4.8	7.1	9.9	9.9	8.5	6.5	4.2	3.7	2.8
9	4.9	7.2	10.1	10.1	8.6	6.6	4.3	3.7	2.9
≥10	4.9	7.3	10.2	10.2	8.7	6.7	4.4	3.8	2.9

Table B8204(d)4

Critical C-values for the outlier test for asphalt layers ($C_{0,99}(N)$ – sigma values)										
No	Density	Sieve Size, mm							Bitumen	VIMS
		26.5	19.0	13.2	4.75	2.36	0.300	0.075		
3	2.9	5.6	6.7	7.6	7.8	7.2	6.2	2.3	0.4	2.1
4	3.2	6.1	7.3	8.6	8.5	7.9	6.8	2.5	0.4	2.3
5	3.3	6.4	7.7	9.0	9.0	8.4	7.2	2.6	0.5	2.4
6	3.5	6.7	8.0	9.4	9.4	8.7	7.5	2.7	0.5	2.5
7	3.6	6.9	8.3	9.7	9.7	9.0	7.7	2.8	0.5	2.6
8	3.7	7.1	8.5	9.9	9.9	9.2	7.9	2.9	0.5	2.7
9	3.7	7.2	8.8	10.1	10.1	9.4	8.1	3.0	0.5	2.7
≥10	3.8	7.3	8.7	10.2	10.2	9.4	8.1	3.0	0.5	2.8

Critical C-values for the outlier test for surfacing aggregate ($C_{0,99}(N)$ – sigma values)										
No	Sieve Size, mm									
	26.5	19.0	13.2	9.5	6.7	4.75	2.36	0.425	0.075	
3	2.1	2.0	2.0	1.8	2.4	1.8	2.3	1.8	0.9	
4	2.3	2.2	2.2	2.0	3.2	2.0	2.5	2.0	1.0	
5	2.4	2.3	2.3	2.1	4.0	2.1	2.6	2.1	1.1	
6	2.5	2.4	2.4	2.2	4.6	2.2	2.7	2.2	1.1	
7	2.6	2.5	2.5	2.2	5.6	2.2	2.8	2.2	1.2	
8	2.7	2.6	2.5	2.3	6.4	2.3	2.9	2.3	1.2	
9	2.7	2.6	2.5	2.3	7.2	2.3	2.9	2.3	1.2	
≥10	2.7	2.6	2.5	2.3	8.0	2.3	3.0	2.3	1.2	

Table B8204(d)5

Critical C-values for the outlier test for cemented layers ($C_{0,99}(N)$ – sigma values					
No	Compaction %	UCS		PI	CBR
		Lime	Cement		
3	4,4	1,1	1,6	3,3	22
4	4,9	1,2	1,7	3,6	24
5	5,1	1,3	1,8	3,9	26
6	5,4	1,3	1,9	4,0	27
7	5,5	1,4	1,9	4,1	28
8	5,7	1,4	2,0	4,2	28
9	5,8	1,4	2,0	4,3	29
≥10	5,8	1,5	2,0	4,4	29

B8206 JUDGEMENT PLAN B

Replace **Table 8206/1** with the following table in controlling the characteristic properties in accordance with this judgement scheme.

Structure	Characteristics, Properties
Gravel pavement layers	Relative compaction
Crushed stone base or subbase	Relative compaction
Asphalt base and surfacing	Relative compaction Binder content of mix Voids in mix (VIM) Grading
Chemically stabilised layers	Relative compaction Stabiliser agent content by UCS determinations Unconfined Compressive Strength
Concrete	Compressive Strength

(a) Taking samples and testing the properties.

Add the following to the first paragraph of this clause:

“A valid concrete compressive strength test result, the sample size (n), is the average of 3 test specimens (concrete cubes) from a single batch of concrete tested at the same age.”

(d) Determining the judgement limits

Values of constants

Replace Table 8206/3 with the following table,

Table 8206/3

VALUES OF CONSTANTS n, L_s, L'_s AND Ø

Material	Properties	Minimum Sample Size n	L _s (Lower Specification limit)	L' _s (Upper Specification limit)	Ø
Selected Subgrade	Relative compaction	6	Top 95% Bottom 93% Sand 100%	-	15
Subbase	Relative compaction	6	97%	-	15
Gravel base	Relative compaction	6	100% and if stabilised 98%	-	15
Crushed Stone	Relative compaction	6	See subclause 3602 (a)		15
Subbase or base	Grading		See table 3602/4		20 sieves 26,5-4,75 10 sieves 4,75-0,075
Asphalt base or surfacing	Relative compaction Binder content Voids in mix (VIM)	6	See note 1		15
	Gradings		See table 4213/1		20 sieves 26,5-13,2 10 sieves 13,2-0,075
Chemically stabilised layers	Relative compaction	6	Upper/Single layer 96% Lower Layer 95%		15
	Cementitious binder content by UCS determinations		See subclause 3506 (b)(ii)		-
	Unconfined Compressive Strength		See table 3402/5*		
Strength concrete (structural)	Compressive strength (28 days)	See tale 8206/2	See note 3		5
Pavement concrete	Compressive strength (28 days)	6	See subclause 7103(d)		5

*In table 3402/5 change the material before treatment to read at least G5 qualify for C3 and C4 criteria's.

B8208 CONDITIONAL ACCEPTANCE

(a) General

Amend the first paragraph to read:

"Any lot which does not comply with the requirements for acceptance plan B may be conditionally accepted should the value of the sample mean lie within the rejection limits given in Clause 8211."

(c) Criteria for conditional acceptance

Replace the last paragraph with the following:

"The rejection limits for this contract shall be determined in accordance with statistical criteria as provided for in Clause 8211 : Determination of Rejection Limits in accordance with statistical criteria."

B8209 PROCESS CONTROL BY THE CONTRACTOR

Add the following to the first paragraph:

"As part of his quality control system, the contractor shall carry out the minimum number of testing as stated in table 8209/1

and submit the results to the engineer when completing the engineer's form: Request for Approval of Work. The stated requirements may be replaced by alternative proven and approved requirements in the event of a manufacturing plant being accredited in terms of SABS 0157."

**Table 8209/1
PROCESS CONTROL**

SECTION	ITEM	PROPERTIES TO CONTROL	TESTING FREQUENCY (Min no per lot)
2100	Subsoil drainage - geotextile - filter material	- Refer clause B8116 - Grading	- Refer clause B8116 - 1 per 500 m ³ at source; min. 3 per stockpile
2300	Concrete-lined drains - in situ material - concrete	- Density - Slump	- 1 every 50 m; min. 3 per lot - 1 per batch
3300	Ordinary fill & roadbed - material - profile (cut & fill)	- CBR - fill - roadbed - Density - Slope batter	- 1 per 5000 m ³ at source; min. 3 per lot - 1 per 3000 m ² ; min. 3 - 1 per 1000 m ² per 150 layer; min. 4 - set out toe pegs every 2 m lift (fills) or 3 m drop (cuts)
3400 & 3600	Selected, subbase & gravel base - material - layer profile	- CBR - Grading, Atterberg limits - Density - Levels	- 1 per 2500 m ³ at source - 1 per 2500 m ³ at source - 6 per section - min. 50 per section
4200	Asphalt base, surfacing - aggregate - mix	- Strength, durability, shape, Atterberg limits, deleterious mat. - Aggregate grading - Grading and binder - Marshall - Batching temperature - Binder storage temp.	- 1 per 2000 m ³ in stockpile - 1 per 400 m ³ in stockpile - 1 per 100 t (min. 6 per day) - 2 per day - 1 per batch - 1 per day

B8210 ROUTINE TESTS AND INSPECTION BY THE ENGINEER

Amend the last sentence of the first paragraph to read:

"The testing frequencies and sample and lot sizes for quality control testing shall be in accordance with Table: 8210/1, but will generally be in accordance with the requirements of the Employer's materials manual."

Table 8210/1

Pavement Layer	Properties to be tested	Sample per Lot size
Roadbed and Fill (upper 150mm)	Relative compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
Upper and Lower Selected Layers	Relative Compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
Granular Subbase	Relative Compaction Grading Atterberg Limits MDD/OMC CBR	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
Cemented Subbase Before Treatment	Grading Atterberg Limits	} >6 depending on lot size see form S-LAY-TPG2-E
After treatment FORM A.	MDD/OMC CBR	4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1
	Relative Compaction UCS	} >6 depending on lot size see form S-LAY-TPG2-E
Granular Base	Relative Compaction Grading Atterberg Limits BRD/OMC Flakiness Fractured Faces or Elongation	} >6 depending on lot size see form S-LAY-TPG2-E 4 or 6 first lot (trial section) and thereafter 1 per lot for sequential testing 1 1 (If alluvial ie round pebbles)
Asphalt Base and Surfacing	Relative Compaction Binder Content Grading VIM MTRD (Rice density) BRD Stability and Flow	>6 depending on the lot size
Surfacing Seals	Grading Dust and Fines Content Flakiness ALD Durability Tests (i) ACV and/or (ii) 10% Fact Wet & Dry	>5 per delivery per stockpile and thereafter random during construction of the seal. 1

Note:

- (1) A minimum of 4 tests per lot can be allowed for unforeseen circumstances but shall be at the Employer's Agent's discretion.
- (2) Confined areas (lots) due to their size and nature are normally subjected to lesser testing than that which is prescribed, which can be allowed for as long as the quality of the material tested can be established for acceptance control purposes.

3.4.3 PART C: ENVIRONMENTAL SPECIFICATIONS

This part of the Project Specifications contains comprehensive additional standardised specifications for environmental matters not covered by the Standard Specifications.

The number of each clause and each payment item in this part of the Specifications is prefixed with a “C” to differentiate these clauses and items as additional Works.

The following additional specifications are covered under this part of the Specifications:

SECTION C1000: ENVIRONMENTAL MANAGEMENT

Contents

C1001 SCOPE

This section covers the methods by which proper environmental controls are to be implemented by the Contractor. The provisions of this Environmental Management Programme (EMP) are binding on the Contractor during the construction period and the Defects Liability Period of the Contract. This Project Specification shall be read in conjunction with all the documents that comprise the Contract documents for this Contract. In the event that any conflict occurs between the terms of the EMP or the environmental authorisation (if applicable), and the other Project Specifications, the terms herein shall prevail.

The EMP covers 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 and actions that shall be taken in the event of non-compliance.

C1002 DEFINITIONS

(a) Alien Species: (a) a species that is not an indigenous species; or (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention as set out in the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA). Control of alien species shall be in terms of the Alien and Invasive Species lists and linked controls as gazetted under NEM:BA.

(b) Construction Activity: a construction activity is any action taken by the Contractor, his subcontractors, suppliers or personnel during the construction process.

(c) Environment: environment means the surroundings within which humans exist and that could be made up of:

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plant and animal life;
- (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
- (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

(d) Environmental Aspect: an environmental aspect is any component of a Contractor's construction activity that is likely to interact with the environment.

(e) 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 within the road width and limits that define the construction site. An impact may be the direct or indirect consequence of a construction activity.

(f) Environmental Authorisation (EA): an EA is a written decision from the Department of Environmental Affairs, (DEA), that records its approval or disapproval 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. It is noted that for the purposes of this process, this may be a formal indication that the activity may proceed without further need for authorisation.

(g) 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.

(h) 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 affected by the continuous presence of the road, e.g. a reach of a water course.

C1003 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, pollutant emission, soil erosion, deformation or destruction of environment. 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 Employer's Agent's approval, which will limit and contain the magnitude, duration and intensity of the impact. In such a scenario, the onus remains on the Contractor to indicate why avoidance of an impact was not possible, along with motivation as to why the mitigation measure proposed will limit or reverse environmental impacts.

The Contractor shall demonstrate that he 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 clause 5.6 of the General Conditions of Contract and clause B1204 of the project specifications. Such mitigating actions must be supported by task specific Construction Method Statements which must be approved prior to implementation.

Construction according to best industry 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.

C1004 LEGAL REQUIREMENTS

(a) General

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 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 other Project Specifications then the latter shall prevail.

(b) Statutory and other applicable legislation

It is expected that the Contractor is conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the Contract.

C1005 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

(a) Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the Contractor shall submit to the Employer's Agent 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 Employer's Agent to make a decision. The Employer's Agent 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 Employer's Agent 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 Employer's Agent, but not less frequently than once a month.

The Employer's Agent shall have the authority to instruct the Contractor to replace the DEO if, in the Employer's Agent'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.

(a) Administration

Before the Contractor begins each construction activity the DEO shall give to the Employer's Agent a written statement setting out the following:

- (i) The type of construction activity.
- (ii) Locality where the activity will take place.
- (iii) Identification of the environmental aspects and impacts that might result from the activity.
- (iv) Methodology for impact prevention for each activity and associated aspects.
- (v) Methodology for impact containment for each activity and associated aspects.
- (vi) Emergency/disaster incident and reaction procedures.
- (vii) 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 Employer's Agent whenever there is a change or variation to the original.

The Employer's Agent 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/or at least once during the Contract that the approved measures and procedures function properly.

The Contractor shall comply with the requirements of Clause 1217 of the COLTO Standard Specifications for Roads and Bridges and Clauses 8.1.2 and 5.15.1 of the General Conditions of Contract with regard to responsibility and care for / preservation of the environment.

C1006 TRAINING

(a) Designated Environmental Officer (DEO)

The Designated Environmental Officer (DEO) must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management to all personnel involved in the Contract. This should be substantiated by proof of direct relevant environmental experience, preferably for linear project developments of a similar nature to the project at hand.

(b) Employees

The Contractor shall ensure that adequate environmental training takes place and all employees are given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. Environmental awareness training should, as a minimum, include the following:

- (i) The importance of conformance with all environmental policies;
- (ii) The environmental impacts, actual or potential, of their work activities;
- (iii) The environmental benefits of improved personal performance;
- (iv) Their roles and responsibilities in achieving conformance with the environmental policy, procedures and management systems, including emergency preparedness and response requirements;
- (v) The potential consequences of departure from specified operating procedures; and
- (vi) 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 Employer's Agent when and how he intends concluding its environmental training obligations.

C1007 ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 7/1: Activities and associated aspects that cause environmental impacts during construction activities, which is to be found at the end of this section. This list is not exhaustive, and shall be used for guideline purposes only.

C1008 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

(a) Site establishment

(i) Site plan

In accordance with subclause 1302(a) of the COLTO Standard Specifications the Contractor shall establish his construction camps, offices, workshops 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 Employer's Agent 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. It is noted that such plans must include the position of material storage areas, laydown areas along the road alignment, and critically, the position and extent for spoil sites (temporary or permanent). No material may be spoilt to land without relevant approvals being in place.

The camp site shall be selected with due regard to the environment and sensitive areas. The site offices should not be sited in steep areas, as this will increase soil erosion. Preferred locations would be on flat areas. The camp site and site offices must not be placed in close proximity to wetlands or watercourses.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, refuse, sewage and workshop-derived effluents. It is also recommended that the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course, stream or river 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 prior to the start of construction. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the Employer's Agent as a baseline for consultation during rehabilitation of the site.

(i) 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 must be appropriate to the vegetation of the specific area (i.e. endemic) and in accordance with instructions issued by the Employer's Agent.

Only trees and shrubs directly affected by the works, and such others as may be indicated by the Employer's Agent in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, same species indigenous trees as previously existing in the area shall be re-established.

Section 5800 of the COLTO Standard Specification for landscaping, planting and the rehabilitation of the grass cover shall be strictly adhered to.

Appropriate seed mixes for use in rehabilitation shall be determined in consultation with a horticulturist, with appropriate experience in the locality. Such a person should preferably be a registered professional (PrSciNat) in terms of the South African Council for Natural Scientific Professions (SACNASP) in the field of botany or ecology, or with validation, another appropriate registration.

Any proclaimed weed or alien species that propagates during the Contract period shall be cleared by hand and before seeding. Mechanisms for removal of weed species should be in line with approved procedures provided from entities such as the South African National Biodiversity Institute (SANBI).

(ii) Restoration

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.

(iii) Water

Safe drinking water for human consumption shall be available at the site offices and at other convenient locations on site. All water used on the site must be taken from a legal source and comply with recognized standards for potable and other uses.

The Contractor shall comply with the provisions of the National Water Act and its Regulations for taking water from rivers or streams and the use thereof. Water used for any purpose other than for human usage must be from a licenced source, approved for the specific intended usage – this includes all surface and groundwater sources (i.e. borehole or watercourse water may only be used if permission has been sought and obtained from the Department of Water and Sanitation (DWS) for the proposed usage).

If water is stored on site distinction shall be made between drinking water and multi-purpose water storage facilities.

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, dams etc). Washing of clothes and bathing in rivers or streams is strictly forbidden. Wastewater which is contaminated with soaps, detergents, grease, oils and other undesirable materials shall be collected in conservancy tanks and disposed of safely into a licenced wastewater treatment facility.

Stormwater on the camp site must be controlled in such a manner that it does not become contaminated.

(iv) Fires and cooking facilities

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. Fires shall only be allowed in facilities or equipment specially constructed for this purpose. Where instructed by the Employer's Agent, a firebreak shall be cleared and maintained around the perimeter of the camp and office sites. Firefighting equipment shall be supplied by the Contractor at suitable locations.

The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes. No wood or brush material may be sourced from the surroundings.

(b) 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 the Employer's Agent, the local authorities and comply with 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. Such toilets should be available in a minimum ratio of 1 unit to every 15 staff members. 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 located in consultation with the Employer's Agent.

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 and a minimum of 100 meters from any watercourses or stormwater drainage. 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 Employer's Agent.

(c) Waste management

The Contractor's intended methods for waste management and waste minimisation shall be implemented at the start of the Contract. All personnel shall be instructed to dispose of all waste in the proper manner. No waste may be disposed of to site, rather it must be disposed of to a licenced and appropriate disposal site.

(i) 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 Employer's Agent. Disposal of solid waste shall be at a licenced landfill site or at a site approved by the DEA or their delegated competent authority (e.g. Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)) 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 neither the site offices, nor anywhere else on the site, that is, waste may only be disposed of at the approved solid waste disposal site.

(ii) 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 bins, containers and refuse collection facilities for later safe disposal to approved sites. A concerted effort shall be made to collect and dispose of materials suitable for recycling separately from other solid waste. In this regard, collection systems that allow for waste separation at source should be adopted (i.e. separate bins for paper, glass, cans, plastic, organic waste).

(iii) Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in an approved landfill site. Dedicated and secure holding areas for such wastes must be allowed for in the site camp and must ensure no spillage or contamination prior to removal for final disposal. This area may be combined with the hazardous material storage area so long as all items are clearly indicated and the combined area is managed appropriately.

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. No spillage of tar or bituminous products shall be allowed on site. Affected areas shall be promptly reinstated to the satisfaction of the Employer's Agent.

(iv) Plant and equipment

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). All parked plant must be provided with drip trays positioned appropriately so as to ensure no hazardous substance spillage (e.g. fuel or oil).

(v) 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.

(vi) 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 Employer's Agent.

The Contractor shall provide proof to the Employer's Agent 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 Employer's Agent 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.

(vii) Fuel and gas storage

Fuel should be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. Leakage of fuel shall be avoided. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any spillage or overflow from these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

(viii) Oil and lubricant waste

Fuel tanks, pumps and all equipment using oil, diesel, etc. must have drip trays. 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 (e.g. linked to the Rose Foundation) 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.

(c) 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, including the phasing / sequence of clearance, shall first be submitted to the Employer's Agent 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 Employer's Agent 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 held responsible for 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 Liability Period.

(d) Soil management

(i) 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. The position of such topsoil storage areas shall be presented on the site layout for approval. 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.

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 2 meters, and if they are to be left for longer than 6 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 Employer's Agent. 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.

(ii) Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the Employer's Agent, and stored separately from the topsoil if not used for road building. The position of such topsoil storage areas shall be presented on the site layout for approval. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes. If this re-use is not possible, such material will be deemed spoil and must be disposed of in a legal manner.

(e) 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. Surface water runoff must be managed to minimise erosion. 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, 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 Employer's Agent 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. The mechanisms used should be appropriate to the nature of the area and the potential impacts.

All works within 100 meters of a watercourse, or 500 meters of a wetland shall comply with the requirements of the SANRAL *Drainage Manual* in terms of appropriate working methods that will limit potential impacts and/or damage to the environment.

(f) Earthworks and layerworks

This 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 comply with the requirements of subclauses C1008(e) and C1008(g) and shall take cognisance of the requirements set out below.

(i) Quarries and borrow pits

The Contractor's attention is drawn to the requirement of the Department of Mineral Resources (DMR), that before entry into any quarry or borrow pit, an mining Environmental Management Programme (EMPR) meeting the requirements of both the Minerals and Petroleum Resources Development Act (Act No. 49 of 2008) (MPRDA) and the National Environmental Management Act (Act No. 107 of 1998) (NEMA) for the establishment, operation and closure of the quarry or borrow pit shall have been approved by the Department. As a part of the authorisation, an EMP will be approved controlling the operation of the borrow pit or quarry.

It is the responsibility of the Contractor to ensure that he obtains from the Employer's Agent, a copy of the approved EMP with linked authorisations prior to entry into the quarry or borrow pit. The conditions / controls 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 approved EMP and this Specification 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.

(ii) Excavation, hauling and placement

The Contractor shall provide the Employer's Agent with detailed method statement of his intended construction processes prior to starting any cut or fill or layer. The method statement 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 ensure that at work closure at the end of every day the site is left in a safe condition from rainfall overnight or over periods when there is no construction activity.

(iii) 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 liability 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 Employer's Agent for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the Employer's Agent. All spoil disposed of to land in excess of 25 tonnes must be done in compliance with a waste management licence (WML), or to a site that is approved to accept the material under a relevant environmental authorisation or WML.

No spoil site shall be located within 500 meters of any watercourse, this is taken to include wetland areas.

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 Employer's Agent 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 75 mm 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 Employer's Agent for other acceptable stabilising methods. The Engineer may only approve a completed spoil site at the end of the Defects Liability Period upon receipt from the Contractor of a landowner's clearance notice and an Engineer's certificate certifying slope stability. 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.

(iv) 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 Employer's Agent 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:

- (1) Positioned and sloped to create the least visual impact;
- (2) Constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment; and
- (3) 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, topsoiled, grassed and maintained at the Contractor's cost until clearance from the Employer's Agent 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 by the Employer's Agent

In all cases, the Employer's Agent shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their closure only when they have been satisfactorily rehabilitated.(v) 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 Employer's Agent 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 Employer's Agent the manner in which he intends to advertise to the adjacent communities and/or road users the time and delays to be expected for each individual blast.

(g) Batching sites

Asphalt plants are considered scheduled processes listed in Category 1 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM:AQA). 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, 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 Mineral Resources legislation, as well as the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be subject to 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 subclause 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 Employer's Agent 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 Employer's Agent 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) 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 Designated Environmental Officer (DEO) or to the Employer's Agent immediately on discovery / occurrence. The DEO will assess the situation in consultation with the Employer's Agent 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 Employer's Agent. Areas cleared of hazardous waste shall be re-vegetated according to the Employer's Agent instructions. Depending on the scale of the spill, the DWS and relevant environmental authorities will need to be notified and a structured removal and remediation process will need to be approved.

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 Employer's Agent.

The costs of containment and rehabilitation shall be for the Contractor's account, including the costs of specialist input.

(i) Areas of specific importance

Any area, as determined and identified 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 Employer's Agent 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.

(i) 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 Employer's Agent of such discovery. Heritage Western Cape (HWC), as provincial delegated authority for the South African Heritage Resources Agency (SAHRA), is to be contacted in terms of the needs going forward, including the appointment of an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist.

(ii) 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 Employer's Agent informed of the discovery. The HWC (or SAHRA) 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 HWC / SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

(j) 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 such as drilling 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.

(k) Dust control

Dust suppression measures shall be implemented if and when required. Dust caused by strong winds shall be controlled by means of water spray vehicles. Dust emission from batching plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant Department of Mineral Resources. Note that the dust control mechanisms should take into account issues such as water scarcity and the nature of the receiving environment.

(l) 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 Liability Period.

C1009 RECORD KEEPING

The Employer's Agent and the Designated Environmental Officer (DEO) will continuously monitor the Contractor's adherence to the approved impact prevention procedures and shall issue to the Contractor a notice of non-compliance whenever transgressions are observed. The DEO shall document the nature and magnitude of the non-conformance in a designated register, the action taken to discontinue the non-conformance, the action taken to mitigate its effects and the results of the actions. The non-conformance shall be documented and reported to the Employer's Agent in a monthly report.

Copies of any Environmental Authorisation and linked EMPs 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.

Waste disposal records / proof shall be held on site for scrutiny.

C1010 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 value of the penalty will be in accordance with current environmental legislation. Any damage arising from or caused by the non-compliance shall be rectified at the Contractor's own cost.. 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.

C1011 MEASUREMENT AND PAYMENT

Item	Unit
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C10.01 The Contractor's obligations in respect of environmental management:

(a) Designated Environmental Officer (DEO).....	month
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- (b) Environmental aspects and impacts.....month
- (c) Provision of environmental emergency measures.....Provisional Sum (Prov Sum)
- (d) Contractor's charge to allow for handling costs and profit in respect of subitem C10.01(c).....percentage (%)

Payment of the monthly rate tendered in subitem (a) shall include full compensation for all costs resulting from the recruitment and employment of a Designated Environmental Officer, the control and management, the onsite hands-on and in-house training, and the assistance rendered to personnel, staff and equipment engaged in construction and other tasks on the site of Works. The cost of the on-site training facility if specified is measured and paid for under item D10.04 of the Bill of Quantities.

The tendered monthly rate for subitem (b) shall include full compensation for complying with the requirements in respect of the EMP as specified.

The provisional sum allowed under subitem (c) shall be expended to cover the costs incurred in complying with the requirements in respect of the provision of environmental emergency measures. The expenditure shall be controlled as stipulated in clause 6.6 of the General Conditions of Contract.

The tendered percentage for subitem (d) is a percentage of the amount actually spent under subitem (c) and shall include full compensation for the Contractor's handling costs and profit in respect of the provision of environmental emergency measures.

Table 7.1: Mechanisms That Cause Environmental Impacts During Construction Activities

MECHANISMS THAT CAUSE ENVIRONMENTAL IMPACTS DURING CONSTRUCTION ACTIVITIES						
Section	Contents	Environnemental Impacts				
		Pollution Type	Deformation of Landscape	Soil erosion	Alien Vegetation	Sensitive Areas
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	No clearance of vegetation in excess of 300 m ² will be allowed.
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	No clearance of vegetation in excess of 300 m ² will be allowed.
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	No deviations into undisturbed or designated sensitive areas will be allowed
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	Restrict access to sensitive areas
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	Limit clearance and avoid sensitive areas
2100 to 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	Separation of clean and dirty streams, with only clean allowed to be released into sensitive areas
3100	Borrow pits	Waste treatment Hazardous waste Water supply	Selection of site Preserve indigenous vegetation	Selection of site Preserve indigenous vegetation	Preserve indigenous vegetation Preserve topsoil	No borrow-pit to be allowed in a defined sensitive area.



MECHANISMS THAT CAUSE ENVIRONMENTAL IMPACTS DURING CONSTRUCTION ACTIVITIES						
Section	Contents	Environnemental Impacts				
		Pollution Type	Deformation of Landscape	Soil erosion	Alien Vegetation	Sensitive Areas
		Spillage Storage	Preserve topsoil	Preserve topsoil	Management of weeds	All permits to be in place prior to taking materials.
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	Avoid sensitive areas
3400 to 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	

3.4.4 PART D: LABOUR AND TRAINING SPECIFICATIONS

This part of the Project Specifications contains comprehensive additional standardised specifications for matters not covered by and work which is not carried out in terms of the Standard Specifications.

The number of each clause and each payment item in this part of the Project Specification is prefixed with a D to differentiate these clauses and items as additional works.

The following additional works are covered under this part of the Project Specifications:

SECTION D1000: LABOUR AND TRAINING REQUIREMENTS

D1001 SCOPE

This section covers aspects that relate to the engagement and training of labour recruited from local communities in the execution of the Contract Works as an integral part of the Government's broad-based Black Economic Empowerment Programme.

D1002 DEFINITIONS

The definitions given in the Conditions of Contract, the Contract data and the Works Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

- (a) 'Key Personnel' means all contract managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators and the like, and all other personnel in the permanent employ of the Contractor or Subcontractor who possess special skills and/or who play key roles in the Contractor's or subcontractor's operation.
- (b) 'Labourer' means a worker statutorily defined as employees in the Basic Conditions of Employment Act, 1997, who is temporarily or permanently employed by the Contractor and subcontractors to perform prescribed work on this contract. 'Labour' means labourers or workers who are not part of key personnel of the Contractor nor his subcontractors.
- (c) 'Labour Register' means the list of available local labourers compiled by the Community Liaison Officer in accordance with the results of his negotiations with the Contractor and the local community subsequent to the award of the Contract.
- (d) 'Local Labour' means labourers or workers who resides permanently within the local communities in the target area(s) as defined by the Employer in the Project Specifications and who are temporarily or permanently employed by the Contractor and Subcontractors and normally paid on an hourly rate basis to perform prescribed work tasks on the Contract.
- (e) 'Wage' means the actual amount paid periodically to labour employed by the main Contractor and his Subcontractors after all deductions made in terms of the law (e.g. UIF) and exclusive of all company overheads and other benefits such as protective clothing, transport etc.

D1003 CONTRACTUAL REQUIREMENTS

The Contractor shall comply with the following relevant legislation:

- (i) Basic Conditions of Employment Act 75 of 1997
- (ii) Labour Relations Act 66 of 1995
- (iii) Employment Equity Act 55 of 1998 (Chapters 1 and 2)
- (iv) Occupational Health and Safety Act 85 of 1993
- (v) Compensation for Occupational Injuries and Diseases Act 130 of 1993
- (vi) Skills Development Act of 1998

D1004 COMMUNITY PARTICIPATION

(a) General

Immediately after the award of the Contract, the Employer shall, at his own cost, take all necessary actions to advertise within the local communities of the fact that the Contract will provide temporary employment opportunities and preference will be given to the use of local labour on the Contract.

(b) Public Liaison Committee

Upon the award of the Contract the Contractor shall without delay consult with the local communities and establish a Public Liaison Committee (PLC) as a communication structure that interacts with all parties involved with the project. The composition of the PLC comprises representation by the Employer, the Contractor, the Employer's Agent and formal structures within the communities. The Contractor is advised to make use of established community communication channels and appoint from amongst his site personnel a responsible person to participate in the PLC business.

Some of the elements of construction activity that should be determined by the PLC are:

Compilation of a labour register of available local labourers, from which the Contractor can select and appoint temporary contract workers required for work included in the Contract.
Categories, skills and numbers of local labourers
Categories, skills and details of local enterprises
Training requirements for local enterprises and labourers

Should the locality and size of the project warrant the need for a Community Liaison Officer (CLO), such appointment will be

made by the Contractor as part of the Contractor's staff, as specified in Clause D1005 of these Specifications.

D1005 COMMUNITY LIAISON OFFICER (CLO)

(a) General

The Contractor shall, if instructed to do so, appoint a CLO as a member of the Contractor's management personnel, after consultation with the local community, the Engineer and the Employer. The primary function of the CLO shall be to assist the Contractor with the selection and recruitment of local labour, to represent the local community in matters concerning the use of local labour on the Works, and to assist with and facilitate communication between the Contractor, the Engineer and the local communities.

(b) Responsibilities

The CLO shall:

- be available on site on a day-by-day basis between the hours agreed on by the Contractor, the Employer and the Engineer from time to time;
- determine in consultation with the Contractor and the Engineer the labour requirements with regard to the numbers and skills;
- assist in and facilitate the identification of suitable temporary labour and the establishment of the labour register;
- assist in the identification and screening of labourers from the local community in accordance with the Contractor's requirements;
- attend all meetings in which the local community and/or labourers are present or are required to be represented;
- inform temporary labourers of their conditions of temporary employment, and inform temporary labourers as early as possible when their period of employment will be terminated;
- assist the Contractor with determining the training needs of the temporary labourers and the identification of suitable trainees for relevant skills training;
- assist in maintaining good labour relations, and when applicable partake in labourer grievance and dispute procedures;
- attend disciplinary proceedings to ensure that hearings are fair and reasonable;
- keep a daily written record of his interviews and community liaison activities;
- carry out specific tasks ordered by the Engineer;
- perform such other duties as required and agreed upon between all parties concerned.

(c) Appointment

The identification of suitable candidates (maximum 5; minimum 3) for the CLO position shall be resolved by the relevant regional / district / ward councillors. Should suitable candidates not be identified within two weeks of the date of request, the Contractor shall be allowed to seek candidates from the relevant regional / district / sub-council job-seekers database. The final selection and appointment of the CLO in terms of the Contract shall be the responsibility of the Contractor.

The period of appointment of the CLO shall be as stated in the Contract for temporary employment as a community liaison officer referred to below. The date of commencement of temporary employment of the CLO shall be as agreed with the Engineer.

It is required, therefore, that the Contractor enters into a contract of temporary employment with the selected CLO, the contracting parties being the Contractor and the CLO.

The remuneration of the CLO shall be determined jointly by the Contractor, the Engineer and the employer. The CLO shall only be employed and paid for the period in which the duties of the CLO are required as agreed on by the Engineer and the Contractor.

D1006 EMPLOYMENT OF LOCAL LABOUR

(a) General

Unskilled 100% - All unskilled labour to be sourced from the Stellenbosch Area, preferably from the project area.

(b) Selection of local labourers

The Contractor shall advise the Employer's Agent in writing of the various categories of local labourers required for construction and the number of local labourers required in each category, together with the personal attributes which he considers desirable that each category of local labourers shall possess, taking due cognizance of the provisions of the Contract relating to training.

The Contractor shall select local labourers from the applicants in the labour register, taking cognizance of the following principles:

No potential local labourer 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 all available vacancies have been or can be filled by labourers who already possess suitable skills, or 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;
Preference shall be given to the long-term unemployed and single heads of households;
The Contractor shall, in so far as is reasonably practicable, accommodate the applicants' expressed preferences regarding the types of work for which they are selected;
The selection process shall make provision for, but shall not be limited to, the inclusion of disabled, who are deemed capable to perform selected tasks, youths and women.

After making his selection, the Contractor shall advise the Employer's Agent thereof in writing, and the Employer's Agent has the right to call a meeting with the Public Liaison Committee for the purpose of ratifying the Contractor's selection. The Contractor shall attend such meeting and where reasonably required, shall motivate his selection. Should the Employer's Agent or the local community make reasonable objection to the selection of any particular applicant by the Contractor, the Contractor shall not employ such applicant and shall select another suitable applicant acceptable to the Employer's Agent and the local community as a replacement of the rejected applicant, in order to finalise the composition of the workforce.

(c) Terms and conditions of employment

The statutory Department of Labour Government Notice No. R204 of 2 March 2001: Basic Conditions of Employment Act (No. 75 of 1997): Sectoral Determination 2: Civil Engineering Sector, South Africa as amended shall apply in respect of any employer or employee associated with the Contract. In particular the Contractor shall pay his labour at least the minimum wage prescribed in the statutory legislation.

All temporary local labour shall be employed by the Contractor in accordance with the abovementioned statutory legislation conditions which are consistent with those set out below:

Engagement shall be of temporary nature for a period not exceeding the duration of the Contract. The duration of the employment shall nevertheless be as long as possible.

The Contractor shall in respect of every temporary worker employed by him in terms of the Contract, pay in full all amounts as may be due and payable in terms of the Workmen's Compensation Act.

At the earliest opportunity the Contractor shall give notice to the temporary workers of the termination of the project on which they are engaged, provided always that such notice shall not be less than one week.

Any temporary worker may be summarily dismissed by the Contractor for any of the following reasons:

Being under the influence of alcohol or drugs whilst on the site;

Theft of any materials, plant, tools and equipment;

Gross insubordination;

Any wilful or grossly negligent act or omission which constitutes a threat to person or property;

Any other reason with which the Employer's Agent may agree that it warrants summary dismissal.

The dismissal of a temporary worker shall be effected in accordance with the applicable statutory requirements.

The Contractor shall enter into a written agreement with each temporary worker engaged by him in terms of the Contract.

The conditions of employment of the temporary worker and his rate of remuneration shall be set out fully and clearly in the agreement, and the provisions of the agreement shall be strictly in accordance with the statutory legislation.

The Contractor shall provide satisfactory and suitable scheduled daily return transport free of charge for the labourers recruited in the local communities between agreed assembly points in the residential area of the local communities and the areas on the site where the labourers or groups of labourers have to report for the various tasks allotted to them. No separate payment will be made for providing this transport and the Contractor shall allow for the cost thereof in his tendered rates.

3.4.5 PART E: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS (OHS – APPOINTMENT PENDING CLIENT APPROVAL)

This part of the project specifications contains comprehensive additional standardised specifications for health and safety matters not covered by nor carried out in terms of the COLTO Standard Specifications.

The number of each clause and each payment item in this part of the Project Specification is prefixed with a E to differentiate these clauses and items as additional requirements.

The following additional requirements are covered under this part of the Project Specifications:

SECTION E1000: HEALTH AND SAFETY REQUIREMENTS

E1000 DEFINITIONS

Definitions as per the Construction Regulations 2014 are applicable to this health and safety specification with the following clarifications:

- (a) Client means Employer
- (b) Principal contractor means contractor
- (c) Contractor means sub -contractor
- (d) Note-go through the definitions as clarify

E1001 SCOPE

This part of the specification has the objective to assist principal contractors entering into contracts with the Employer that they comply with the Occupational Health and Safety (OH&S) Act, No. 85 of 1993, as well as all applicable Regulations. Compliance with this document does not absolve the principal contractor from complying with minimum legal requirements and the principal contractor remains responsible for the health and safety of their employees. Principal and other contractors should insist that this part of the specification form part of any contract that he may have with other contractors and/or suppliers.

This section covers the development of a health and safety specification that addresses all aspects of occupational health and safety as affected by this contract. It provides the requirements that principal contractors and other contractors shall comply with in order to reduce the risks associated with this contract, which may lead to incidents causing injury and/or ill health. In this matter the spirit and intention of the Construction Regulations, regarding negotiations between the parties, related to the contents and approval of the Health and Safety Plan, must be complied with.

E1002 GENERAL OCCUPATIONAL HEALTH AND SAFETY PROVISIONS

(a) Legal Requirements

A principal contractor shall, as a minimum, comply with:

- (i) The Occupational Health and Safety Act and Regulations (Act 85 of 1993)
- (ii) The Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993)

(b) Risk Assessment

Every principal contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, cause a risk assessment to be performed by a competent person, appointed in writing, and the risk assessment shall form part of the OH&S plan and be implemented and maintained. The principal contractor shall conduct a baseline risk assessment, before work commences.

The risk assessment shall further include, where applicable, the standard working procedures and the applicable method statements. This does not imply that all possible risk assessments must be attended to before work commences, but that all relevant risk assessments receive the necessary attention as the Project progresses.

Based on the risk assessments, the principal contractor shall develop a set of site-specific OH&S rules that shall be applied to regulate the OH&S aspects of the construction. The risk assessments, together with the site-specific OH&S rules shall be submitted to the Employer before construction on site commences.

The risk assessment shall include, as far as is reasonably practicable, at least:

- (i) the identification of the risks and hazards to which persons may be exposed
- (ii) the analysis and evaluation of the risks and hazards identified, inclusive of a residual risk rating methodology. The method used shall not be prescribed.
- (iii) a documented plan of safe work procedures, to mitigate, reduce or control those residual risks that have been identified as unacceptably high, by means of the rating system.
- (iv) a monitoring plan and
- (v) a review plan, inclusive of dates to be adhered to.

All variations to the scope of work shall similarly be subjected to a risk assessment process.

The principal contractor shall review the risk assessments and standard working procedures regularly as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and processes. The principal contractor shall provide the Employer, other contractors and all other concerned parties with copies of any changes, alterations or amendments

(c) Structure and Responsibilities

(i) Overall Supervision and Responsibility for OH&S

It is a requirement that the principal contractor, when he appoints contractors in terms of Construction Regulations, includes in his agreement with such contractors the following:

- (1) OH&S Act (85 of 1993), Section 37(2) agreement: "Agreement with Mandatory"
- (2) OH&S Act (85 of 1993), Section 16(2) appointee/s as detailed in his/her/their respective appointment forms. (Where applicable)

(ii) Specific Supervision Responsibilities for OH&S

The contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. It is a requirement that where the Construction Regulations stipulate "competence" in an appointment, the contractor shall provide a form of evidence, proving this competence. This proof of evidence will be negotiated between both parties as per the Construction Regulations.

Where the principal contractor employs more than 20 persons (including the employees of other contractors (subcontractors) he has to appoint one OH&S representatives for every 50 employees or part thereof. This is a minimum (legal) requirement in terms of section 17 of the OH&S Act. The principle contractor may at his own discretion cause more OH&S Representatives to be appointed according to site specific requirements.

In terms of section 18 of the OH&S Act, OH&S representatives shall be designated in writing and the designation shall include the area of responsibility of the person and term of the designation. OH&S representatives must be experienced, permanently employed, trained and able to move freely at their designated area of responsibility.

The principal contractor shall ensure that the designated OH&S representatives conduct continuous monitoring and regular inspections of their respective areas of responsibility, focussing on unsafe acts and unsafe conditions and report thereon to the principal contractor. OH&S representatives shall be included in accident or incident investigations. OH&S representatives shall attend all OH&S committee meetings.

(iii) Appointment of OH&S Committee

The principal contractor shall in terms of sections 19 and 20 of the OH&S Act, establish an OH&S committee, which shall meet once a month or sooner, should circumstances require an extraordinary meeting.

(d) Administrative Controls

(i) Site specific Health and Safety Plan

In compliance with the Construction Regulations the contractor shall, after performing a risk assessment, prepare a health and safety plan for approval by the employer.

The health and safety plan shall include, but not be limited to, the following:

- (1) The safety management structure including the names of all designated persons such as the construction supervisor and any other competent persons;
- (2) Safety method statements and procedures to be adopted to ensure compliance with the OHS Act. Aspects to be dealt with shall include:
- (3) Public vehicular and pedestrian traffic accommodation measures;
- (4) Control of the movement of construction vehicles;
- (5) The storage and use of materials;
- (6) The use of tools, vehicles and plant;
- (7) Temporary support structures;
- (8) Dealing with working at height;
- (9) The use of batch plants;
- (10) Excavation work;
- (11) Demolition work;
- (12) Security, access control and the exclusion of unauthorised persons.
- (13) The provision and use of temporary services;
- (14) Compliance with wayleaves, permissions and permits;
- (15) Safety equipment, devices and clothing to be employed;
- (16) Emergency procedures;
- (17) Provision of welfare facilities;
- (18) Induction and training;
- (19) Provision and maintenance of the health and safety file and other documentation;
- (20) Arrangements for monitoring and control to ensure compliance with the safety plan.

(ii) Health and Safety Records

As required by the Construction Regulations, the principal contractor and other contractors shall each keep an OH&S file on site. The OH&S file is a term for the SHE Management System utilised on site, which may include copies of relevant documentation.

The following index is neither exhaustive nor prescriptive and shall only be used as a guide:

- Notification of construction work (Construction Regulation 3) where applicable
- Latest copy of OH&S Act (General Administrative Regulation 4)
- Proof of registration and good standing with COID Insurer (Construction Regulation 4(g))
- OH&S plan agreed with the Client including the underpinning risk assessment/s and method statements (Construction regulation 5(1))
- Copies of OH&S committee and other relevant minutes
- Designs/drawings (Construction Regulation 5(8))
- A list of contractors (subcontractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
- Appointment/designation forms as per paragraphs 2.1.1 and 2.1.2.
- Registers as follows:
 - Accident/Incident register (Annexure 1 of the General Administrative Regulations)
 - OH&S representatives' inspection register
 - Asbestos demolition and stripping register
 - Batch plant inspections
 - Construction vehicles and mobile plant inspections by controller
 - Daily inspection of vehicles, plant and other equipment by the operator/driver/user
 - Demolition inspection register
 - Designer's inspection of structures record
 - Electrical installations, -equipment and -appliances (including portable electrical tools)
 - Excavations inspection
 - Explosive powered tool inspection, maintenance, issue and returns register (incl. cartridges and nails)
 - Fall protection inspection register
 - First aid box contents
 - Fire equipment inspection and maintenance
 - Formwork and support work inspections
 - Hazardous chemical substances record
 - Ladder inspections
 - Lifting equipment register
 - Materials hoist inspection register
 - Machinery safety inspection register (incl. machine guards, lock-outs etc.)
 - Scaffolding inspections
 - Stacking and storage inspection
 - Inspection of structures
 - Inspection of suspended platforms
 - Inspection of tunnelling operations
 - Inspection of vessels under pressure
 - Welding equipment inspections
 - Inspection of work conducted on or near water
 - Welfare facilities as provided

(iii) OHS Audits and Inspections

The employer will conduct monthly audits to comply with Construction Regulations in order to ensure that the principal contractor has implemented and is maintaining the agreed and approved OH&S plan. The employer reserve the right to conduct other ad hoc audits and inspections as deemed necessary. This will include site safety walks.

The principal contractor may conduct his own regular internal audits to verify compliance with his own OH&S management system, as well as with this specification. The principal contractor shall furthermore ensure that each contractor's health & safety plan is being implemented by conducting periodic audits at intervals mutually agreed upon between upon by the principal contractor and the contractor, but at least once per month.

OH&S representatives shall conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees shall conduct inspections and report thereon as specified in their appointments e.g. vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

All the results of the abovementioned inspections and audits shall be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

(iv) Accidents and Incident Investigations

The principal contractor, with the assistance of appointed Contractors if required, shall insure that the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic, take place. The results of the investigation shall be entered into an accident/incident register.

The affected contractor shall be responsible for the investigation of all minor and non-injury incidents as described in Section 24(1)(b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The principal contractor shall provide the Employer with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring.

(v) Notification of Construction Work

The principal contractor shall, where the contract meets the requirements laid down in Construction Regulations, prior to commencement of the works, notify the Department of Labour of the intention to carry out construction work and use the form (Annexure A in the Construction Regulations) for the purpose. A copy shall be kept on the OH&S file and a copy shall be forwarded to the employer for record keeping purposes.

(vi) Training and Competence

The training required by the Act and Regulations shall be included in the principal contractor's OH&S plan. The principal contractor shall be responsible for ensuring that all relevant training is undertaken. Only accredited Training providers shall be used for OH&S. The principal contractor shall ensure that their and other contractors' personnel appointed are competent and that all training required for doing the work safely and without risk to health, has been completed before work commences. The principal contractor shall ensure that follow-up and refresher training is conducted as the contract work progresses and the work situation changes. This does not absolve any contractors from their responsibilities as Employers. Records of all training must be kept on the OH&S file for auditing purposes.

(vii) Consultations, Communication and Liaison

OH&S liaison between the employer, principal contractor, other contractors, designer and other concerned parties will be through the OH&S committee as contemplated. In addition to this, communication may be directly to the client or his appointed agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their supervisors, OH&S representatives and the OH&S committee. The principal contractor shall be responsible for the dissemination of all relevant OH&S information to the other contractors e.g. design changes agreed with the client and the designer, instructions by the client and/or his/her agent, exchange of information between contractors, the reporting of hazardous/dangerous conditions/situations etc. The principal contractors' most senior manager on site shall be required to attend all OH&S meetings.

E1003 OPERATIONAL CONTROL

(a) Operational Procedures

Each construction activity shall be assessed by the principal contractor so as to identify operational procedures that will mitigate against the occurrence of an incident during the execution of each activity. This specification requires the principal contractor:

- (i) to be conversant with all relevant Regulations
- (ii) to comply with their provisions
- (ii) to include them in his OH&S plan where relevant.

(b) Emergency Procedures

In conjunction with the identification of operational procedures, the principal contractor shall similarly identify and formulate emergency procedures in the event an incident does occur. The emergency procedures thus identified shall also be included in the principal contractor's OH&S plan, and communicated as part of induction training. It is the responsibility of the First Aid Worker, together with the Construction Supervisor, to make an assessment regarding the severity of injuries and which actions are appropriate. For example: transfer to a medical facility by ambulance or helicopter.

(c) Personal & Other Protective Equipment (Sections 8/15/23 of the OH&S Act)

The contractor shall identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable, take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.

Where it is not possible to create an absolutely safe and healthy workplace the contractor shall inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the contractor maintain the said equipment, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating or discharging the employee.

The principal contractor shall include in his OH&S plan the PPE he intends issuing to his employees for use during construction and the sanctions he intends to apply in cases of non-conformance by his employees. Conformance to the wearing of PPE shall be discussed at the weekly inspection meetings.

(d) Other Regulations

Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 22: Electrical Installations and Machinery on Construction Sites) the principal contractor shall be conversant with and shall comply with these regulations.

(e) Public Health & Safety (Section 9 of the OH&S Act)

The principal contractor shall, as far as is reasonably practicable, be responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers.

This includes:

- (i) Non- employees entering the site for whatever reason
- (ii) The surrounding community
- (iii) Passers-by to the site

(f) Penalty for non-compliance

A penalty of R1000 will be levied for every incidence of non-compliance.

C3.5 MANAGEMENT

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- 3.5.6. MANAGEMENT OF THE WORKS

3.5.1 FORMS FOR CONTRACT ADMINISTRATION

The Contractor shall complete, sign and submit with each monthly statement for payment, the following updated returns (the format of which are attached in C3.6 Annexes as amended from time to time):

- Monthly Project Labour Report (Annex 1)
- B-BBEE Sub-contract Expenditure Report (Annex 2)
- Joint Venture Expenditure Report (Annex 3)
- Targeted Labour Contract Participation Expenditure Report (Annex 4)
- Targeted Enterprises Contract Participation Expenditure Report (Annex 5)

The Monthly Project Labour Report must include details of all labour (including that of sub-contractors) that are South African citizens earning less than R350.00 per day, as adjusted from time to time (excluding any benefits), who are employed on a temporary or contract basis on this contract in the month in question.

In addition to the Monthly Project Labour Report the Contractor shall simultaneously furnish the Employer's Agent with copies of the signed employment contracts entered into with such labour, together with certified copies of identification documents as well as evidence of payments to such labour in the form of copies of payslips or payroll runs. If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it and proof of such acknowledgement shall be furnished to the Employer's Agent.

The Monthly Project Labour Reports shall be completed and submitted in accordance with the instructions therein and copies of all submitted documents must be kept on site be made available to the employer's agent upon request.

The **B-BBEE Sub-contract Expenditure Report** is required for monitoring the prime contractor's compliance with the sub-contracting conditions of the **Preference Schedule**.

The Joint Venture Expenditure Report is required for monitoring the joint venture's compliance with the percentage contributions of the JV partners as tendered, where the joint venture has been awarded preference points in respect of its consolidated B-BBEE scorecard.

The Targeted Labour Contract Participation Expenditure Report (if applicable) is required for monitoring the Contractor's compliance for achieving the specified minimum targeted labour contract participation goal (CPG_L) and, if applicable, for calculating any penalty in terms thereof.

The Targeted Enterprises Contract Participation Expenditure Report (if applicable) is required for monitoring the Contractor's compliance for achieving the specified minimum targeted enterprises contract participation goal (CPG_E) and, if applicable, for calculating any penalty in terms thereof.

The Expenditure Reports shall be verified by the Employer's Agent/Employer's Agent's Representative.

In respect of Annexes 2 and 3, the Employer shall, in addition to any other sanctions available to it, apply the financial penalties applicable to breach of preferencing conditions in the **Preference Schedule** Preference Schedule in Part T2.2 Returnable Schedules. In the case of joint ventures (Annex 3), the Contractor shall prove his compliance with item 6) in Section 2 of the Preference Schedule by providing a consolidated scorecard at his own cost on instruction from the Employer's Agent

3.5.2 PARTICIPATION OF TARGETED LABOUR

3.5.2.1 Minimum targeted labour contract participation goal

In support of the National Department of Public Works' Expanded Public Works Programme which is aimed at alleviating poverty through the creation of temporary employment opportunities using labour

intensive methodologies and practices where possible, the Employer is seeking to increase the intensity of labour, as appropriate, in all of its infrastructure sector projects.

It is a requirement of this Contract, therefore, that the work be executed in such a manner so as to maximise the use of labour intensive construction methods in order to provide low and semi-skilled temporary employment opportunities.

The following provisions apply:

- 100% of unskilled and low unskilled workers/employees must come from the Target (Project) Area.
- Semi-skilled (may not be zero). Some workers MUST be recruited from within the Stellenbosch Municipal Area but preferably from the Target (Project) Area.
- Skilled workers must preferably be recruited from the Stellenbosch Municipal Area but this is not compulsory.

3.5.2.2 Definitions

For the purposes of the requirements in respect of the participation of targeted labour, the following definitions shall apply:

“Target Area “is defined as:

Target Area 1: Jamestown

Target Area 2: Stellenbosch Municipal Area

“Targeted labour” means low and semi-skilled individuals, whose wages (excluding any benefits) do not exceed the threshold value, who reside in the target areas, that are employed by the Contractor, or any of his/her sub-contractors, in the performance of the contract.

“Threshold value” is R350.00 per day as adjusted from time to time (excluding any benefits). The threshold value is not to be confused with any industry sector minimum wage determined in accordance with the Basic Conditions of Employment Act, 75 of 1977.

3.5.2.3 The selection and recruitment of targeted labour

Where targeted labour is to be drawn from specific local communities (defined in terms of the target area), such labour shall be identified using the relevant Sub-Council Job-Seekers Database. The Contractor shall request, via a Community Liaison Officer (if required in terms of the Contract), a list of suitable candidates from the database, from which the Contractor shall make his/her final selection. The Contractor shall enter into written contracts of temporary employment with all targeted labour.

Any difficulty experienced by the Contractor in identifying candidates through the Job-Seekers Database, or as regards any matter relating to the employment of targeted labour, shall be immediately referred to the Employer's Agent.

3.5.2.4 Contract participation goal credits

Not applicable to this Contract.

3.5.2.5 Training of targeted labour

The Contractor is required to provide all informal (on-the-job) skills training so as to ensure that a minimum level of competence is achieved and maintained, such that the various activities are carried out safely and to the required standard. The cost of informal training shall be included in the rates for the various work activities.

3.5.2.6 Penalties

Not applicable to this Contract.

3.5.3 COMMUNITY LIAISON OFFICER

It is a requirement of this Contract that a Community Liaison Officer (CLO) shall be appointed by the Contractor. The primary functions of the CLO shall be to assist the Contractor with the selection and recruitment of targeted labour, to represent the local community in matters concerning the use of targeted

labour (and/or enterprises) on the Works, and to assist with and facilitate communication between the Contractor, the Employer's Agent and the local communities.

The identification of suitable candidates (maximum 5; minimum 3) for the CLO position shall be resolved by the relevant Ward Councillor/s. Should suitable candidates not be identified within two weeks of the date of request, the Contractor shall be allowed to seek candidates from the relevant Sub-Council Job-Seekers Database. The final selection and appointment of the CLO in terms of the Contract shall be the responsibility of the Contractor.

The period of appointment of the CLO shall be as stated in the Contract for Temporary Employment as a Community Liaison Officer referred to below. The date of commencement of temporary employment of the CLO shall be as agreed with the Employer's Agent.

It is required, therefore, that the Contractor enter into a contract of temporary employment with the selected CLO, the contracting parties being the Contractor and the CLO. To this end, a specimen Form of Contract of Temporary Employment as Community Liaison Officer is included in this document (Part C1.5: Agreement and Contract Data). This Form of Contract sets out, inter alia, the agreement between the parties, the duties and conditions of employment of the CLO (including the rate of remuneration to be paid). As said contract will be between the Contractor and the CLO, all costs involved shall be borne by the Contractor and the tender shall be deemed to include for this.

3.5.4 HEALTH AND SAFETY

The Contractor shall comply with all relevant aspects of the Occupational Health and Safety Act together with the Regulations referred to therein, as applicable to the scope of his activities.

Particular attention must be paid to the issuing of the relevant Notices, appointment of responsible people, undertaking Hazard Identification and Risk Assessments, and preparation of a Health and Safety Plan. All necessary documentation shall be prepared and submitted for comment and approval immediately after the Contract award.

Specific Health and Safety considerations applicable to this project are detailed in the Occupational Health and Safety Specification, attached to this document.

Method Statements submitted for the Contractor's construction activities shall include details of compliance with Occupational Health and Safety, and shall be submitted immediately after the Contract award and prior to commencement with any work on site.

The Contractor shall provide the necessary personal protective equipment and clothing to all staff as relevant for the type of work being carried out.

Wherever the Contractor's staff may be subjected to hazardous substances, excessive dust or noise, then he is to arrange for pre and post-employment medical examinations on the affected employees.

No member of the Contractor's staff shall be allowed on site while under the influence of alcohol or drugs. Any member of his staff that exhibits any signs of alcohol or drug usage shall be immediately removed from the premises.

The Contractor shall be responsible for the protection of the public in the areas in which he is working and shall provide barricades and lighting as necessary to ensure their safety. He shall also be responsible for the safe control of traffic wherever his works impact on the existing roadways

3.5.5 PLANNING AND PROGRAMMING

3.5.3.1 General

This clause describes the requirements for the preparation, submission, updating and revision of the programme. The requirements are in addition to or in expansion of Clause [12.2.6] of the Conditions of Contract.

The programme shall be used by the Contractor to plan and execute the Works. The programme shall also be used by the Employer's Agent to monitor progress and be the sole basis for the assessment of revisions of the date for practical completion.

The programme shall be produced by the Contractor as follows:

- A programme for the totality of the Works shall be submitted to the Employer's Agent for acceptance. If the principal does not accept such programme, it shall be revised and

amended until it is accepted by the Employer's Agent. This programme will be regarded as the baseline programme.

- This baseline programme shall be updated with actual progress and saved on at least a monthly basis, or any more frequent basis as necessitated by construction events. The Contractor may submit to the principal for acceptance revisions to the baseline programme.

Acceptance by the Employer's Agent of any programme submitted by the Contractor, does not make such programme a contract document, nor does it mandate that the works shall be constructed strictly in accordance therewith. The Contractor at all times remains responsible for the construction of the Works in accordance with Clause [12].

If at any time there is a dispute or difference between the Contractor and the Employer's Agent over any matter concerning the programme, immediate steps should be taken to resolve such dispute in terms of Clause [30].

3.5.3.2 Submission of Programme

Within two weeks of the award of the Contract the contractor shall submit to the Employer's Agent for his review and acceptance a programme for the whole of the works showing the order of procedure in which the Contractor proposes to carry out the Works. This programme becomes the baseline programme upon acceptance by the Employer's Agent. The baseline programme shall have regard to the Contract completion dates, any other milestones and any restraints set out in the Contract. Thereafter, if the actual progress does not conform with the baseline programme, the Employer's Agent is entitled to require the Contractor to submit a revised programme showing the order of procedure and periods necessary to ensure completion of the works by the Contract completion dates.

The Contractor shall furnish any method statements and other details and information required in order for the Employer's Agent to accept the baseline programme.

The Contractor shall supply the Employer's Agent with an electronic copy of each programme, together with a printout bar chart or tabular report in a pre-agreed format. All programmes shall be prepared and submitted using Microsoft Project software. The Contractor is required to use this software in preference to any other software he may use. The Contractor may apply to the Employer's Agent for permission to use other software provided that a computer loaded with a legally licensed copy of such software is provided by the Contractor to the Employer's Agent for use.

Within ten working days of the Contractor submitting a programme complete with all the information required by this clause to the Employer's Agent for acceptance, the Employer's Agent will accept the programme or state reasons for not accepting the programme. If such reasons are given, the Contractor shall take account of the reasons and resubmit the programme within 10 working days. Reasons for non-acceptance of a contractor's programme may include, amongst others:

- Planned activities, durations, interdependencies, mobilisation periods, production rates, etc. are not practicable, logical or realistic
- Not all required contractual information is indicated
- Non-compliance with the works information
- Key dates, sectional completion dates and completions dates are not accurate
- Calendars do not reflect the intended working weeks and holidays
- Not all major items are included
- Employer and Employer's Agent obligations are not incorporated as events and not logically linked to the programme network
- Due consideration of sub-contractors and direct contractors works not taken
- Float not clearly identified
- Critical path not clearly identified
- Conflict between the programme and the Method Statements
- Insufficient allowance for testing and inspections made

If the Employer's Agent fails to act the programme is deemed to be rejected.

Under no circumstances may the Contractor and the Employer's Agent dispense with the submission of the various versions of the programme.

3.5.3.3 Default in submission of programmes

Should the Contractor fail to submit a programme for acceptance as the baseline programme or not update the programme as described above, the Employer's Agent shall be entitled to withhold 25% of the amount due to the Contractor in interim payment certificates until the Contractor has complied with its obligations

in this regard.

3.5.3.4 Preparation of Programme

Baseline programme

The first programme submitted by the Contractor in terms of this clause becomes the baseline programme upon acceptance by the Employer's Agent. The baseline programme shall form the basic strategy for the completion of the Works by the Contract completion date. The programme to be accepted may either be, at the discretion of the Employer's Agent, in a linked bar chart format or precedence network format prepared using techniques acceptable to the Employer's Agent and shall show as reasonably practicable:

- The activities in all work packages including those by sub-contractors and suppliers, direct contractors and any others.
- The earliest and latest start and finish dates for every activity in each work package. Activities shall include all scope activities and any activities or time durations expected in addition to scope activities.
- Access dates for each phase or section
- The earliest and latest start and finish dates for each phase or section, including dates when the Contractor plans to complete work to allow the Employer and others to do their work
- Milestone and Key Dates
- Holiday periods
- Dates by which design work or drawings to be produced by the Contractor or Sub-contractor or suppliers will be submitted to the Employer's Agent for acceptance and dates by which such acceptance will be required from the Employer's Agent, allowing time for submittals, re- submittals and reviews.
- Dates by which samples to be provided by the Contractor will be submitted for approval by the Employer's Agent and dates by which such acceptance will be required from the Employer's Agent, allowing time for submittals, re-submittals and reviews.
- Procurement periods and delivery dates for the major items of goods, plant and materials.
- Dates by which work will be ready for testing by the Employer's Agent / employer.
- Details and dates of any information required from the employer regarding:
 - The work contained in defined provisional sums
- Commissioning periods
- Provisions for float, time risk allowances, quality control procedures, health and safety requirements and any other requirements set out in the Contract

The baseline programme shall also be presented as schedules showing an analysis of the network including:

- A schedule of all activities tabulated in order of earliest starting date and showing for each activity:
 - Activity number and brief description
 - Preceding and succeeding activity numbers
 - Duration
 - Earliest and latest starting and finishing dates
 - Total and free float
- A schedule of leads and lags with reasons for them. Excessive leads and lags, negative lags or open/hanging activities, use of fixed dates and any other programming activities that can have the effect of creating false criticality or inhibiting the programme from reacting dynamically to change should be avoided.
- A schedule of all activities lying on paths containing least float, namely the critical activities
- A schedule identifying the days of working per week, shifts per working day and holidays. Where multiple calendars are used, this information shall be provided for each calendar accompanied by a schedule indicating the calendar applicable to each activity
- A schedule giving details of the Contractor's resource requirements in terms of manpower, team sizes, tradesmen, work rates, items of plant or equipment and materials and quantities of work allowed for in sufficient detail to explain the activity durations. Activities that may be expedited by use of overtime, additional shifts or any other means shall be identified and explained.

The baseline programme shall also be presented with or be accompanied by the following schedules:

- A schedule of all submittals and material procurement activities, including time for

submittals, re-submittals and reviews and time for fabrication and delivery of manufactured products. The interdependence of procurement and construction activities shall be included in the schedule.

- A schedule giving the monetary value of each activity for cash flow purposes. The sum of the monetary values shall total the Contract sum.

The baseline programme shall be prepared in sufficient detail to ensure the adequate planning, execution and monitoring of the work.

The baseline programme shall take into account all time risk allowances that may be reasonably expected by the Contractor.

The Employer's Agent is entitled to withhold acceptance of a programme showing completion at a date earlier than the Contract completion date.

3.5.3.5 Methods of construction and temporary works

At the same time as the Contractor submits the baseline programme for acceptance to the Employer's Agent, the Contractor shall submit for acceptance a general description of the arrangements and methods of construction and temporary Works designs the Contractor proposes to adopt for carrying out the Works (the Method Statement). The Method Statement should be fully cross-referenced to the activities in the programme.

The Contractor shall submit to the Employer's Agent sufficient information as may be considered reasonably necessary by the Employer's Agent to interpret, evaluate and give acceptance to the Method Statement.

The Contractor shall, whenever required by the Employer's Agent, furnish for his information further and more detailed particulars of the Method Statement.

Should the Contractor wish to change a Method Statement or should the Employer's Agent subsequently consider it necessary to amend a Method Statement to which acceptance has previously been given, then the Contractor shall submit a revised Method Statement.

Acceptance by the Employer's Agent of the Method Statement does not make the Method Statement a contract document, or mandate that the Works shall be constructed strictly in accordance therewith. The Contractor at all times remains responsible for the construction of the Works in accordance with clause [15.0]

3.5.3.6 Cash Flow Estimates

Within four weeks of the award of the Contract the Contractor shall submit to the Employer's Agent for his information a detailed monthly cash flow estimate in accordance with the financial year reporting periods of the Employer, of all payment the Contractor considers it will be entitled to under the Contract. The Contractor shall subsequently submit such revised cash flow estimates based on the updated programmes.

3.5.3.7 Revising and Updating the Programmes

The current programme at any given time during the Contract period (whether the baseline programme or any update thereof) and the corresponding Method Statement shall be revised by the Contractor within 10 working days of the Contractor changing its methods and / or sequence of working or, if the changes are frequent, revised at least every month. The programme shall also be revised within 10 working days of the approval of any revision of the Contract completion date, or whenever circumstances arise that in the opinion of the Employer's Agent affects the progress of the Works. Each revision to the programme shall be submitted to the Employer's Agent for review and acceptance. Once a revised programme has been accepted by the Employer's Agent, it replaces the previous baseline or updated programme.

Updates of the programme should be made on the occasion of significant events which could cause change to the forward planning and/or quantities of the remaining work. Such significant events could be, amongst others:

- Variations and other instructions
- Late information
- Lack of access
- Significant changes in estimates of final quantities affection required durations of remaining work
- Major slippage of critical or near critical activities

Each revised programme submitted for acceptance shall be presented as or be accompanied by the

schedules referred to in these Specifications, together with any amendments to the Method Statement.

The baseline programme shall be updated for actual progress at least once every month and the updates shall be archived as separate electronic files for record purposes. The updates shall be to all scope activities and any additional activities carried out or time durations experienced in addition to the scope activities. Actual progress shall be recorded by means of actual start and actual finish dates for activities, together with percentage completion and/or remaining duration of currently incomplete activities. Any periods of suspension of an activity should be noted in the updated programme. Each updated programme shall be submitted to the Employer's Agent for acceptance as a record. It is possible due to delays that these updated programmes may show completion later than the Contract completion dates. Acceptance by the Employer's Agent of updated indicating completion dates later than contract completion dates, will not constitute acceptance of the delay(s).

The updated programmes will be used by the Employer's Agent to monitor the Contractor's performance against the baseline programme, forecast work to be performed in the subsequent period and to assess revisions of the Contract completion dates at the time the cause of the delay occurs. In order to provide effective monitoring of performance, the Contractor shall also provide the Employer's Agent the progress reports as requested by the Employer's Agent.

C3.5.6 MANAGEMENT OF THE WORKS

C3.5.6.1.1 Applicable SANS 1921 Standards

- SANS 1921-1:2004 Part 1 General Engineering and Construction Works
- SANS 1921-2:2004 Part 2 Accommodation of Traffic on Public Roads Occupied by the Contractor
- SANS 1921-4:2004 Part 4 Third-party Management Support in Works Contracts
- SANS 1921-5:2004 Part 5 Earthworks Activities which are to be Performed by Hand

C3.5.6.2 Particular Specifications

Refer to C3.6 ANNEXES

C3.5.6.3 Planning and Programming

Construction Programme

The Contractor shall submit a detailed programme within 14 days of the Commencement Date. The programme shall clearly show the order in which the Contractor proposes to carry out the Work, the critical path, the proposed rate of progress and a linked cash flow forecast. The programme shall be updated monthly.

This programme shall be in the form of a bar chart with the critical path clearly defined and will include the allowance for abnormal climatic conditions as specified in the Tender Data.

Material Delivery Programme

The Contractor must prepare a programme showing their planned material delivery dates, and to this end, they must ensure that orders are placed timeously with suppliers to meet their programme. Extension of time may be granted for non-availability of materials, subject to the Contractor satisfying the Employer's Agent that the orders were timeously placed.

C3.5.6.4 Sequence of the Works

In order to complete the Contract timeously, it is proposed that some of the activities listed in Clause C 3.5.1.3 above, be undertaken concurrently. All areas of the proposed construction Site will be available to the Contractor from the start of the Contract. Construction activities must however be undertaken according to the approved programme and disruption of traffic and usual activities on the Site must be kept to a minimum.

C3.5.6.5 Methods and Procedures

The Contractor is required to produce Method Statements for all civil and electrical engineering activities in particular excavation.

The Contractors attention is drawn to the requirement for Method Statements for various activities included in this document as per C3.6.3.

The Employer's Agent must approve all Method Statements regarding construction activities

The Contractor shall ensure that their staff and workers are properly trained in the safe and effective use

of any equipment, plant or materials necessary to undertake the work

C3.5.6.6 Quality Plans and Control

C3.5.6.6.1 Contractor to engage services of an independent laboratory

Notwithstanding the requirements of the Specifications pertaining to testing and quality control, the Contractor shall engage the services of an approved independent laboratory to undertake all testing of materials, the results of which are specified in, or may reasonably be inferred from, the Contract. These results will be taken into consideration by the Employer's Agent in deciding whether the quality of materials utilised and workmanship achieved by the Contractor comply with the requirements of the Specifications. The foregoing shall apply irrespective of whether the Specifications indicate that the said testing is to be carried out by the Employer's Agent or by the Contractor.

The Contractor shall be responsible for arranging with the independent testing laboratory for the timeous carrying out of all such testing specified in the Contract, at not less than the frequencies and in the manner specified. The Contractor shall promptly provide the Employer's Agent with copies of the results of all such testing carried out by the independent laboratory.

For the purposes of this clause, an "independent laboratory" shall mean an "approved laboratory" (as defined in Sub clause PSA7.2) which is not under the management or control of the Contractor and in which the Contractor has no financial interest, nor which has any control or financial interest in the Contractor.

C3.5.6.6.2 Additional testing required by the Employer's Agent

In addition to the provisions of Sub clause C3.5.1.6.1: Contractor to engage services of an independent laboratory, the Employer's Agent shall be entitled at times during the Contract to require that the Contractor arrange with the independent laboratory to carry out any such tests, additional to those described in Sub clause C3.5.1.6.1, at such times and at such locations in the Works as the Employer's Agent shall prescribe.

The Contractor shall promptly and without delay arrange with the independent laboratory for carrying out all such additional testing as required by the Employer's Agent, and copies of the test results shall be promptly submitted to the Employer's Agent.

C3.5.6.6.3 Costs of testing

a) Tests in terms of Sub clause C3.5.1.6.1

The costs of all testing carried out by the independent laboratory in accordance with the requirements of Sub clause C3.5.1.6.1, above shall be borne by the Contractor and shall be deemed to be included in the tendered rates and prices for the respective items of work as listed in the Bill of Materials and which require testing in terms of the Specifications. No separate payments will be made by the Employer to the Contractor in respect of any testing carried out in terms of Sub clause C3.5.1.6.1.

Where, as a result of the consistency of the materials varying or as a result of failure to meet the required Specifications for the work, it becomes necessary to carry out additional tests (e.g. re-tests on rectified work and/or replacement materials), the costs of such additional testing shall be for the Contractor's account.

b) Additional tests required by the Employer's Agent

The costs of any additional tests required by the Employer's Agent in terms of Sub clause C3.5.1.6.2: Additional testing required by the Employer's Agent, shall be reimbursed to the Contractor against substitution of the Provisional Sum allowed therefor in the Bill of Materials; provided always that the costs of any such additional tests ordered by the Employer's Agent, the results of which indicate that the quality of the materials utilised and/or the standard of workmanship achieved are/is not in accordance with the Specifications, shall not be reimbursable to the Contractor.

C3.5.6.7 Accommodation of Traffic on Public Roads Occupied by the Contractor

The Contractor shall be responsible for the safety of all vehicular and pedestrian traffic affected by their work and shall provide all the necessary warning signs, barricading and lighting as necessary, fully in compliance with the requirements of the SADC Road Traffic Signs Manual and with the approval of the local Municipality Traffic Department.

The Contractor shall be responsible for the safe and unrestricted accommodation of all traffic along all roads, sidewalks and parking areas affected by construction from the date that the site is handed over

to the date of completion and at any time during the period of maintenance when work is undertaken and shall comply with all provisions of the General Conditions of Contract. Should roads, sidewalks and parking areas be affected as a result of repairs to the works during the period of maintenance, then all costs of accommodating traffic shall be borne by the Contractor.
Work is to be programmed such that vehicular traffic and pedestrian movement around the working areas is not unduly hindered.

The onus of complying with the Road Traffic Ordinance No 21 of 1966, as amended, rests solely with the Contractor, and failure to comply with the Ordinance or with the orders of the Employer's Agent in respect of accommodation of traffic/pedestrians shall result in financial penalties as indicated in Bill of Quantities and be cause for the cessation of the Works until such time as the said compliance has been achieved.

All temporary road signage shall be erected in accordance with the SARTSM Volume 3 Chapter 13.

The Contractor shall be responsible for liaising with the Stellenbosch Municipality Traffic Department and Engineering Department to obtain approval for any traffic deviation. Two weeks prior to the commencement of relevant work, the Contractor shall submit a traffic and pedestrian management plan to the Employer's Agent and Stellenbosch Municipality: Traffic Department for approval. The plan shall be in accordance with the SARTSM Volume 3 Chapter 13.

The Contractor shall be responsible for the managing and controlling the movement of pedestrians adjacent to be work area.

Payment for accommodation of traffic shall be made within the Bill of Quantities which shall include for everything necessary, temporary fencing, barricades, delineators, flagmen, etc., to accommodate the vehicular and pedestrian traffic.

Where the Contractor has failed to comply with statutory regulations with regards to accommodation of traffic (vehicular or pedestrian) or damage of trees, they will be penalised to the extent as indicated in the Bill of Quantities. The decision to apply penalties will be the Employer's Agent's prerogative and will not be subject to negotiation/discussion or appeal by the Contractor. Penalties will be deducted from amounts due to the Contractor in the monthly certificate that follows the date when the transgression occurred.

C3.5.6.8 Other Contractors On Site

The Contractor will have sole possession of the site and will not have to deal with other Contractors, except his own Subcontractors.

C3.5.6.9 Testing, Completion, Commissioning and Correction of Defects

Every completed layer or section of the Works shall be subject to check testing by the Contractor. Once the Contractor has satisfied himself with the standard of his Works, the Employer's Agent will be requested to perform acceptance testing for the particular section. When giving notice, the Contractor shall provide the Employer's Agent with the results of his check testing indicating that the work is to specification.

Failure by the Contractor to notify the Employer's Agent or to provide the required information or, where specified, to perform the required test, will be grounds to exempt the Employer from payment for the associated work and for all subsequent work which would be affected by the failure of the work to be tested.

The Employer's Agent will be under no obligation to the Contractor to perform the tests. If the Employer's Agent elects not to perform a particular test after notification by the Contractor, he will issue the Contractor with a written instruction to proceed with the relevant Works without the acceptance test being performed.

Nothing contained in this clause will relieve the Contractor of his responsibilities under the Specification or in any way limit the tests, which the Employer's Agent may call for or perform in terms of the Specification.

Acceptance testing shall be done by a laboratory selected by the Employer's Agent. The Employer's Agent requires twenty four hours' notice from the Contractor in order to perform the relevant acceptance test.

All acceptance testing by the Employer's Agent shall be paid by the Contractor.

The costs of such tests which meet the specification requirements will be reimbursed to the Contractor in the monthly payment certified. This payment shall consist of the billed amount plus the tendered mark-

up. A Provisional Sum has been provided in Schedule A, Section 1 of the Bills of Quantities to allow for the cost of such testing. The Contractor shall make due allowance for testing procedures in his construction programme.

The Certificate of Completion shall only be issued upon the submission of all the as-built information and operating instructions as necessary.

Correction of Defects will be treated as stipulated in SANS.

C3.5.6.10 Recording of Weather

The Contractor shall provide a rain gauge and maximum/minimum thermometer. He shall erect them according to the requirements of the weather bureau. The Contractor shall record and keep a record of the daily rainfall and maximum/minimum temperatures and supply the data to the Employer's Agent on a daily basis.

The cost of complying with these requirements is deemed to be covered by the tendered rates for the Contractor's General Obligations.

No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds, extremes of temperature and any consequential delays as a result thereof. However, in the event that delays to critical activities due to the above causes exceed the number of allowed working days as given in the Tender data, then abnormal climatic conditions shall be deemed to exist, and an extension of time shall be granted for each day or half-day delay in excess of the defined normal conditions.

C3.5.6.11 Format of Communications

All instructions or requests need to be confirmed in writing through:

- Site instructions
- Requests for inspections

C3.5.6.12 Key Personnel

The Contractor and Employer's Agent must compile a schedule of their Key Personnel with their contact numbers and keep it updated. The list must be made available to the Employer's Agent, Employer and Contractor.

Site Agent: Verifiable experience of being in the position of Construction Manager for a minimum of 3 building and road pavement projects, for the entire duration of the project, of which at least one must have been of a value in excess of R25 million (including VAT) (i.e. value equating to a CIDB grading of 7 or higher).

C3.5.6.13 Management Meetings

The following formal project meetings will be held at the office of the Employer's Agent's Representative between the representatives of the Employer, Employer's Agent and the Contractor:

Technical meetings (every two weeks – alternating fortnightly with progress meeting)

Progress meetings (every two weeks – alternating fortnightly with technical meetings)

Technical meetings are held to discuss technical issues relating to the construction of work and can be held at ad hoc intervals as required by events occurring on site.

Progress meeting are held to discuss issues relating to the Contract.

The representatives must have the necessary delegated authority in respect of aspects such as planning, change management and health and safety. The Contractor shall allow for regular on-site project co-ordination meetings in their programme. It will be required that the Contracts Manager and Site Agent attend all project meetings.

The cost of the requirements above shall be included in rates for Time Related Items.

C3.5.6.14 Daily Records

The Contractor shall be required to maintain a daily record of all construction activities taking place on site which shall include details of plant, personnel, and visitors as well as other events such as weather conditions or any circumstances that may have a bearing on the nature and progress of his operations.

The Contractor shall be required to provide a detailed report at each progress meeting. The report shall

be in a format to be agreed with the Employer's Agent and shall contain the following:

- Details of actual progress versus programme for each construction activity.
- A daily record of rainfall and other weather events that could affect the work.
- Details of any delays that have occurred due to weather or any other cause.
- A record of resources (personnel, plant and equipment) present on site.
- Details of any accidents or lost time incidents that have occurred.
- A list of information required.

C3.5.6.15 Payment Certificates

The Employer's Agent's certificate will be issued only after receipt by them of a draft certificate prepared by the Contractor at their own expense in the form prescribed by the Employer's Agent. The cost of duplicating and delivering copies of the certificate to the Contractor, the Employer's Agent and the Employer shall be borne by the Contractor. The Employer's Agent and the Employer shall require three (3) sets of A4-sized paper copies in total.

Before any payment for materials on site is certified by the Employer's Agent, the Contractor shall submit to the Employer's Agent for approval cessions from each of the Contractor's suppliers vesting ownership of materials delivered for use on the site or any authorised extended site to the Contractor.

C3.5.6.16 Proof of Compliance with the Law

The Contractor shall be required to comply with all regulations and laws of whatever nature that are applicable to his operations throughout the duration of the Contract, and shall produce documentary evidence when requested for all aspects.



Part C4: Site information

	Pages
C4.1 Site information	247



C4.1 SITE INFORMATION

C4.1 Site Information

C4.1.1 DESCRIPTION OF THE EXISTING WORKS

This part of the specifications describes the existing layout, features and conditions of the site which is the subject of this contract. It is based on surveys, visual observations, trial pit testing, and data provided by local authorities and other affected parties at time of the design. All data and descriptions are given for information purposes only and in good faith. The Contractor shall verify all details provided and the Employer will not accept responsibility for any omissions, inaccuracies or misrepresentations that may come to light.

C4.1.2 THE SITE

C4.1.2.1 Location of the Works

Jamestown is a small suburb situated south of Central Stellenbosch, to the east of the R44 as shown on the Locality Map in Annexure 1. Jamestown consists of a variety of land uses including a residential area (approximately 825 dwelling units) with a shopping Centre, fuel station, a medical clinic, two schools and several smaller shops distributed throughout the suburb. School street is located to the South of Jamestown. The road is used as a daily thoroughfare for commuters to Weber Gedenk NGK Primary School and Stellenzicht Secondary School.

C4.1.3 CLIMATE AND WEATHER RECORDS

Temperature and rainfall data are available from the South African Weather Service for the previous 10-year period.

C4.2 GEOTECHNICAL INVESTIGATION RESULTS

Refer to Annex 4.



Part C5: Annexures

C3.6 Annexures

CONTENTS

- Annex 1: Locality Map
- Annex 2: Monthly Labour Report Forms
- Annex 3: Tender Drawings
- Annex 4: Geotechnical Investigation Results
- Annex 5: Site Specific Health and Safety Specification
- Annex 6: Environmental Management Programme

ANNEX 1 Locality Map



ANNEX 2 MONTHLY PROJECT LABOUR REPORT

Instructions for completing and submitting this form

MONTHLY PROJECT LABOUR REPORT

General

- 1 The Monthly Project Labour Reports must be completed in full, using typed, capital letter characters; alternatively, should a computer not be available, handwritten in black ink.
- 2 Incomplete / incorrect / illegible forms will not be accepted.
- 3 Any conditions relating to targeted labour stipulated in the Contract (in the case of contracted services / works) shall apply to the completion and submission of these forms.
- 4 This document is available in Microsoft Excel format upon request from the City's EPWP office, tel 021 400 9406 or email EPWPLR@capetown.gov.za.

Project Details

- 5 If a field is not applicable insert the letters: NA
- 6 Either a Contract (in the case of contracted out services or works) or a Works Project (in the case of direct employment by the City) name and number must be inserted. The name of the contract or works project may be abridged if necessary. In the case of term tenders the contract name and number must reflect the term tender as advertised.
- 7 On completion of the contract or works project the anticipated end date must be updated to reflect the actual end date.

Workers Details and Work Information

- 8 Care must be taken to ensure that worker details correspond accurately with the worker's ID document of which a Certified copy must be kept for reporting.

Jobseeker Database Reference Number

- 9 Unique number generated by Jobseekers system to confirm workers were sourced from the Jobseekers database operated by Subcouncils
New workers: Training: Reporting Threshold
- 10 A new worker is one in respect of which a new employment contract is signed in the current month.
- 11 Refers to work days only. Formal accredited Training / Non-accredited training that does not form part of on-the-job training must be excluded from this entry
- 12 All formal accredited / non-accredited training that does not form part of on-the-job training
- 13 Workers earning more than the maximum daily rate (Reporting Threshold) (currently R350 excluding any benefits) shall not be reflected on this form at all.
- Submission of Forms
- 14 Signed hardcopy forms must be scanned and submitted to the City's project manager in electronic (.pdf) format, together with the completed form in Microsoft Excel format.
- 15 Scanned copies of all applicable supporting documentation must be submitted along with each monthly project labour report. Copies of employment contracts and Certified ID documents are only required in respect of new workers.
- 16 If a computer is not available hardcopy forms and supporting documentation will be accepted.
- 17 Failure to adhere to reporting requirements may result in the withholding of payment; penalties being applied or both

PROJECT DETAILS

Numbers in cells below e.g (6) refer to the relevant instruction above for completing and submitting forms

CONTRACT OR WORKS PROJECT NAME: (6)		CONTRACT OR WORKS PROJECT NUMBER: (6)	
DIRECTORATE:		DEPARTMENT:	
CONTRACTOR OR VENDOR NAME:		CONTRACTOR OR VENDOR E-MAIL ADDRESS:	
CONTRACTOR OR VENDOR PERSON:		CONTRACTOR OR VENDOR TEL. NUMBER:	CELL WORK
PROJECT LABOUR REPORT CURRENT MONTH (mark with "X")			
JAN	FEB	MAR	APR
MAY	JUN	JUL	AUG
SEP	OCT	NOV	DEC
YEAR (insert last 2 digits)		2	0
ACTUAL START DATE (yyyy/mm/dd)		ANTICIPATED / ACTUAL END DATE (yyyy/mm/dd) (7)	
2 0		2 0	
TOTAL PROJECT EXPENDITURE / VALUE OF WORK DONE TO-DATE (INCLUDING ALL COSTS, BUT EXCLUDING VAT)			
R		?	



ANNEX 2 (continued)

MONTHLY PROJECT LABOUR REPORT

WORKER DETAILS AND WORK INFORMATION

CONTRACT OR WORKS PROJECT NUMBER:								Year	Month	of	

	(8)	(8)	(8)	(9)	(10)			(11)	(12)	(13)
No.	First name	Surname	ID number	Jobseeker Database Reference Number	New Worker (Y/N)	Gender (M/F)	Disabled (Y/N)	No of days worked this month (excl. training)	No of training days this month (with stipend)	Rate of pay per day (R – c)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

0 0 R -

Declared by Contractor or Vendor to be true and correct:	Name		Signature	
	Date			

Received by Employer's Agent Project Manager/ Representative:	Name		Signature	
	Date			



ANNEX 3 Tender Drawings

Discipline	Plan Title	Drawing Number
Civil	Overall Plan Layout (Sheet 1 of 1)	BMK-1770-JT-001
Civil	Road Layout Plan (Sheet 1 of 2)	BMK-1770-JT-002
Civil	Road Layout Plan (Sheet 2 of 2)	BMK-1770-JT-003
Civil	Stormwater Longsections (Sheet 1 of 2)	BMK-1770-JT-004
Civil	Stormwater Longsections (Sheet 2 of 2)	BMK-1770-JT-005
Civil	School Street Road Longitudinal Section 1	BMK-1770-JT-006
Civil	School Street Road Longitudinal Section 5	BMK-1770-JT-007
Civil	School Street Road Longitudinal Section 6	BMK-1770-JT-008
Civil	School Street Road Longitudinal Section 7	BMK-1770-JT-009
Civil	School Street Road Cross Sections (Sheet 3 of 7)	BMK-1770-JT-010
Civil	School Street Road Cross Sections (Sheet 4 of 7)	BMK-1770-JT-011
Civil	School Street Road Cross Sections (Sheet 5 of 7)	BMK-1770-JT-012
Civil	School Street Road Cross Sections (Sheet 6 of 7)	BMK-1770-JT-013
Civil	School Street Road Cross Sections (Sheet 7 of 7)	BMK-1770-JT-014
Civil	Jamestown School Street, Standard Details	BMK-1770-JT-015
Civil	Jamestown School Street, Standard Details	BMK-1770-JT-016
Civil	Jamestown School Street, Stormwater Standard Details	BMK-1770-JT-017
Civil	Jamestown School Street, Stormwater Standard Details	BMK-1770-JT-018



ANNEX 4 Geotechnical Report

1. Geology

The following report is based on a basic geotechnical report that was completed in the previous projects. The geotechnical investigation involved taking some points along Route 5, Pajaro Lane and the eastern portion of School Street to determine the existing ground conditions. A few Dynamic Cone Penetration (DCP) tests and a trial pit were undertaken where necessary.

The Jamestown area is, on the whole, underlain by the sub-outcrop of the Kuils river Batholith (previously known as the Stellenbosch and Kuils River Granite) which includes north-west to south-east striking granite. In general, the batholith comprises coarse grained porphyritic granite with local variations near surface and along its perimeter when in contact with the Malmesbury Group granite, which includes finer grained granite.

The site, specifically, is underlain by granite of the Spier Granite group, and flanked in the northern and southwestern region by the Bottelary Granite group. Local instances of Alluvial deposits may be encountered in the eastern and northeastern extents of the project area.

Based on available literature for the area and project experience in the close vicinity, the prevailing problem soil is that of fine-grained residual granite, exhibiting a voided and/or pin-holed structure. The residual soil, on first inspection, appears to have a relatively high bearing capacity and cuttings are stable in the short term, when dry. The material, however, is highly moisture sensitive and loses its structure and subsequently strength when saturated, and therefore prone to collapse settlement. Similarly, during excavation, the residual granite loses strength if unnecessarily disturbed and due to it being fine grained is near impossible to re-compact to its in-situ strength.

Therefore, care is to be taken not to over-excavate cuttings during construction and the installation of effective, permanent surface water drainage is of utmost importance. Although not noted in the available literature, groundwater may be encountered (particularly in the wet winter months) in the eastern and north-eastern region of site, where alluvial deposits are likely to be encountered. The degree of dewatering requirements (during construction) and/or permanent buried drainage structures will need to be determined based on the results of a site-specific intrusive investigation.

2. Pavement design

Pavement Design Layers for the NMT facility

- 150mm G9 gravel subgrade compacted to 90% MOD AASHTO;
- 150mm G7 gravel subbase compacted to 93% MOD AASHTO;
- 150mm G5 gravel base compacted to 95% MOD AASHTO;
- 30mm medium grade Asphalt.

Road Pavement Design Layers for School Street tie in

The design standard for the road pavement design was adopted from Stellenbosch Municipality pavement design for Class 4UB road:

- Vehicles per day: >11 000
- Structural Design Period: 20 years
- Design Reliability Period: 10 years
- CBR of in-situ material @ 93% Compaction: 13

Layer works:

- 150mm G7 gravel subgrade compacted to 93% MOD AASHTO;
- 150mm G5 gravel subbase compacted to 95% MOD AASHTO;
- 150mm G2 gravel base compacted to 98% MOD AASHTO;
- 30mm medium grade Asphalt.

3. Geotechnical Investigation Results

ANNEX 5 Site Specific Health and Safety Specification

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

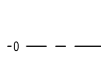
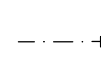
Refer to 3.4.5 PART E OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

ANNEX 6 Environmental Management Programme

ENVIRONMENTAL SPECIFICATIONS

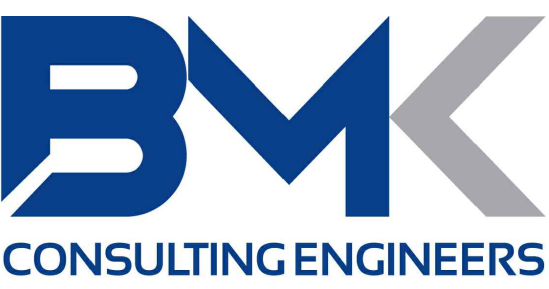
Refer to 3.4.3 PART C ENVIRONMENTAL SPECIFICATIONS

LEGEND

-  CONTOURS
-  CADASTRAL BOUNDARIES
-  ROAD ALIGNMENT
-  CUT / FILL BANKS
-  SIDEWALKS
-  STORM WATER PIPE INLET

GENERAL

- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
- C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.
- D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWINGS, THESE DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.
- E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.
- F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.
- G. ALL EXISTING SERVICES TO BE PROVIDED & VERIFIED PRIOR TO WORK COMMENCING. ANY EXISTING SERVICE THAT IS DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR ON SITE BY THE ENGINEER, MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
- H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.
- I. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL STORMWATER RUNOFF IS CONTROLLED TO PREVENT DAMAGE TO THE WORKS, EXISTING STRUCTURES AND SURROUNDING PROPERTIES, DURING THE CONSTRUCTION PROCESS.
- J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.
- K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE INSITU MOISTURE CONTENT OF THE MATERIAL.
- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



Office 218 Tel : (031) 566 1160
45 Richefontaine Circle Fax : (031) 566 1732
Ridgeside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed	Engineer
Date	

UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
WATER MAINS		
SEWERS		
G.P.D. CABLES		
ELECTRIC CABLES		
S.A.T. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

Contract No 1770

Client STELLENBOSCH MUNICIPALITY

Project Title CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES

Drawing Title OVERALL PLAN LAYOUT
(SHEET OF 1 OF 1)

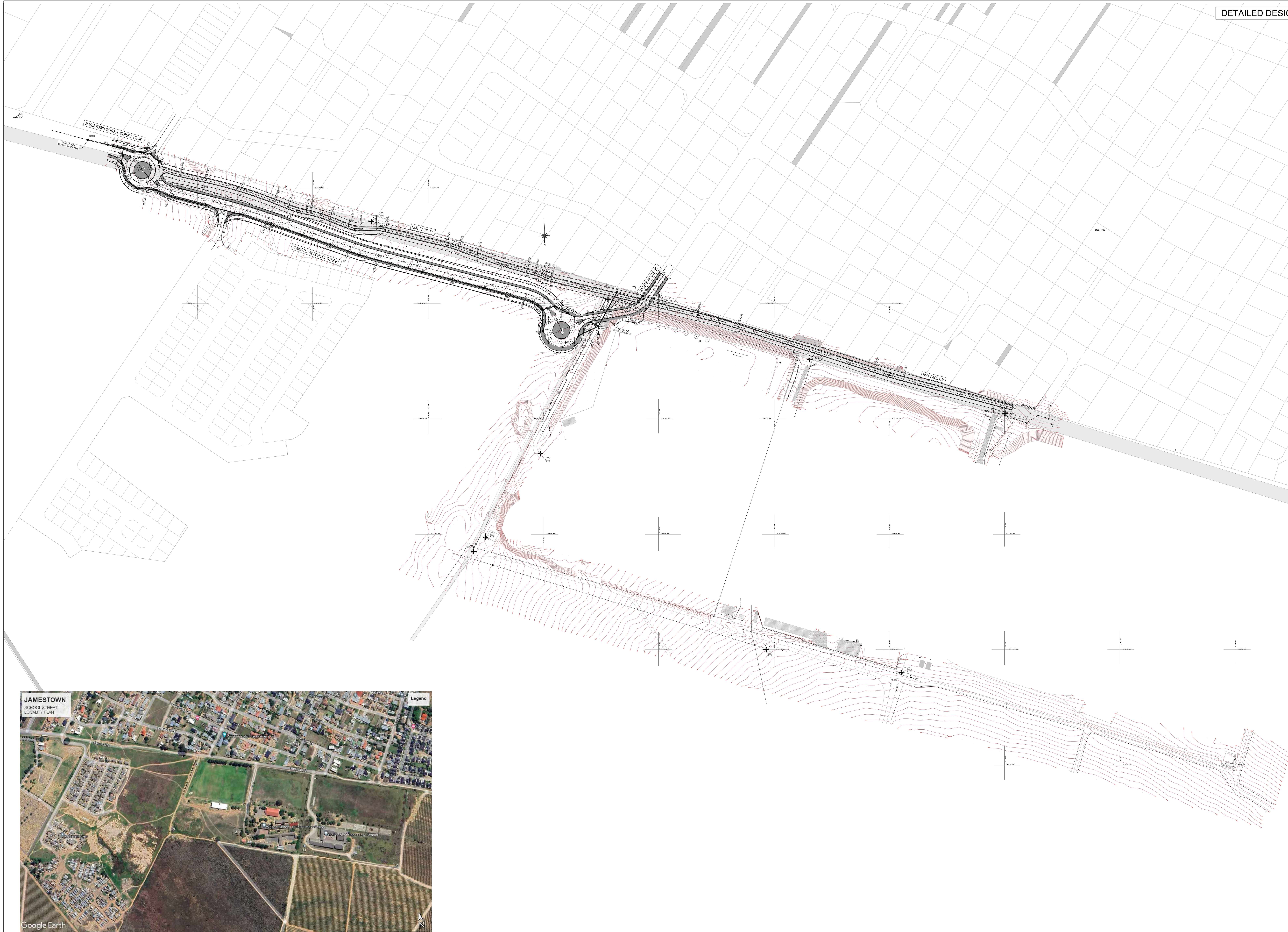
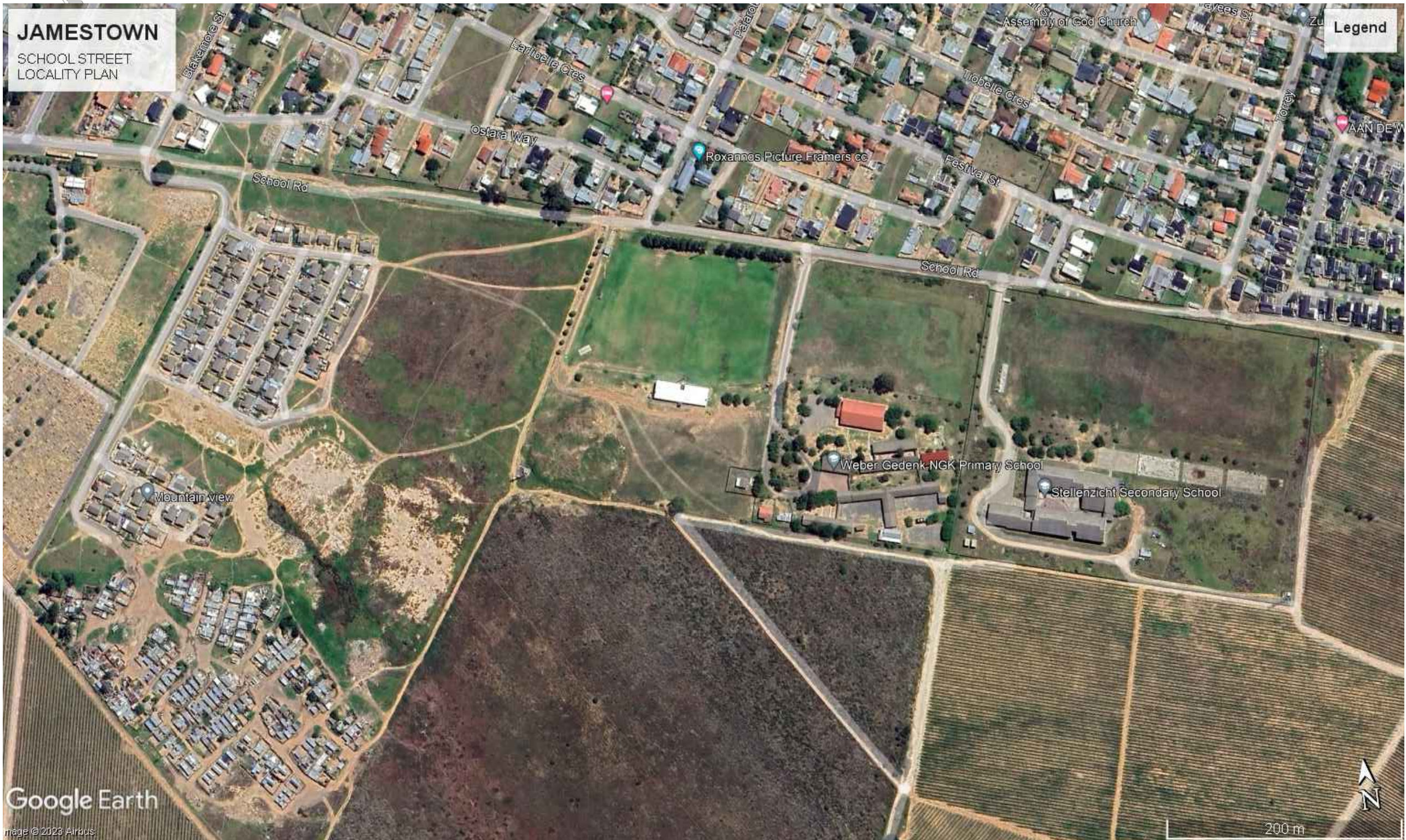
Scales	NTS	Date	08/2023
Designed	P. RAMAUTAR	Checked	P. DHANEE
Drawn	S. PILLAY	Surveyed	

Manager : N. RAMDHANI

Deputy Head : P. DHANEE

Engineer : P. DHANEE
Professional Registration Number : 201270079

Drawing	BMK-1770-JT-001	REV	A
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OVERALL PLAN LAYOUT of
SCHOOL STREET
NTS

SCHOOL STREET
LOCALITY PLAN
NTS

LEGEND

- CONTOURS
- CADASTRAL BOUNDARIES
- ROAD ALIGNMENT
- CUT / FILL BANKS
- SIDEWALKS
- STORM WATER PIPE INLET

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.

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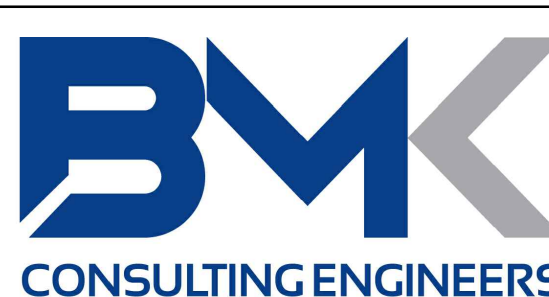
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A AUG 2023 DRAFT DETAILED DESIGN

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Date Engineer

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WATER MAINS

G.P.O. CABLES

ELECTRIC CABLES

S.A.R. CABLES

CELL CABLES

CELL PIPES

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Contract No 1770

Client

STELLENBOSCH MUNICIPALITY

Project Title

CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES

Drawing Title

ROAD LAYOUT PLAN

(SHEET OF 1 OF 3)

Scales 1:500 Date 08/2023

Designed P. RAMAIAH Checked P. DHANEE

Drawn S. PILLAY Surveyed

Manager: N. RAMOHANI

Deputy Head: P. DHANEE

Engineer: P. DHANEE

Professional Registration Number: 201270079

Drawing BMK-1770-JT-002

REV A

JAMESTOWN SCHOOL STREET - ROAD RESERVE

COORDINATES

COORDINATES

POINT Y X POINT Y X

L1 14 573.666 3 761 508.537 R1 14 578.065 3 761 525.371

L2 14 563.991 3 761 511.067 R2 14 572.789 3 761 526.936

L3 14 557.145 3 761 513.588 R3 14 567.765 3 761 530.803

L4 14 548.279 3 761 515.568 R4 14 564.418 3 761 537.986

L5 14 541.185 3 761 515.100 R5 14 557.092 3 761 548.641

L6 14 536.932 3 761 513.271 R6 14 542.913 3 761 550.850

L7 14 534.801 3 761 522.861 R7 14 537.621 3 761 552.171

L8 14 532.872 3 761 525.540 R8 14 532.073 3 761 554.870

L9 14 531.010 3 761 529.431 R9 14 524.383 3 761 567.648

L10 14 530.755 3 761 536.725 R10 14 490.238 3 761 566.549

L11 14 527.259 3 761 543.802 R11 14 483.299 3 761 572.045

L12 14 521.226 3 761 546.486 R12 14 482.067 3 761 581.090

L13 14 489.351 3 761 559.980 R13 14 477.044 3 761 581.853

L14 14 452.176 3 761 564.866 R14 14 470.805 3 761 576.862

L15 14 436.327 3 761 570.109 R15 14 463.335 3 761 576.599

L16 14 419.899 3 761 575.928 R16 14 440.686 3 761 583.712

L17 14 418.881 3 761 573.053 R17 14 470.031 3 761 608.821

L18 14 364.882 3 761 592.258 R18 14 357.572 3 761 612.936

L19 14 352.227 3 761 596.374 R19 14 344.774 3 761 616.555

L20 14 340.389 3 761 599.725 R20 14 247.929 3 761 641.792

L21 14 212.535 3 761 633.032 R21 14 216.878 3 761 646.886

L22 14 196.486 3 761 638.627 R22 14 206.080 3 761 655.118

L23 14 190.055 3 761 646.078 R23 14 201.721 3 761 664.609

L24 14 182.324 3 761 653.779 R24 14 203.558 3 761 674.555

L25 14 175.298 3 761 655.903 R25 14 198.462 3 761 685.385

L26 14 170.257 3 761 659.759 R26 14 195.698 3 761 691.424

L27 14 167.978 3 761 659.540 R27 14 197.219 3 761 696.559

L28 14 161.354 3 761 658.345 R28 14 243.896 3 761 706.884

L29 14 156.700 3 761 657.531 R29 14 270.364 3 761 708.670

L30 14 129.842 3 761 652.901 R30 14 274.288 3 761 742.833

L31 14 120.602 3 761 649.510 R31 14 279.641 3 761 745.637

L32 14 111.639 3 761 640.493 R32 14 293.917 3 761 768.483

L33 14 099.561 3 761 622.822 R33 14 291.698 3 761 873.340

L34 14 091.569 3 761 628.018 R34 14 279.528 3 761 882.101

L35 14 103.897 3 761 645.488 R35 14 261.840 3 761 877.759

L36 14 115.103 3 761 656.942 R36 14 252.835 3 761 878.313

L37 14 127.873 3 761 661.890 R37 14 149.333 3 761 890.075

L38 14 155.964 3 761 666.750 R38 14 115.416 3 761 919.159

L39 14 160.332 3 761 667.922 R39 14 111.758 3 761 920.247

L40 14 163.747 3 761 670.069 R40 14 105.000 3 761 922.256

L41 14 165.091 3 761 671.393 R41 14 094.194 3 761 925.806

L42 14 166.475 3 761 680.284 R42 14 081.863 3 761 926.763

L43 14 170.324 3 761 684.712 R43 14 024.052 3 761 950.105

L44 14 174.019 3 761 688.786 R44 14 011.652 3 761 954.291

NMT FACILITY - ROAD RESERVE

COORDINATES

COORDINATES

POINT Y X POINT Y X

L66 14 531.808 3 761 527.255 R57 14 530.580 3 761 538.488

L67 14 527.228 3 761 529.065 R58 14 523.915 3 761 540.834

L68 14 520.513 3 761 531.420 R59 14 515.379 3 761 543.125

L69 14 512.791 3 761 533.459 R60 14 493.351 3 761 548.054

L70 14 491.102 3 761 538.310 R61 14 463.562 3 761 555.944

L71 14 460.845 3 761 546.385 R62 14 434.518 3 761 566.130

L72 14 430.799 3 761 556.847 R63 14 422.889 3 761 570.083

L73 14 419.361 3 761 561.384 R64 14 414.535 3 761 573.602

L74 14 411.696 3 761 563.957 R65 14 406.238 3 761 575.713

L75 14 404.136 3 761 565.937 R66 14 402.523 3 761 576.499

L76 14 400.420 3 761 566.722 R67 14 393.955 3 761 578.732

L77 14 391.796 3 761 568.935 R68 14 386.739 3 761 581.300

L78 14 383.332 3 761 571.893 R69 14 370.709 3 761 587.678

L79 14 366.981 3 761 578.388 R70 14 363.848 3 761 589.625

L80 14 362.323 3 761 579.739 R71 14 357.125 3 761 590.152

L81 14 357.414 3 761 580.154 R72 14 344.419 3 761 589.994

L82 14 344.322 3 761 579.995 R73 14 341.025 3 761 590.184

L83 14 339.643 3 761 580.279 R74 14 338.122 3 761 590.720

L84 14 335.701 3 761 581.018 R75 14 284.754 3 761 603.887

L85 14 282.312 3 761 594.190 R76 14 279.303 3 761 605.406

L86 14 276.534 3 761 595.784 R77 14 274.420 3 761 607.069

L87 14 271.354 3 761 597.543 R78 14 259.240 3 761 612.635

L88 14 255.773 3 761 603.253 R79 14 237.408 3 761 620.073

L89 14 234.400 3 761 610.536 R80 14 215.266 3 761 626.506

L90 14 212.669 3 761 616.849 R81 14 208.262 3 761 628.369

L91 14 205.547 3 761 618.717 R82 14 205.960 3 761 629.102

L92 14 202.599 3 761 619.683 R83 14 203.961 3 761 629.946

L93 14 199.335 3 761 621.078 R84 14 200.641 3 761 631.561

L94 14 196.566 3 761 622.425 R85 14 197.527 3 761 632.886

L95 14 194.357 3 761 623.368 R86 14 193.530 3 761 634.036

L96 14 191.537 3 761 624.229 R87 14 123.578 3 761 651.049

L97 14 113.536 3 761 643.200 R88 14 111.213 3 761 654.058

L98 14 103.929 3 761 645.536 R89 14 067.140 3 761 664.775

L99 14 096.713 3 761 647.291 R90 14 049.810 3 761 669.380

L100 14 069.552 3 761 655.566 R91 14 032.261 3 761 674.824

L101 14 036.779 3 761 665.322 R92 13 972.072 3 761 694.024

L102 13 995.095 3 761 677.639 R93 13 966.313 3 761 695.889

L103 13 956.968 3 761 688.386 R94 13 913.963 3 761 712.754

L104 13 910.884 3 761 703.240 R95 13 901.478 3 761 716.601

L105 13 898.657 3 761 707.007 R96 13 868.618 3 761 720.198

L106 13 886.189 3 761 710.498 R97 13 809.280 3 761 741.310

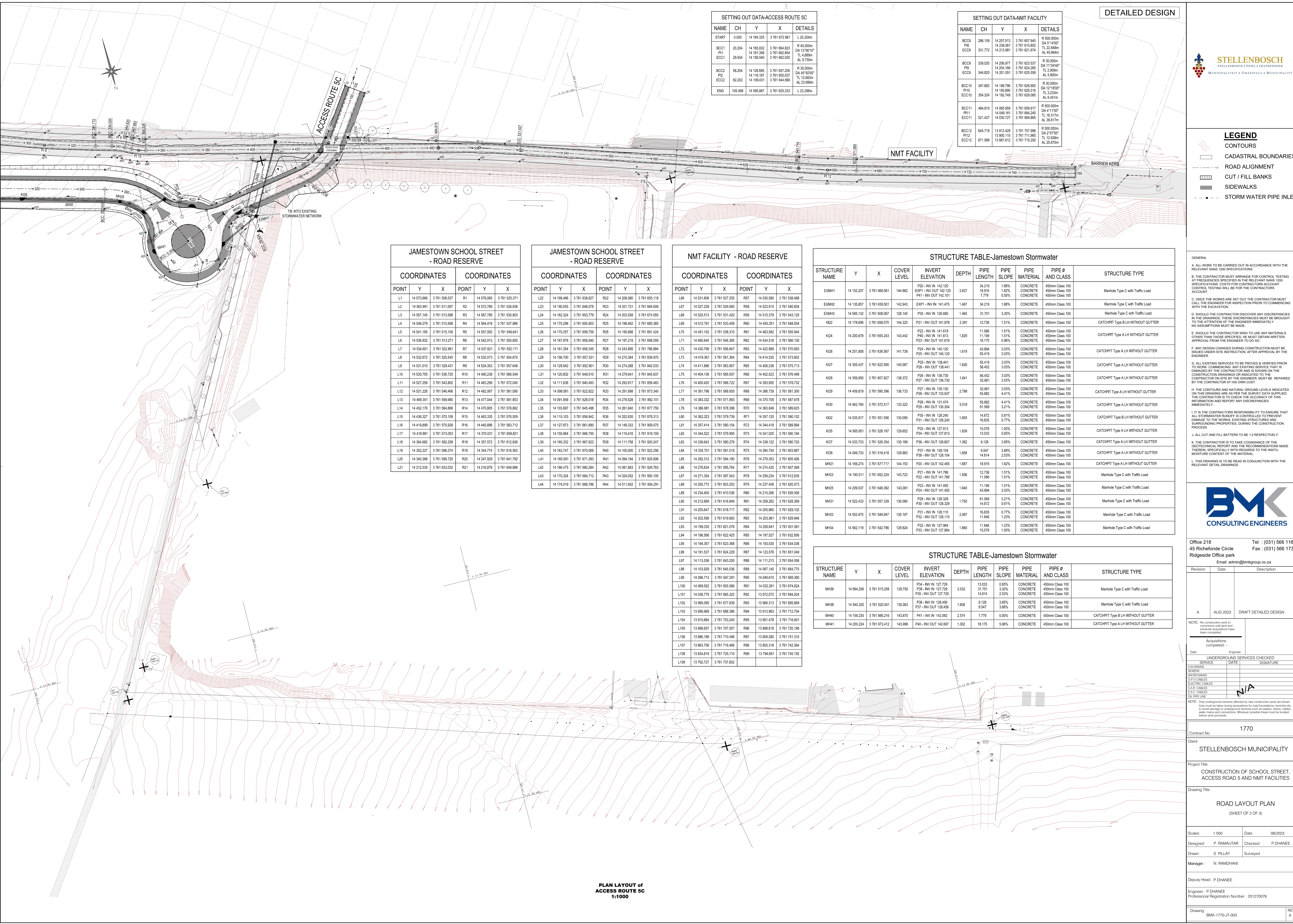
L107 13 863.756 3 761 716.495 R98 13 805.318 3 761 742.364

L108 13 834.819 3 761 725.110 R99 13 794.291 3 761 745.192

L109 13 792.727 3 761 731.602

STRUCTURE TABLE-Jamestown Stormwater

STRUCTURE NAME	Y	X	COVER LEVEL	INVERT ELEVATION	DEPTH	PIPE LENGTH	PIPE SLOPE	PIPE MATERIAL	PIPE Ø AND CLASS	STRUCTURE TYPE
EXMH1	14 152.207	3 761 689.561	144.962	P20 - INV IN 142.120 EXP1 - INV OUT 142.120 P41 - INV OUT 142.101	3.627	34.219 18.916 7.777	1.88% 1.82% 0.90%	CONCRETE CONCRETE CONCRETE	450mm Class 100 450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
EXMH2	14 135.857	3 761 639.501	142.943	EXP1 - INV IN 141.475	1.467	34.219	1.88%	CONCRETE	450mm Class 100	Manhole Type C with Traffic Load
EXMH3	14 596.132	3 761 508.067	128.140	P35 - INV IN 126.680	1.460	31.751	3.30%	CONCRETE	450mm Class 100	Manhole Type C with Traffic Load
K122	14 178.696	3 761 658.075	144.325	P21 - INV OUT 141.978	2.391	12.738	1.51%	CONCRETE	450mm Class 100	CATCHPIT Type B LH WITHOUT GUTTER
K124	14 200.678	3 761 655.243	143.442	P22 - INV IN 141.619 P40 - INV IN 141.613 P23 - INV OUT 141.619	1.829	11.086 11.199 18.175	1.51% 1.51% 5.96%	CONCRETE CONCRETE CONCRETE	450mm Class 100 450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K126	14 251.808	3 761 636.567	141.739	P24 - INV IN 140.120 P25 - INV OUT 140.120	1.619	43.894 59.419	3.03% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K127	14 305.437	3 761 622.595	140.067	P25 - INV IN 138.441 P26 - INV OUT 138.441	1.626	55.419 56.452	3.03% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K128	14 359.950	3 761 607.927	138.372	P26 - INV IN 136.730 P27 - INV OUT 136.730	1.641	56.452 52.861	3.03% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K129	14 409.919	3 761 590.396	138.323	P27 - INV IN 135.130 P28 - INV OUT 133.937	2.796	52.861 55.882	3.03% 4.41%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K130	14 462.784	3 761 572.517	137.733	P28 - INV IN 131.474 P29 - INV OUT 130.304	3.010	55.882 61.569	4.41% 3.21%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K132	14 535.917	3 761 551.556	130.895	P30 - INV IN 128.240 P31 - INV OUT 128.240	1.855	14.672 18.635	0.61% 0.77%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type B LH WITHOUT GUTTER
K135	14 565.851	3 761 538.187	128.652	P33 - INV IN 127.813 P34 - INV OUT 127.813	1.839	15.078 13.033	1.00% 0.95%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K137	14 533.733	3 761 526.354	130.189	P36 - INV OUT 128.607	1.382	9.128	3.85%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K139	14 549.733	3 761 518.418	129.963	P37 - INV IN 128.104 P38 - INV OUT 128.104	1.858	9.547 14.814	3.68% 2.35%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
MH21	14 169.274	3 761 677.717	144.153	P20 - INV OUT 142.465	1.867	18.916	1.82%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
MH23	14 190.011	3 761 652.224	143.722	P21 - INV IN 141.786 P22 - INV OUT 141.786	1.636	12.738 15.151	1.51% 1.51%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH25	14 209.537	3 761 648.392	143.091	P23 - INV IN 141.450 P24 - INV OUT 141.450	1.640	11.189 43.894	1.51% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH31	14 522.433	3 761 557.339	130.080	P25 - INV IN 128.329 P26 - INV OUT 128.329	1.750	61.569 14.672	3.21% 0.61%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH33	14 552.675	3 761 549.947	130.197	P31 - INV IN 128.110 P32 - INV OUT 128.110	2.087	16.835 11.846	0.77% 1.23%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH34	14 562.119	3 761 542.796	128.824	P32 - INV IN 127.964 P33 - INV OUT 127.964	1.860	11.846 15.078	1.23% 1.00%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load



SETTING OUT DATA-ACCESS ROUTE 5C					
NAME	CH	Y	X	DETAILS	
START	0.000	14 184.325	3 761 672.961	L 20.204m	
BCC1	20.204	14 165.832	3 761 664.823	R 40.000m	
P11	20.204	14 161.358	3 761 662.854	DA 13°56'10"	
ECC1	28.934	14 156.540	3 761 662.020	TL 4.889m	
				AL 9.730m	
BCC2	58.204	14 128.585	3 761 657.200	R 30.000m	
P12	58.204	14 116.187	3 761 655.037	DA 45°50'00"	
ECC2	82.202	14 109.031	3 761 644.566	TL 12.885m	
				AL 23.989m	
END	105.498	14 095.887	3 761 625.333	L 23.296m	

SETTING OUT DATA-NMT FACILITY					
NAME	CH	Y	X	DETAILS	
BCC8	286.109	14 257.513	3 761 607.940	R 500.000m	
P18	331.772	14 236.061	3 761 615.802	DA 5°14'00"	
ECC8	331.772	14 213.881	3 761 621.674	TL 23.846m	
				AL 45.064m	
BCC9	339.020	14 206.977	3 761 623.637	R 30.000m	
P19	344.820	14 201.551	3 761 625.559	DA 11°04'40"	
ECC9	344.820	14 201.551	3 761 625.559	TL 2.306m	
				AL 5.800m	
BCC10	347.883	14 198.796	3 761 626.900	R 30.000m	
P110	354.324	14 192.749	3 761 629.080	DA 12°18'00"	
ECC10	354.324	14 192.749	3 761 629.080	TL 3.223m	
				AL 5.441m	
BCC11	484.810	14 085.959	3 761 659.917	R 500.000m	
P111	521.427	14 080.161	3 761 664.245	DA 1°11'50"	
ECC11	521.427	14 030.727	3 761 669.865	TL 18.317m	
				AL 36.817m	
BCC12	645.719	13 912.429	3 761 707.996	R 500.000m	
P112	671.589	13 900.115	3 761 711.965	DA 2°57'00"	
ECC12	671.589	13 887.612	3 761 715.292	TL 12.939m	
				AL 25.870m	

DETAILED DESIGN



LEGEND

- CONTOURS
- CADASTRAL BOUNDARIES
- ROAD ALIGNMENT
- CUT / FILL BANKS
- SIDEWALKS
- STORM WATER PIPE INLET

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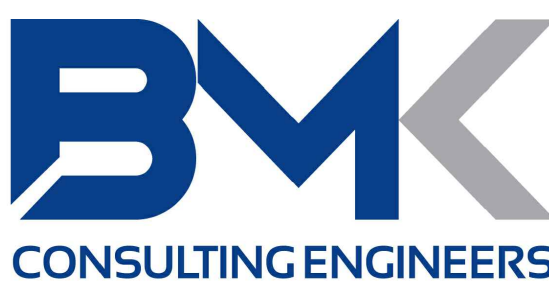
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Office 218
45 Richefontaine Circle
Ridgideside Office park
Tel : (031) 566 1160
Fax : (031) 566 1732
Email: admin@bmkgroup.co.za

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed -

Date _____ Engineer _____

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
SEWERS		
WATER MAINS		
G.P.O CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OR PIPE LINE		

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Contract No	1770
Client	STELLENBOSCH MUNICIPALITY
Project Title	CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES
Drawing Title	ROAD LAYOUT PLAN (SHEET OF 2 OF 3)
Scales	1:500
Designed	P. RAMAUTAR
Checked	P. DHANEE
Drawn	S. PILLAY
Surveyed	
Manager	N. RAMOHANI
Deputy Head	P. DHANEE
Engineer	P. DHANEE Professional Registration Number : 201270079
Drawing	BMK-1770-JT-003
Rev	A

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.

B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.

C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.

D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWINGS, THESE DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.

E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.

F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION AFTER APPROVAL BY THE ENGINEER.

G. ALL EXISTING SERVICES TO BE PROVIDED & VERIFIED PRIOR TO WORK. COMMENCING ANY EXISTING SERVICE THAT IS DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR ON SITE BY THE ENGINEER, MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.

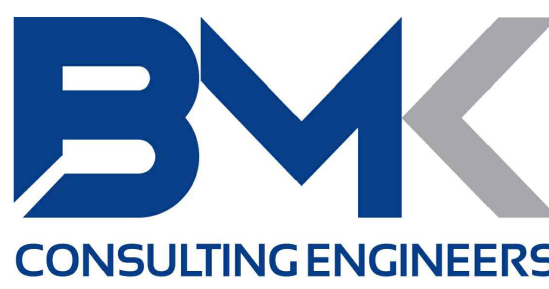
H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.

I. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL STORMWATER RUNOFF IS CONTROLLED TO PREVENT DAMAGE TO THE WORKS, EXISTING STRUCTURES AND SURROUNDING PROPERTIES, DURING THE CONSTRUCTION PROCESS.

J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.

K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE INSITU MOISTURE CONTENT OF THE MATERIAL.

L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



Office 218 Tel : (031) 566 1160
45 Richefonde Circle Fax : (031) 566 1732
Ridgeside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to be commenced until land and exclude acquisitions have been completed.

Acquisitions completed: -

Date: _____ Engineer: _____

UNDERGROUND SERVICES CHECKED	
SERVICE	SIGNATURE
S.W. DRAINS	
SEWERS	
WATER MAINS	
G.P.O. CABLES	
ELECTRIC CABLES	
S.A.R. CABLES	
E.C. CABLES	
OIL PIPE LINE	

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

Contract No	1770
Client	STELLENBOSCH MUNICIPALITY
Project Title	CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES
Drawing Title	STORMWATER LONGSECTIONS (SHEET 1 OF 2)
Scales	AS SHOWN Date 08/2023
Designed	P. RAMAUTAR Checked P.DHANEE
Drawn	S. PILLAY Surveyed
Manager :	N. RAMCHANI
Deputy Head :	P.DHANEE
Engineer :	P.DHANEE Professional Registration Number : 201270079
Drawing	BMK-1770-JT-004 REV. A

NGL -----

SCALES:
Horizontal 1:500
Vertical 1:100

DATUM 140.000

REFERENCE	MH41	Ø450 100D	K24
DISTANCE (m)	0.000		18.175
COVER LEVEL	143.998		143.442
DEPTH TO INVERT	1.30		1.83
PIPE INVERT LEVEL	142.697		141.613
SLOPE / LENGTH	5.96% 1:16.8 18.17m		
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)	0.01 1.4
	MAX. (0.8D)	Q(m3/s) V(m/s)	0.72 5.4

LONGSECTION PIPE NETWORK-JAMESTOWN
FROM 0.000 TO 18.175

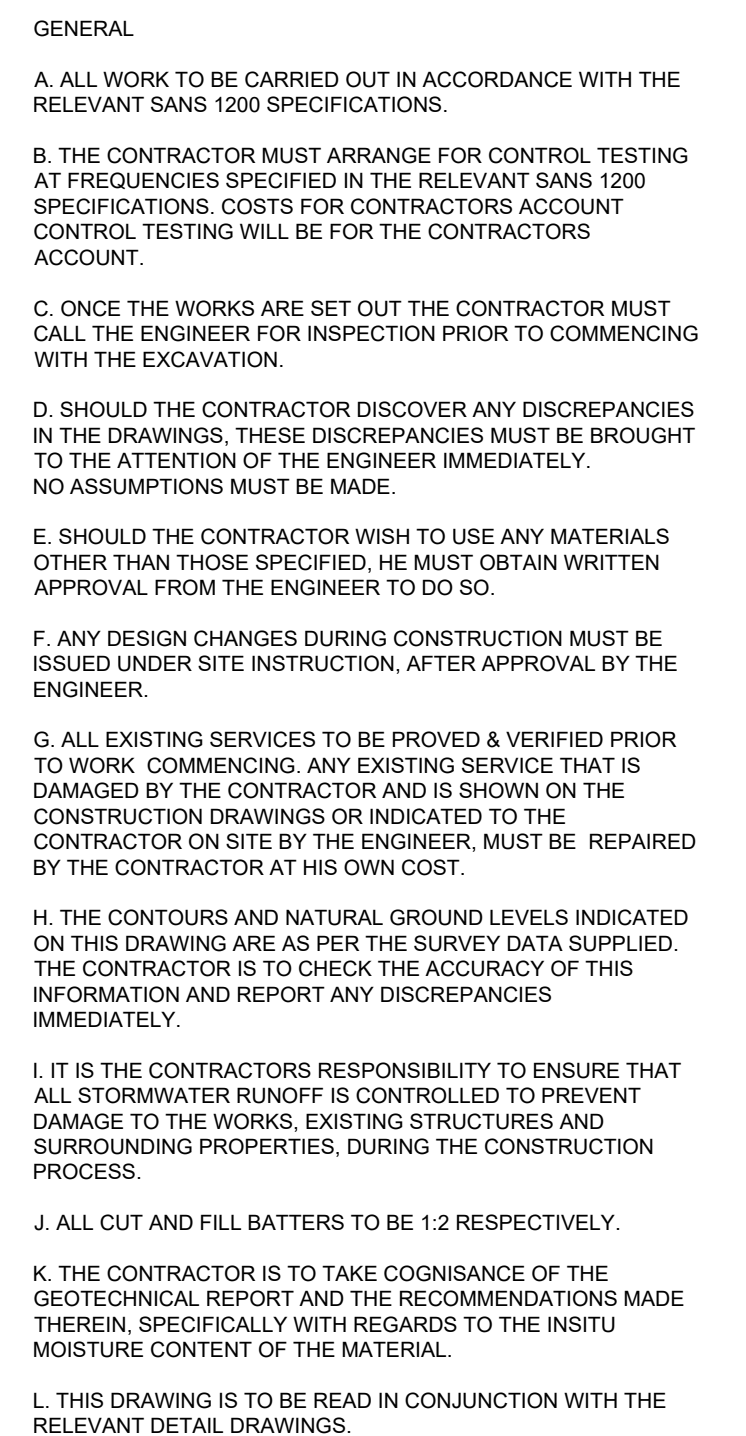
NGL -----

SCALES:
Horizontal 1:500
Vertical 1:100

DATUM 140.000

REFERENCE	MH21	Ø450 100D	EXMH1	Ø450 100D	EXMH2
DISTANCE (m)		18.911		53.132	
COVER LEVEL	144.153		144.962		142.943
DEPTH TO INVERT	1.69		2.90		1.47
PIPE INVERT LEVEL	142.465		142.120 142.120		141.475
SLOPE / LENGTH	1.82% 1:54.8 18.92m		1.88% 1:53.1 34.22m		
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)	0.03 1.5	0.03 1.6	
	MAX. (0.8D)	Q(m3/s) V(m/s)	0.40 3.0	0.40 3.0	

LONGSECTION JAMESTOWN STORMWATER 5A_1
FROM 0.000 TO 53.195



Longsection Diagram Data:

Manhole	Station	Reference	Distance (m)	Cover Level	Cover Level Depth	Pipe Invert Level	Slope / Length
K507	0.000	125.000	9.128	125.169	1.38	125.807	3.85% 128.0 9.13m
M450	9.128	125.000	18.675	125.000	1.61	125.450	3.90% 127.2 9.55m
K450	18.675	125.000	33.489	125.000	1.86	125.014	2.53% 139.5 14.81m
M450	33.489	125.000		125.150	2.23	127.729	

Hydraulic Data Table:

DESIGN	Q(m³/s)		V(m/s)	
	DESIGN	Q(m³/s)	DESIGN	Q(m³/s)
MAX. (0.80)	0.01	0.01	0.01	0.01
	0.3	0.3	1.0	1.0
	0.58	0.56	0.47	0.46
	4.3	4.2	3.5	3.5

Longsection Pipe Network 5C Data:

REFERENCE	MANHOLE	STATION	DISTANCE (m)	COVER LEVEL	COVER LEVEL DEPTH	PIPE INVERT LEVEL	SLOPE / LENGTH
	M450	0.000	7.774	143.870	1.67	142.296	2.91% 138.9 7.78m
	M450	7.774		143.982		142.017	

Hydraulic Data Table:

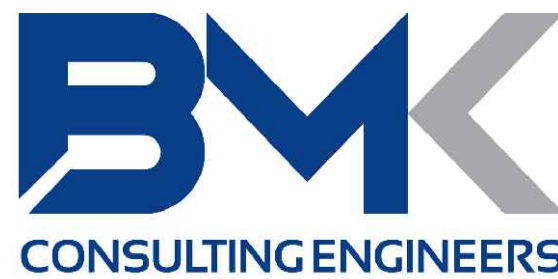
DESIGN	Q(m³/s)		V(m/s)	
	DESIGN	Q(m³/s)	DESIGN	Q(m³/s)
MAX. (0.80)	0.01	0.01	0.01	0.01
	1.0	1.0	0.46	0.46
	3.5	3.5		

STRUCTURE TABLE-Jamestown Stormwater										
STRUCTURE NAME	Y	X	COVER LEVEL	INVERT ELEVATION	DEPTH	PIPE LENGTH	PIPE SLOPE	PIPE MATERIAL	PIPE Ø AND CLASS	STRUCTURE TYPE
EX0H1	14 152.207	3 761 669.561	144.962	P20 - IN/IN 142 120 EXP1 - IN/OUT 142 120	3.627	34 219 19 816	1.88% 1.82%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
EX0H2	14 135.857	3 761 639.501	142.943	EXP1 - IN/IN 141 475	1.467	34 219	1.88%	CONCRETE	450mm Class 100	Manhole Type C with Traffic Load
EX0H3	14 595.132	3 761 508.167	126.131	P35 - IN/IN 126 680	1.460	31 751	3.30%	CONCRETE	450mm Class 100	Manhole Type C with Traffic Load
K022	14 178.696	3 761 658.075	144.325	P21 - IN/OUT 141 978	2.391	12 738	1.51%	CONCRETE	450mm Class 100	CATCHPIT Type B LH WITHOUT GUTTER
K024	14 201.678	3 761 655.243	143.442	P22 - IN/IN 141 619 P40 - IN/IN 141 613 P23 - IN/OUT 141 619	1.829	11 086 11 159 18 175	1.51% 1.56%	CONCRETE CONCRETE CONCRETE	450mm Class 100 450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K026	14 251.808	3 761 636.567	141.739	P24 - IN/IN 140 120 P25 - IN/OUT 140 120	1.619	43 694 55 419	3.03% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K027	14 305.437	3 761 622.595	140.067	P25 - IN/IN 136 441	1.626	55 419	3.03%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K028	14 359.950	3 761 607.927	138.372	P26 - IN/IN 136 730 P27 - IN/OUT 136 730	1.541	56 452 52 861	3.03% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K029	14 409.619	3 761 590.386	136.733	P27 - IN/IN 135 130 P28 - IN/OUT 133 937	2.796	52 861 55 682	4.41% 4.41%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K030	14 462.794	3 761 572.517	133.322	P28 - IN/IN 131 474 P29 - IN/OUT 130 304	2.118	55 682 61 569	4.41% 3.21%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K032	14 535.917	3 761 551.556	130.995	P30 - IN/IN 126 240 P31 - IN/OUT 126 240	1.855	14 672 16 835	0.77% 0.77%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K035	14 565.851	3 761 528.187	129.652	P33 - IN/IN 127 813 P34 - IN/OUT 127 813	1.839	15 078 13 033	0.07% 0.07%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K037	14 533.733	3 761 526.354	130.189	P36 - IN/OUT 126 807	1.362	9 128	3.85%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
K039	14 549.733	3 761 518.418	129.963	P37 - IN/IN 126 104 P38 - IN/OUT 126 104	1.858	9 547 14 814	3.66% 2.58%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
MH21	14 169.274	3 761 677.717	144.153	P20 - IN/OUT 142 465	1.807	18 916	1.82%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER
MH23	14 190.011	3 761 652.224	143.722	P21 - IN/IN 141 786 P22 - IN/OUT 141 786	1.936	12 738 11 086	1.51% 1.51%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH25	14 209.537	3 761 648.392	143.091	P23 - IN/IN 141 450 P24 - IN/OUT 141 450	1.640	11 159 43 694	1.51% 3.03%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH31	14 522.433	3 761 557 339	130.080	P29 - IN/IN 126 329 P30 - IN/OUT 126 329	1.750	61 569	3.21%	CONCRETE	450mm Class 100	Manhole Type C with Traffic Load
MH33	14 552.675	3 761 549.947	130.197	P31 - IN/IN 126 110 P32 - IN/OUT 126 110	2.087	16 835 11 846	0.77% 1.23%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MH34	14 562.119	3 761 542.796	129.824	P32 - IN/IN 127 964 P33 - IN/OUT 127 964	1.860	11 846 15 078	1.23% 1.00%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load

STRUCTURE TABLE-Jamestown Stormwater										
STRUCTURE NAME	Y	X	COVER LEVEL	INVERT ELEVATION	DEPTH	PIPE LENGTH	PIPE SLOPE	PIPE MATERIAL	PIPE Ø AND CLASS	STRUCTURE TYPE
MR36	14 564.205	3 761 515.258	126.750	P34 - INV IN 127.729 P38 - INV IN 127.729 P35 - INV OUT 127.729	2.032	13.033 31.761 14.814	0.65% 3.30% 2.53%	CONCRETE CONCRETE CONCRETE	450mm Class 100 450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MR38	14 540.325	3 761 520.041	130.063	P36 - INV IN 128.456 P37 - INV OUT 128.456	1.608	9.126 14.814	3.85% 2.53%	CONCRETE CONCRETE	450mm Class 100 450mm Class 100	Manhole Type C with Traffic Load
MR40	14 159.230	3 761 666.216	143.870	P41 - INV IN 142.062	2.574	7.779	0.59%	CONCRETE	450mm Class 100	CATCHPIT Type B LH WITHOUT GUTTER
MR41	14 200.224	3 761 673.412	143.988	P40 - INV OUT 142.697	1.810	18.175	0.59%	CONCRETE	450mm Class 100	CATCHPIT Type A LH WITHOUT GUTTER



- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
- C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.
- D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWINGS, THESE DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.
- E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.
- F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.
- G. ALL EXISTING SERVICES TO BE PROVED & VERIFIED PRIOR TO WORK COMMENCING. ANY EXISTING SERVICE THAT IS DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR ON SITE BY THE ENGINEER, MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
- H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.
- I. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL STORMWATER RUNOFF IS CONTROLLED TO PREVENT DAMAGE TO THE WORKS, EXISTING STRUCTURES AND SURROUNDING PROPERTIES, DURING THE CONSTRUCTION PROCESS.
- J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.
- K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE INSTU MOISTURE CONTENT OF THE MATERIAL.
- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



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Ridgside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed: _____

Date _____ Engineer _____

UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
G.P.O. CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
GS PIPE LINE		

N/A

NOTE: Dry underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

Contract No 1770

Client STELLENBOSCH MUNICIPALITY

Project Title CONSTRUCTION OF SCHOOL STREET,

Drawing Title SCHOOL STREET, ROAD LONGITUDINAL SECTION 1

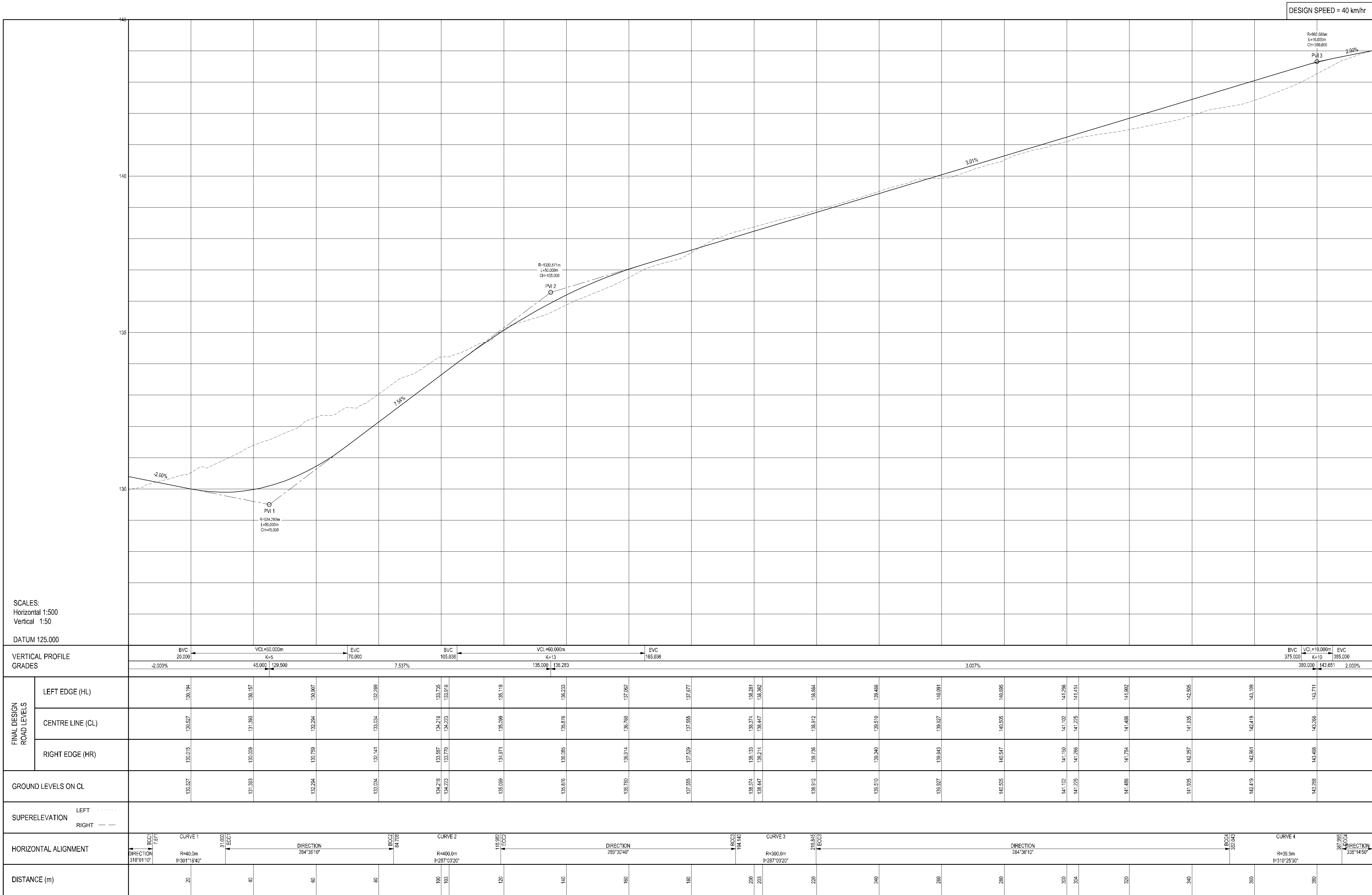
Scales 1: 500 Date 08/2023
Designed P. RAMAULTAR Checked P. DHANEE
Drawn S. PILLAY Surveyed

Manager : N. RAMOHANI

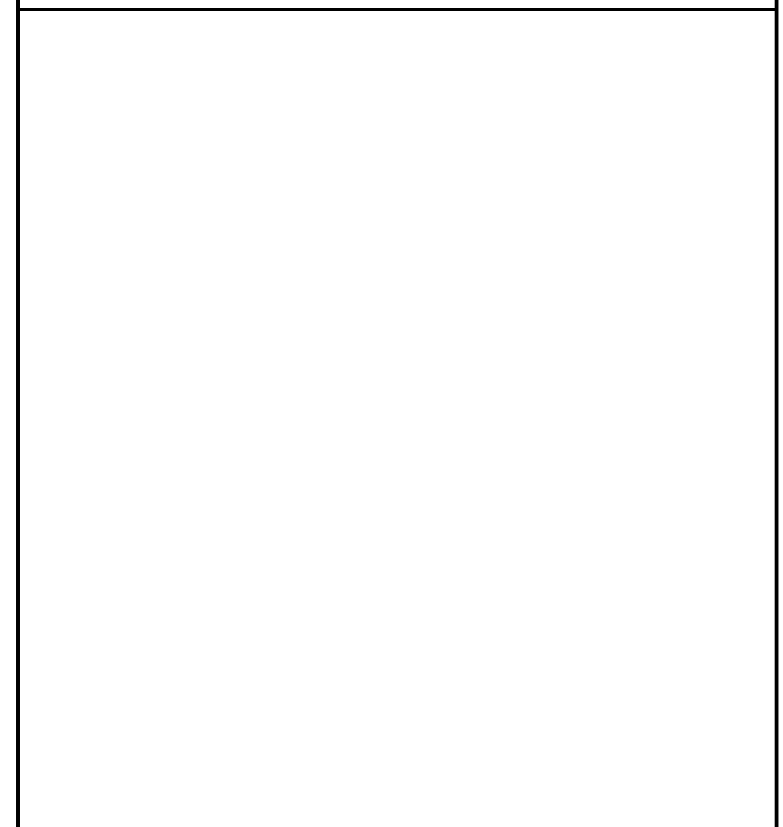
Deputy Head : P. DHANEE

Engineer : P. DHANEE
Professional Registration Number : 201270079

Drawing BMK-1770-JT-006 REV. A



LONGSECTION JAMESTOWN SCHOOL STREET
FROM 0.000 TO 396.551



A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1000 SPECIFICATIONS.

B. THE CONTRACTOR MUST ARRANGE FOR CONDUCTING TESTING AND INSPECTION OF THE CONSTRUCTION WORK IN ACCORDANCE WITH THE RELEVANT SANS 1000 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CALLS FOR TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.

C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST IN THE DRAWING PROVIDE INSPECTION POINTS TO DISCREPANCIES WITH THE EXCAVATION.

D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWING, HE/ SHE SHOULD IMMEDIATELY ADVISE THE ATTENTION OF THE ENGINEER IMMEDIATELY. THIS ASSUMPTION BEING THE CONTRACTOR'S RESPONSIBILITY.

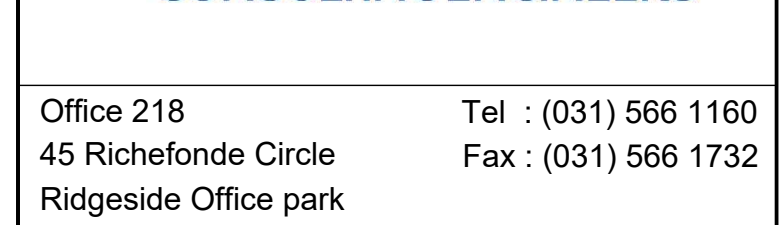
E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE/ SHE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER BEFORE PROCEEDING.

F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.

G. ALL EXISTING SERVICES TO BE PROVED & VERIFIED PRIOR TO WORK COMMENCING. ANY EXISTING SERVICE THAT IS DISCOVERED BY THE CONTRACTOR MUST BE PROTECTED IN THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR BY THE CONTRACTOR. THE CONTRACTOR MUST BE PREPARED BY THE CONTRACTOR AT HIS OWN COST.

H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED TO THE CONTRACTOR. THE CONTRACTOR MUST BE PREPARED FOR THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.

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Email: admin@bmkgroup.co.za

NOTE: No construction work to commence until land and servitude acquisitions have been completed.	
Acquisitions completed: -	
Date	Engineer
UNDERGROUND SERVICES CHECKED	
SERVICE	DATE
S.W. DRAINS	
SEWERS	
WATER MAINS	
G.P. CABLES	
ELECTRIC CABLES	
3 A.R. CABLES	
E.S.C. CABLES	
OIL PIPE LINE	

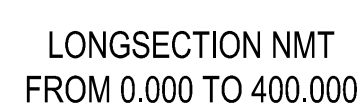
Contract No	1770
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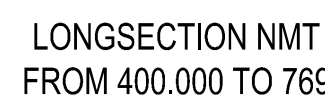
CONSTRUCTION OF SCHOOL STREET,

Deputy Head : P.DHANEE

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GENERAL:

A. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE RELEVANT SANS 100 SPECIFICATIONS.

B. THE CONTRACTOR MUST ARRANGE FOR CONDUCT, TESTING AND RECORDING OF ALL RELEVANT SANS 100 TESTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELEVANT SANS 100 SPECIFICATIONS, COSTS FOR CONTRACTORS ACCOUNT AND RECORDING OF ALL RELEVANT SANS 100 TESTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTRACTORS ACCOUNT.

C. ONCE THE WORKS ARE STARTED THE CONTRACTOR MUST BE AVAILABLE FOR INSPECTION FROM PROSPECTOR PRIOR TO COMMENCING WITH THE EXCAVATION.

D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE EXISTING AND THE PROPOSED DESIGN, HE MUST BRING THEM TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.

E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.

F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE SUBMITTED TO THE DESIGNER FOR APPROVAL BY THE ENGINEER.

G. ALL EXISTING SERVICES TO BE PROVIDED & VERIFIED PRIOR TO THE EXCAVATION. THE CONTRACTOR MUST BE RESPONSIBLE FOR THE EXISTING SERVICES THAT ARE DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE EXISTING SERVICES DRAWING. THE CONTRACTOR MUST BE RESPONSIBLE FOR THE EXISTING SERVICES THAT ARE DAMAGED BY THE CONTRACTOR ON SITE BY THE ENGINEER. MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.

H. THE CONTRACTOR MUST MAINTAIN GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS DATA AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

I. IF IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL EXISTING SERVICES ARE PROTECTED AND NOT BE SUBJECT TO DAMAGE TO THE WORKS, EXISTING STRUCTURES AND SURROUNDING PROPERTIES, DURING THE CONSTRUCTION PROCESS.

J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.

K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE EXISTING SERVICES DRAWING AND THE EXISTING SERVICES THEREIN. SPECIFICALLY WITH REGARDS TO THE NBSU MOISTURE CONTENT OF THE MATERIAL.

L. THE DRAWING IS TO BE READ IN CONJUNCTION WITH THE



Office 218
45 Richefonde Circle
Ridgeside Office park

Tel : (031) 566 1160
Fax : (031) 566 1732

Email: admin@bnkgroup.co.za		
Revision	Date	Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed

Acquisitions completed: -

Date _____ Engineer _____

UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
S & W DRAINS		
SEWERS		
WATER MAINS		
G.P.O. CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc... to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

1770

STELLENBOSCH MUNICIPALITY

Project Title
CONSTRUCTION OF SCHOOL STREET,

Drawing Title

SCHOOL STREET,
ROAD LONGITUDINAL SECTION 7

Scales	1: 500	Date	08/2023
Designed	P. RAMAUTAR	Checked	P.DHANEE
Drawn	S. PILLAY	Surveyed	

Deputy Head : P.DHANEE

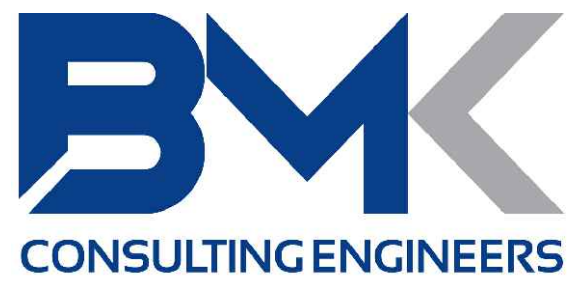
Engineer : P.DHANE
Professional Registration Number : 201270079

Drawing BMK-1770-JT-009	REV. A
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DETAILED DESIGN



- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
- C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.
- D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWINGS, THESE DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.
- E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.
- F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.
- G. ALL EXISTING SERVICES TO BE PROVED & VERIFIED PRIOR TO WORK COMMENCING. ANY EXISTING SERVICE THAT IS DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR ON SITE BY THE ENGINEER, MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
- H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.
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- J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.
- K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE INSTU MOISTURE CONTENT OF THE MATERIAL.
- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



Office 218 Tel : (031) 566 1160
45 Richelofde Circle Fax : (031) 566 1732
Ridgeside Office park

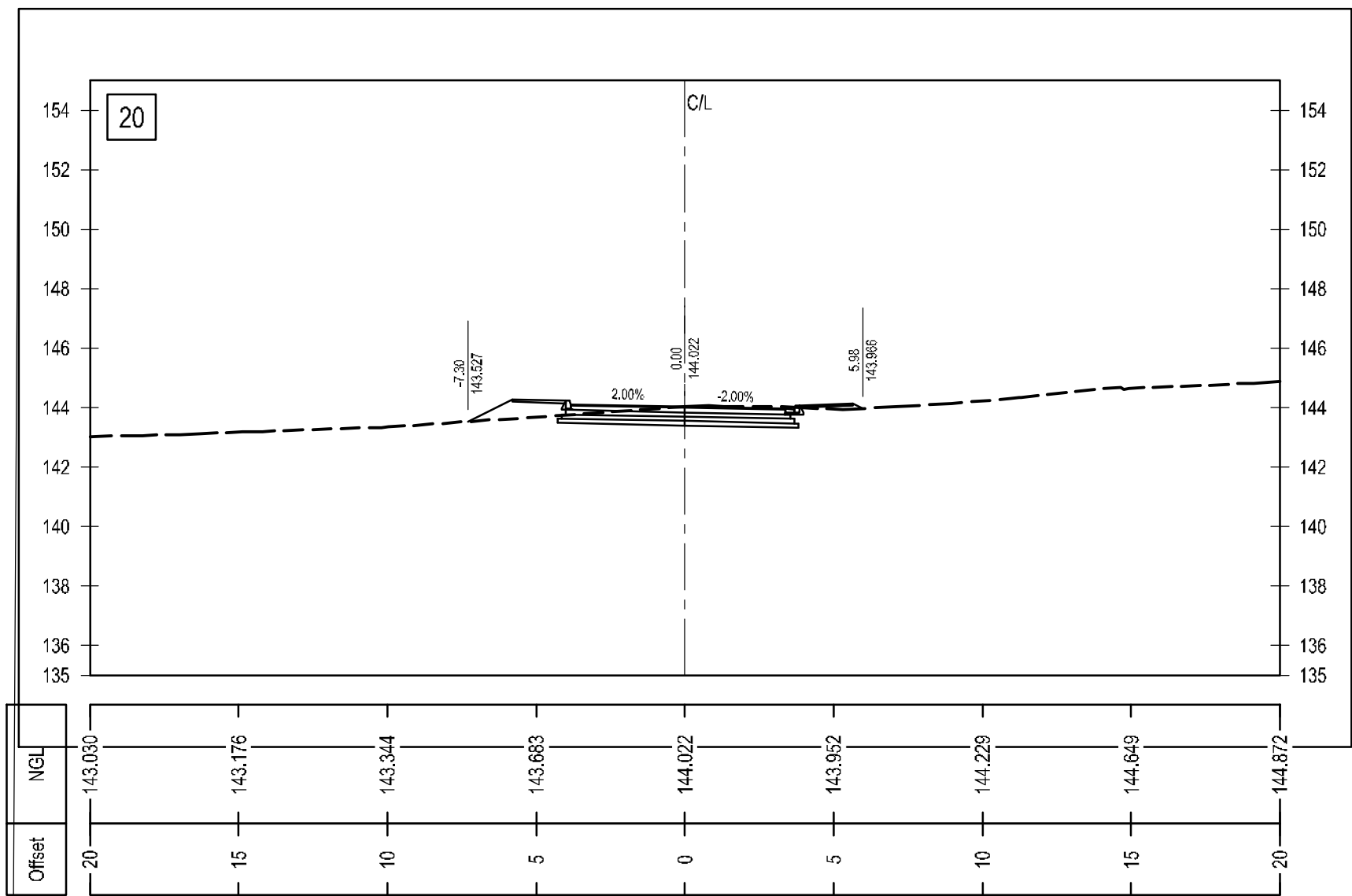
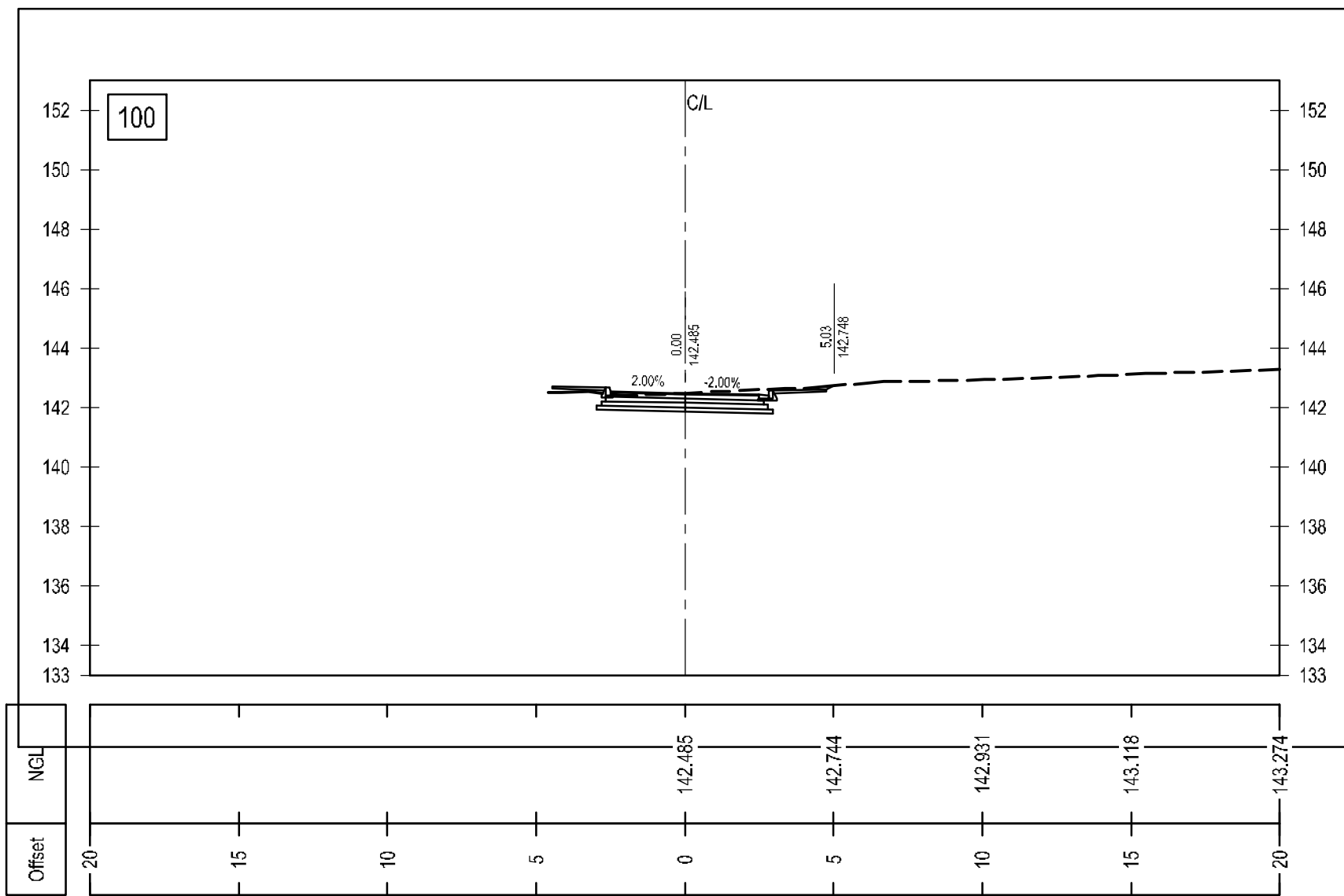
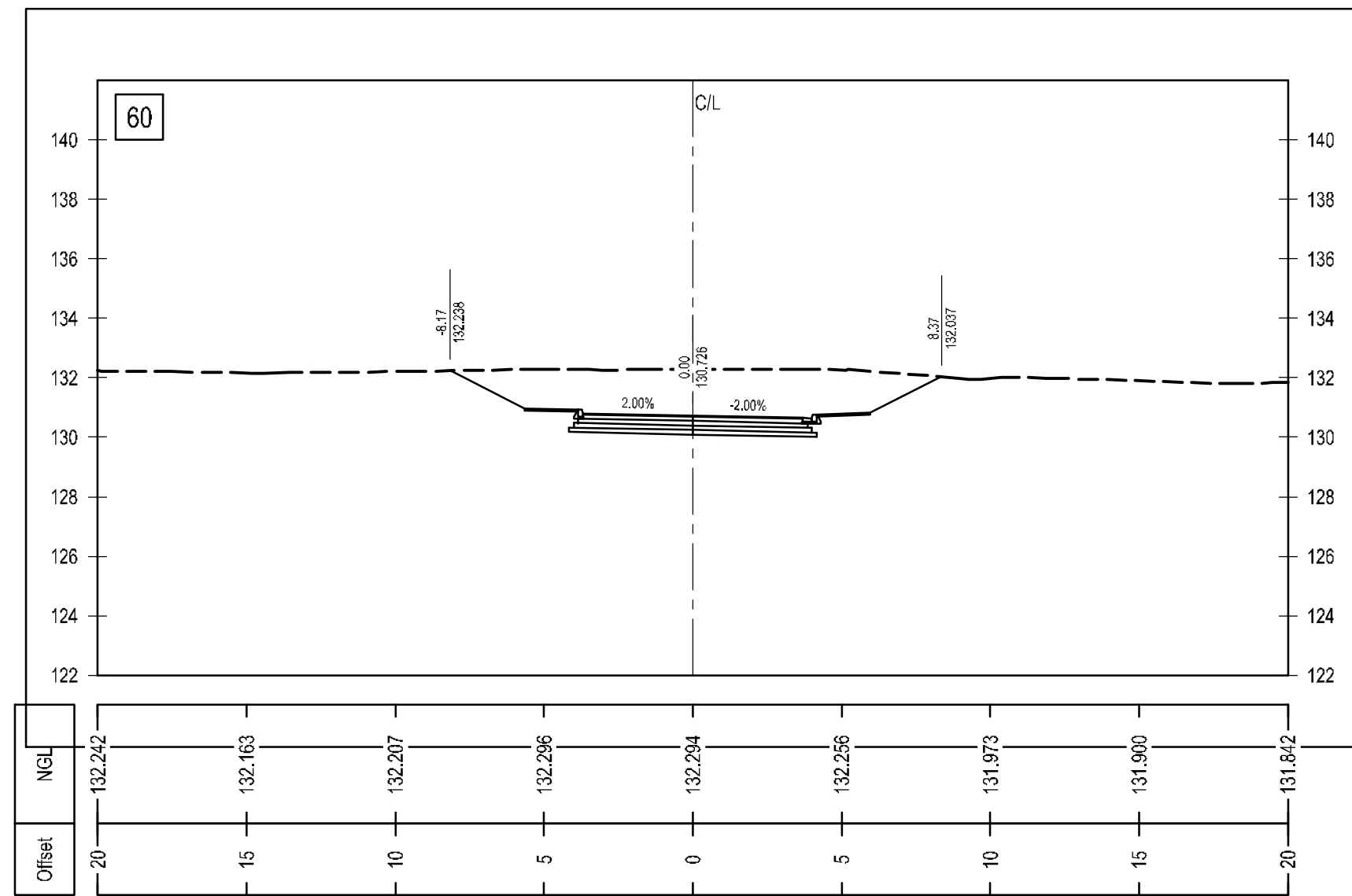
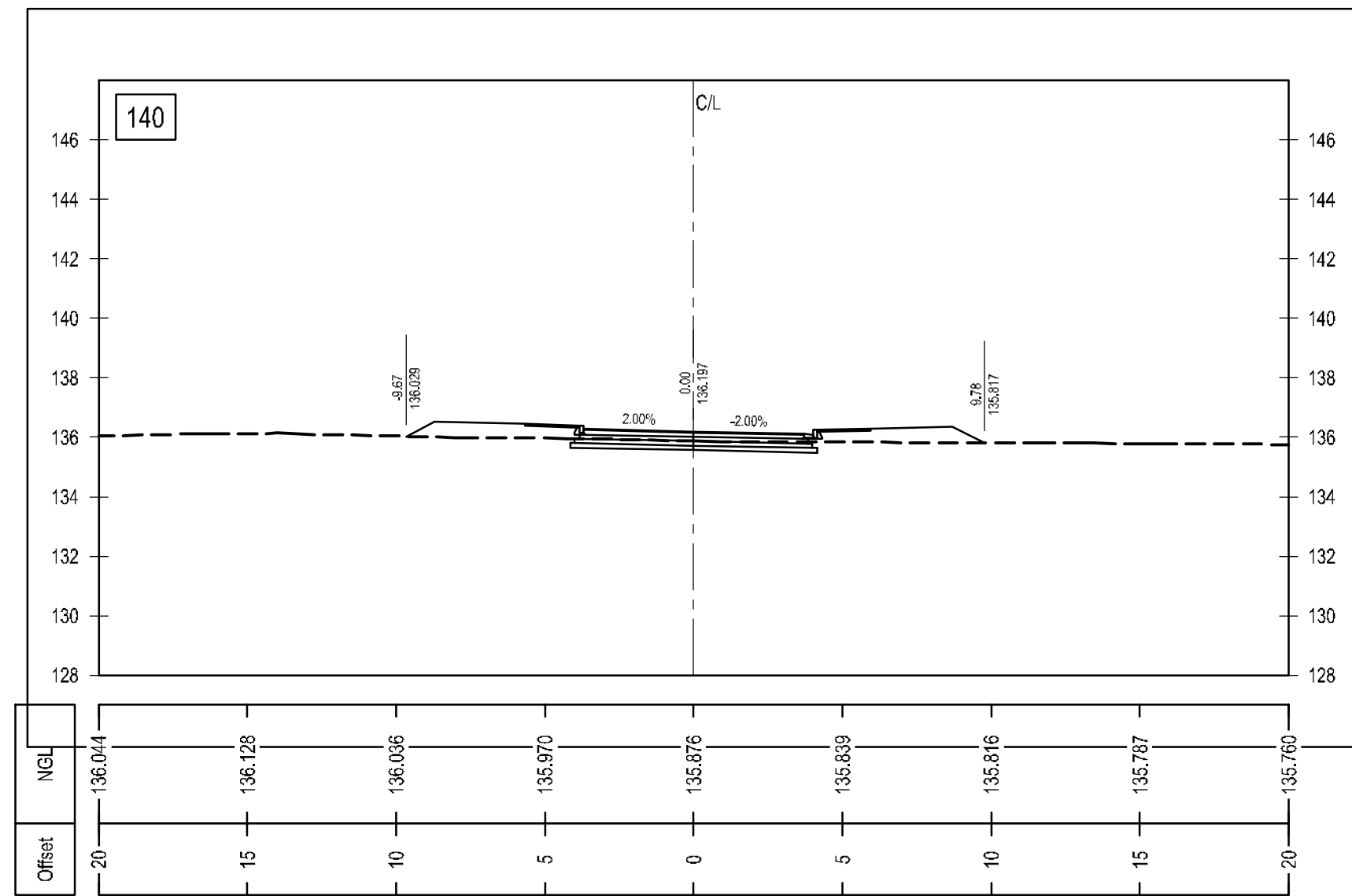
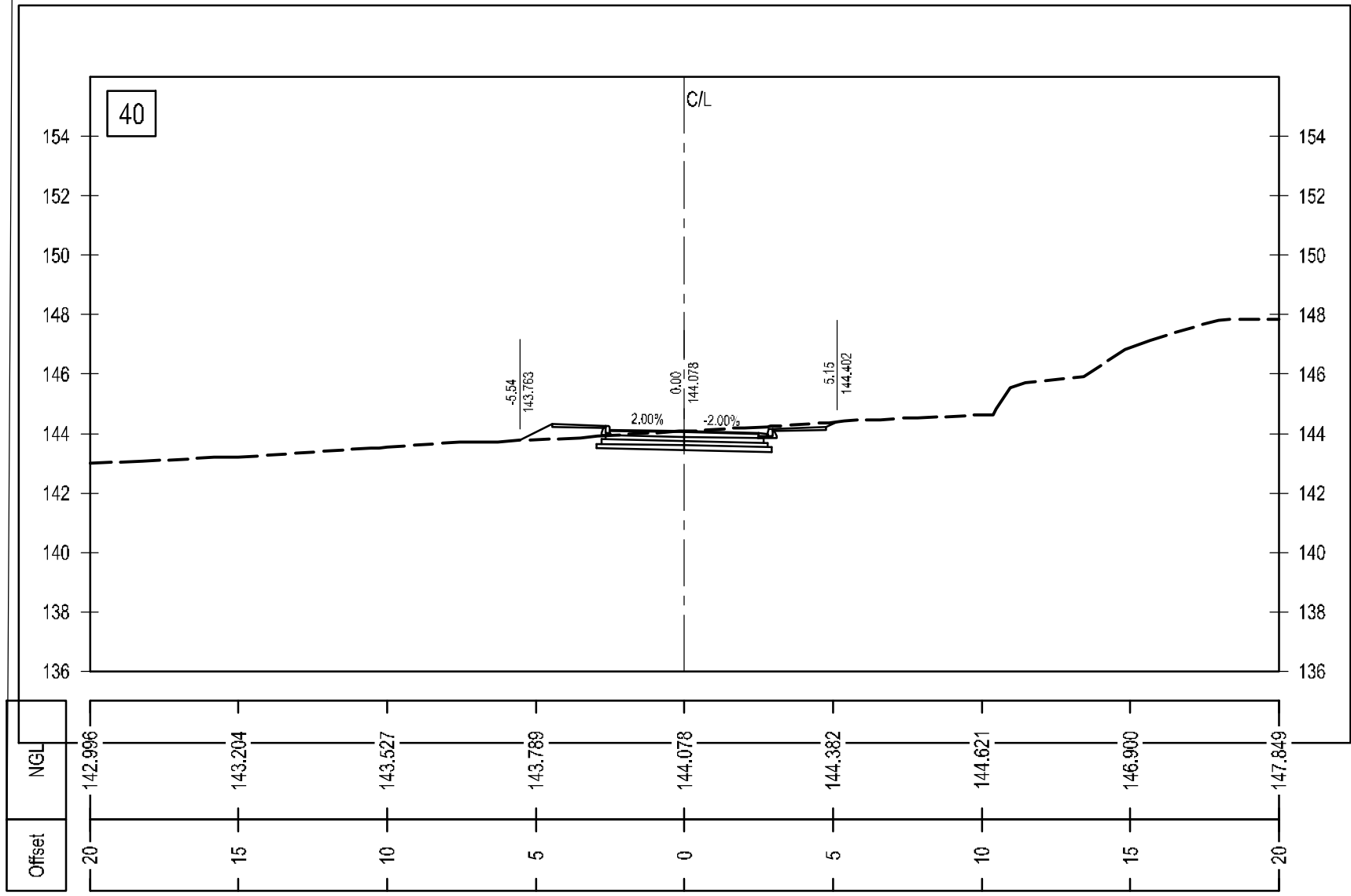
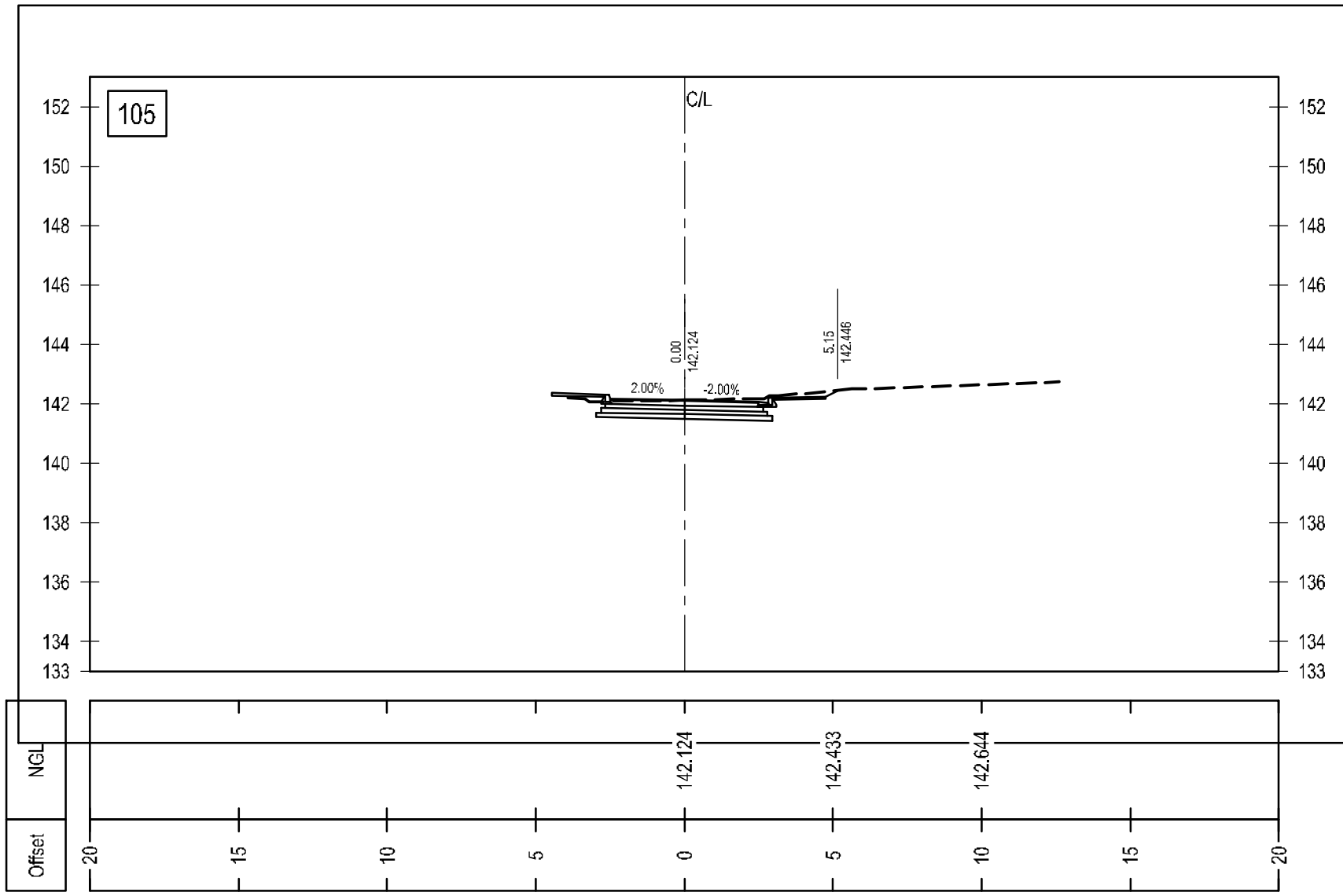
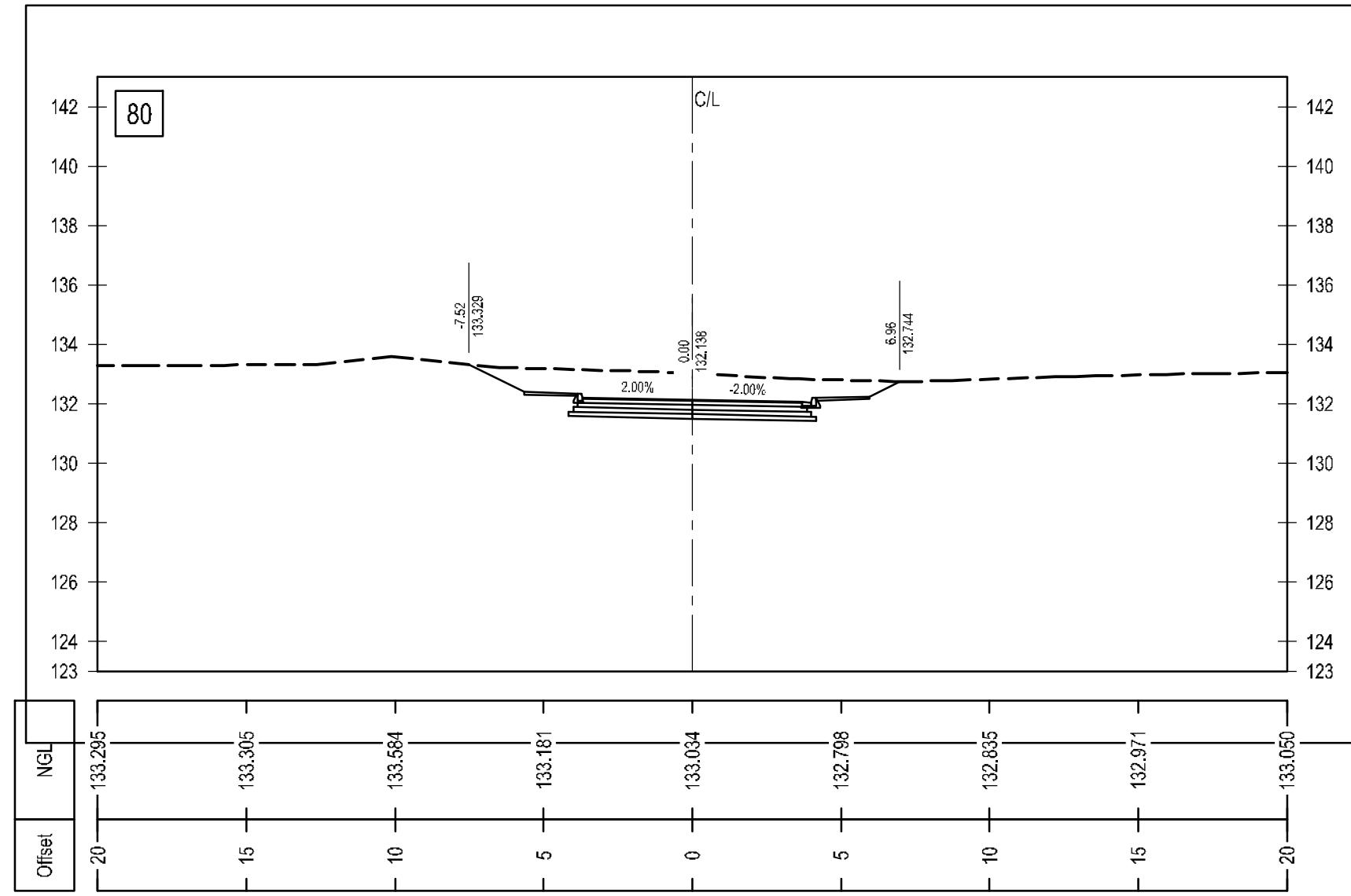
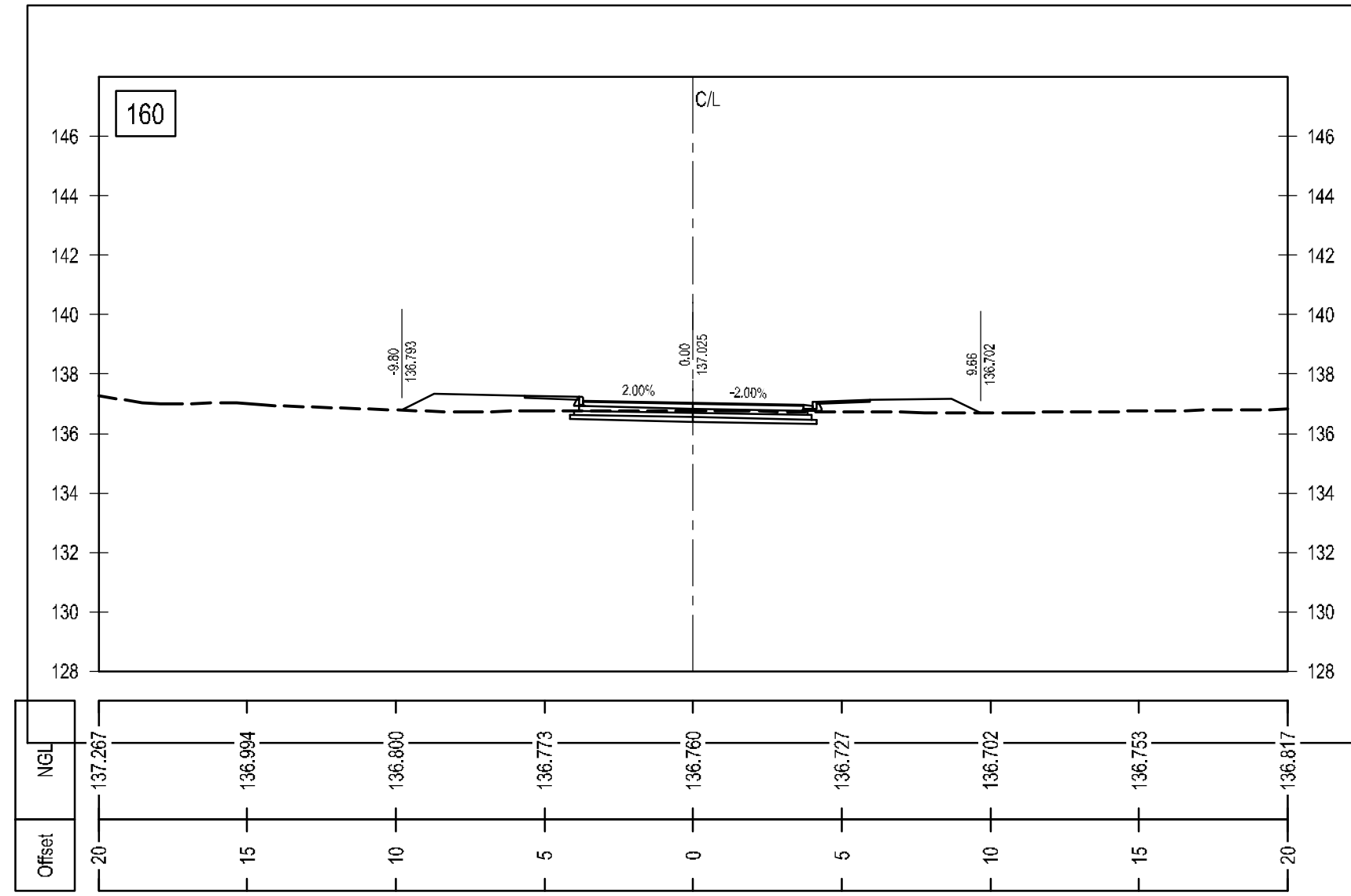
Email: admin@bmkgroup.co.za

Revision	Date	Description

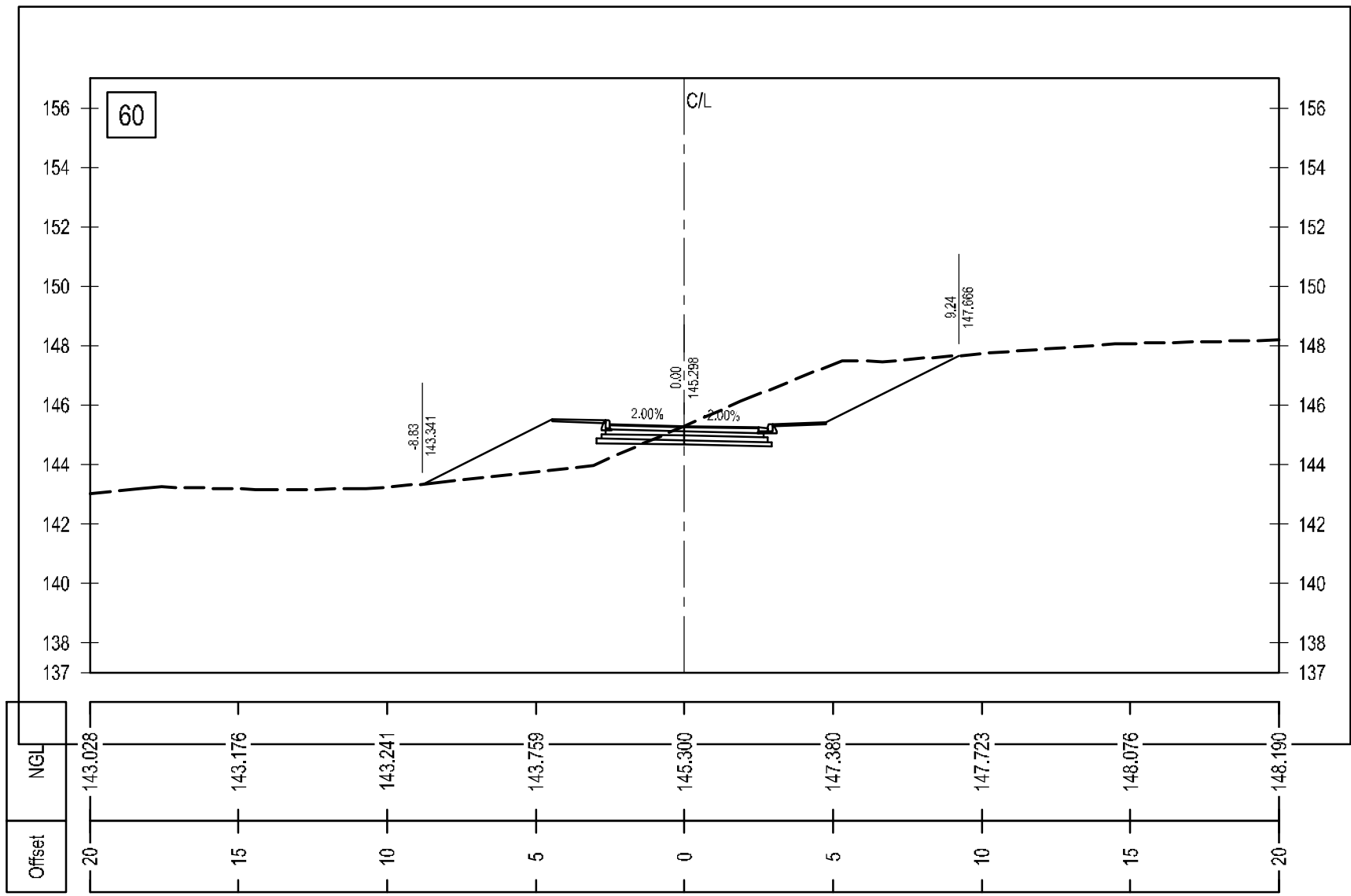
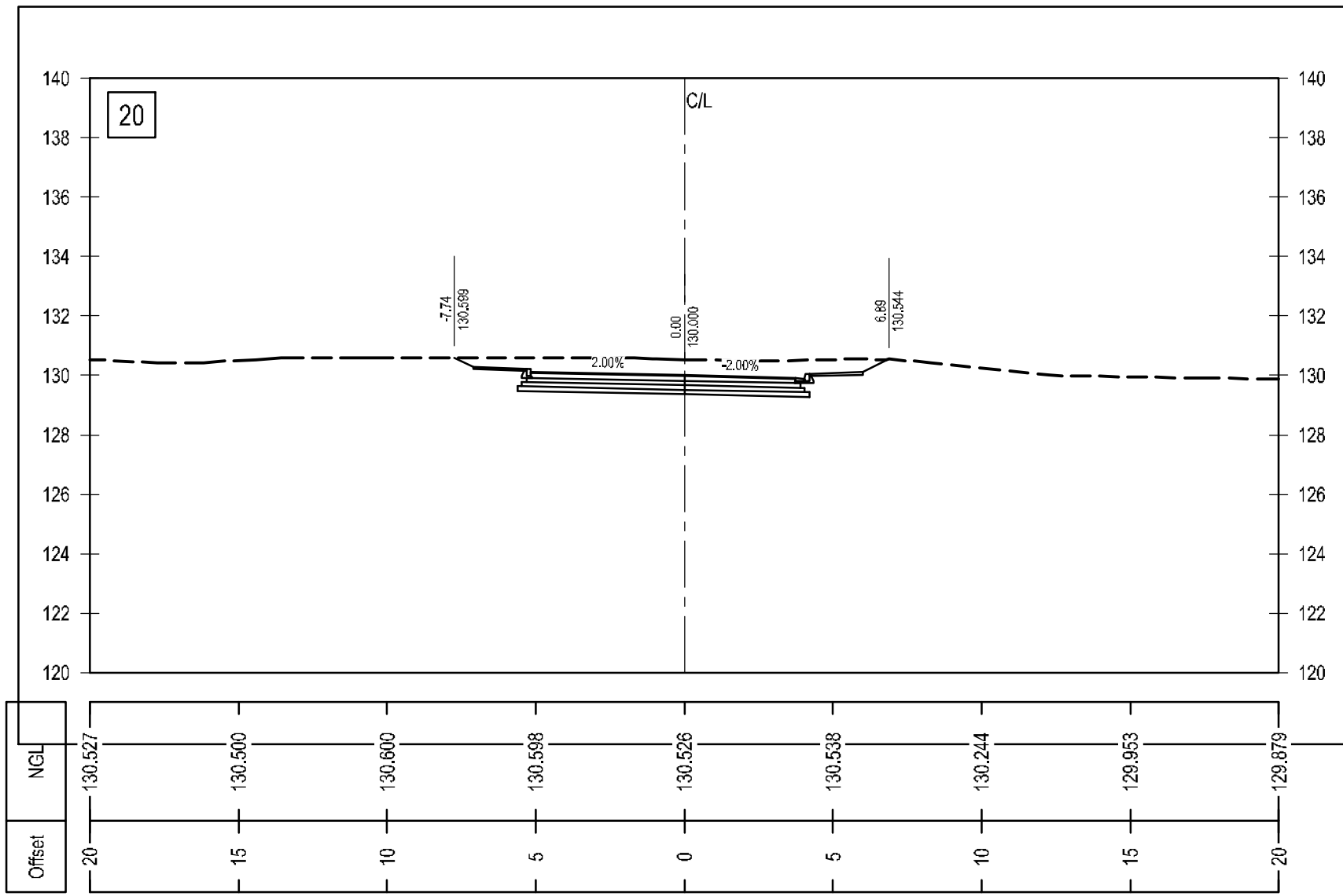
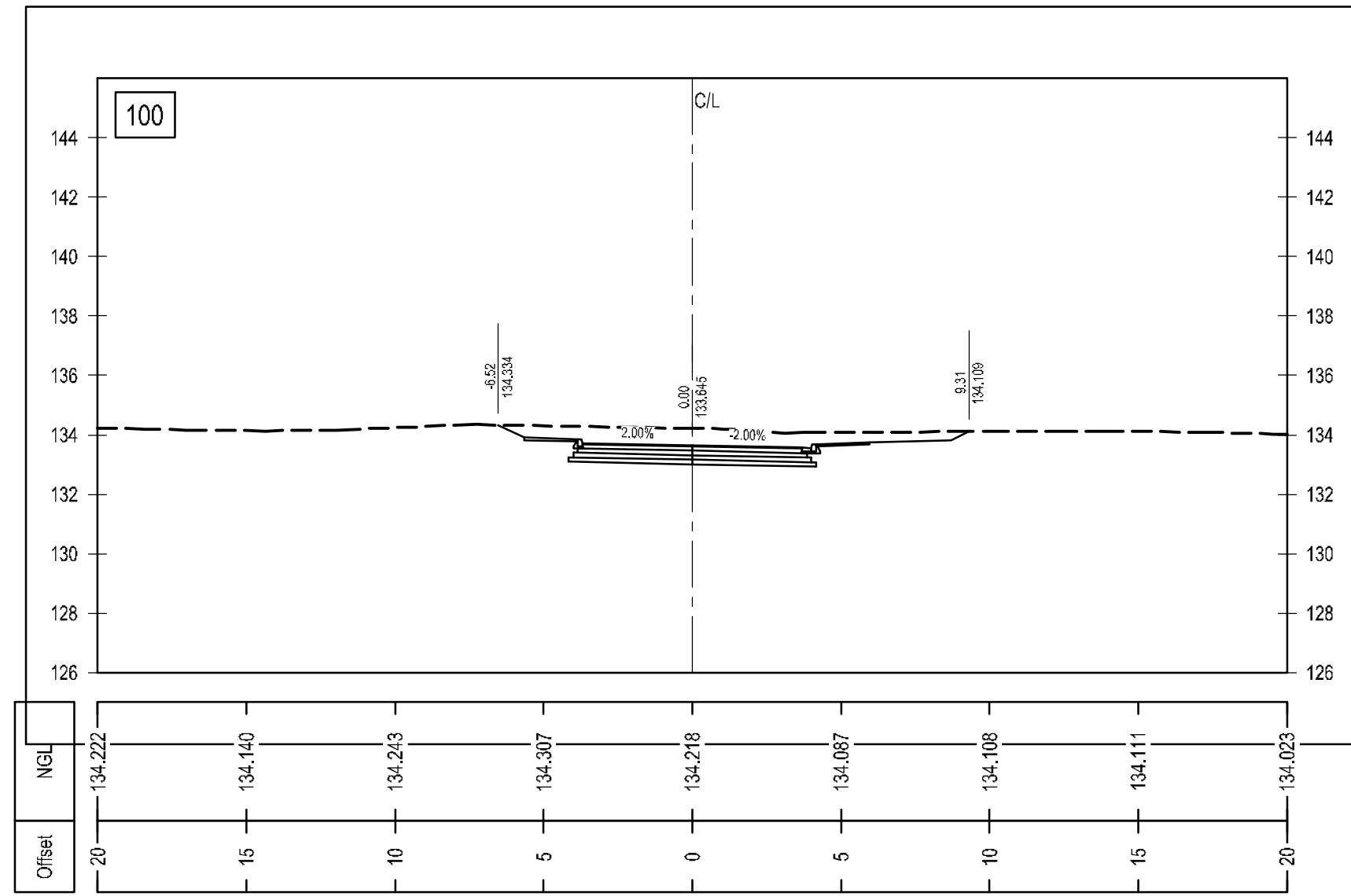
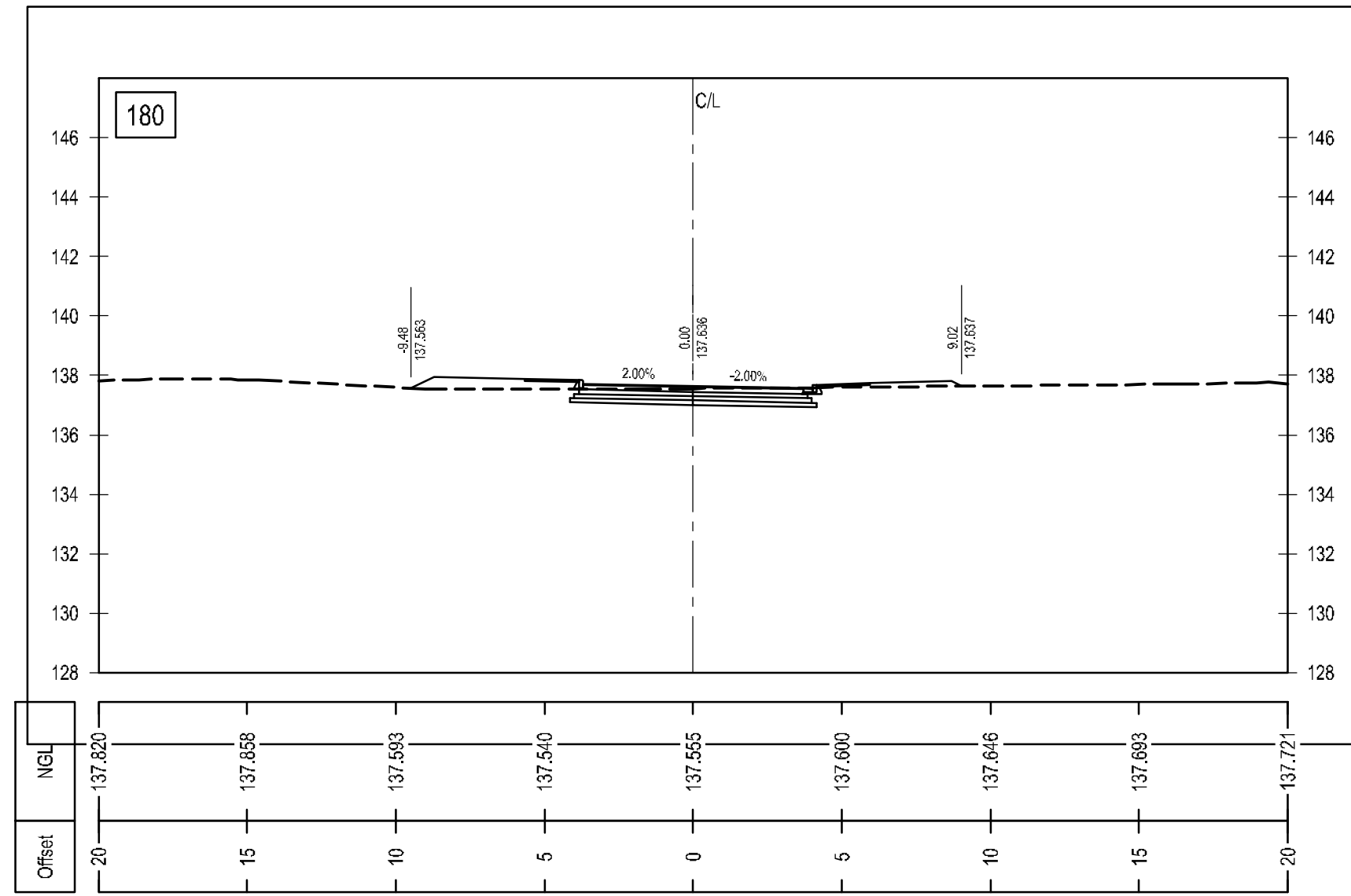
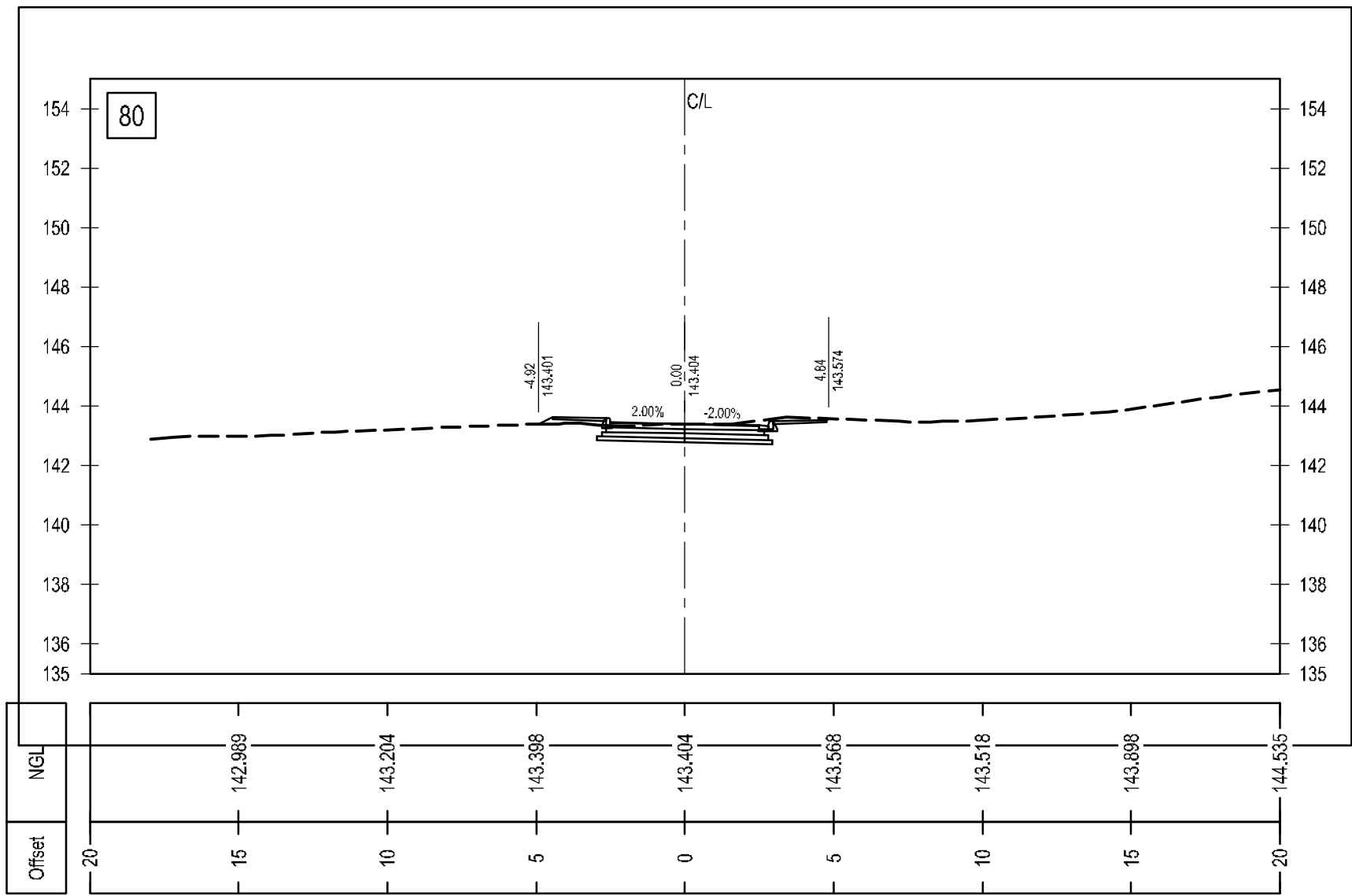
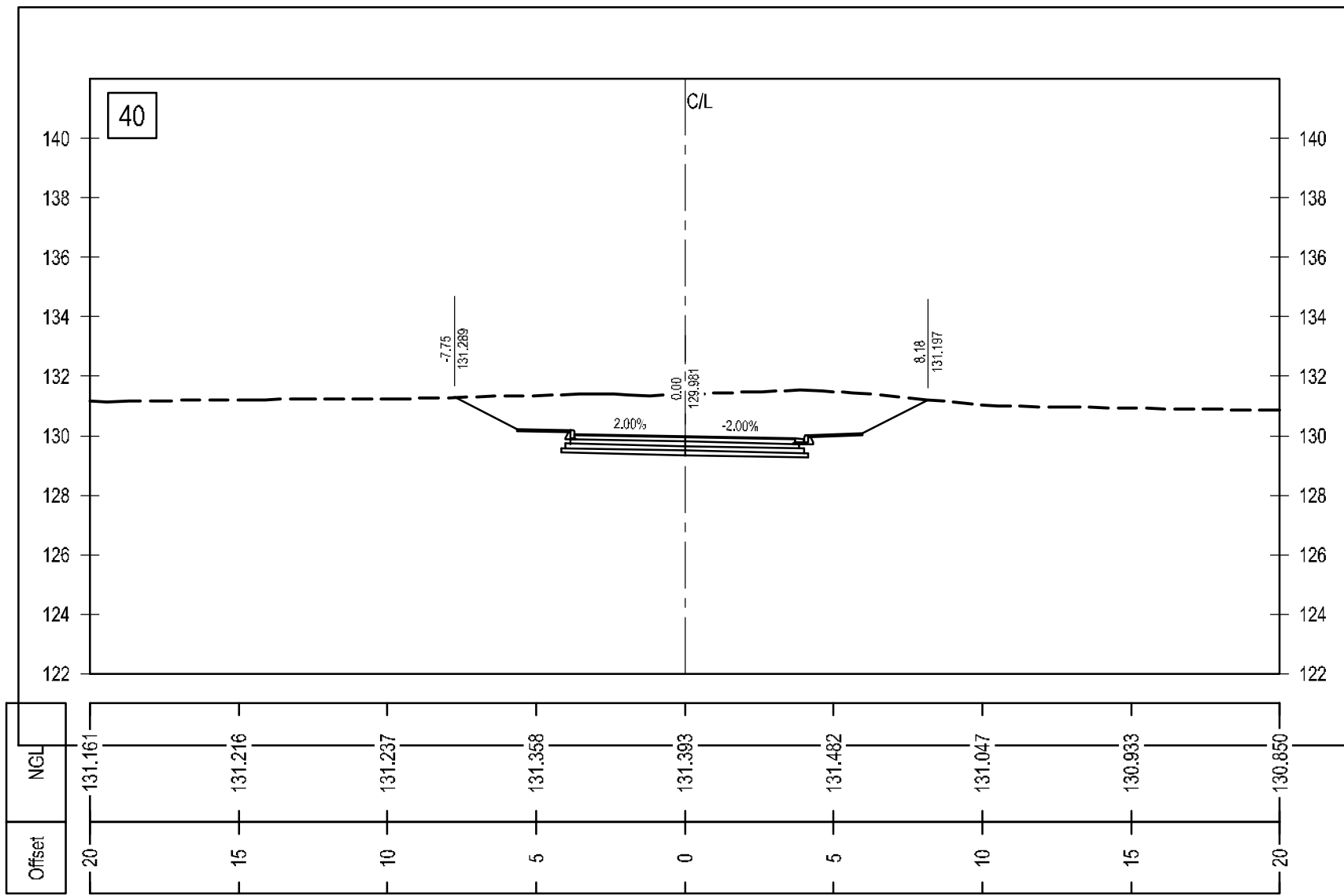
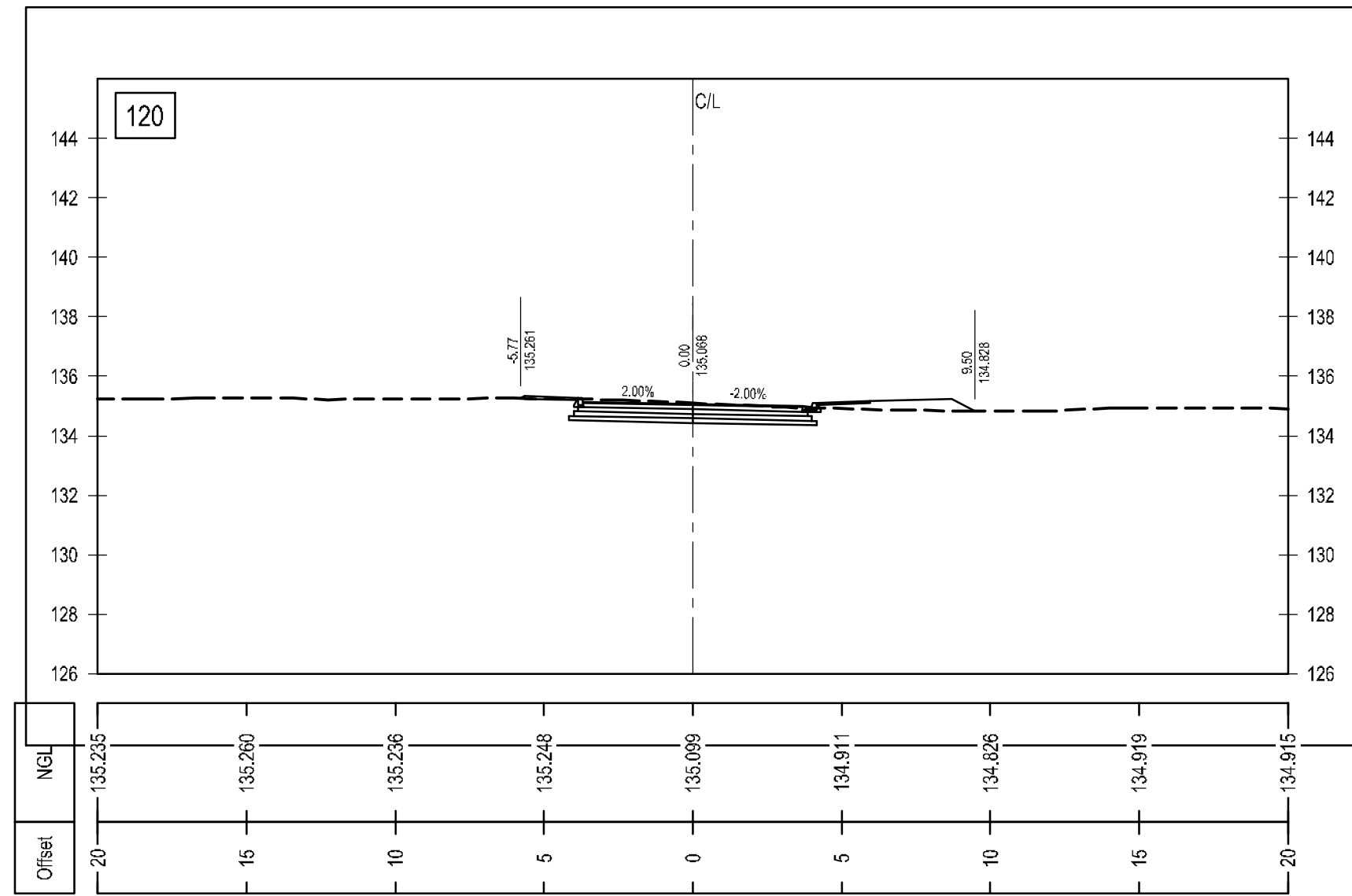
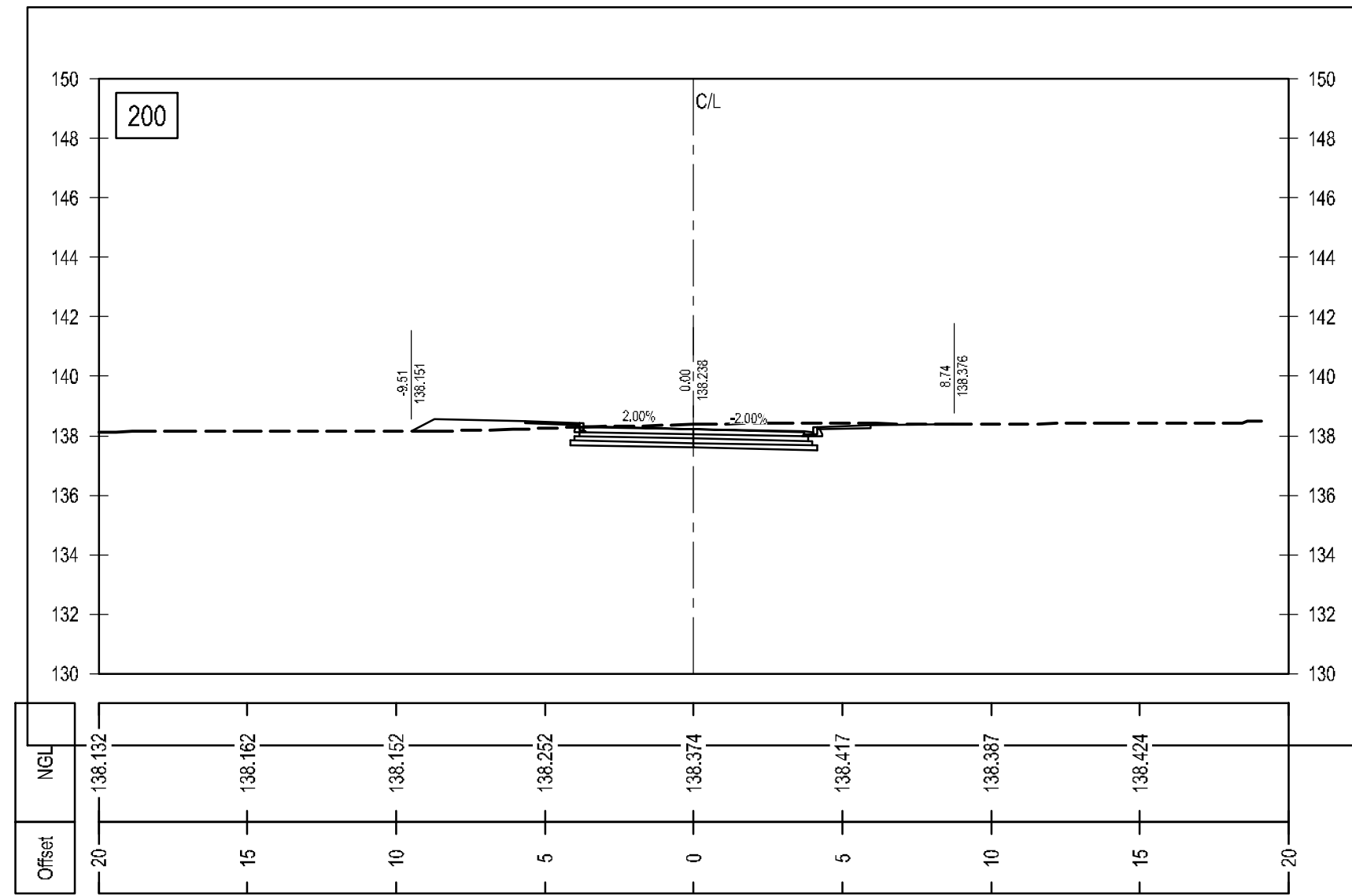
NOTE: No construction work to commence until local and servitude excavations have been completed.		
Acquisitions completed:	Engineer	
Date		
UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
G.P.O. CABLES		
ELECTRIC CABLES		
E.A.R. CABLES		
E.S.C. CABLES		
CR PIPE LINE		

NOTE: Dry underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, kerbs etc., to avoid damage to underground services such as sewers, drains, cables, gas pipes and conduits. Wherever possible these must be located before work proceeds.

Contract No	1770
Client	STELLENBOSCH MUNICIPALITY
Project Title	CONSTRUCTION OF SCHOOL STREET,
Drawing Title	SCHOOL STREET, ROAD CROSS SECTION (SHEET 3 OF 7)
Scales	1: 200
Designed	P. RAMAULTAR
Checked	P. DHANEE
Drawn	S. PILLAY
Surveyed	
Manager:	N. RAMOHANI
Deputy Head:	P. DHANEE
Engineer:	P. DHANEE
Professional Registration Number:	201270079
Drawing	BMK-1770-JT-010
REV	A



ACCESS ROUTE 5C



ACCESS ROUTE 5C

JAMESTOWN SCHOOL STREET

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.

B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.

C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.

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F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.

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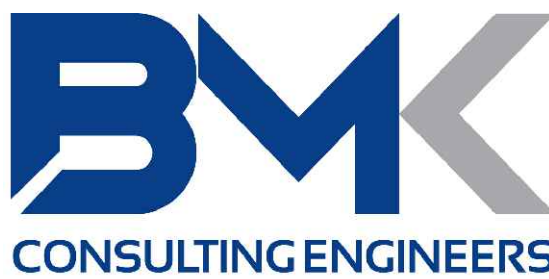
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J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.

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L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



Office 218 Tel : (031) 566 1160
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Ridgeside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description

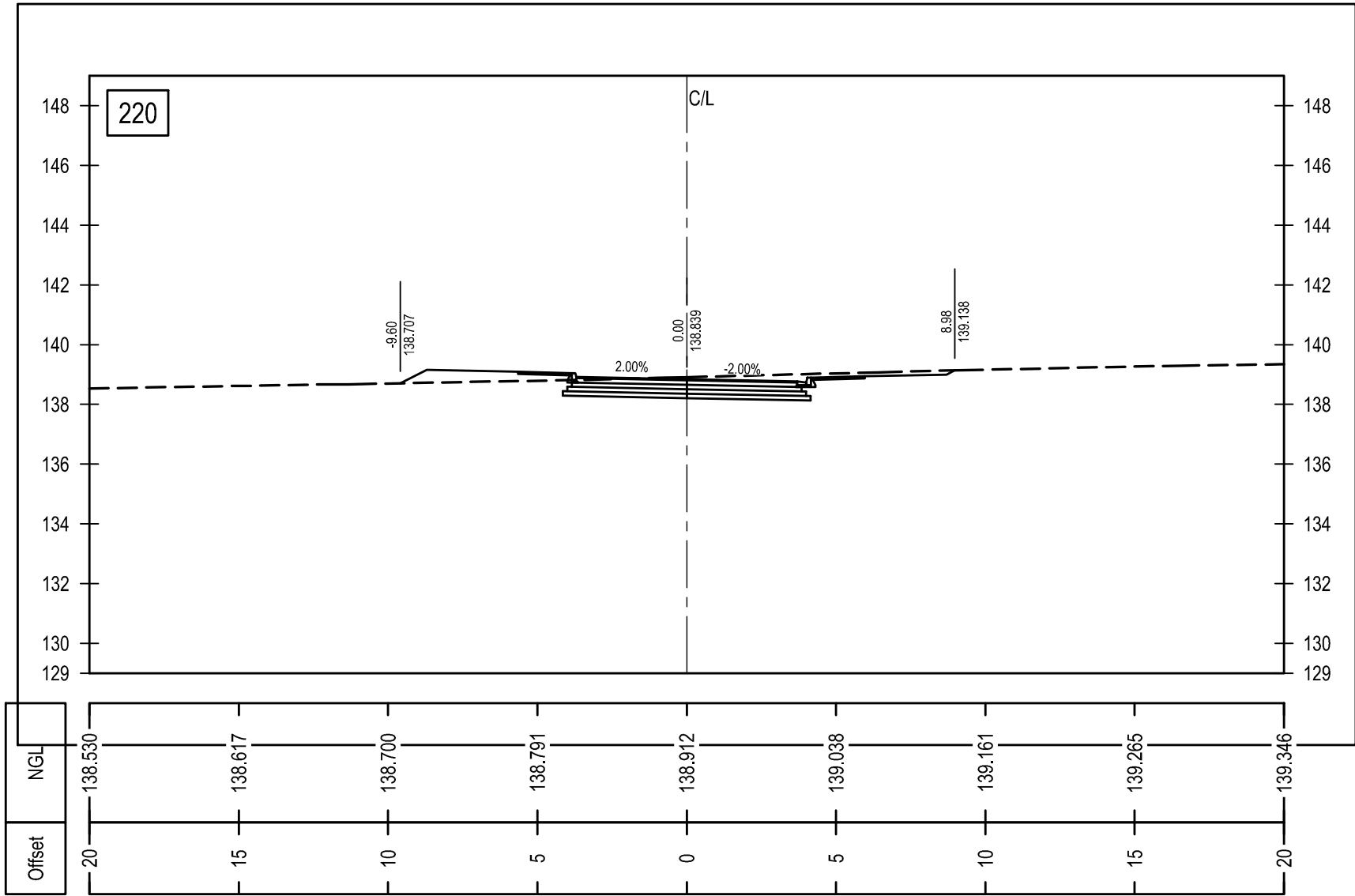
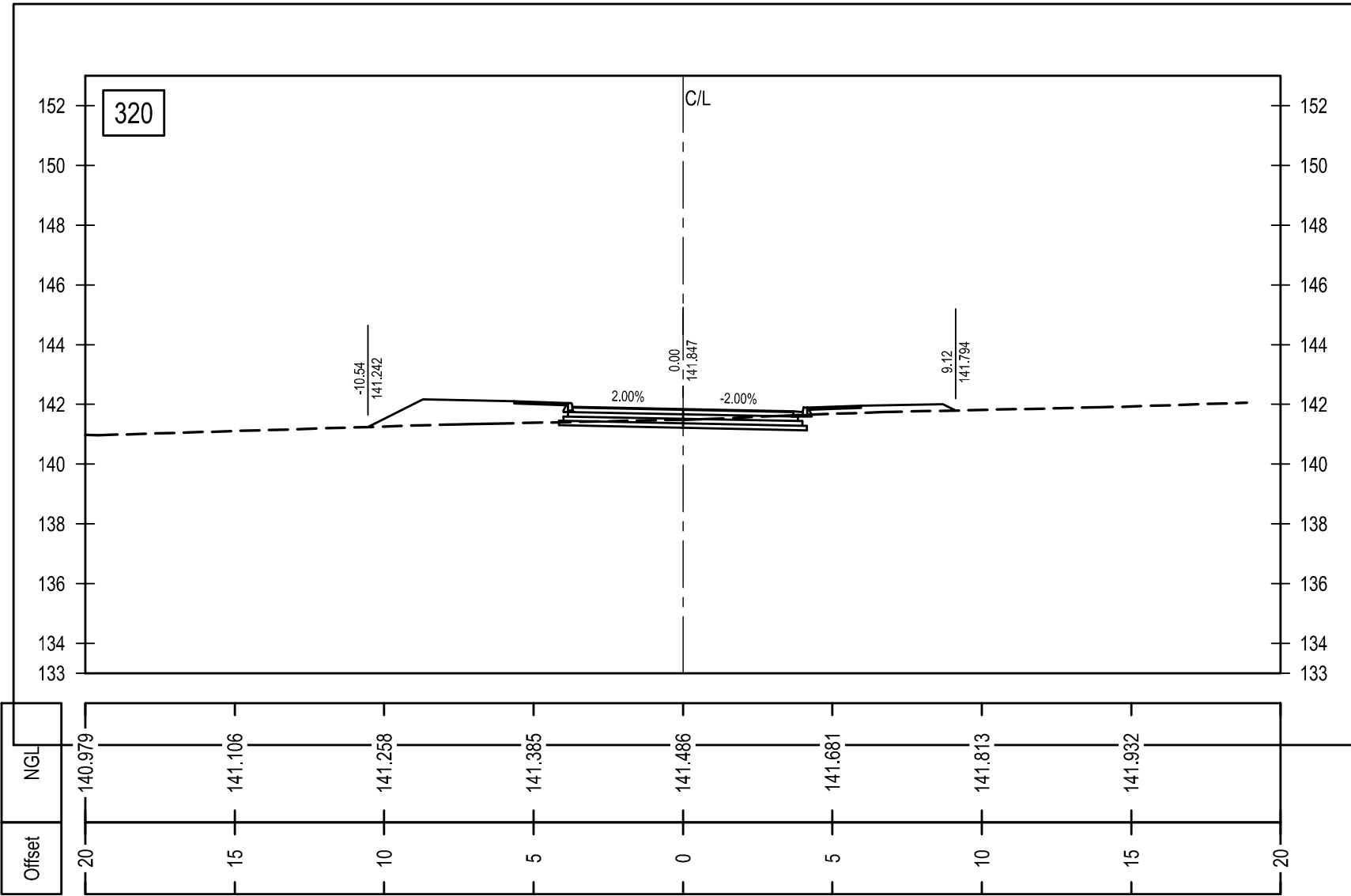
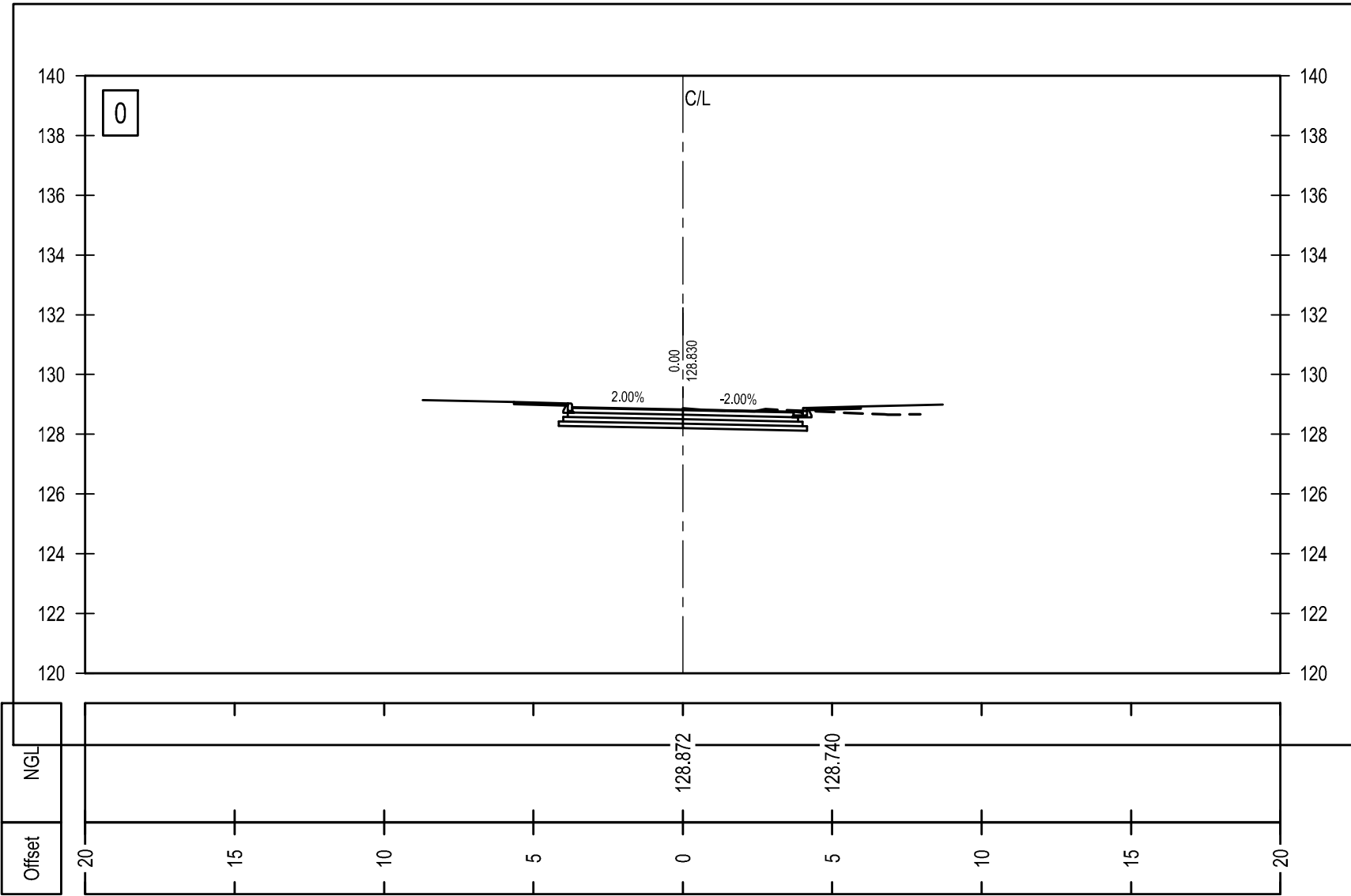
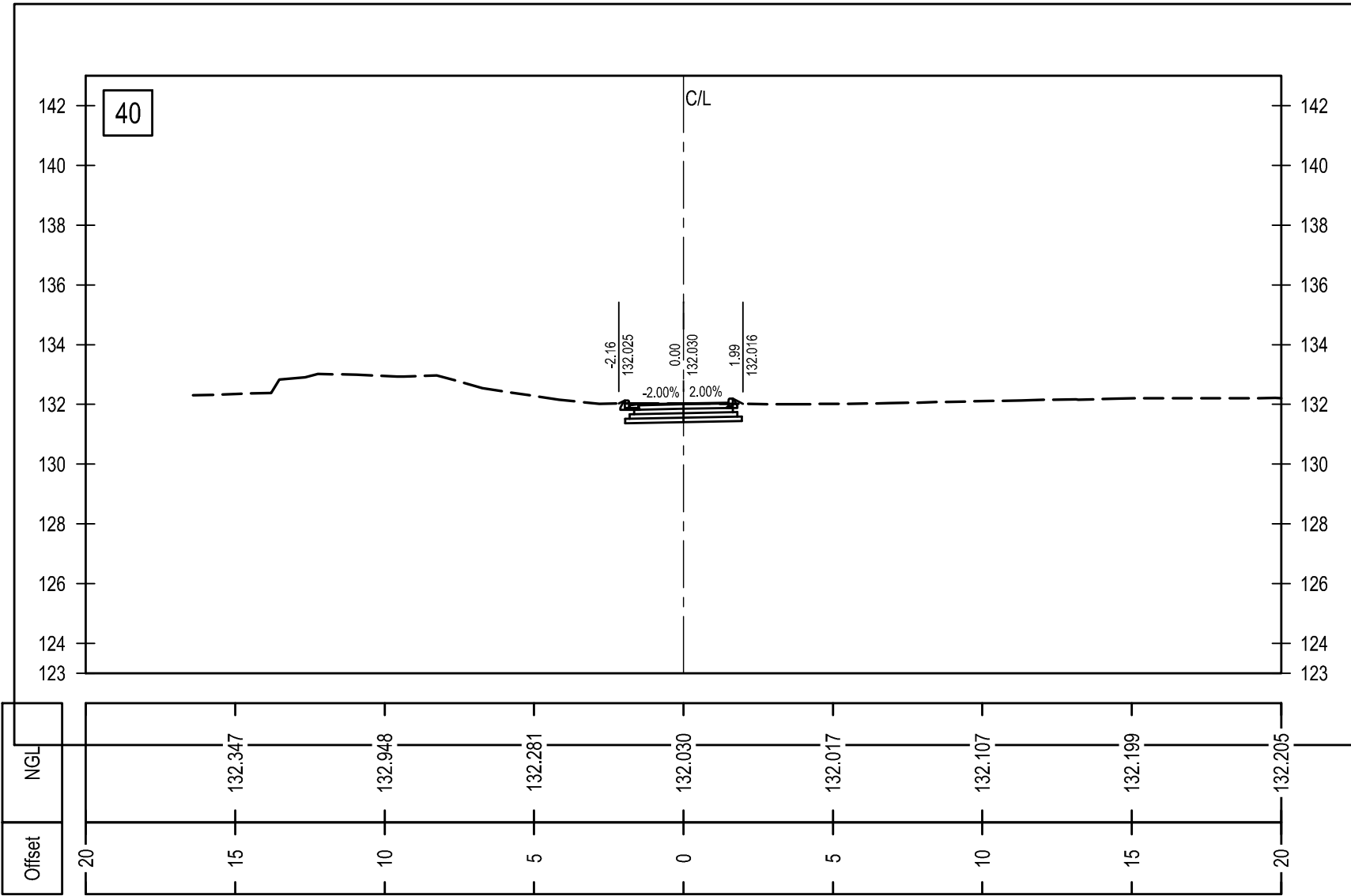
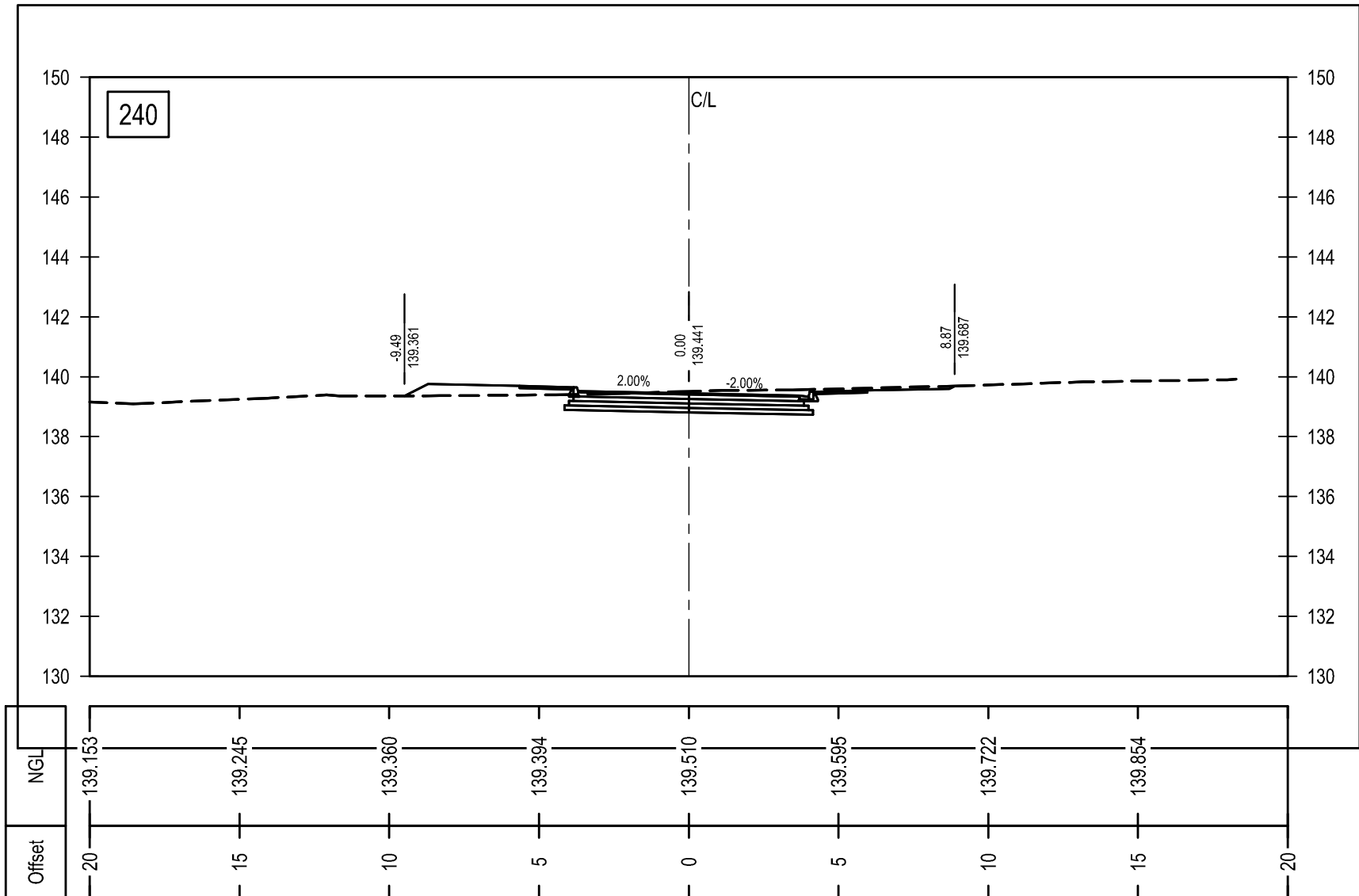
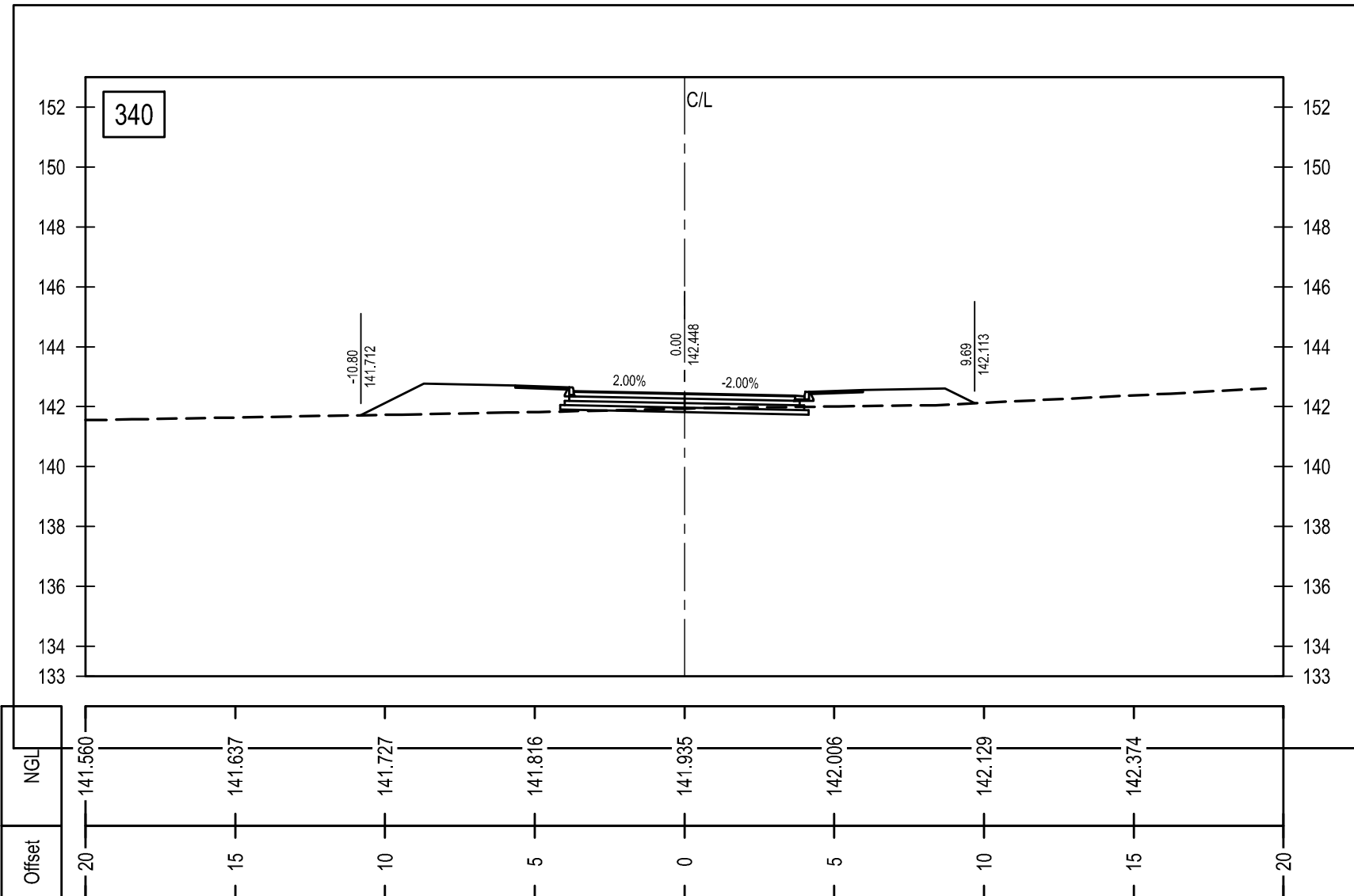
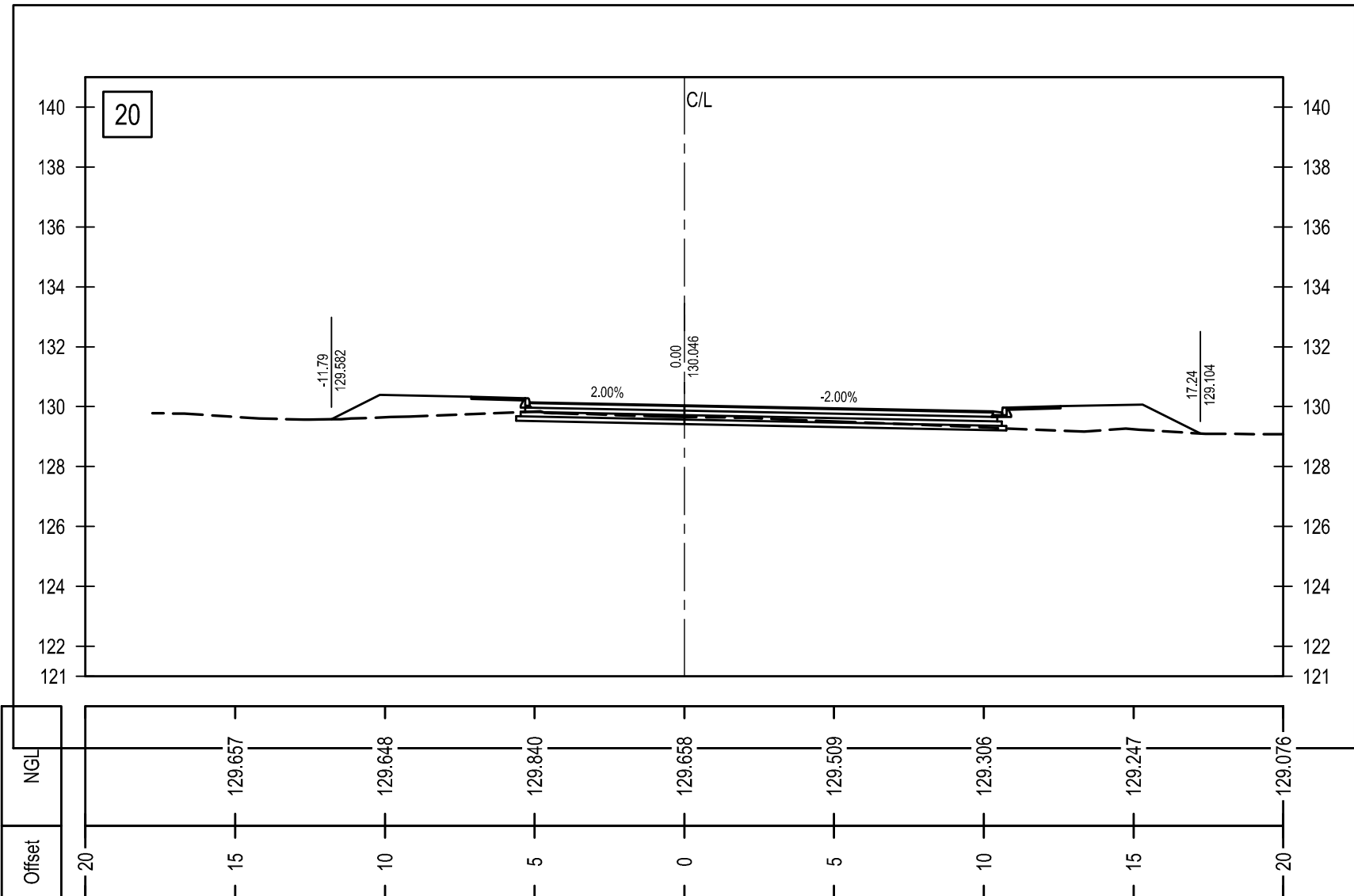
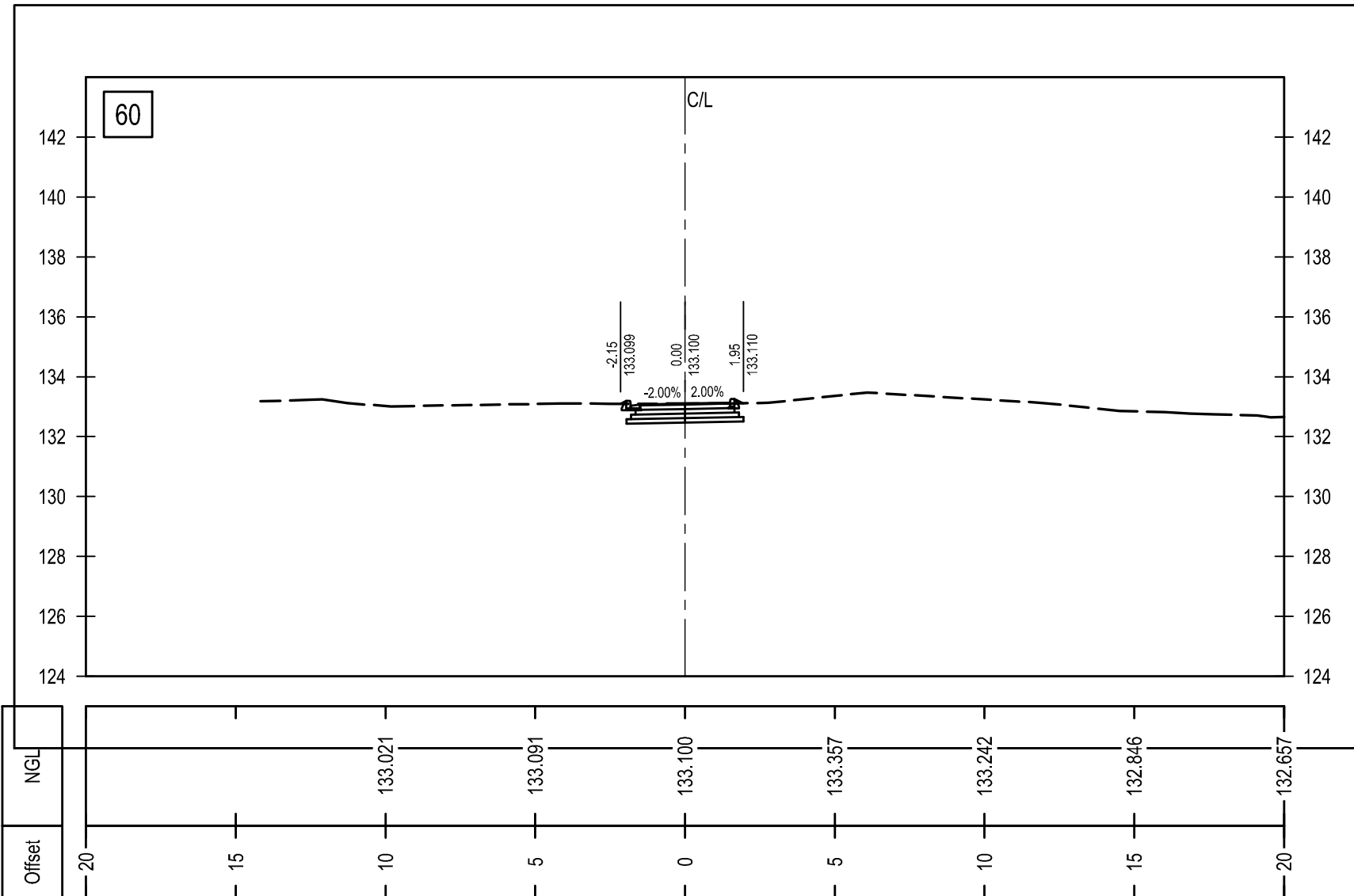
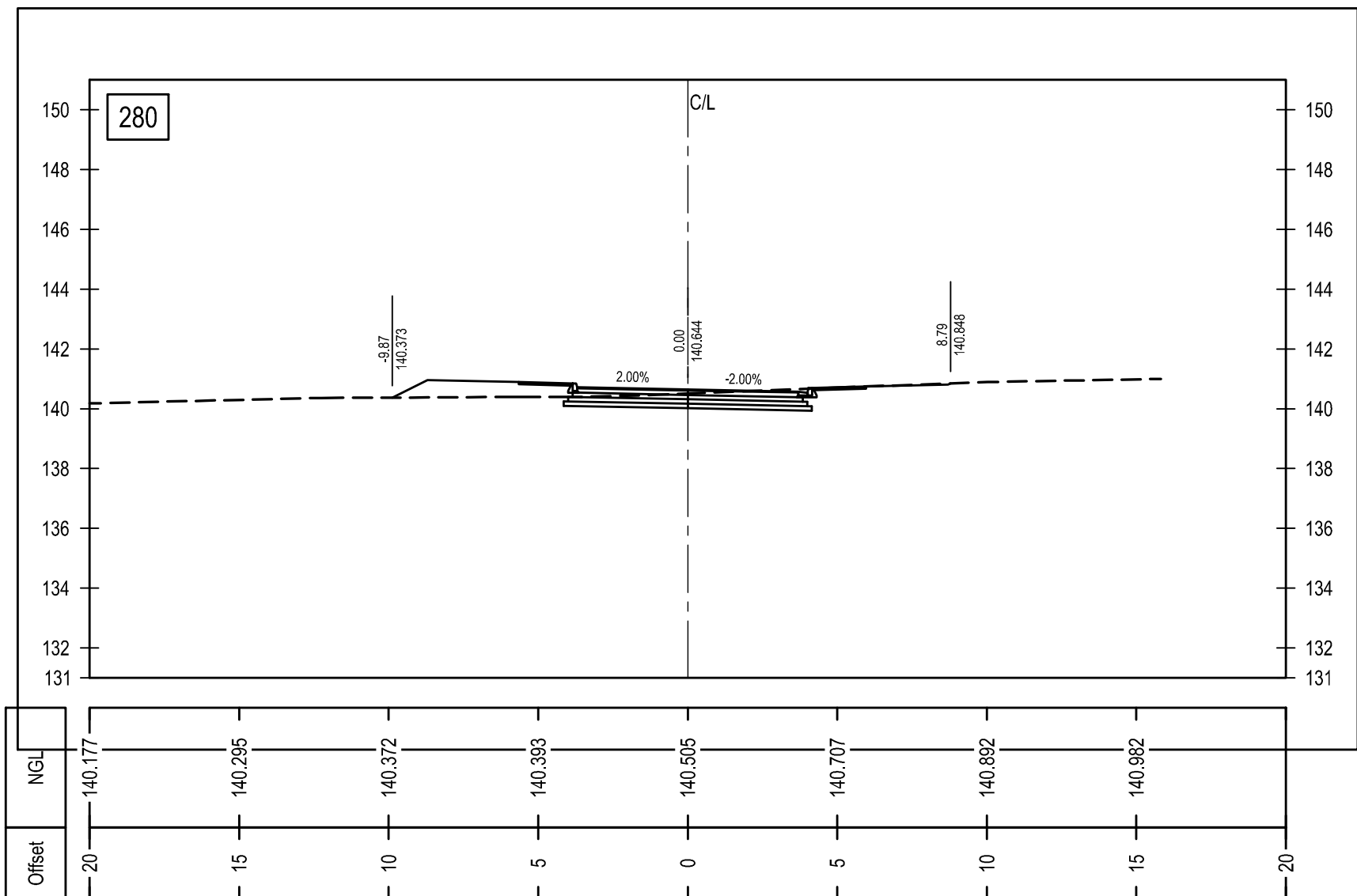
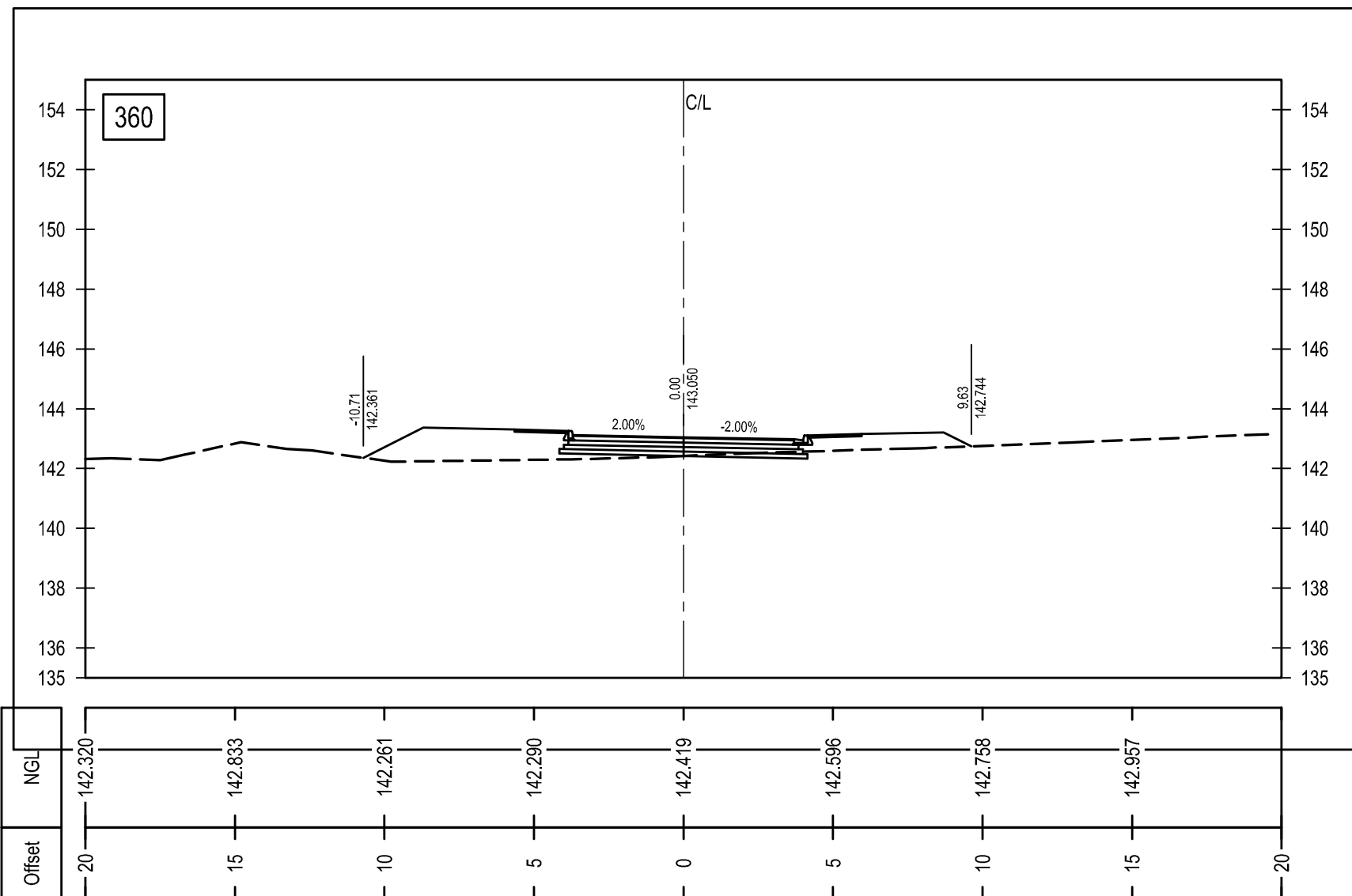
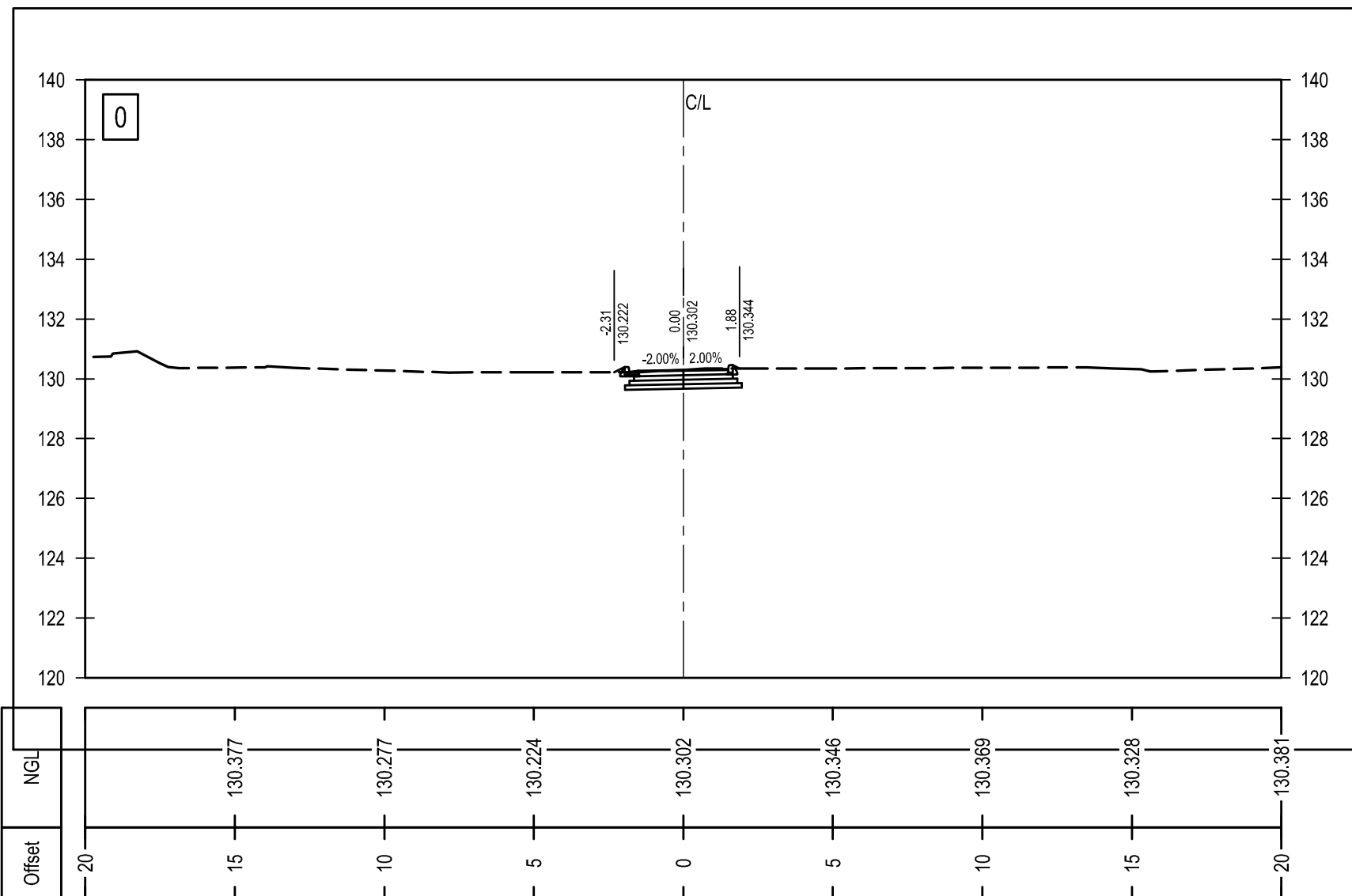
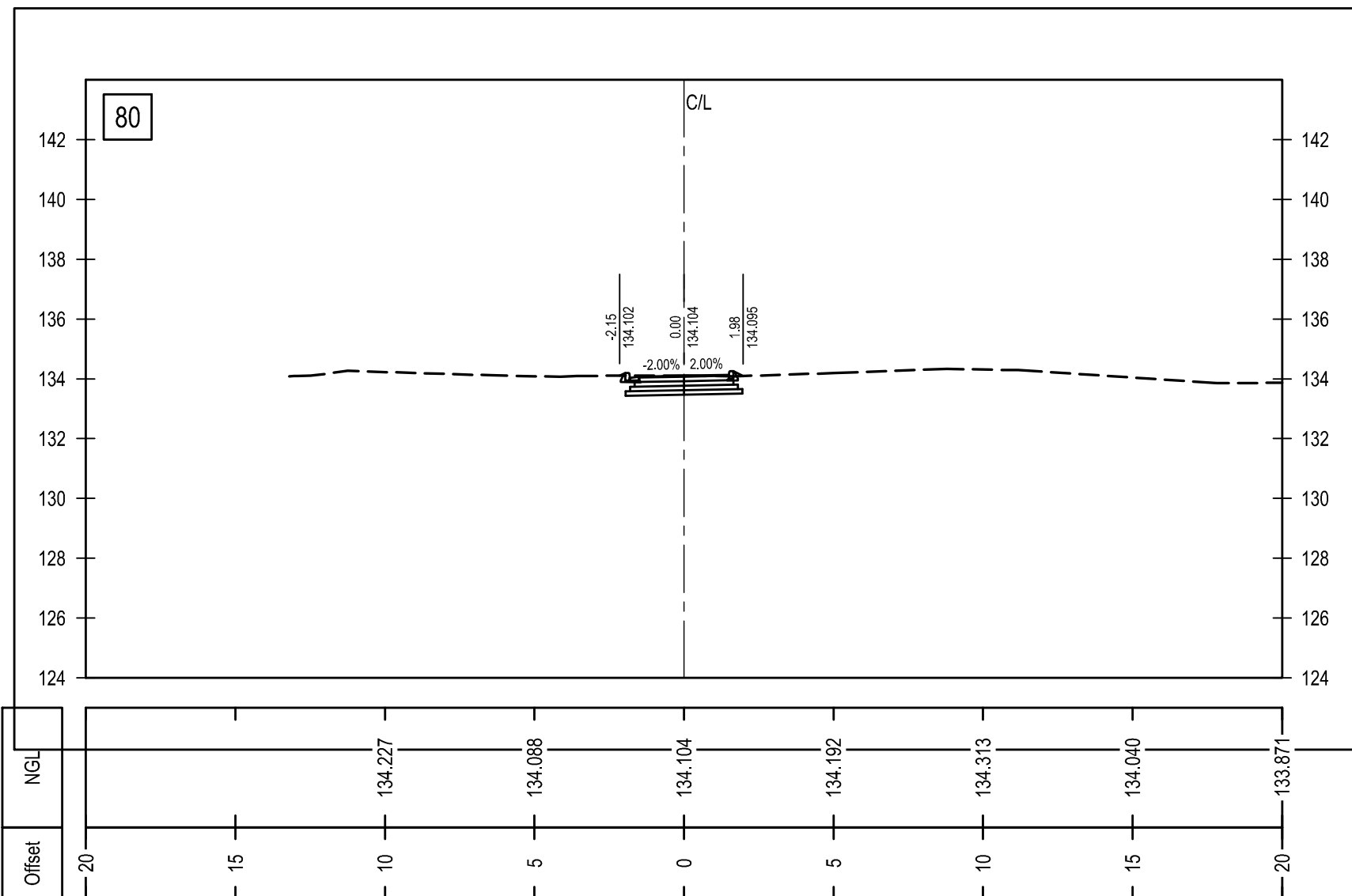
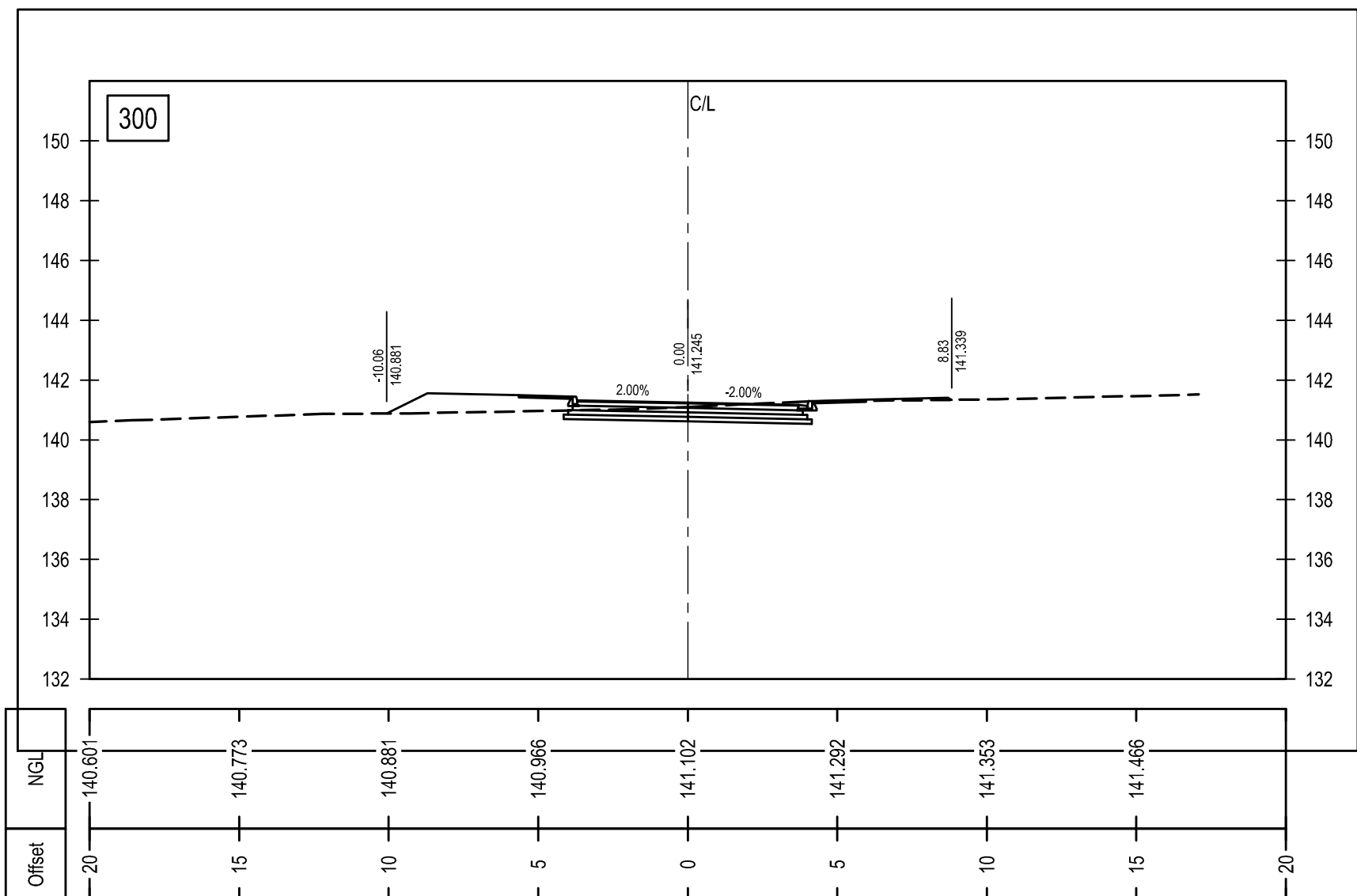
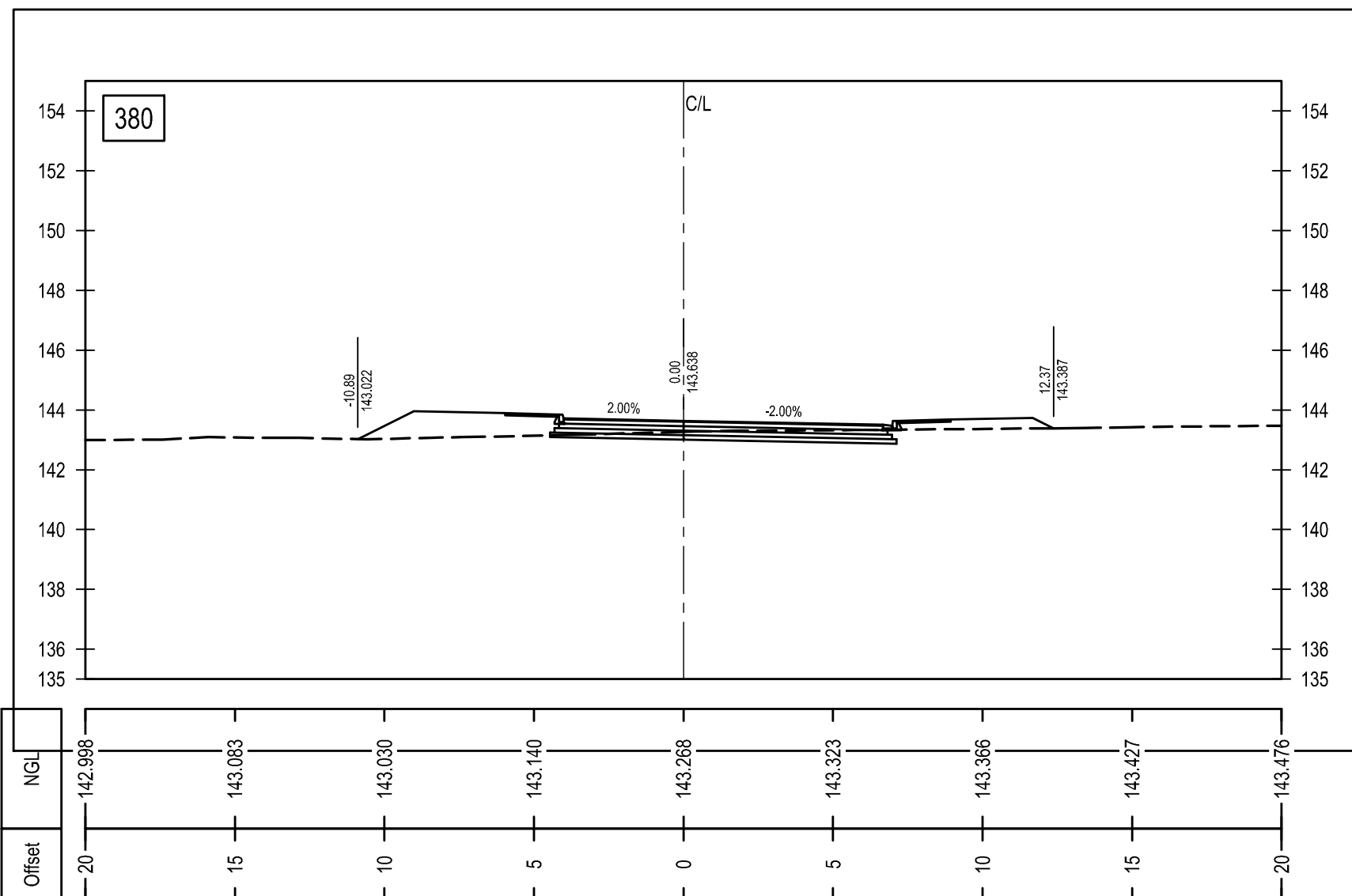
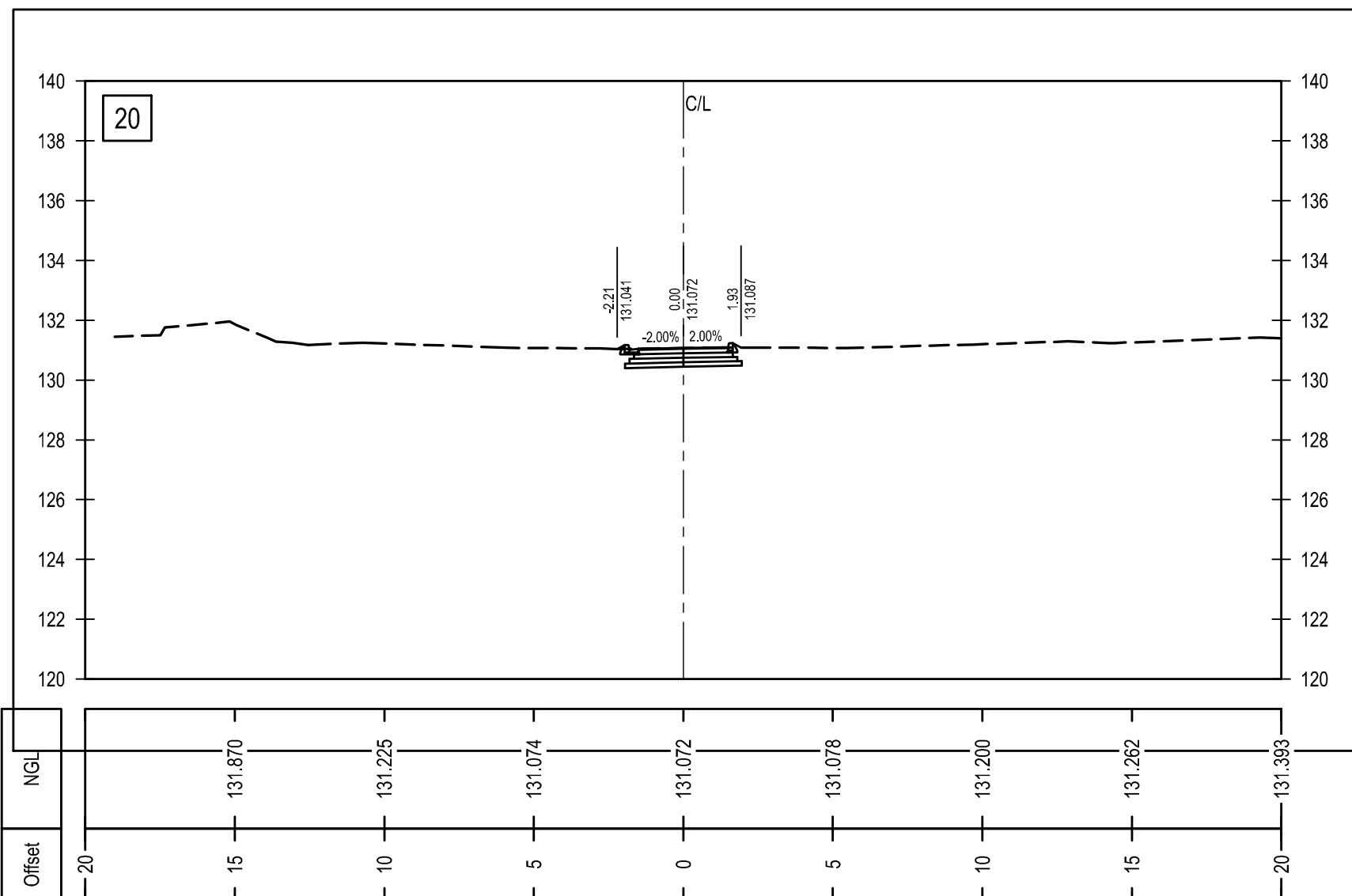
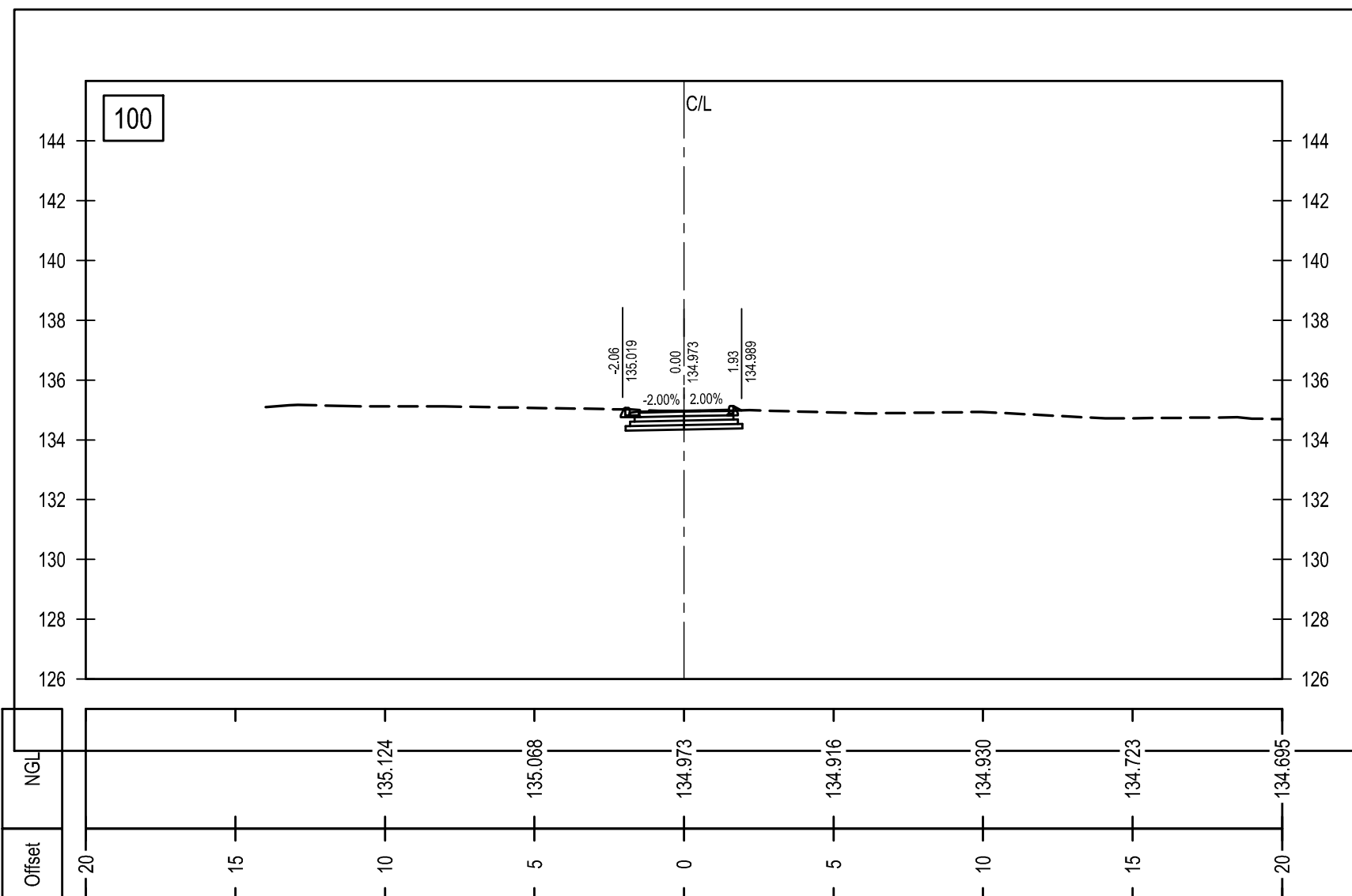
NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed: -

Date	Engineer	SIGNATURE

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and conduits. Wherever possible these must be located before work proceeds.

Contract No		1770	
Client			
STELLENBOSCH MUNICIPALITY			
Project Title			
CONSTRUCTION OF SCHOOL STREET,			
Drawing Title			
SCHOOL STREET, ROAD CROSS SECTION (SHEET 4 OF 7)			
Scales	1: 200	Date	07/2023
Designed	P. RAMAUTAR	Checked	P.DHANEE
Drawn	S. PILLAY	Surveyed	
Manager :	N. RAMDHANI		
Deputy Head : P.DHANEE			
Engineer : P.DHANEE			
Professional Registration Number : 201270079			
Drawing	BMK-1770-JT-011		REV A



JAMESTOWN SCHOOL STREET

NMT FACILITY

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.

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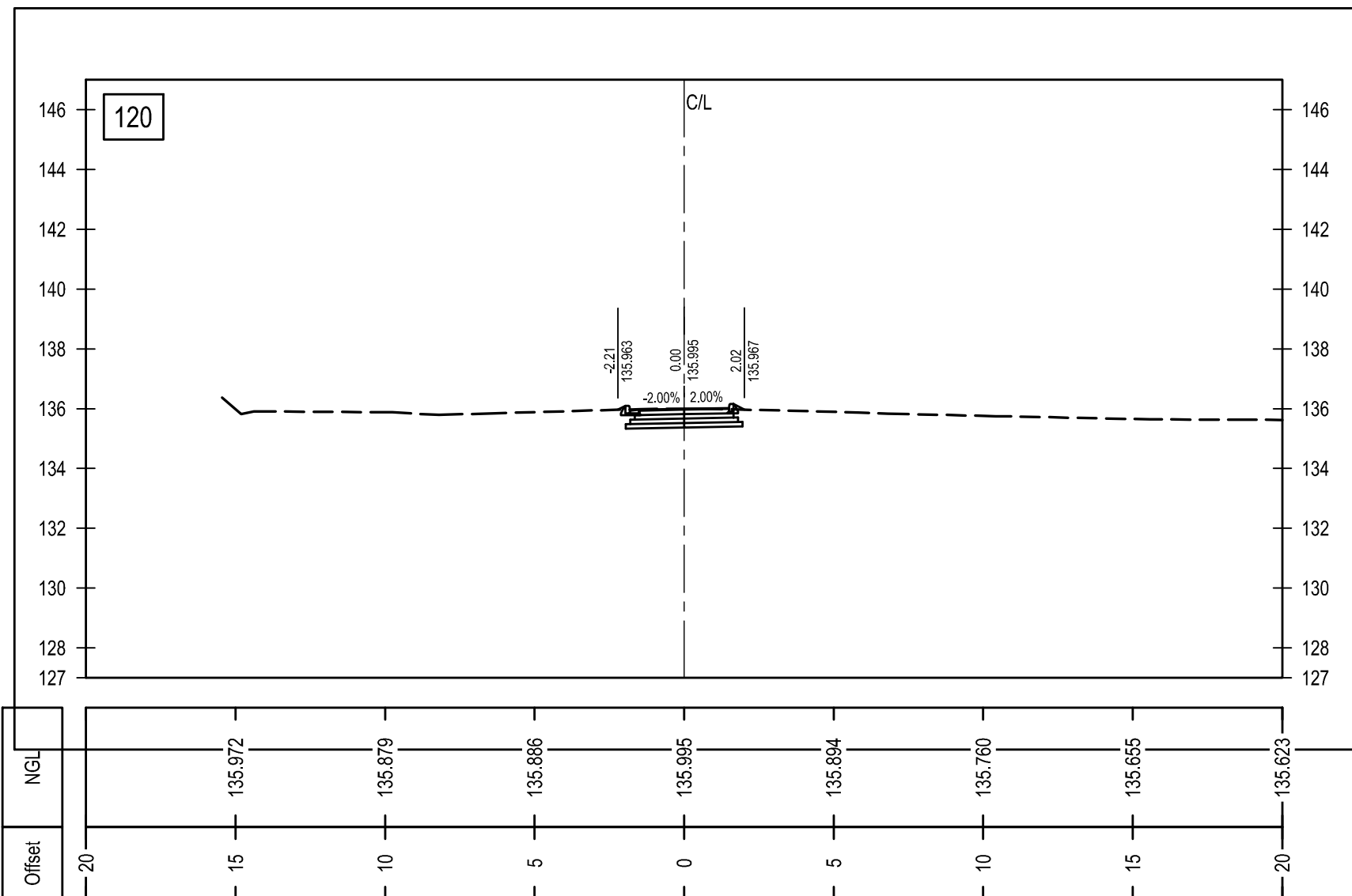
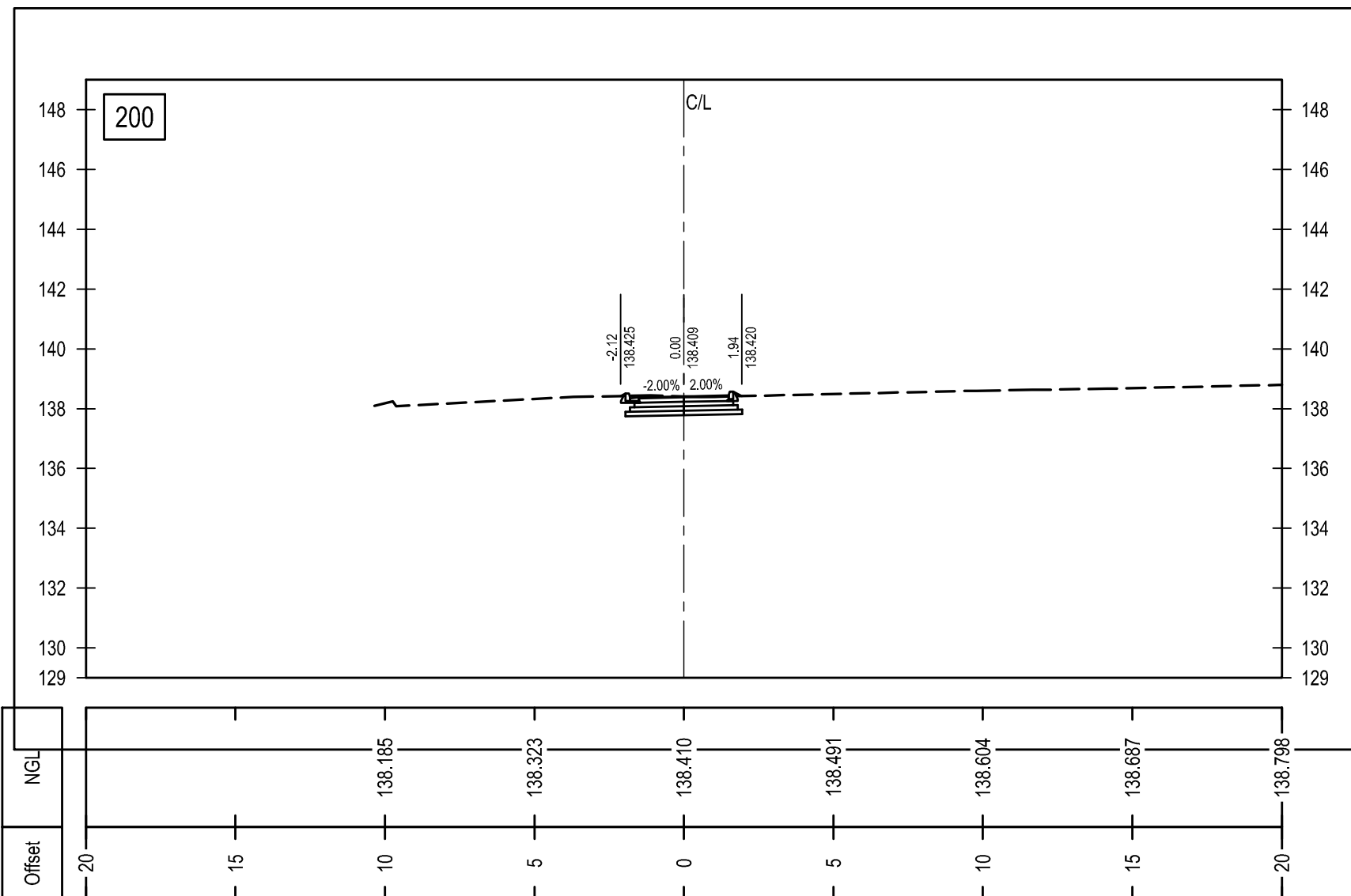
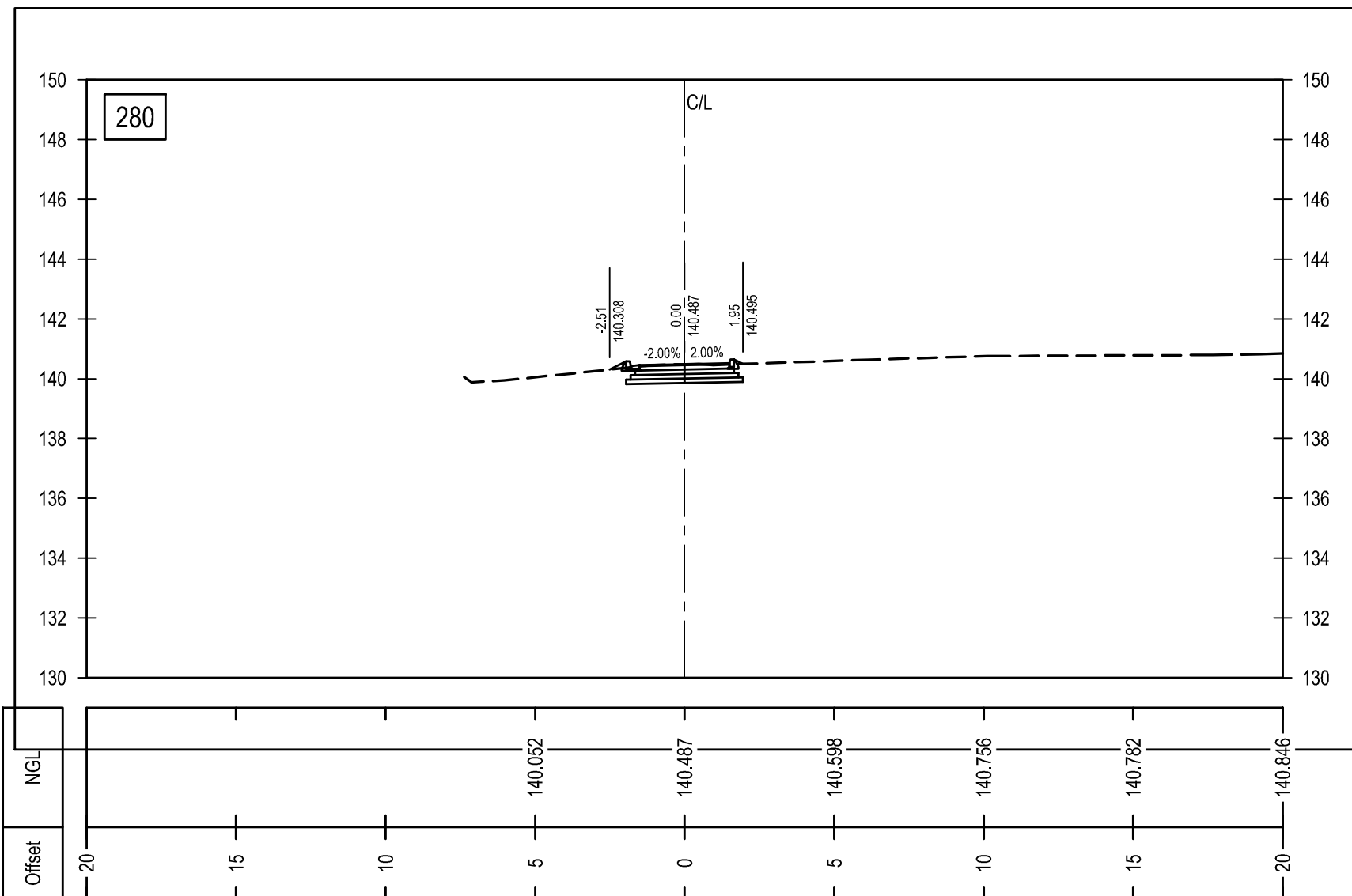
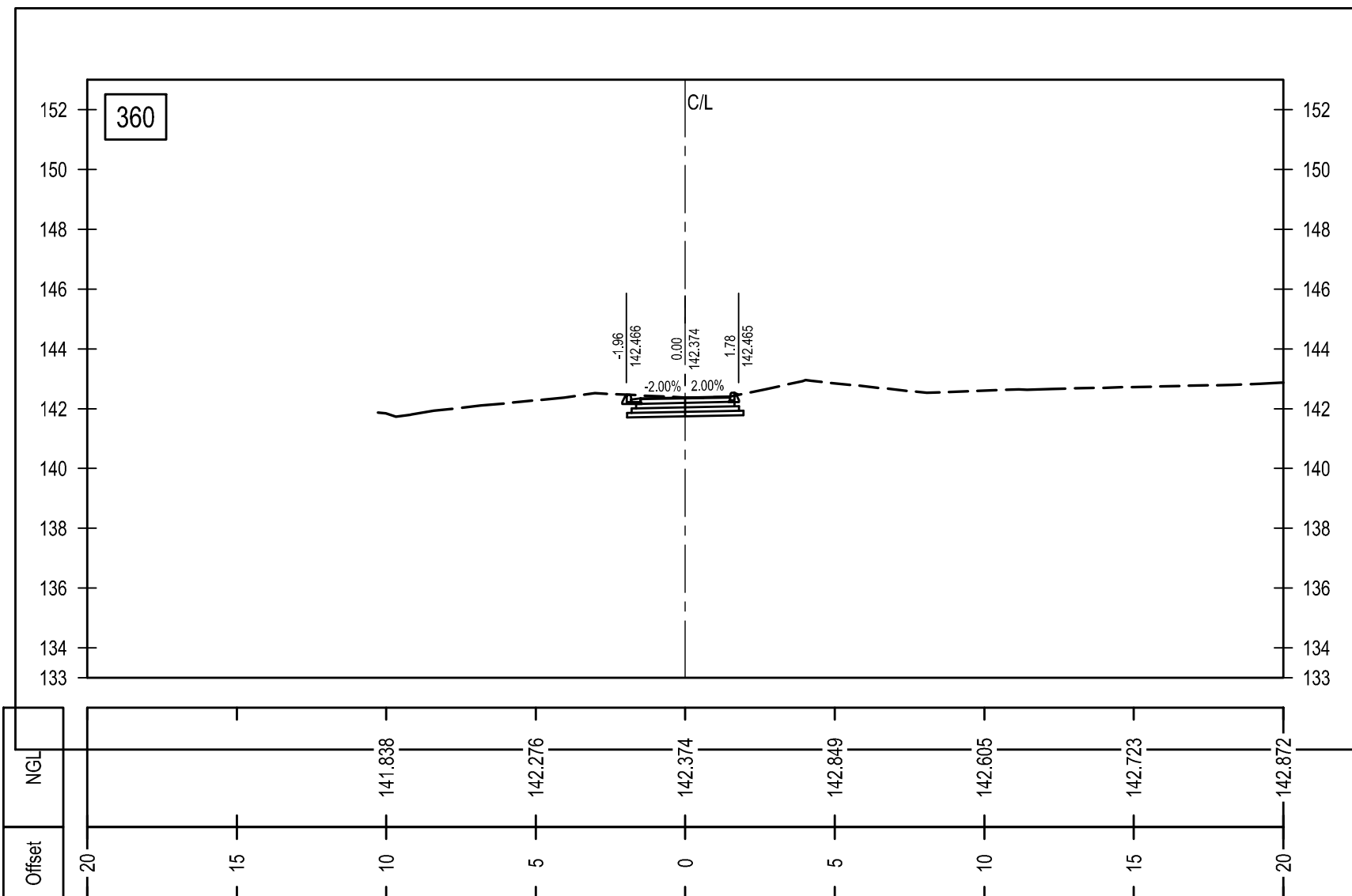
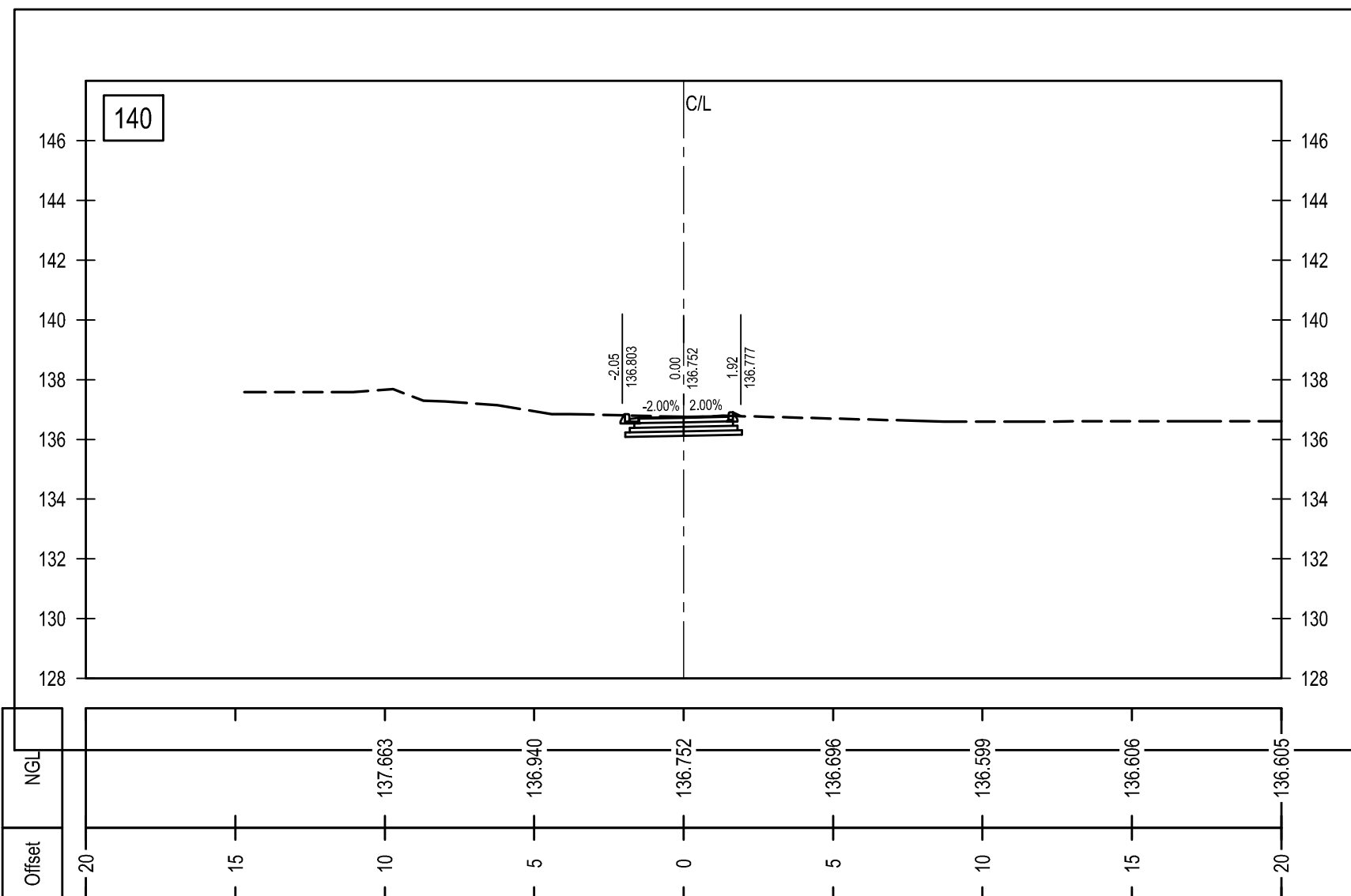
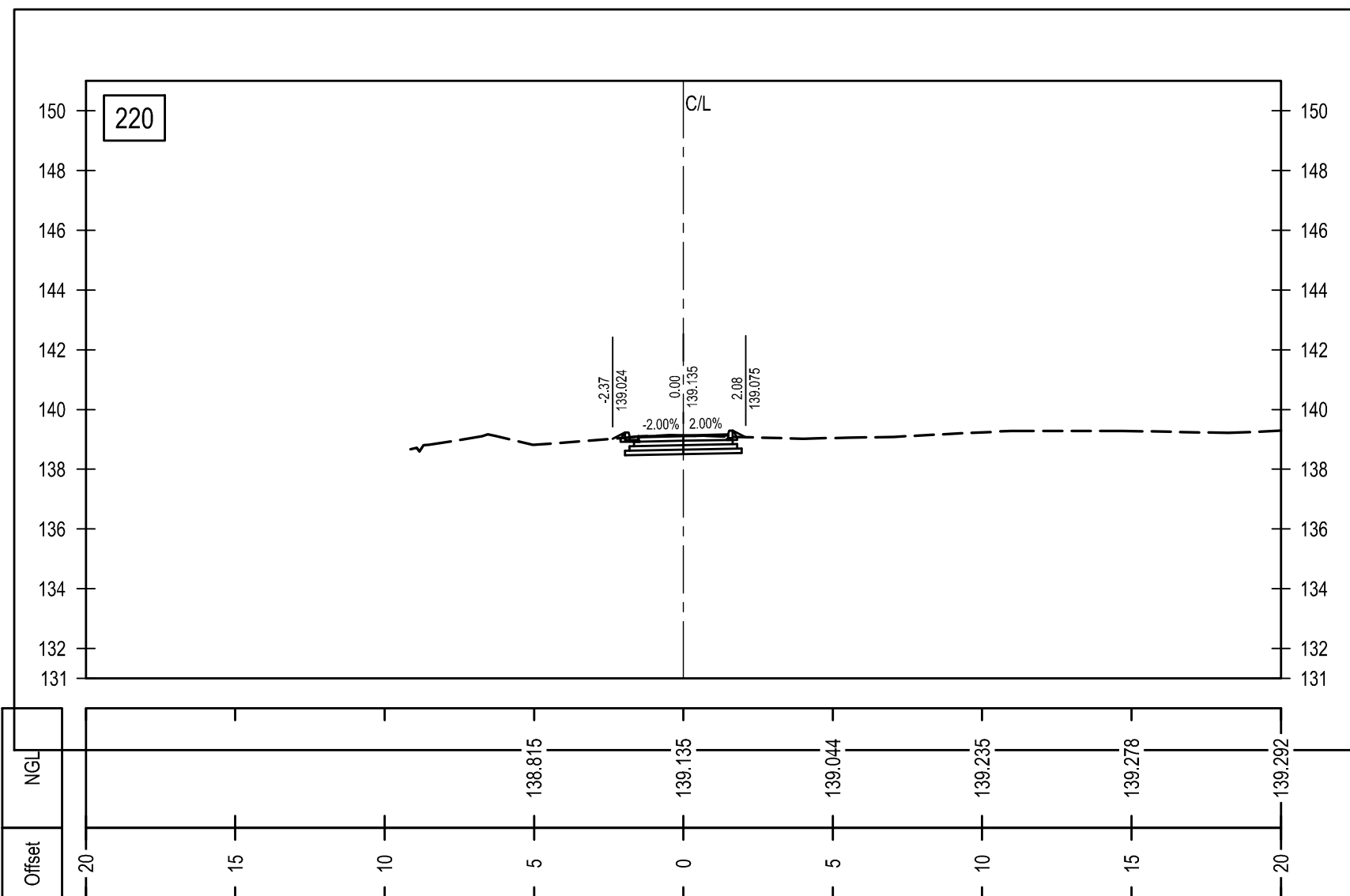
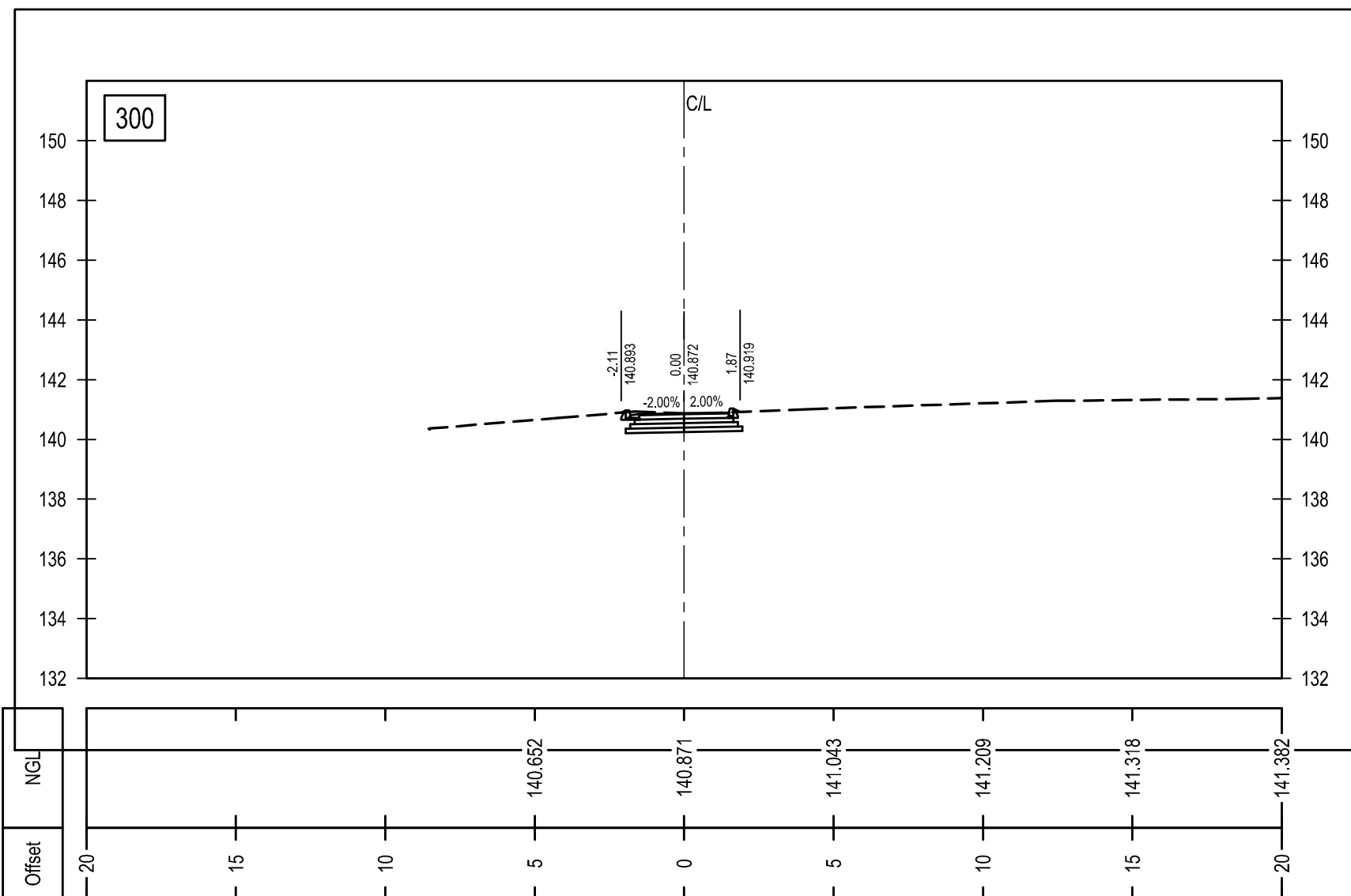
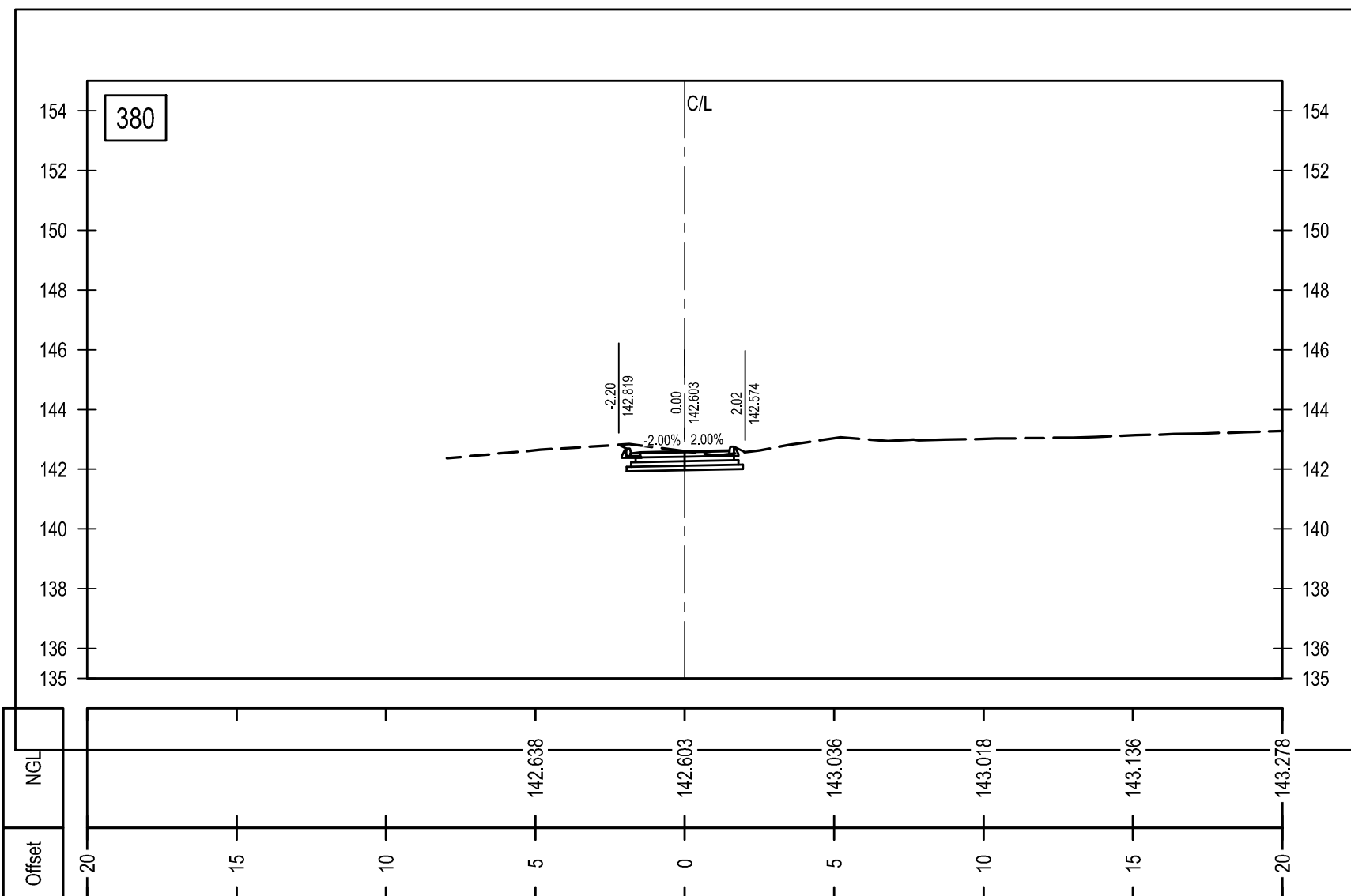
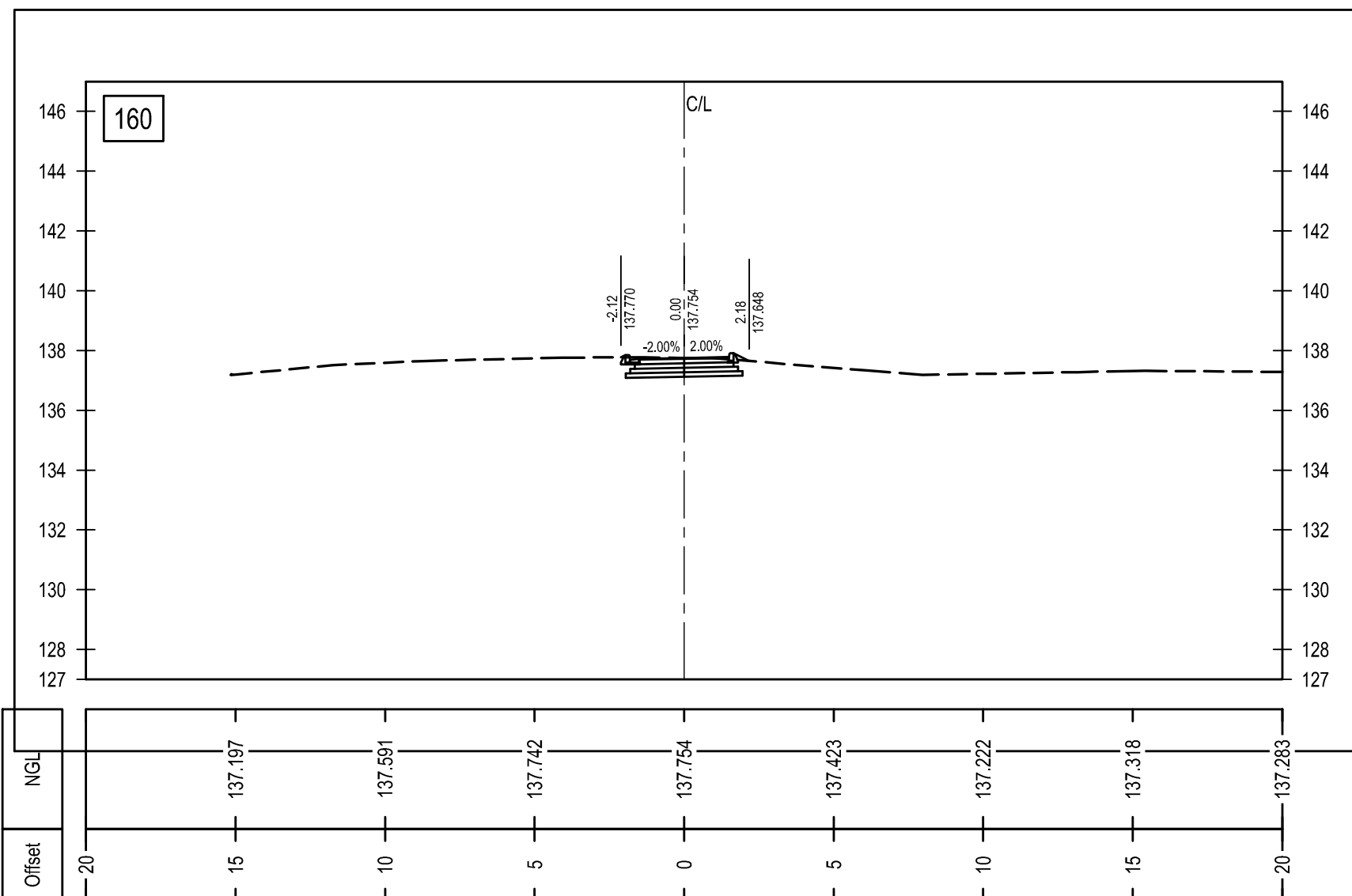
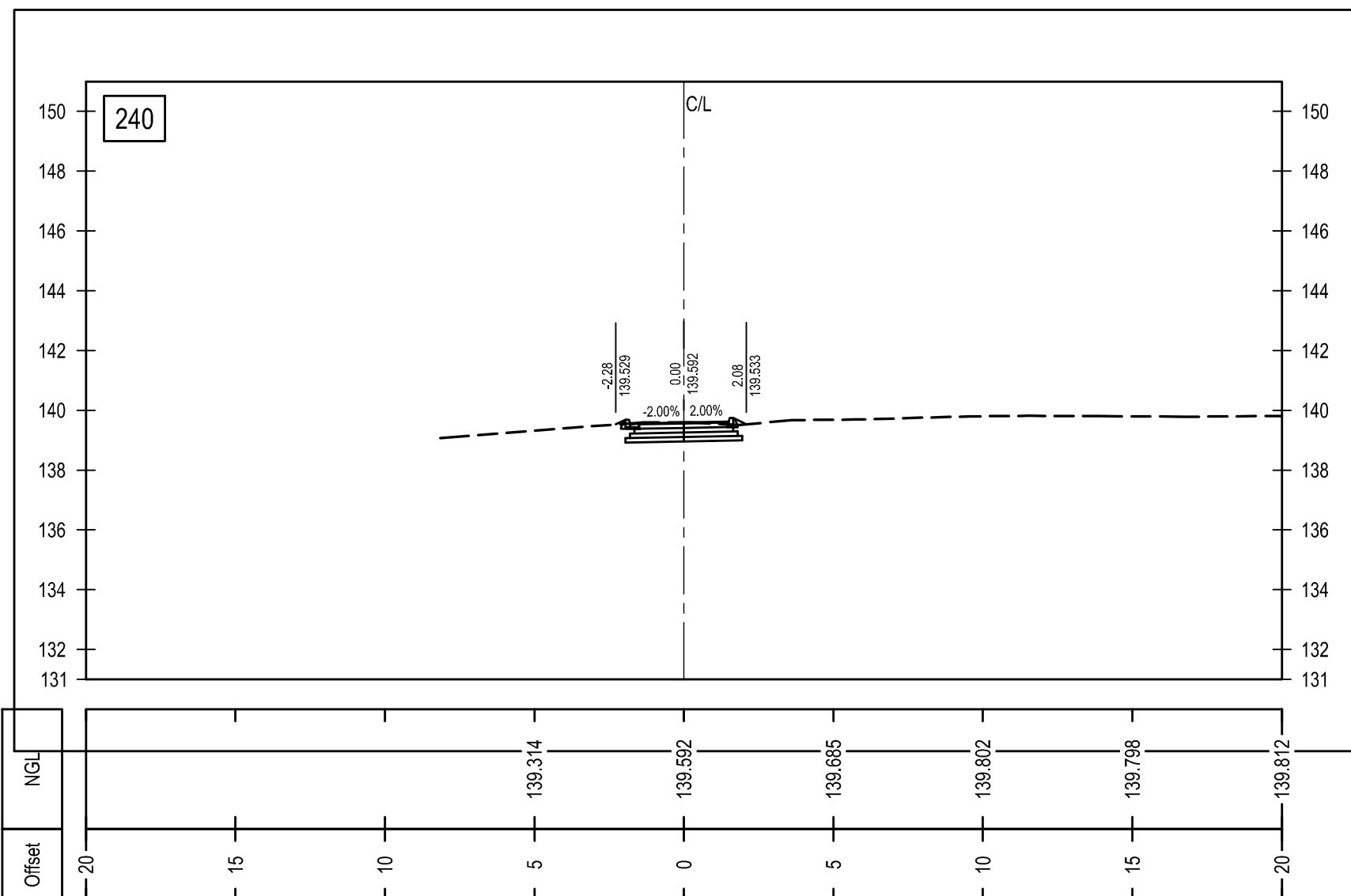
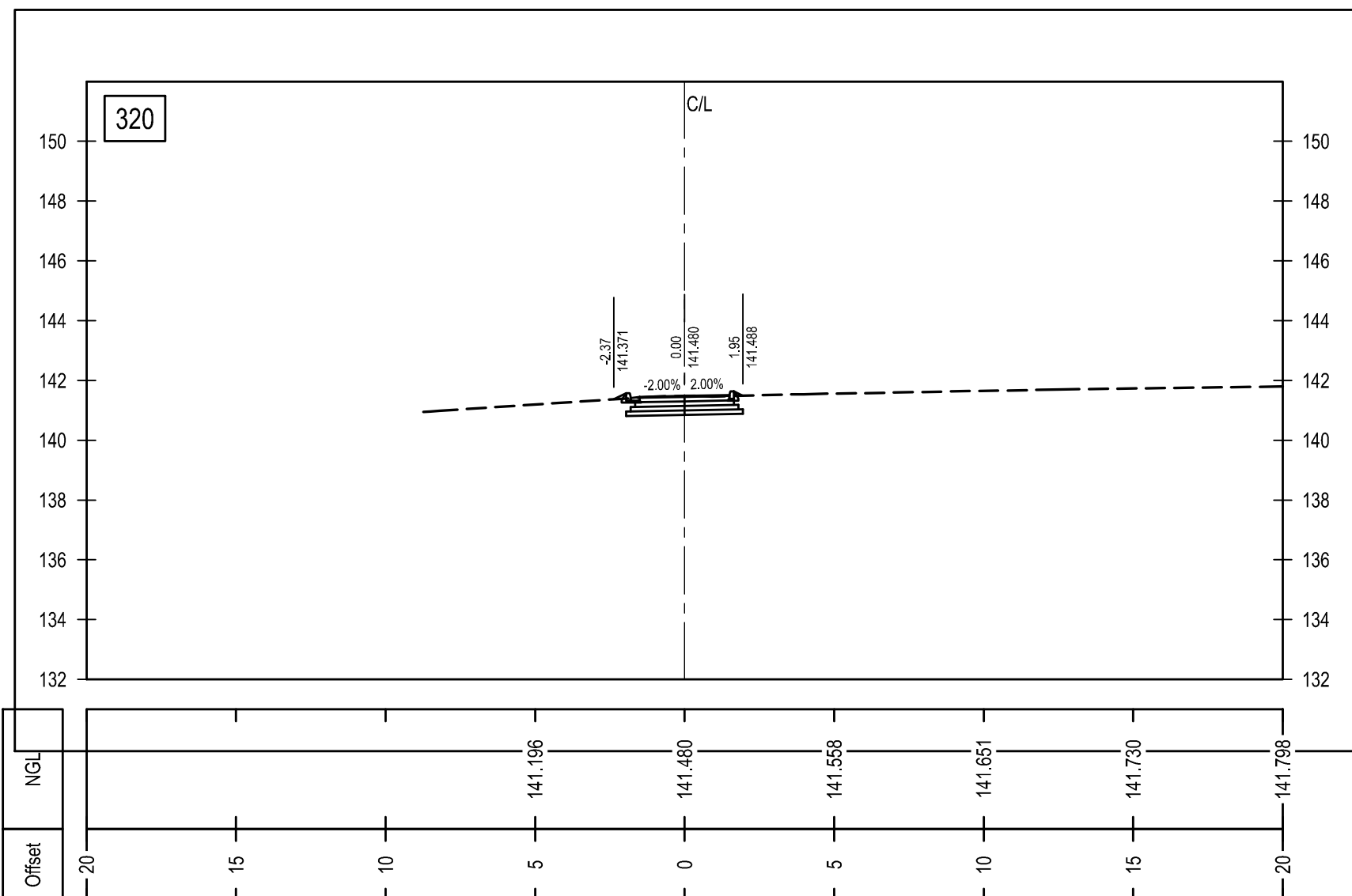
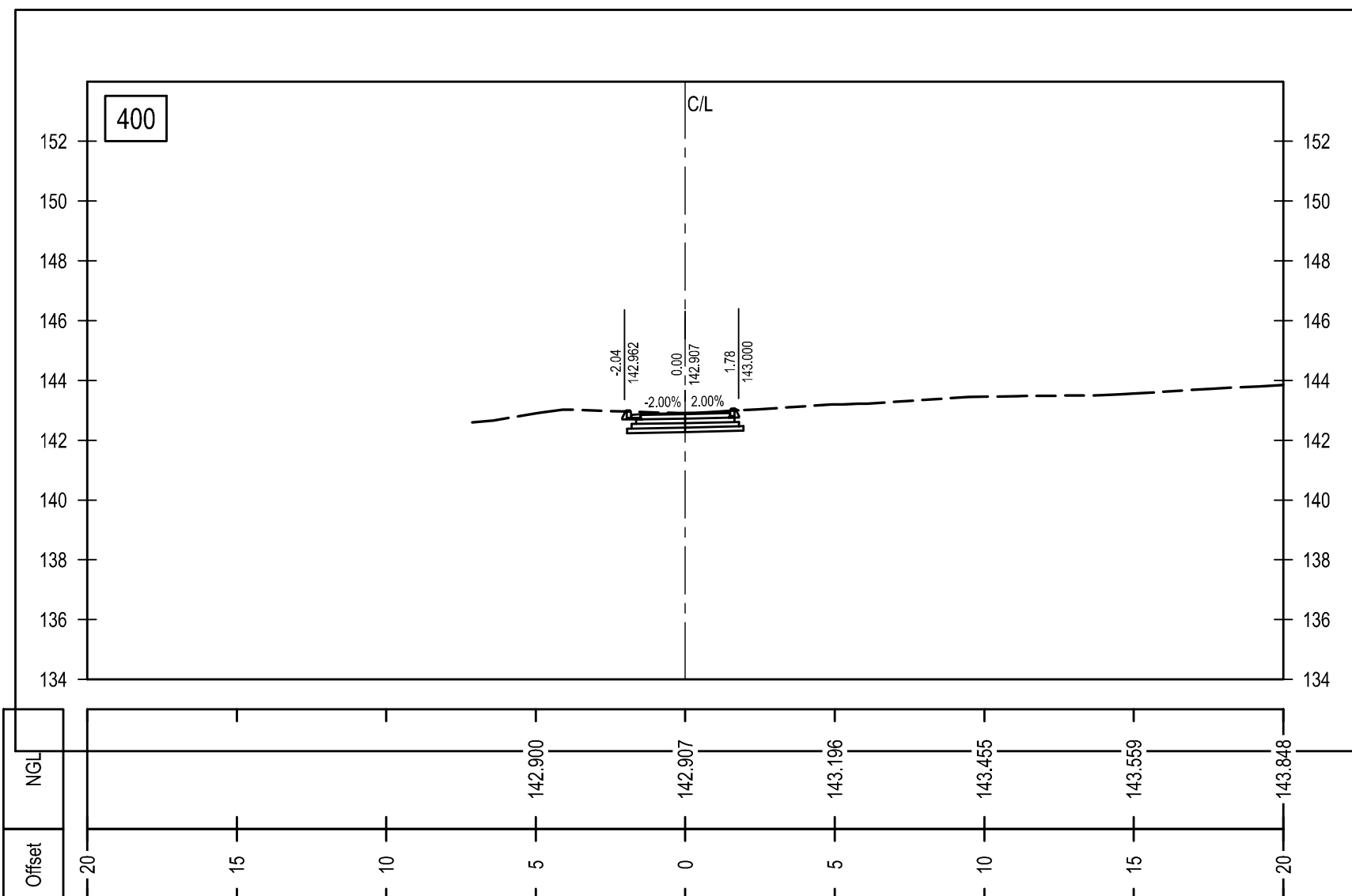
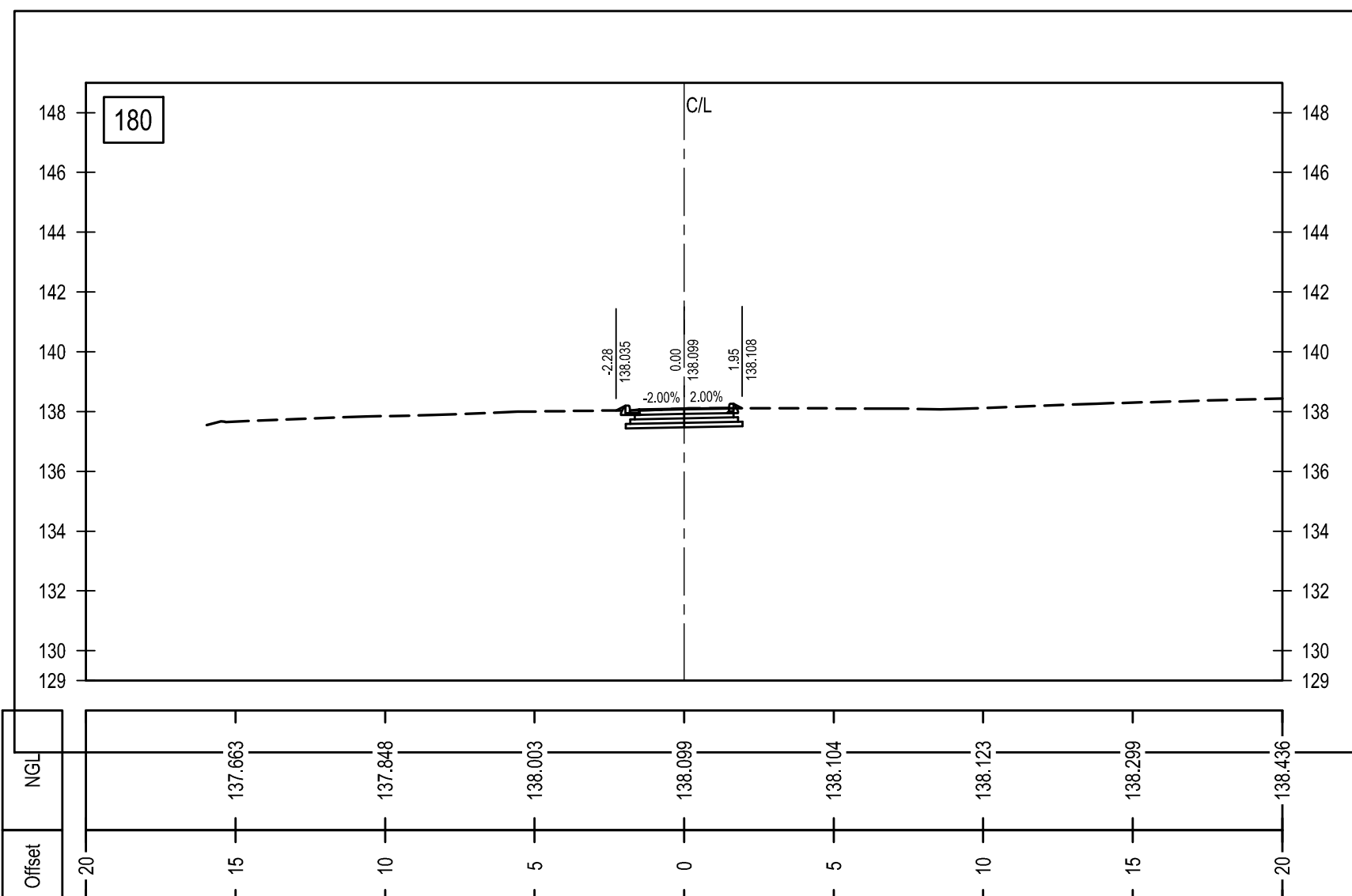
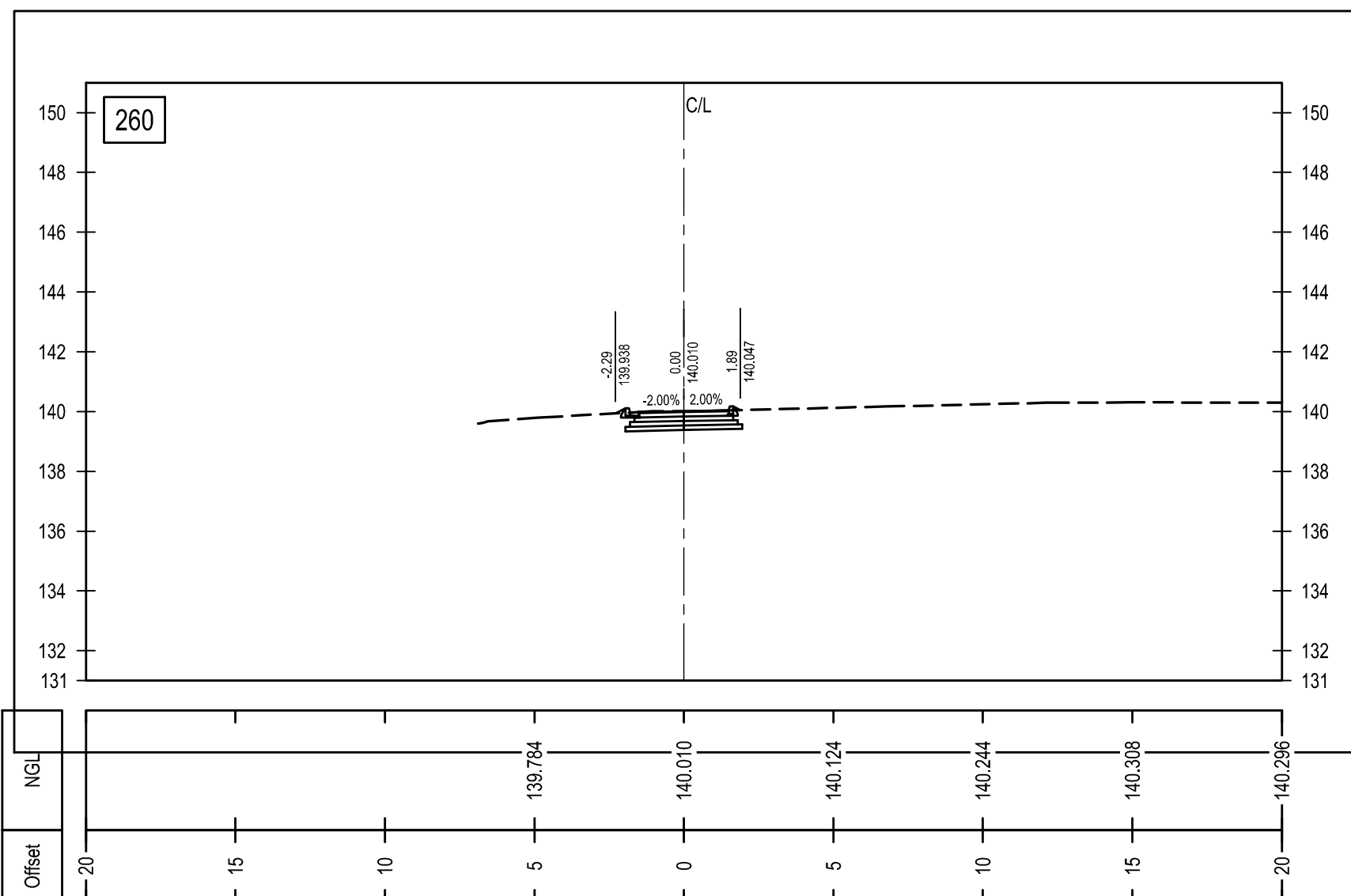
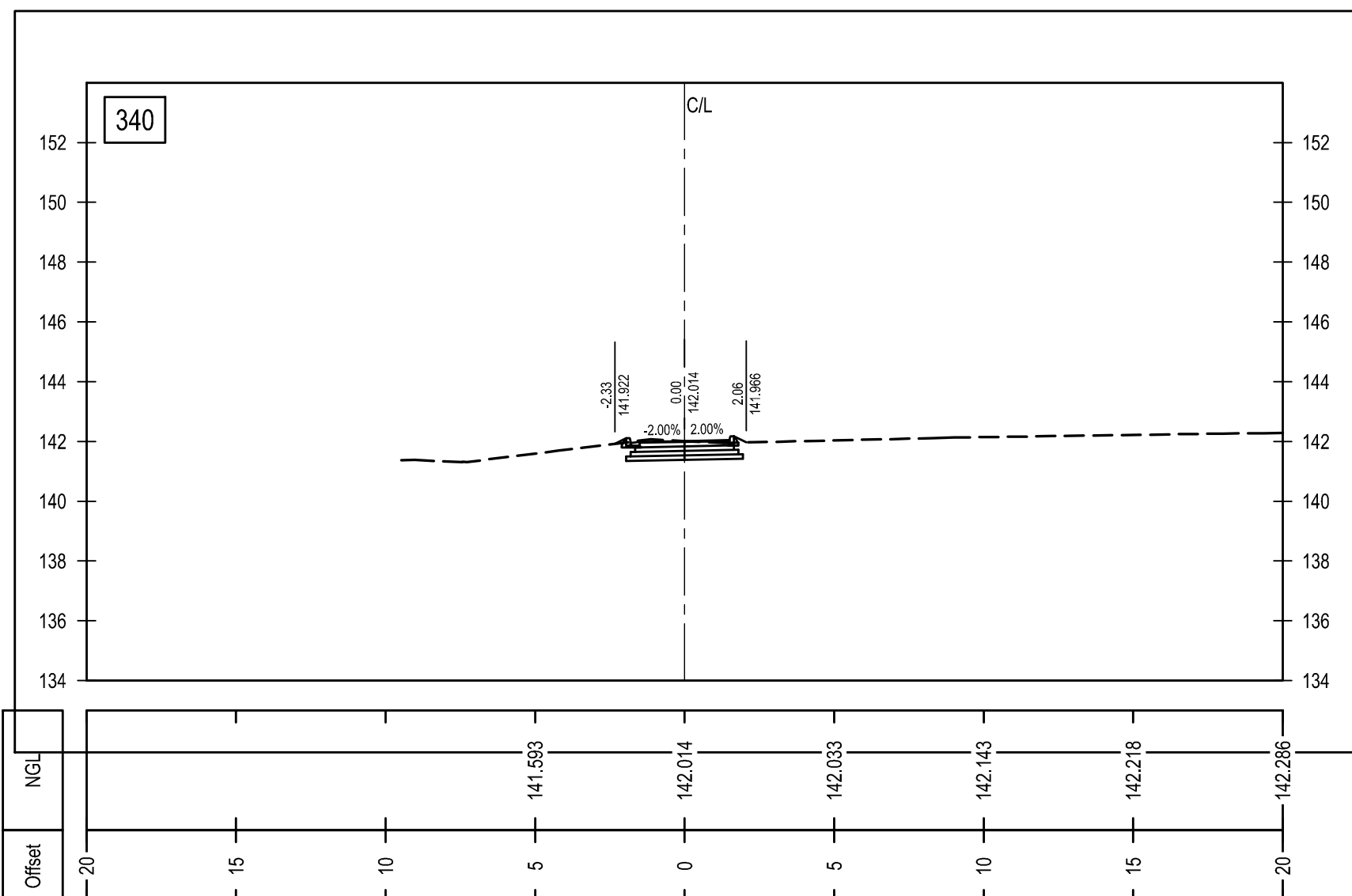
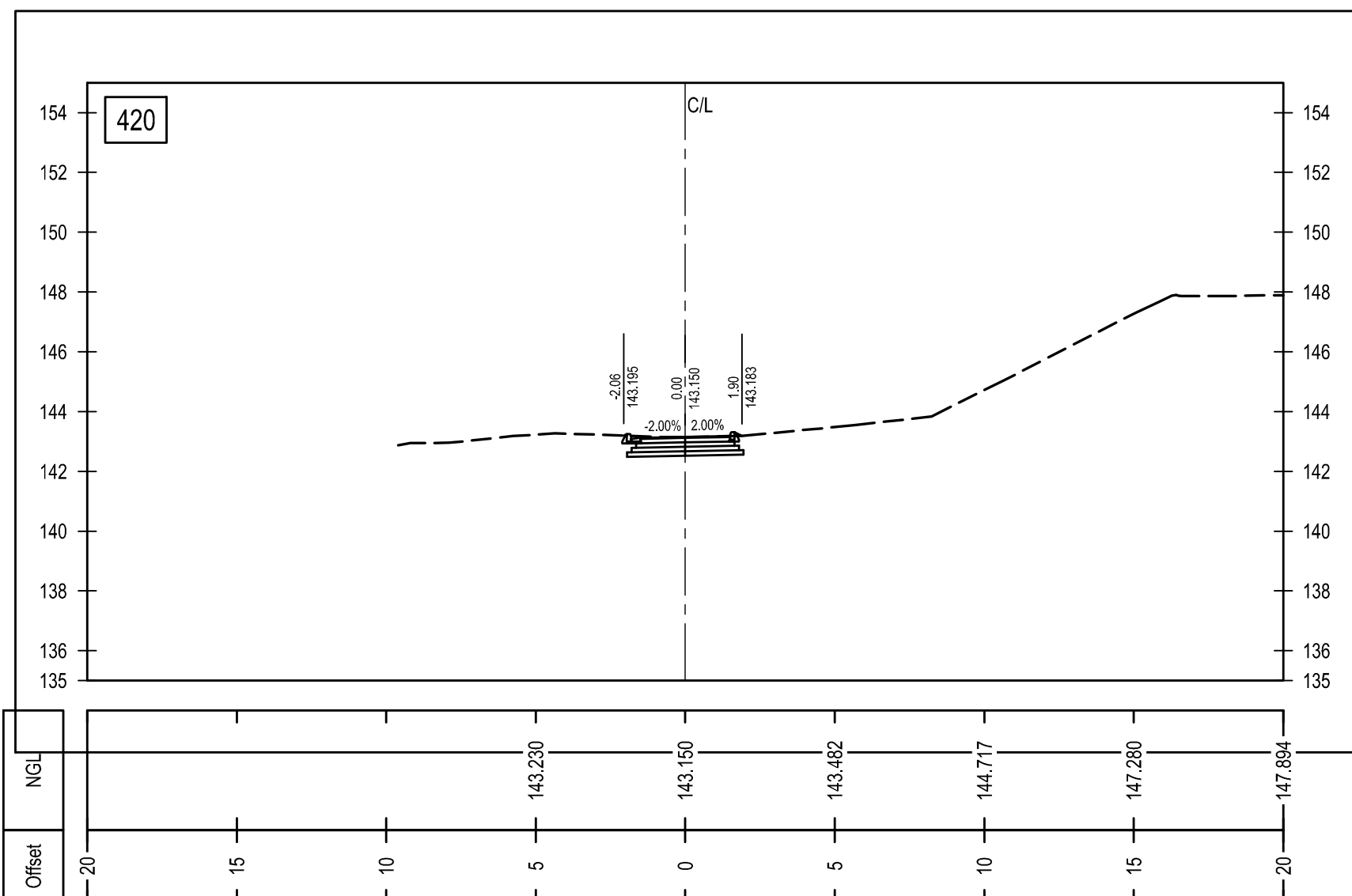
Tel : (031) 566 1160
Fax : (031) 566 1732

Revision	Date	Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed.		
Acquisitions completed: -		
Date	Engineer	
UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
SEWERS		
WATER MAINS		
G.P.O CABLES		
TELEPHONE CABLES		
E.A.R. CABLES		
E.S.C. CABLES		
CL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and communications. Wherever possible these must be located before work proceeds.

Contract No		1770	
Client			
STELLENBOSCH MUNICIPALITY			
Project Title			
CONSTRUCTION OF SCHOOL STREET,			
Drawing Title			
SCHOOL STREET, ROAD CROSS SECTION (SHEET 5 OF 7)			
Scales		Date	
1: 200		07/2023	
Designed		Checked	
P. RAMAUTAR		P.DHANEE	
Drawn		Surveyed	
S. PILLAY			
Manager: N. RAMOHANI			
Deputy Head: P.DHANEE			
Engineer: P.DHANEE			
Professional Registration Number: 201270079			
Drawing		REV	
BMK-1770-JT-012		A	



DETAILED DESIGN



- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
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- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



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Ridgside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description

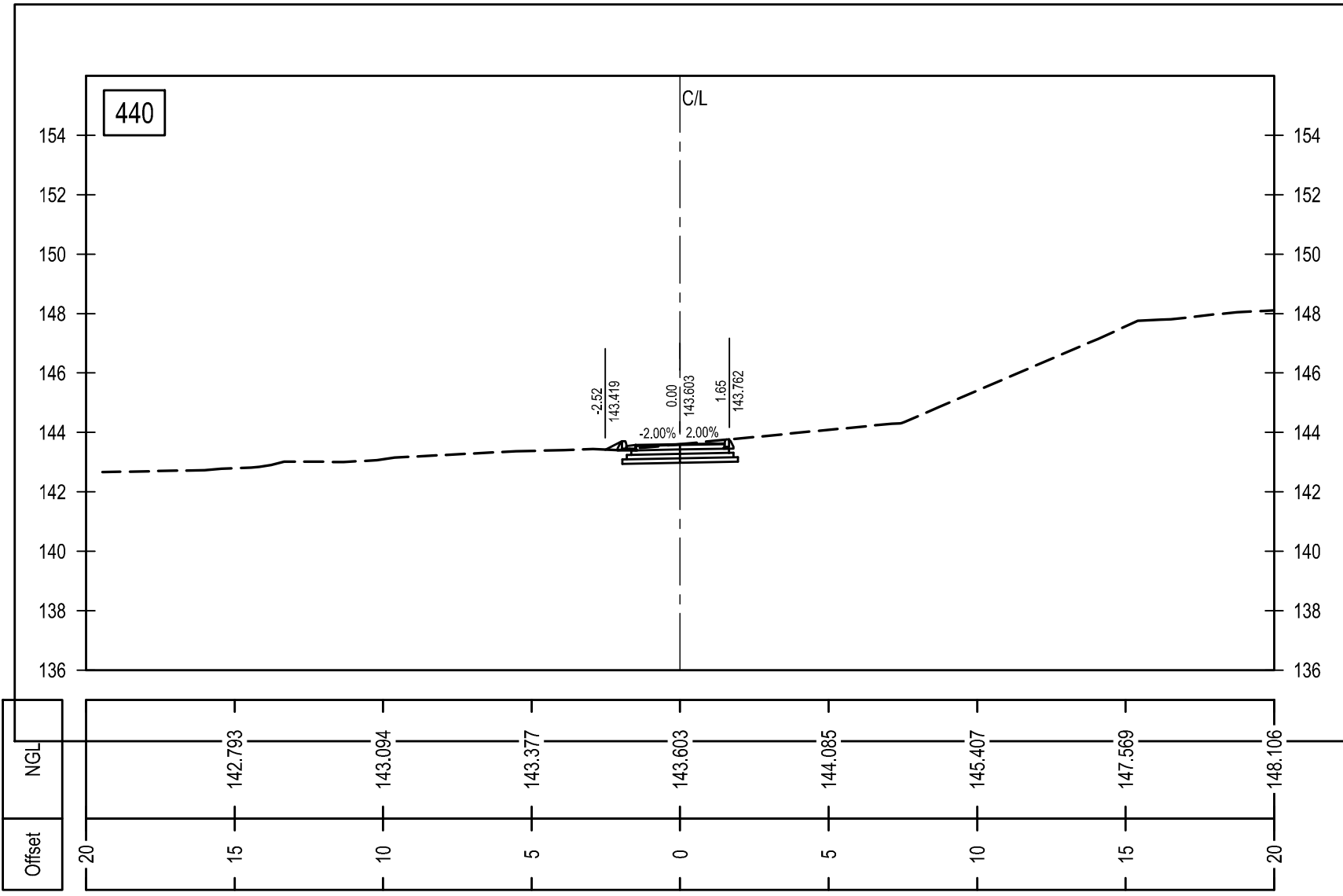
NOTE: No construction work to commence until land and servitude acquisitions have been completed.

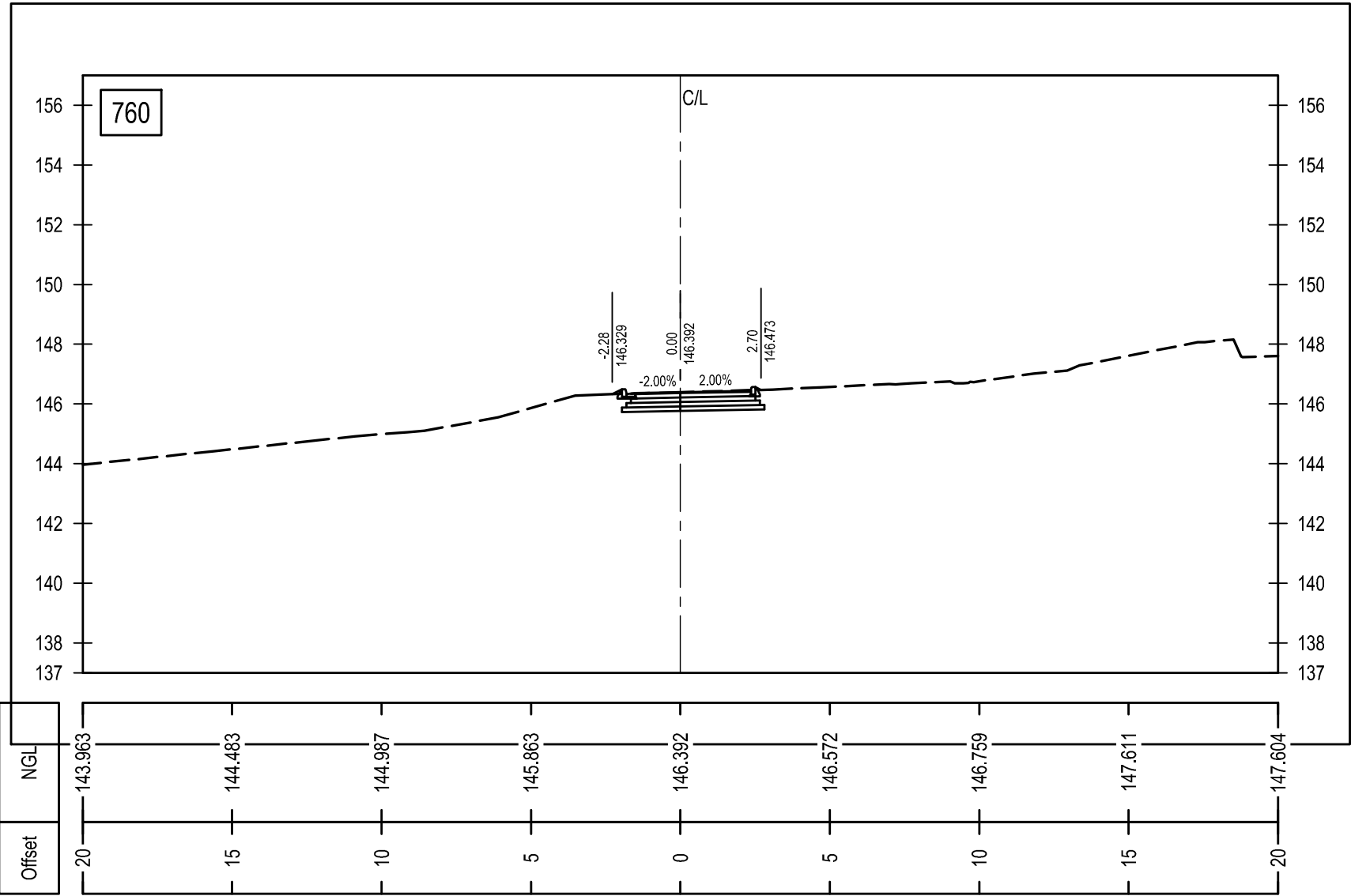
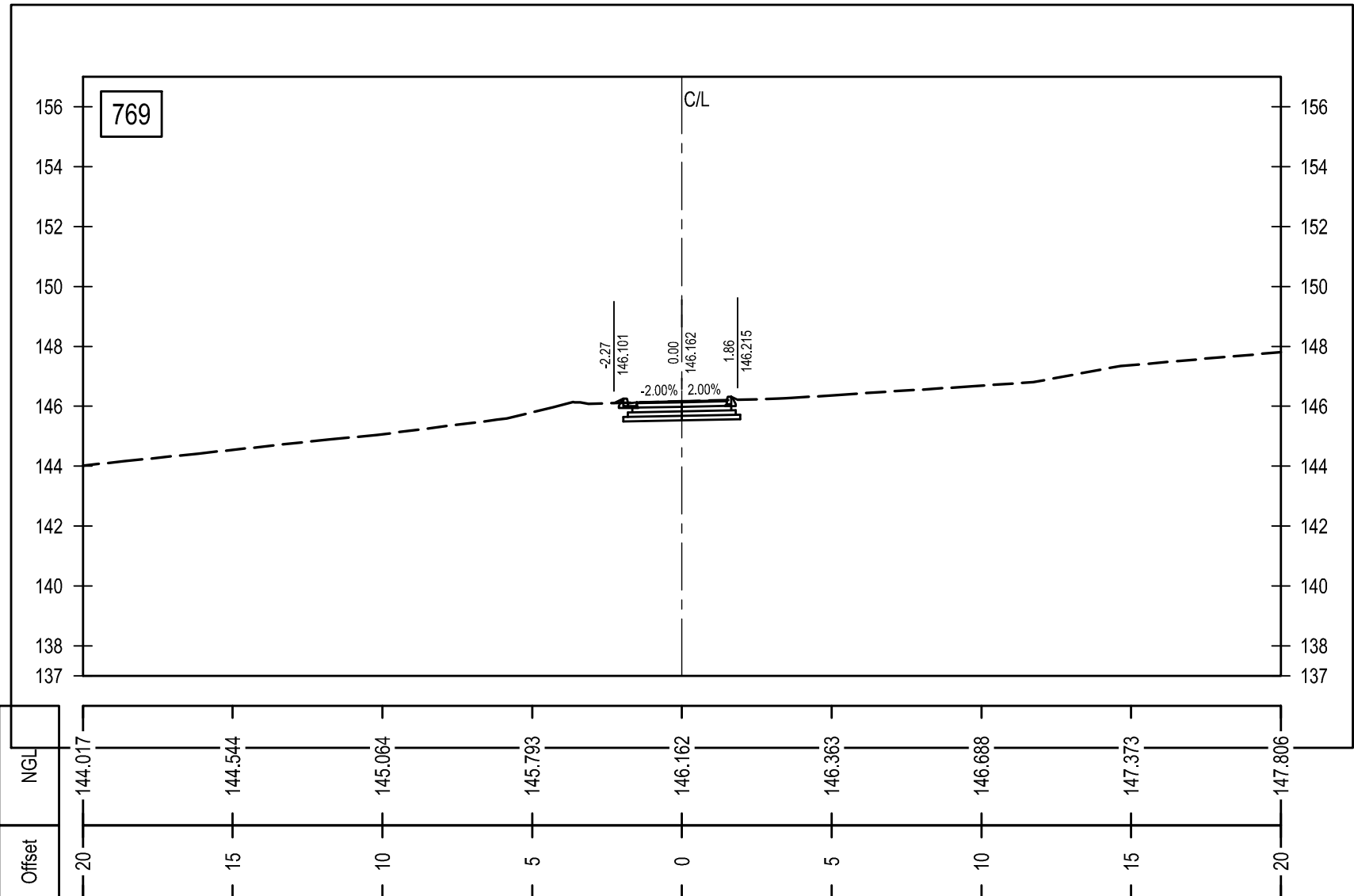
Date	Engineer	Acquisitions completed -

SERVICE	DATE	SIGNATURE
SEWER		
WATER MAINS		
G.P.O CABLES		
TELEPHONE CABLES		
E.A.R. CABLES		
E.S.C. CABLES		
CL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and storming drains. Wherever possible these must be located before work proceeds.

Contract No	1770		
Client	STELLENBOSCH MUNICIPALITY		
Project Title	CONSTRUCTION OF SCHOOL STREET,		
Drawing Title	SCHOOL STREET, ROAD CROSS SECTION (SHEET 6 OF 7)		
Scales	1: 200	Date	07/2023
Designed	P. RAMAUTAR	Checked	P.DHANEE
Drawn	S. PILLAY	Surveyed	
Manager:	N. RAMOHANI		
Deputy Head:	P.DHANEE		
Engineer:	P.DHANEE		
Professional Registration Number:	201270079		
Drawing	BMK-1770-JT-013	REV	A





- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
- C. ONCE THE WORKS ARE SET OUT THE CONTRACTOR MUST CALL THE ENGINEER FOR INSPECTION PRIOR TO COMMENCING WITH THE EXCAVATION.
- D. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES IN THE DRAWINGS, THESE DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. NO ASSUMPTIONS MUST BE MADE.
- E. SHOULD THE CONTRACTOR WISH TO USE ANY MATERIALS OTHER THAN THOSE SPECIFIED, HE MUST OBTAIN WRITTEN APPROVAL FROM THE ENGINEER TO DO SO.
- F. ANY DESIGN CHANGES DURING CONSTRUCTION MUST BE ISSUED UNDER SITE INSTRUCTION, AFTER APPROVAL BY THE ENGINEER.
- G. ALL EXISTING SERVICES TO BE PROVIDED & VERIFIED PRIOR TO WORK COMMENCING. ANY EXISTING SERVICE THAT IS DAMAGED BY THE CONTRACTOR AND IS SHOWN ON THE CONSTRUCTION DRAWINGS OR INDICATED TO THE CONTRACTOR ON SITE BY THE ENGINEER, MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
- H. THE CONTOURS AND NATURAL GROUND LEVELS INDICATED ON THIS DRAWING ARE AS PER THE SURVEY DATA SUPPLIED. THE CONTRACTOR IS TO CHECK THE ACCURACY OF THIS INFORMATION AND REPORT ANY DISCREPANCIES IMMEDIATELY.
- I. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL STORMWATER RUNOFF IS CONTROLLED TO PREVENT DAMAGE TO THE WORKS, EXISTING STRUCTURES AND SURROUNDING PROPERTIES, DURING THE CONSTRUCTION PROCESS.
- J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.
- K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE INSITU MOISTURE CONTENT OF THE MATERIAL.
- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.



Office 218 Tel : (031) 566 1160
45 Richefonde Circle Fax : (031) 566 1732
Ridgeside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description

NOTE: No construction work to commence until land and servitude acquisitions have been completed.

Acquisitions completed -

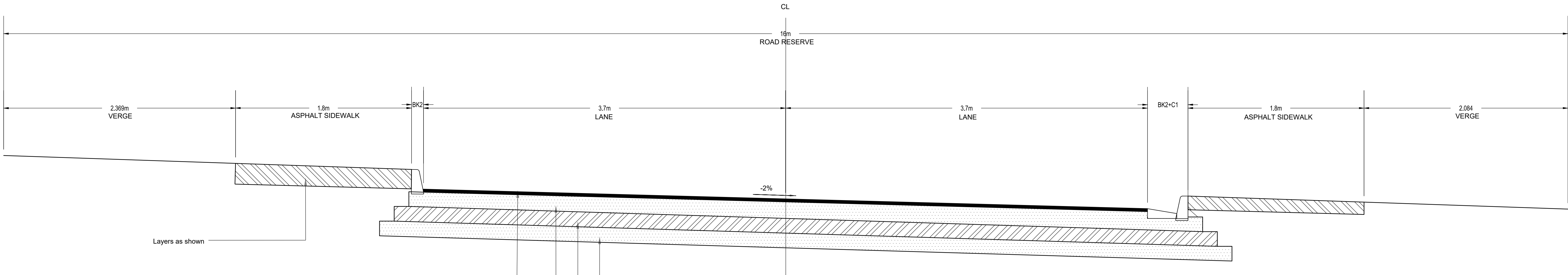
Date _____ Engineer _____

UNDERGROUND SERVICES CHECKED

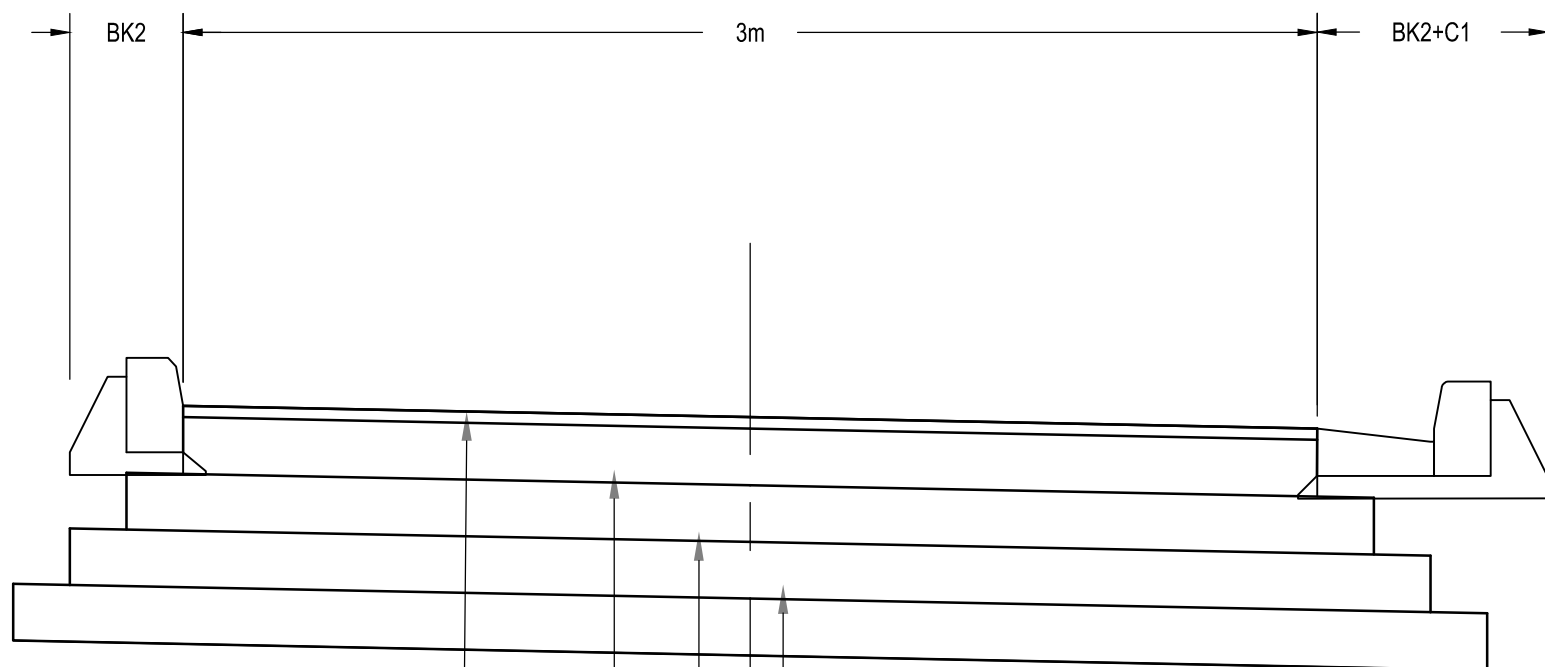
SERVICE	DATE	SIGNATURE
S.W. DRAINS		
SEWERS		
WATER MAINS		
G.P.O. CABLES		
ELECTRIC CABLES		
S.A.R. CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches, etc., to avoid damage to underground services such as sewers, drains, cables, water mains and communications. Wherever possible these must be located before work proceeds.

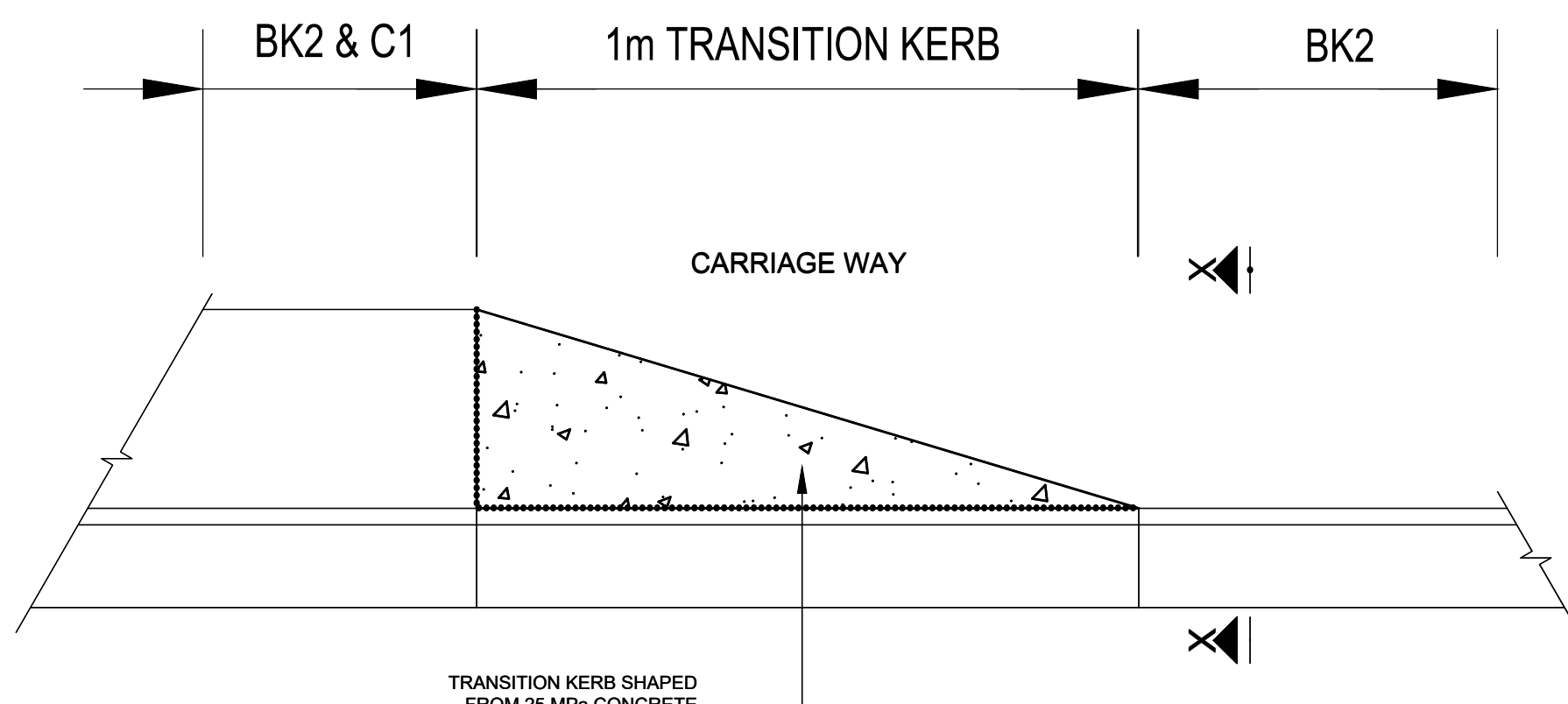
Contract No	1770		
Client	STELLENBOSCH MUNICIPALITY		
Project Title	CONSTRUCTION OF SCHOOL STREET,		
Drawing Title	SCHOOL STREET, ROAD CROSS SECTION (SHEET 7 OF 7)		
Scales	1: 200	Date	07/2023
Designed	P. RAMAUTAR	Checked	P.DHANEE
Drawn	S. PILLAY	Surveyed	
Manager	N. RAMDHANI		
Deputy Head	P.DHANEE		
Engineer	P.DHANEE	Professional Registration Number	201270079
Drawing	BMK-1770-JT-012	REV	A



TYPICAL CROSS SECTION of
SCHOOL STREET
16m ROAD RESERVE
Scale 1:20

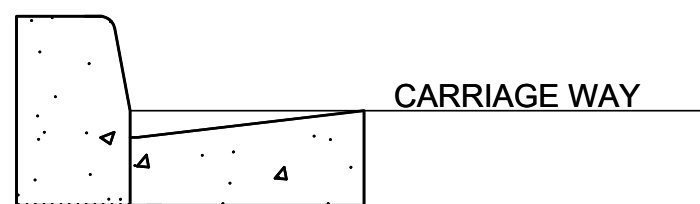


TYPICAL CROSS SECTION of
NMT SIDEWALK
Scale 1:20

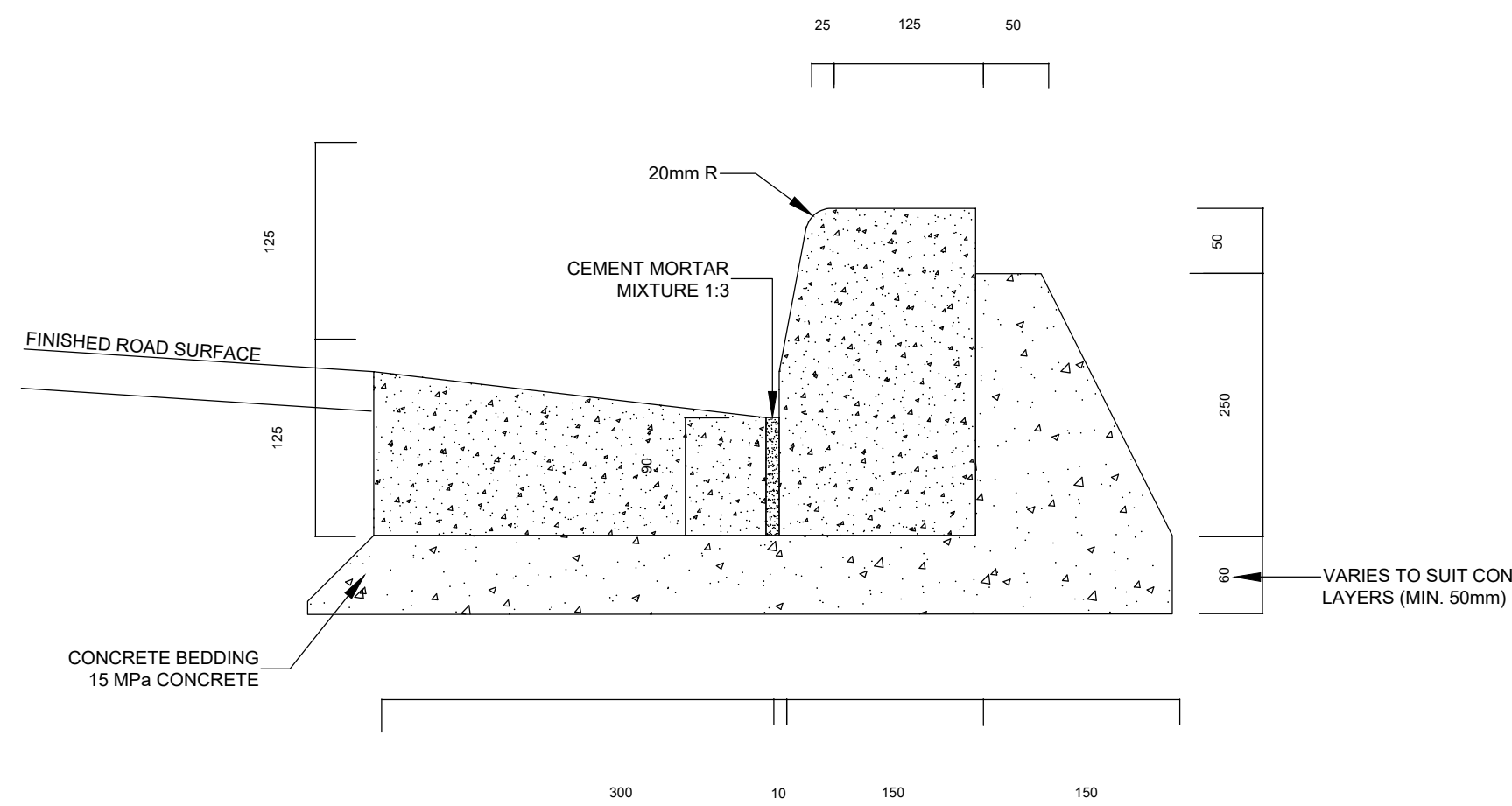


NOTE:
ALL EXPOSED SURFACES TO HAVE
A STEEL FLOAT FINISH

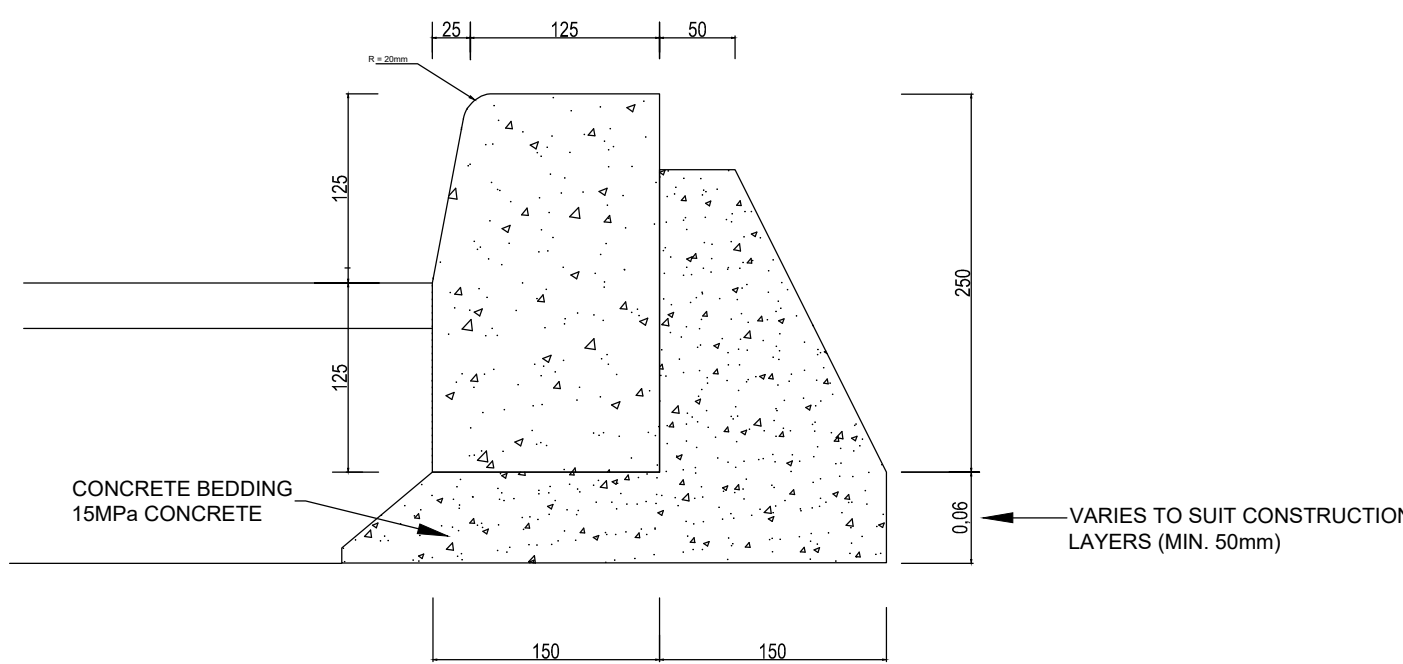
STANDARD DETAIL DRAWING
TRANSITION KERB: BK2 & C1 - BK2
SCALE 1:10



SECTION X-X



STANDARD DETAIL DRAWING
BARRIER KERB : TYPE BK2 & C1
SCALE 1:5



STANDARD DETAIL DRAWING
BARRIER KERB : TYPE BK2
SCALE 1:5

- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
- B. THE CONTRACTOR MUST ARRANGE FOR CONTROL, TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL, TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.
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- J. ALL CUT AND FILL BATTERS TO BE 1:2 RESPECTIVELY.
- K. THE CONTRACTOR IS TO TAKE COGNISANCE OF THE GEOTECHNICAL REPORT AND THE RECOMMENDATIONS MADE THEREIN, SPECIFICALLY WITH REGARDS TO THE IN SITU MOISTURE CONTENT OF THE MATERIAL.
- L. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DETAIL DRAWINGS.

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN
NOTE: No construction work to commence until land and conductive excavations have been completed.		
Acquisitions completed: -		
Date	Engineer	SIGNATURE
UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
IS/WI DRAINS		
SEWERS		
WATER MAINS		
G.P. CABLES		
ELECTRIC CABLES		
S.A.H. CABLES		
E.S.D. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Whenever possible these must be located before work proceeds.

Contract No 1770

Client STELLENBOSCH MUNICIPALITY

Project Title
CONSTRUCTION OF SCHOOL STREET,
ACCESS ROAD 5 AND NMT FACILITIES

Drawing Title
JAMESTOWN SCHOOL STREET,
STANDARD DETAILS

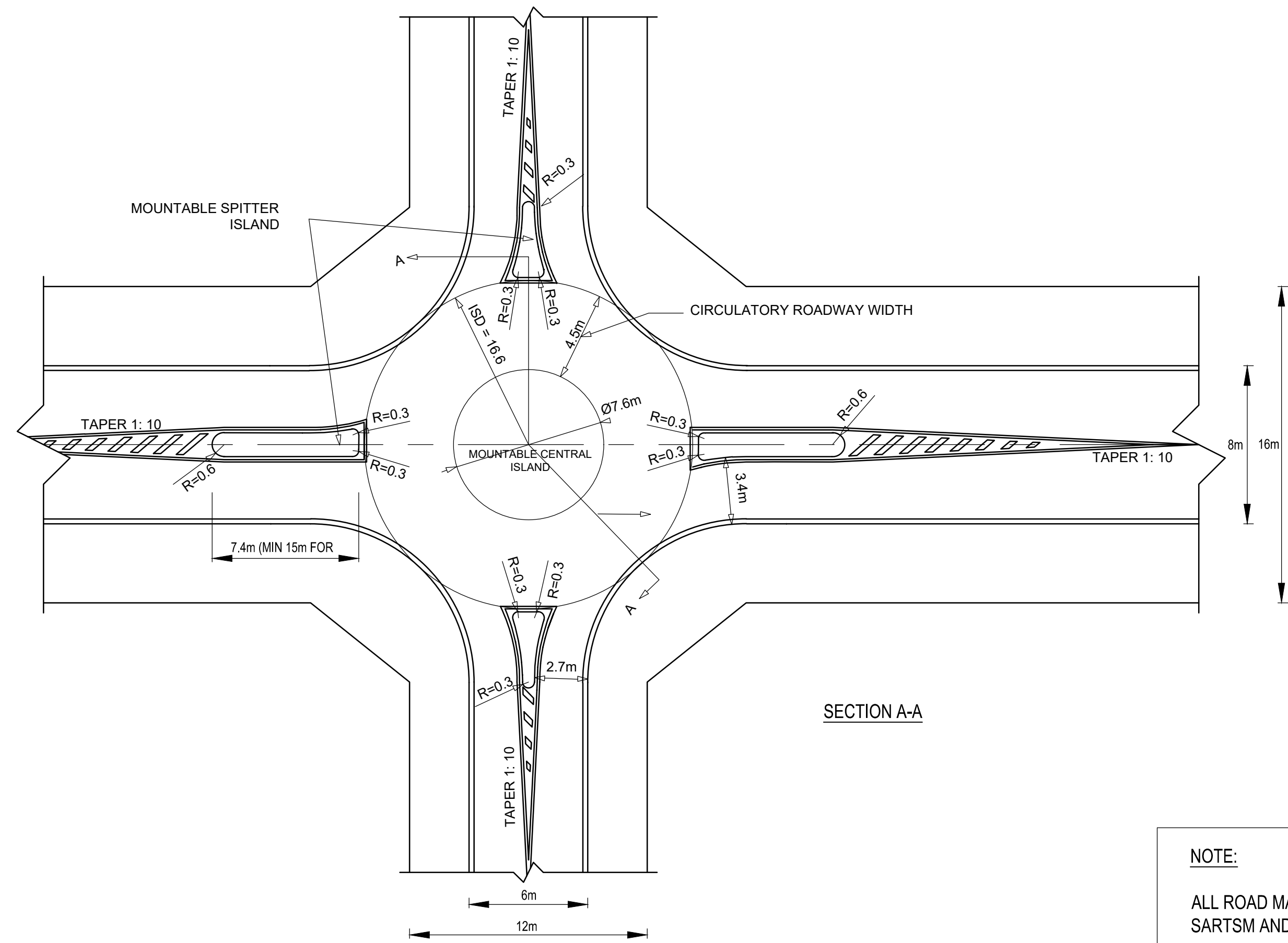
Scales AS SHOWN Date 08/2023
Designed P. RAMAUTARI Checked P. DHANEE
Drawn K. PERLUMAL Surveyed

Manager : N. RAMDHANI

Deputy Head : P. DHANEE

Engineer : P. DHANEE
Professional Registration Number : 201270079

Drawing BMK-1770-JT-015 REV A



NOTE:
ALL ROAD MARKINGS AND SIGNS TO COMPLY WITH
SARTSM AND COLTO

STANDARD DETAIL
TYPICAL MINI ROUNDABOUT AT MIDDLE & LOWER ORDER LINK ROADS
NTS

- GENERAL
- A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.
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Office 218 Tel : (031) 566 1160
45 Richefonde Circle Fax : (031) 566 1732
Ridgeside Office park
Email: admin@bmkgroup.co.za

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to commence until land and servitude acquisitions have been completed	
Acquisitions completed	Engineer
Date	
UNDERGROUND SERVICES CHECKED	
SERVICE	DATE SIGNATURE
S.W. DRAINS	
SEWERS	
WATER MAINS	
G.P.O. CABLES	
ELECTRIC CABLES	
E.A.R. CABLES	
E.S.C. CABLES	
CO. PIPE LINE	

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc., to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

Contract No 1770

Client STELLENBOSCH MUNICIPALITY

Project Title CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES

Drawing Title JAMESTOWN SCHOOL STREET, STANDARD DETAILS

Scales AS SHOWN Date 08/2023

Designed P. RAMAULTAR Checked P. DHANEE

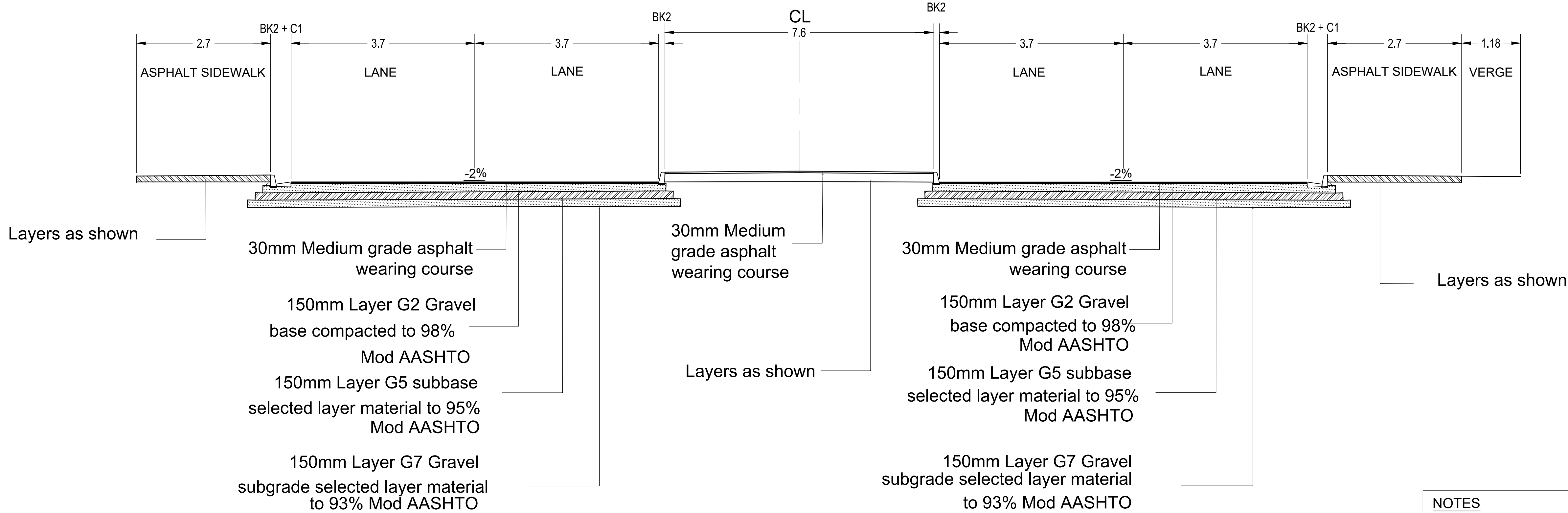
Drawn K. PERUMAL Surveyed

Manager: N. RAMDHANI

Deputy Head: P. DHANEE

Engineer: P. DHANEE
Professional Registration Number: 201270079

Drawing BMK-1770-JT-016 REV: A

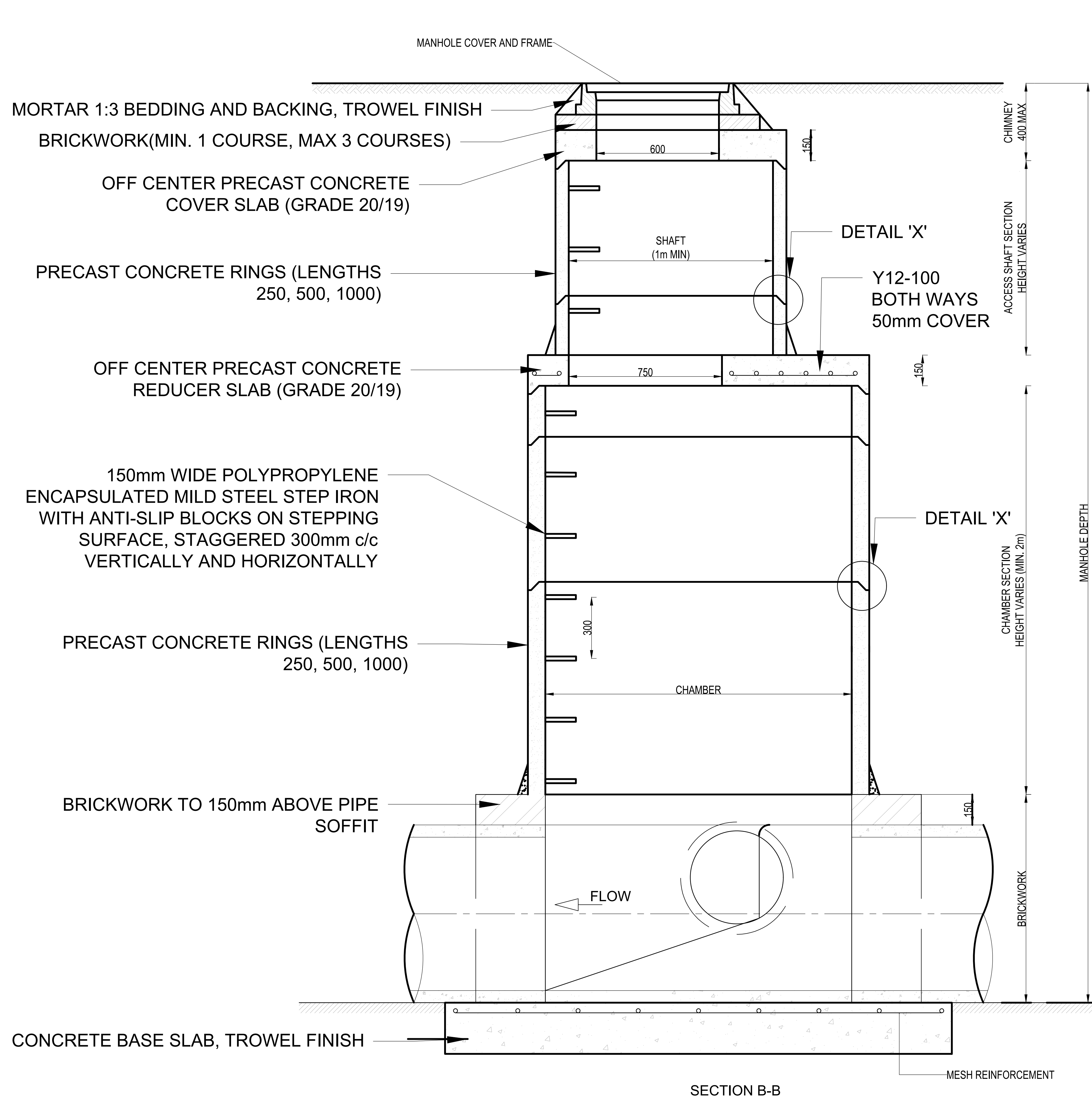


STANDARD DETAIL

SECTION (A-A) OF TYPICAL MINI ROUNDABOUT

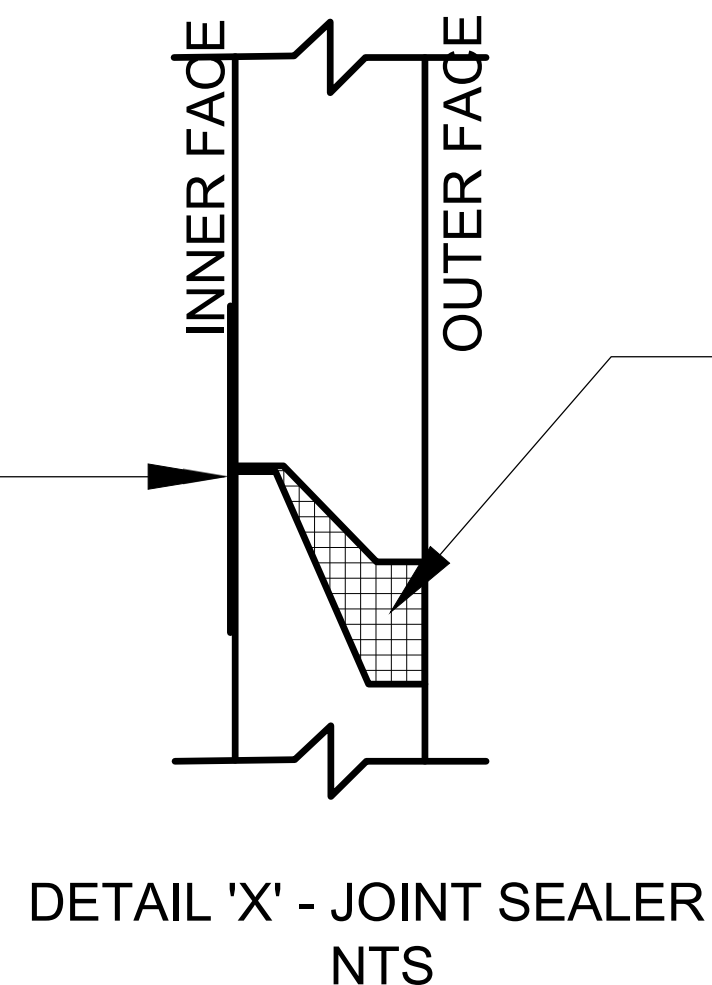
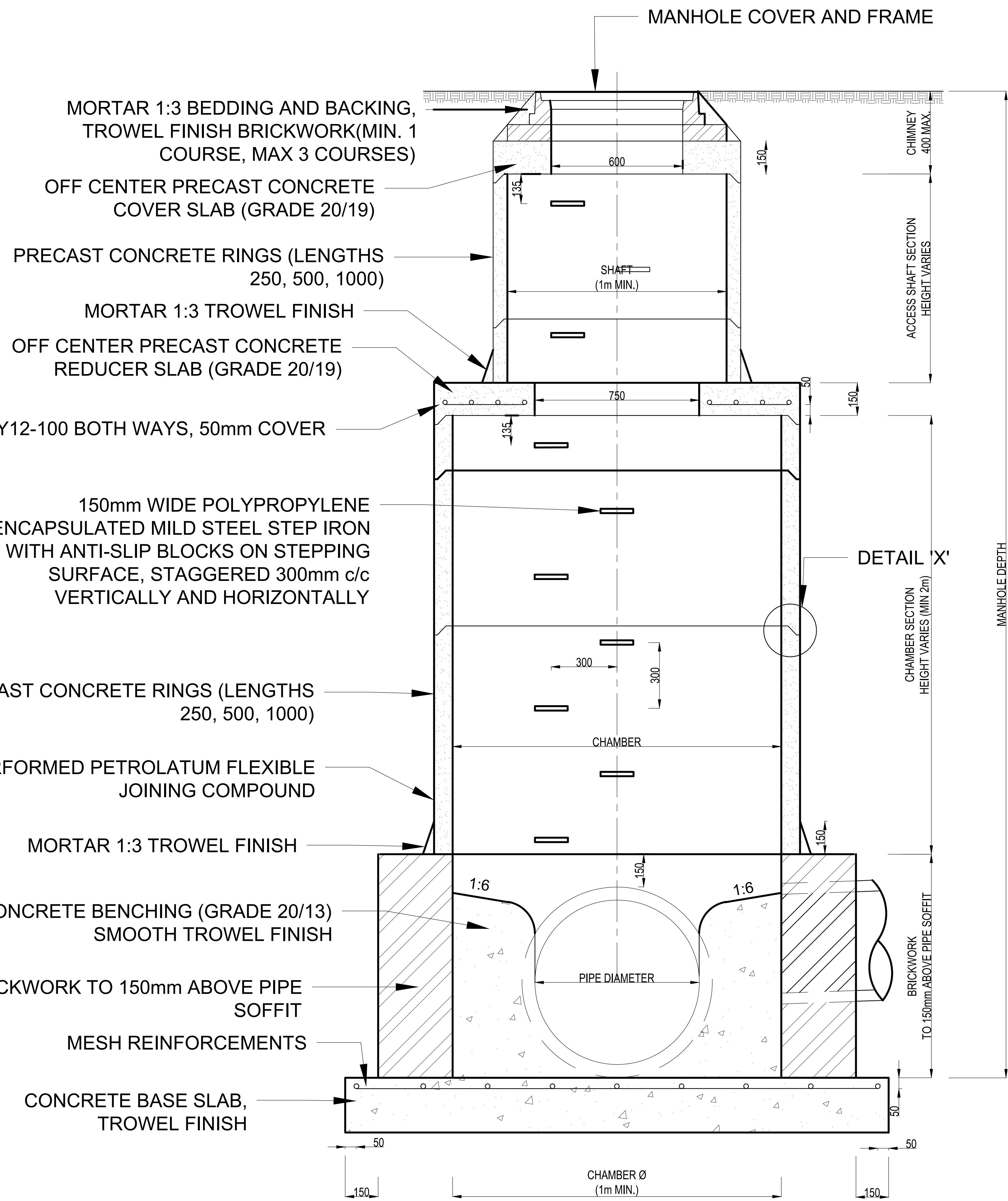
SCALE 1: 100

- NOTES
- RETROFITTED CIRCLE:
 - ROAD LAYERWORKS TO MATCH EXISTING PAVEMENT ON HIGHER OUTER ROAD OR MINIMUM OF THIS STANDARD, WHICHEVER IS THE STRONGEST



STORMWATER MANHOLE WITH
ACCESS SHAFT (DEEP TYPE)
NTS

200mm WIDE LAMINATED NON HARDENING
PETROLATUM ADHESIVE LAYER ON PVC
BACKING FILM



STORMWATER MANHOLE WITH
ACCESS SHAFT (DEEP TYPE)

SECTION A-A
NTS

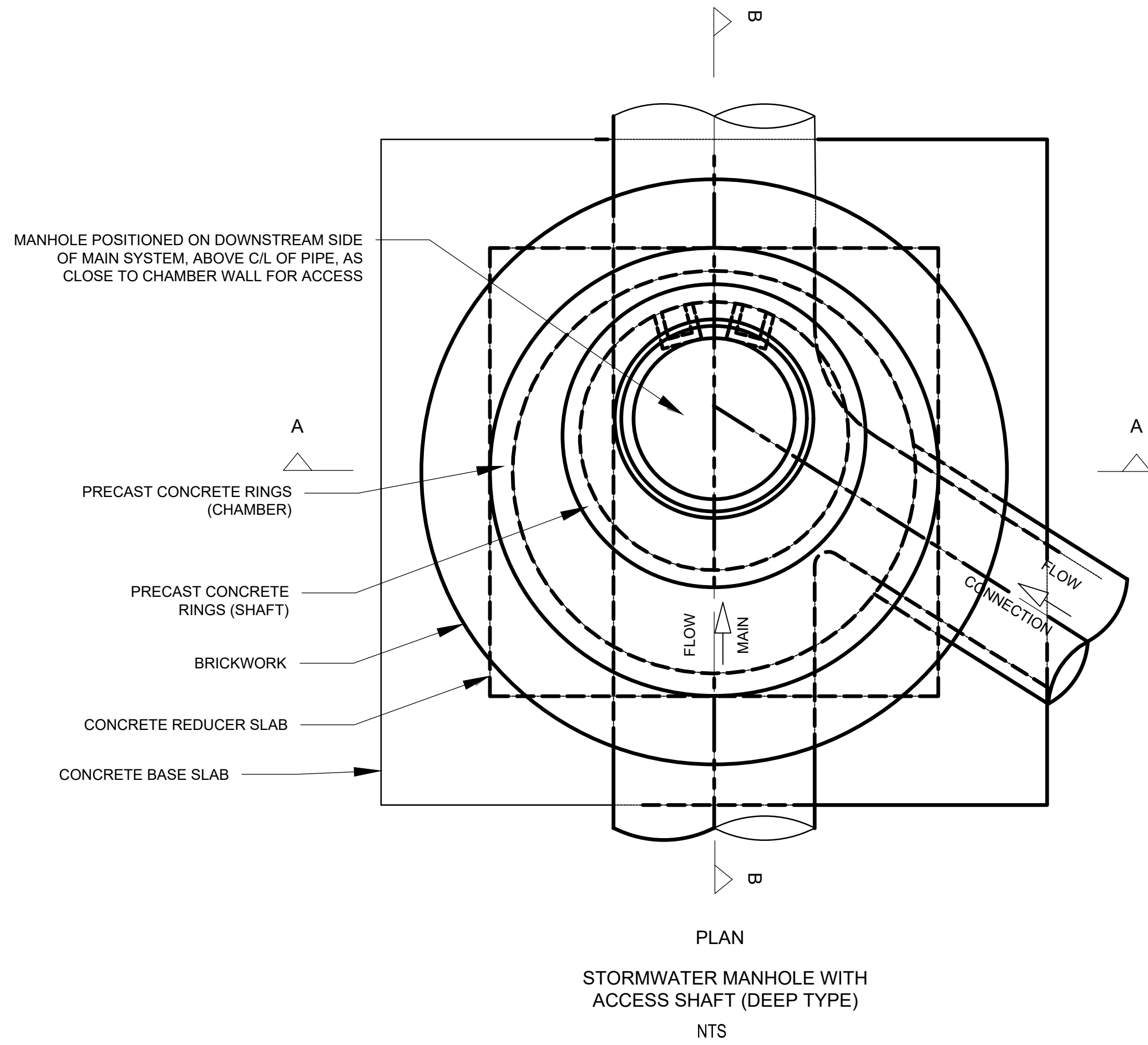
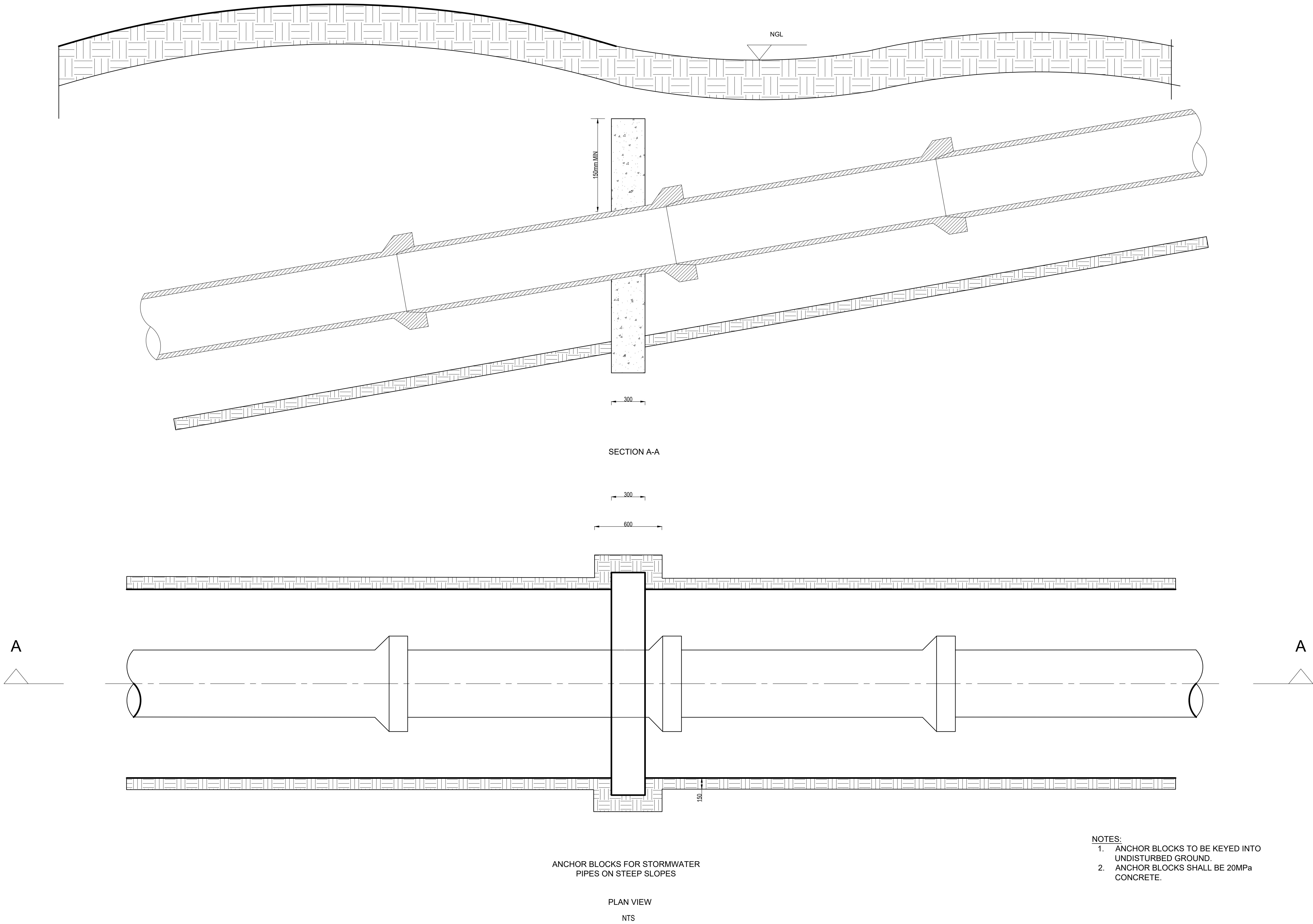
- GENERAL
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Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to commence until land and site conditions have been completed.	
Acquisitions completed: -	
Date	Engineer
SERVICE	DATE
UNDERGROUND SERVICES CHECKED	SIGNATURE
S.W. DRAINS	
WATER MAINS	
D.P. CABLES	
ELECTRIC CABLES	
S.A.R. CABLES	
E.C. CABLES	
OIL PIPELINE	

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water main and gas pipes. Whenever possible these must be located before work proceeds.

Contract No	1770
Client	STELLENBOSCH MUNICIPALITY
Project Title	CONSTRUCTION OF SCHOOL STREET, ACCESS ROAD 5 AND NMT FACILITIES
Drawing Title	JAMESTOWN SCHOOL STREET, STORMWATER STANDARD DETAILS
Scales	NTS
Date	08/2023
Designed	P. RAMAUTAR
Checked	P. DHANEE
Drawn	K. PERUMAL
Surveyed	
Manager	N. RAMDHANI
Deputy Head	P. DHANEE
Engineer	P. DHANEE
Professional Registration Number	201270079
Drawing	BMK-1770-JT-017
REV	A



GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT SANS 1200 SPECIFICATIONS.

B. THE CONTRACTOR MUST ARRANGE FOR CONTROL TESTING AT FREQUENCIES SPECIFIED IN THE RELEVANT SANS 1200 SPECIFICATIONS. COSTS FOR CONTRACTORS ACCOUNT CONTROL TESTING WILL BE FOR THE CONTRACTORS ACCOUNT.

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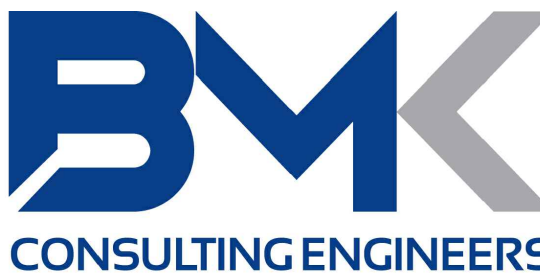
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Office 218 Tel : (031) 566 1160
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Ridgeside Office park

Email: admin@bmkgroup.co.za

Revision	Date	Description
A	AUG 2023	DRAFT DETAILED DESIGN

NOTE: No construction work to commence until level and servitude acquisitions have been completed.

Acquisitions completed: _____
Date: _____ Engineer: _____

UNDERGROUND SERVICES CHECKED		
SERVICE	DATE	SIGNATURE
S.W. DRAIN		
SEWERS		
WATER MAINS		
G.P.O. CABLES		
ELECTRIC CABLES		
SA.F. CABLES		
E.S.O. CABLES		
OL. PIPE LINE		

NOTE: Only underground services affected by new construction work are shown. Care must be taken during excavations for road foundations, trenches etc. to avoid damage to underground services such as sewers, drains, cables, water mains and connections. Wherever possible these must be located before work proceeds.

Contract No 1770

Client STELLENBOSCH MUNICIPALITY

Project Title
CONSTRUCTION OF SCHOOL STREET,
ACCESS ROAD 5 AND NMT FACILITIES

Drawing Title
JAMESTOWN SCHOOL STREET,
STORMWATER
STANDARD DETAILS

Scales NTS Date 08/2023
Designed P. RAMAULTAR Checked P. DHANEE
Drawn K. PERUMMAL Surveyed

Manager: N. RAMDHANI

Deputy Head: P. DHANEE

Engineer: P. DHANEE
Professional Registration Number: 201270079

Drawing BMK-1770-JT-018 REV A

CIVIL ENG.LABORATORY SERVICES

Reg.No.:2000/030983/07 - VAT.Reg No.:4130197405

a SANAS Accredited Testing Laboratory, No.T0245

4 HARBOT CLOSE,BRACKENDUST, 7560

P.O BOX 1106, BRACKENFELL

Tel. :021 981 5558

Fax :021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD
PO BOX 112
BELLVILLE
7535

Attention Ms Anneri Maritz

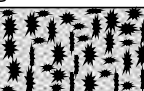
Project : JAMESTOWN ROAD NETWORK DEVELOPMENT
PAVEMENT & GREENFIELD NMT SOILS SURVEY
Your Reference : 84139
Our Reference : 84139
Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv.	Refer Plan	Section.	Green Field Area
TEST PIT No. : 1	Off-Set :	Lane :	
GPS POSITION		Level : S E	
EXCAVATION METHOD		TLB	
PROFILED BY		Lwazi Noah	
DATE		12.04.2021	

Before Condition Not Captured



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0 900 2700	Moist (5,5%), Brown, Dense, Medium to Fine Natural Gravel of Clayey Laterite Pedogenic - Residual	Cbr, F. Indicator C 12658
			Moist (15,5%), Orangy Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual No Water Seepage Observed Excavation Stopped Required depth Reached	Cbr, F. Indicator C 12659

SCALE

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)





MATROCAST

CIVIL ENG.LABORATORY SERVICES

Reg.No.:2000/030983/07 - VAT,Reg No.:4130197405

a SANAS Accredited Testing Laboratory, No.T0245

4 HARBOT CLOSE,BRACKENDUST , 7560

P.O BOX 1106 , BRACKENFELL

Tel. :021 981 5558

Fax :021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section. Green Field Area

TEST PIT No. : 2 Off-Set : Lane :

GPS POSITION

S

E

Level :

EXCAVATION METHOD

TLB

PROFILED BY

Lwazi Noah

DATE

12.04.2021

Before Condition Not Captured



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0		
		800		
		2750		
			Moist (6.2%), Brown, Dense, Medium to Fine Natural Gravel of Clayey Laterite Pedogenic - Residual	Cbr, F. Indicator C 12660
			Moist (12.3%), Orangy Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual No Water Seepage Observed Excavation Stopped Required depth Reached	Cbr, F. Indicator C 12661

NOT TO SCALE

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



CIVIL ENG.LABORATORY SERVICES

Reg.No.:2000/030983/07 - VAT,Reg No.:4130197405

a SANAS Accredited Testing Laboratory, No.T0245

4 HARBOT CLOSE,BRACKENDUST , 7560

P.O BOX 1106 , BRACKENFELL

Tel. :021 981 5558

Fax :021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneriz Maritz

Project :

JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section.:

TEST PIT No. : 3 Off-Set :

Lane. :

GPS POSITION

S 33,98379

E 18,84548

Level : 147

EXCAVATION METHOD

TLB

PROFILED BY

Lwazi Noah

DATE

12.04.2021

Before Condition Not Captured



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION		SAMPLING TYPE AND NUMBER
			Moisture, Colour, Consistency, Structure, Soil Type, Origin, General		
		0	Dry (8.6%), Ligh Orangy Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual		Cbr, Indicator C 12662
		900	Moist (6.6%), Brown, Dense, Medium to Fine Natural Gravel of Clayey Laterite Pedogenic - Residual		Cbr, F Indicator C 12663
		1500	Moist (13.7%), Orangy Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual		Cbr, F Indicator C 12664
		2850	No Water Seepage Observed Excavation Stopped - Required Depth Reached		

NOT TO SCALE

Chel

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



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4 HARBOT CLOSE,BRACKENDUST , 7560

P.O BOX 1106 , BRACKENFELL

Tel. :021 981 5558

Fax :021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT
PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)Km/Sv. Refer Plan Section :
TEST PIT No. : 4 Off-Set :Green Field Area
Lane :**GPS POSITION**

S 33,98238

E 18,84648

Level : 145

EXCAVATION METHOD

TLB

PROFILED BY

Lwazi Noah

DATE

12.04.2021

Before Condition Not
Captured

Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Slightly Moist (4.7%), Brown, Dense, Coarse to Medium Gravel of Silty Clayey Laterite Pedogenic Residual	Cbr, F. Indicator C 12665
		600	Moist (11.9%), Orangy Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual No Water Seepage Observed Excavation Stopped Required depth Reached	Cbr, F. Indicator C 12666
		2950		

NOT TO SCALE

FORM: A7

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Tel. :021 981 5558
Fax : 021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD PO BOX 112 BELLVILLE 7535 Attention : Ms Anneri Maritz		Project : JAMESTOWN ROAD NETWORK DEVELOPMENT PAVEMENT & GREENFIELD NMT SOILS SURVEY Your Reference : 84139 Our Reference : 84139 Date Reported : 13.05.2021
---	--	---

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. : TEST PIT No. : 5	Refer Plan : Off-Set : Lane :	School Road
<div>GPS POSITION S 33,98174 E 18,84705 Level : 141</div> <div>EXCAVATION METHOD TLB</div> <div>PROFILED BY Lwazi Noah</div> <div>DATE 12.04.2021</div>		



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Moist (15,4%), Orangy Brown, Firm, Intact, Lean, Organic, Silty Clay Residual - Insitu Wearing Course No Water Seepage Observed Excavation Stopped Trial Hole to near Road Edge	Cbr, F. Indicator C 12669
		1900		

NOT TO SCALE



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Tel. :021 981 5558

Fax : 021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

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BELLVILLE

7535

Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section.:

TEST PIT No. : 6 , Off-Set :

Pajero Road

Lane.:

GPS POSITION

S 33,98101

E 18,84787

Level : 134

EXCAVATION

METHOD

Hand & Power tools

PROFILED BY

Lwazi Noah

DATE

15.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Pre-Mixed Asphalt Wearingcourse Layer, Bitumen condition : Aged, No Other Distress Patterns Noted	Not Sampled
		60	Moist (2.1%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Cbr, Indicator C 12826
		205	Moist (3.8%), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Cbr, Indicator C 12827
		355	Moist (4.7%), Light Brown, Dense, Fine Grained Sand, Selected Subgrade Layer	Cbr, Indicator C 12828
		380	Moist (15.1%), Oranga Brown, Firm, Intact, Lean, Organic, Silty Clay and Occasional stone fragment (20mm) Residual	Cbr, Indicator C 12829
		960	No Water Seepage Observed Excavation Stopped - Required depth reached	

NOT TO SCALE

Handwritten signature

FORM: A7

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Fax : 021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD
PO BOX 112
BELLVILLE
7535
Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT
PAVEMENT & GREENFIELD NMT SOILS SURVEY
Your Reference : 84139
Our Reference : 84139
Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section.:
TEST PIT No. : 6 Off-Set : Lane.:

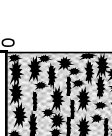
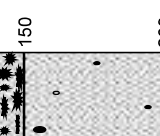
GPS POSITION
S
E
Level :

EXCAVATION
METHOD
TLB

PROFILED BY
Lwazi Noah

DATE
12.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Dry,, Ligh Brown, Dense, Coarse to Medium Gravel of Silty Clayey Laterite Imported GWC	Not Sampled
		150	Moist, Ligh Brown, Medium Dense, Fine Grained Sand, Selected subgrade Layer	Not Sampled
		260	Moist (14.0%), Yellowish Brown, Firm, Intact, Lean, Organic, Silty Clay Residual	Cbr, F. Indicator C 12674
		1900	No Water Seepage Observed	

NOT TO SCALE





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TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT
PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference : 84139

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section :
TEST PIT No. : 8 , Off-Set :

Festival Road
Lane :

GPS POSITION

S 33.98226

E 18.85167

Level : 141

EXCAVATION

METHOD

Hand & Power tools

PROFILED BY

Lwazi Noah

DATE

15.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Pre-Mixed Asphalt Wearingcourse Layer, Bitumen condition : Aged, No Other Distress Patterns Noted	Not Sampled
		30	Moist (3.8%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Cbr, Indicator C 12723
		225	Moist (5.9), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Cbr, Indicator C 12724
		400	Moist (8.4%), Ligth Brown, Medium Dense, Gravelly Sand, Selected Subgrade Layer	Cbr, Indicator C12725
		465	Moist (7.6%), Reddish Brown, Dense, Medium Gravel of Laterite	Indicator Only C 12726
		960	Pedogenic - Residual No Water Seepage Observed Excavation Stopped - Required depth reached	

NOT TO SCALE

Handwritten signature

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



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4 HARBOT CLOSE,BRACKENDUST , 7560

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Tel. :021 981 5558

Fax : 021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project :

JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT

SOILS SURVEY

Your Reference :

84139

Our Reference :

13.05.2021

Date Reported :

13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer

Pain Section :

Pajero Street

Lane :

TEST PIT No. : 9

Off-Set :

GPS POSITION

S 33,98226

E 18,85167

Level : 141

EXCAVATION

METHOD

Hand & Power tools

PROFILED BY

Lwazi Noah

DATE

14.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Pre-Mixed Asphalt Wearingcourse Layer, Bitumen condition : Aged, No Other Distress Patterns Noted	Not Sampled
		60	Moist (5.5%), Reddish Brown, Very Dense, Medium Gravel of Laterite, G4 Base Layer, Imported Natural Gravel	Cbr, Indicator C 12719
		180	Moist (5.2%), Ligth Reddish Brown, Very Dense, Medium Gravel of Laterite, Subbase Layer, Imported Natural Gravel	Cbr, Indicator C 12820
		380	Moist (3.9%), Ligth Brown, Medium Dense, Fine Grained Sand - Selected Subgrade Layer	Cbr, Indicator C 12721
		620	Moist (12.5%), Orangy Brown, Firm, Intact, Lean, Organic, Silty Clay	Cbr, Indicator C 12722
		920	Residual No Water Seepage Observed Excavation Stopped - Required depth reached	

NOT TO SCALE

Handwritten signature

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)





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TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section. : Webers Valley Road

TEST PIT No. : 10 , Off-Set :

Lane. :

GPS POSITION

S 33.98226

E 18.85167

Level : 141

EXCAVATION

METHOD

Hand & Powertools

PROFILED BY

Lwazi Noah

DATE

13.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION		SAMPLING TYPE AND NUMBER
			Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	
		0	Pre-Mixed Asphalt Wearingcourse Layer - Bit Condition : Aged	Pre-Mixed Asphalt Wearingcourse Layer - Bit Condition : Aged	Not Sampled
		30	Moist (2.7%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Moist (2.7%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Cbr, Indicator C 12713
		230	Moist (5.6%), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Moist (5.6%), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Cbr, Indicator C 12714
		445	Moist (6.0%), Orangy Brown, Dense, Fine Grained Sand, Selected Subgrade Layer	Moist (6.0%), Orangy Brown, Dense, Fine Grained Sand, Selected Subgrade Layer	Indicator Only C12716
		550	Moist (5.0), Dark Reddish Brown, Dense, Bicuit Layer of Laterite Fine Gravel	Moist (5.0), Dark Reddish Brown, Dense, Bicuit Layer of Laterite Fine Gravel	Indicator Only C 12718
		570	Moist (7.3%), Ligth Brown, Dense, Fine Gravel of Laterite, Selected subgrade Layer	Moist (7.3%), Ligth Brown, Dense, Fine Gravel of Laterite, Selected subgrade Layer	Indicator Only C 12717
		780	Moist (%), Brownish, Dense, Sandy Fine Laterite Gravel, Pedogenic - Residual Layer, No Seepage Observed, Excavation Stopped - Required Depth reached	Moist (%), Brownish, Dense, Sandy Fine Laterite Gravel, Pedogenic - Residual Layer, No Seepage Observed, Excavation Stopped - Required Depth reached	Not Sampled
		960	NOT TO SCALE		



FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



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4 HARBOT CLOSE,BRACKENDUST, 7560

P.O BOX 1106, BRACKENFELL

Tel. :021 981 5558

Fax : 021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project: JAMESTOWN ROAD NETWORK DEVELOPMENT
PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference : 84139

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section.: Webers Valley Road
TEST PIT No. : 11 , Off-Set : Lane.:

GPS POSITION

S
E

Level :

EXCAVATION
METHOD

Hand & Power tools

PROFILED BY

Lwazi Noah

DATE

14.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Bituminous Slurry Seal Wearingcourse Layer, Bitumen condition : Aged - No Other Distress Patterns Noted	Not Sampled
		20	Moist (5.0%), Reddish Brown, Very Dense, Medium Gravel of Ferricrete, G4 Base Layer, Imported Natural Gravel	Cbr, Indicator C 12709
		110	Moist, Orangy Brown, Dense, Fine Gravel of Laterite, Subbase, Imported Natural Gravel	Cbr, Indicator C 12710
		380	Moist (6.0%), Dark Brown, Dense, Medium Gravel of Laterite, Selected Subgrade Layer	Cbr, Indicator C 12711
		460	Moist (5.9%), Orangy Brown, Dense, Fine Gravel of Laterite	Cbr, Indicator C 12712
		900	Pedogenic - Residual No Water Seepage Observed Excavation Stopped - Required depth reached	

NOT TO SCALE

Handwritten signature

FORM: A7

4.4(SGS)(2016.08.31)

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TEST RESULTS

AECOM SA (PTY) LTD

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BELLVILLE

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Attention Ms Anneri Maritz

Project :

JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT

SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section. : Webers Valley Road

TEST PIT No. : 12 , Off-Set : Lane. :

GPS POSITION

S 33,97643

E 18,84476

Level : 115

EXCAVATION METHOD

Hand & Power tools

PROFILED BY

Lwazi Noah

DATE

15.04.2021



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION		SAMPLING TYPE AND NUMBER
			Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	
		0	Pre-Mixed Asphalt Wearingcourse, Bitumen Condition : Aged	Pre-Mixed Asphalt Wearingcourse, Bitumen Condition : Aged	Not Sampled
		70	Moist (3.8%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Moist (3.8%), Greyish, Very Dense, Processed Hornfels Base Layer, No evidence of Previous Stabilization found	Cbr, Indicator C 12830
		190	Moist (7.1%), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Moist (7.1%), Brown, Very Dense, Crushed Hornfels Layer, Subbase, No evidence of Previous Stabilization found	Cbr, Indicator C 12831
		340	Moist (7.0%), Reddish Brown, Dense, Medium Gravel of Laterite, Selected Subgrade Layer	Moist (7.0%), Reddish Brown, Dense, Medium Gravel of Laterite, Selected Subgrade Layer	Cbr, Indicator C 12832
		480	Moist (7.0%), Reddish Brown, Dense, Fine Gravel of Laterite, Selected Subgrade Layer	Moist (7.0%), Reddish Brown, Dense, Fine Gravel of Laterite, Selected Subgrade Layer	Cbr, Indicator C 12833
		690	Moist (6.2%), Reddish Brown, Dense, Medium to Fine Gravel of Laterite Pedogenic - Residual , No Water Seepage Observed	Moist (6.2%), Reddish Brown, Dense, Medium to Fine Gravel of Laterite Pedogenic - Residual , No Water Seepage Observed	Cbr, Indicator C 12834
		950	Excavation Stopped - Required depth reached	Excavation Stopped - Required depth reached	

Handwritten signature

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)





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4 HARBOT CLOSE,BRACKENDUST , 7560

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TEST RESULTS

AECOM SA (PTY) LTD

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BELLVILLE

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Attention Ms Anneri Maritz

Project :

JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT

SOILS SURVEY

Your Reference : 84139

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)

Km/Sv. Refer Plan Section. Green Field Area

TEST PIT No. : 24 Off-Set : Shdr Lane :

GPS POSITION

S 33,9818

E 18,84741

Level : 147

EXCAVATION METHOD

TLB

PROFILED BY

Lwazi Noah

DATE

13.04.2021

Before Condition Not Captured



Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Dry(5.9%), Brown, Medium Dense, Coarse to Medium Gravel of Silty Clayey Laterite with some intrusion of Builder's Rubble Fragments Pedogenic - Residual	Cbr, F. Indicator C 12670
		500	Slightly Moist (8.2%), Yellowish Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual No Water Seepage Observed Excavation Stopped Required depth Reached	Cbr, F. Indicator C 12671
		1600		

NOT TO SCALE

Handwritten signature

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



CIVIL ENG.LABORATORY SERVICES

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Tel. :021 981 5558

Fax :021 981 6724

TEST RESULTS

AECOM SA (PTY) LTD

PO BOX 112

BELLVILLE

7535

Attention Ms Anneri Maritz

Project :

JAMESTOWN ROAD NETWORK DEVELOPMENT

PAVEMENT & GREENFIELD NMT SOILS SURVEY

Your Reference :

Our Reference : 84139

Date Reported : 13.05.2021

PROFILE REPORT (JENNINGS & BRINK) , (TMH5 - MA2)Km/Sv. Refer Plan Section. :
TEST PIT No. : 25 Off-Set :
Lane. :
Greenfield Area**GPS POSITION**

S 33,98144

E 18,84788

Level : 147

EXCAVATION METHOD

TLB

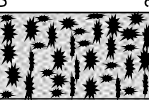
PROFILED BY

Lwazi Noah

DATE

12.04.2021

Before Condition Not
Captured

Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture, Colour, Consistency, Structure, Soil Type, Origin, General	SAMPLING TYPE AND NUMBER
		0	Dry(4.7%), Brown, Medium Dense, Coarse to Medium Gravel of Silty Clayey Laterite Pedogenic Residual	Cbr, F. Indicator C 12667
		340	Slightly Moist (9.8%), Yellowish Brown, Stiff, Intact, Lean, Organic, Silty Clay Residual No Water Seepage Observed Excavation Stopped Required depth Reached	F. Indicator Only C 12678
		1550		

NOT TO SCALE

FORM: A7

4.4(SGS)(2016.08.31)

SANAS Technical Signatory : Gregory F Bell (N.Dip-Civ.Eng)



SGS MATROCAST (PTY) LTD
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4 HARBOT CLOSE, BRACKENFELL, 7960
P.O. BOX 1105, BRACKENFELL
Tel : 021 99150419
Fax : 021 9915724
Email : glyn.hudson@sgs.com

CLIENT : AECOM SA (PTY) LTD
ADDRESS : P.O. BOX 112
BELLVILLE
7535
ATTENTION : MS ANNERI MARITZ

OUR REF.: 84139.3

YOUR REF.:

DATE : 13.04.2021

PROJECT : JAMESTOWN ROAD NETWORK STELLENBOSCH, PROPOSED NMT SOILS SURVEY

SGS MATROCAST

a SANAS Accredited Testing Laboratory, No. T0245

Tests marked * "Not SANAS Accredited" in this Report are not included in the
SANAS Schedule of Accreditation for the laboratory.

TEST REPORT / RESULTS

Sample/s: Sampled by : SGS MATROCAST
Date Received / Sampled : 04.12.2021
Date Tested : 04.12.2021-13.04.2021

Sampling method : TMH5 - MA2

Section / Position tested identified by : CUSTOMER

Number of pages in this Report : 34

General : CBR CLASSIFICATION TEST RESULTS

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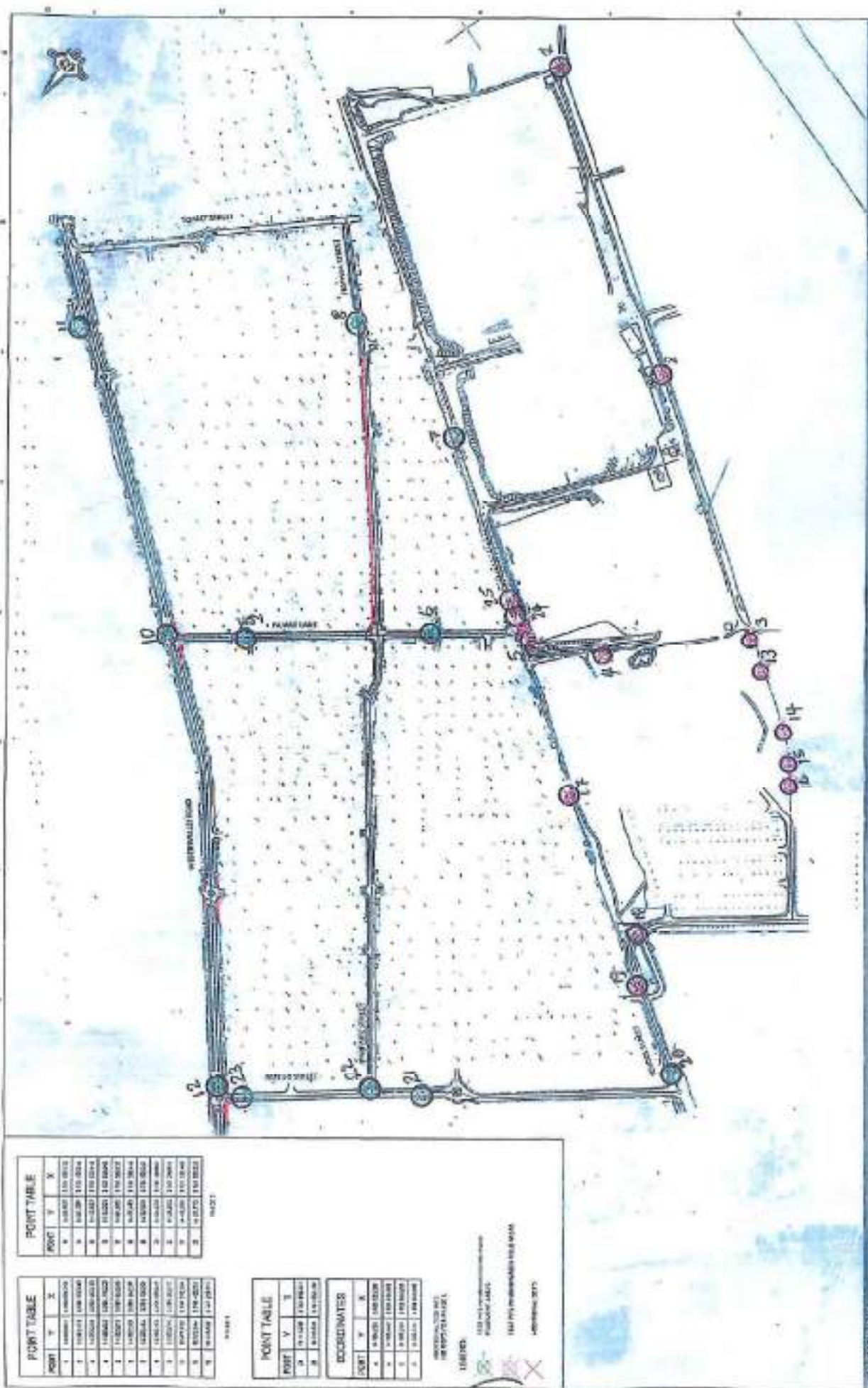
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a SANAS Accredited Testing Laboratory, No. T0245

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POINT TABLE

POINT	STATION	COORDINATES
1	100.00	100.0000
2	100.00	100.0000
3	100.00	100.0000
4	100.00	100.0000
5	100.00	100.0000
6	100.00	100.0000
7	100.00	100.0000
8	100.00	100.0000
9	100.00	100.0000
10	100.00	100.0000
11	100.00	100.0000
12	100.00	100.0000
13	100.00	100.0000
14	100.00	100.0000
15	100.00	100.0000

POINT TABLE

POINT	STATION	COORDINATES
1	100.00	100.0000
2	100.00	100.0000
3	100.00	100.0000
4	100.00	100.0000
5	100.00	100.0000
6	100.00	100.0000
7	100.00	100.0000
8	100.00	100.0000
9	100.00	100.0000
10	100.00	100.0000
11	100.00	100.0000
12	100.00	100.0000
13	100.00	100.0000
14	100.00	100.0000
15	100.00	100.0000

1. ALL DIMENSIONS ARE IN FEET.
 2. ALL DIMENSIONS ARE TO CENTERLINE.
 3. ALL DIMENSIONS ARE TO FACE.
 4. ALL DIMENSIONS ARE TO FACE.
 5. ALL DIMENSIONS ARE TO FACE.
 6. ALL DIMENSIONS ARE TO FACE.
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 15. ALL DIMENSIONS ARE TO FACE.

Beck

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Annari Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO. HOLE NO. ROAD NO. DEPTH CHAINAGE LAYER TYPE STABILISED WITH SUPPLIER CURING METHOD DATE TESTED DESCRIPTION	C12658 TP.1 Greenfield Area 0-900 Refer to Plan Insitu Neat N/a N/a Medium Laterite	C12659 TP.1 Greenfield Area 900-2700 Refer to Plan Insitu Neat N/a N/a Silty Clay			Specification Min : Max
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SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm					
25.0 mm					
20.0 mm	100				
14.0 mm	86	100			
5.0 mm	79	99			
2.0 mm	61	94			
0.425 mm	40	78			
0.075 mm	32	72			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	34	17			
FINE SAND <0.425mm >0.075mm	13	6			
MATERIAL <0.075mm	53	77			

CONSTANTS

GRADING MODULUS	1,67	0,56			
PRA CLASSIFICATION	A-2-4(0)	A-7-5(11)			
UNIFIED SOIL CLAS.	SC	CL			
COLTO CLASSIFICATION	G9				
LIQUID LIMIT (%)	27	48			
PLASTICITY INDEX (0.425mm)	10	18			
LINEAR SHRINKAGE (%)	5,0	8,0			
MOISTURE CONTENT (%)	5,5	15,5			

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2181	1804			
OPTIMUM MOISTURE CONTENT (%)	8,4	16,8			
MOULDING MOISTURE (%)	8,6	15,8			

TYPE OF TEST	CBR	CBR			
CBR-UCS @ 100% MDD	25	2,7			
CBR-UCS @ 98% MDD	18	2,4			
CBR-UCS @ 97% MDD	16	2,3			
CBR-UCS @ 95% MDD	12	2,0			
CBR-UCS @ 93% MDD	8,9	1,8			
CBR-UCS @ 90% MDD	5,8	1,6			

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0,23	0,69	1,12	0,13	0,33	0,61													
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Remarks :

FORM: GR40

4.4.1(SGS)2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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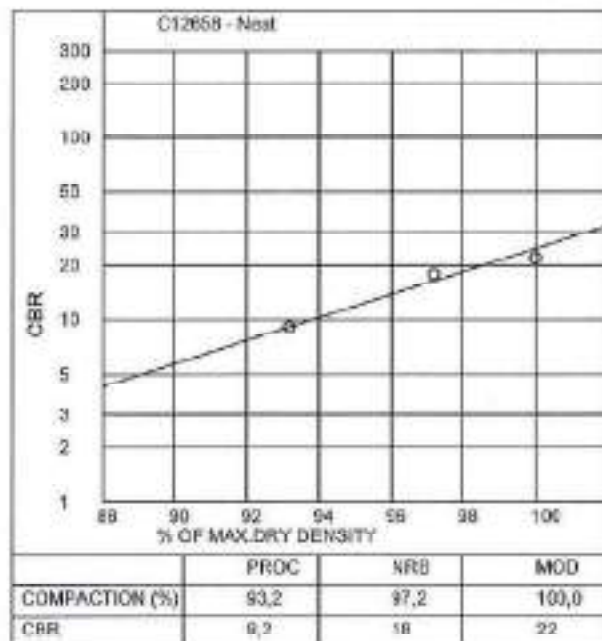
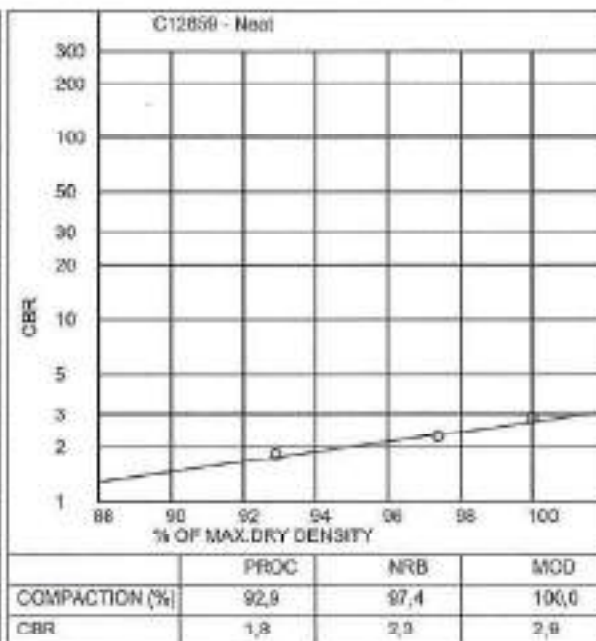
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Fax.: 021 9916724
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TEST RESULTS

AECOM SA (PTY) LTD
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BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



Chell

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.1
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C12660	C12661			Specification Min : Max
HOLE NO.	TP 2	TP 2			
ROAD NO.	Proposed NMT	Proposed NMT			
DEPTH	0-800	800-2700			
CHAINAGE	Refer to Plan	Refer to Plan			
LAYER TYPE	Insitu	Insitu			
STABILISED WITH	Neat	Neat			
SUPPLIER	N/a	N/a			
CURING METHOD	N/a	N/a			
DATE TESTED					
DESCRIPTION	Medium Fine Laterite Gravel	Orange Brown Silty Clay			

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm					
28.0 mm	100				
20.0 mm	99				
14.0 mm	99	100			
5.0 mm	88	99			
2.0 mm	70	95			
0.425 mm	41	77			
0.075 mm	35	73			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	41	19			
FINE SAND <0.425mm >0.075mm	9	4			
MATERIAL <0.075mm	50	77			

CONSTANTS

GRADING MODULUS	1,54	0,55			
PRA CLASSIFICATION	A-2-4(0)	A-7-6(11)			
UNIFIED SOIL CLAS.	SM-SC	CL			
COLTO CLASSIFICATION	G0	---			
LIQUID LIMIT (%)	23	48			
PLASTICITY INDEX (0.425mm)	6	14			
LINEAR SHRINKAGE (%)	3,0	7,0			
MOISTURE CONTENT (%)	6,2	12,3			

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2120	1736			
OPTIMUM MOISTURE CONTENT (%)	8,7	18,5			
MOULDING MOISTURE (%)	8,8	18,7			

TYPE OF TEST	CBR	CBR			
CBR-UCS @ 100% MDD	15	12			
CBR-UCS @ 98% MDD	14	8,5			
CBR-UCS @ 97% MDD	14	7,0			
CBR-UCS @ 95% MDD	13	4,7			
CBR-UCS @ 93% MDD	13	3,2			
CBR-UCS @ 90% MDD	12	1,8			

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD (A)(B)(C)	0,00	0,00	0,00	0,17	0,41	0,87													
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Remarks :

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory : Mr Gregory F. Bell (N Dip Civ Eng)

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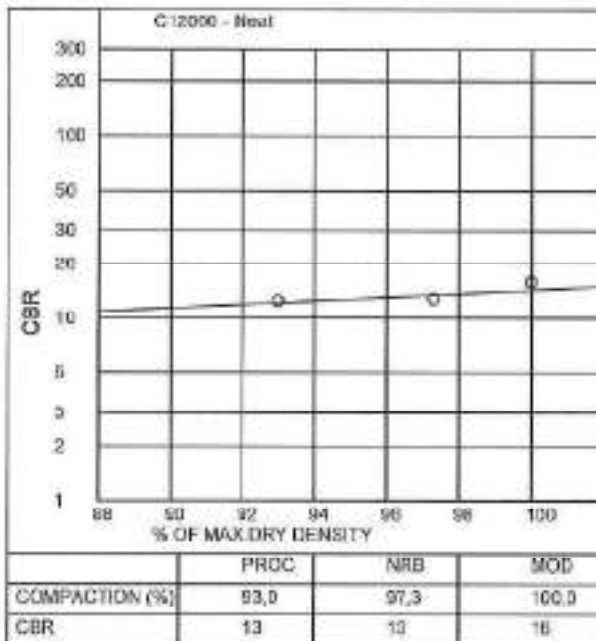
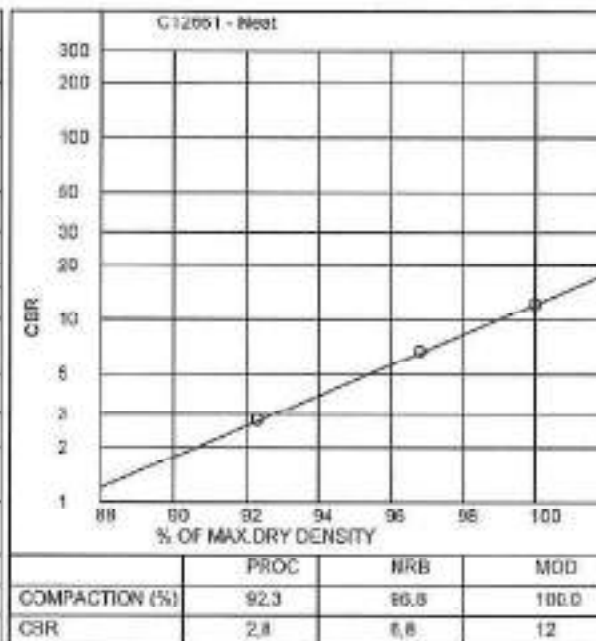
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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7635
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 04-139.1
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.2
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12662	C 12663	C 12664	Specification
HOLE NO.	TP.3	TP.3	TP.3	Min : Max
ROAD NO.	Proposed NMT	Proposed NMT	Proposed NMT	
DEPTH	0-900	900-1500	1500-2850	
CHAINAGE	Refer to Plan	Refer to Plan	Refer to Plan	
LAYER TYPE	Natural	Natural	Natural	
STABILISED WITH	Neat	Neat	Neat	
SUPPLIER	N/a	N/a	N/a	
CURING METHOD	N/a	N/a	N/a	
DATE TESTED				
DESCRIPTION	Orange Brown Clay	Clayey Gravel	Orange Brown Clay	

SIEVE ANALYSIS (% PASSING)

100 mm		100	
75 mm		97	
63 mm		97	
50 mm		96	
37.5 mm		96	100
28.0 mm		94	100
20.0 mm		92	100
14.0 mm	100	78	99
5.0 mm	100	66	97
2.0 mm	98	42	80
0.425 mm	78	36	78
0.075 mm	75		

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	19	36	18
FINE SAND <0.425mm >0.075mm	4	9	4
MATERIAL <0.075mm	77	55	78

CONSTANTS

GRADING MODULUS	0.48	1.58	0.47
PRA CLASSIFICATION	A-7-5(9)	A-4(0)	A-7-5(9)
UNIFIED SOIL CLAS.	OL	SC	OL
COLTO CLASSIFICATION	---	G9	---
LIQUID LIMIT (%)	44	27	47
PLASTICITY INDEX (0.425mm)	10	8	10
LINEAR SHRINKAGE (%)	5.0	4.0	5.0
MOISTURE CONTENT (%)	8.5	6.5	13.7

MDD

MAXIMUM DRY DENSITY (kg/m ³)	1753	2071	1712
OPTIMUM MOISTURE CONTENT(%)	16.6	10.4	19.3
MOULDING MOISTURE (%)	16.8	10.3	19.2

TYPE OF TEST	CBR	CBR	CBR
CBR-UCS @ 100% MDD	1.5	34	3.4
CBR-UCS @ 98% MDD	1.5	24	2.7
CBR-UCS @ 97% MDD	1.5	20	2.4
CBR-UCS @ 95% MDD	1.5	14	1.9
CBR-UCS @ 93% MDD	1.4	9.8	1.5
CBR-UCS @ 90% MDD	1.4	5.7	1.1

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0.82	0.62	1.35	0.00	0.00	0.00	0.21	0.51	0.92						
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Remarks:

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signature: Mr Gregory F. Bell (N Dip Civ Eng)

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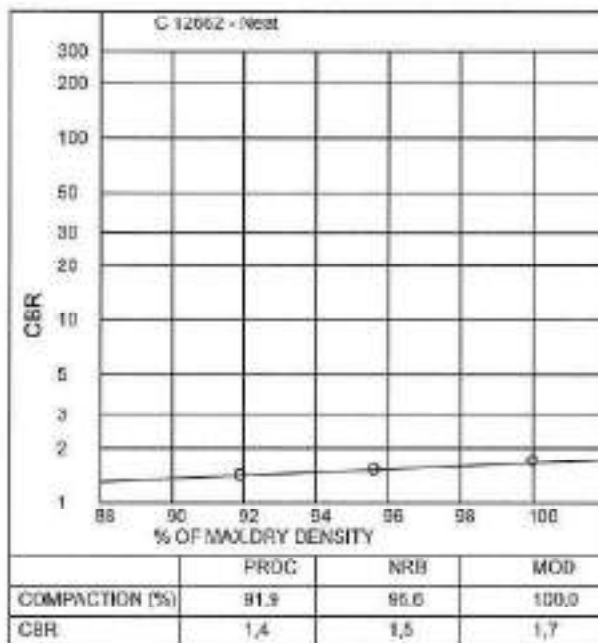
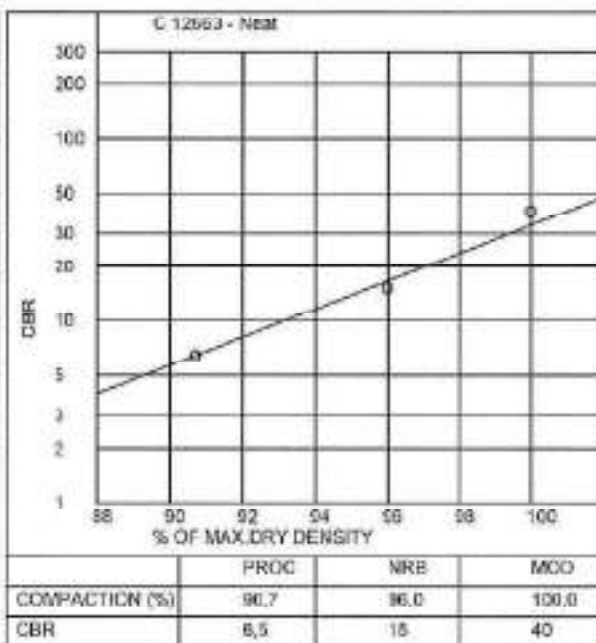
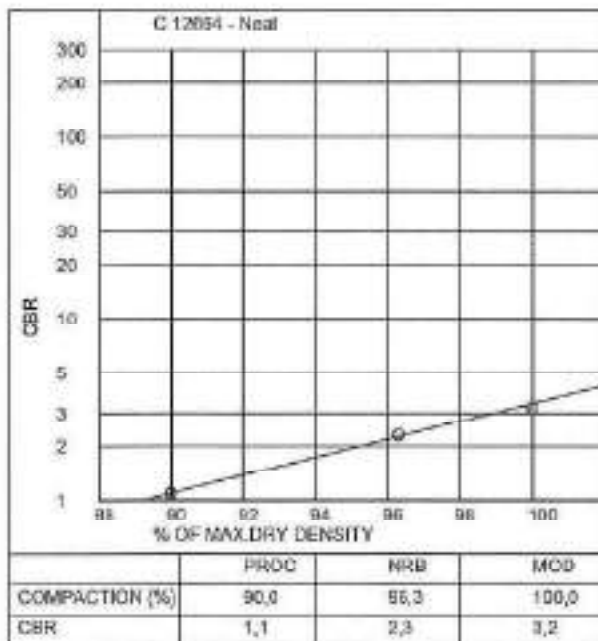
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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Annet Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.2
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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Email: glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.3
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12665	C 12666			Specification Min : Max
HOLE NO.	TP.4	TP.4			
ROAD NO.	Proposed NMT	Proposed NMT			
DEPTH	0-600	600-2950			
CHAINAGE	Refer to Plan	Refer to Plan			
LAYER TYPE	Insitu Layer	Insitu Layer			
STABILISED WITH	Neat	Neat			
SUPPLIER	N/a	N/a			
CURING METHOD	N/a	N/a			
DATE TESTED					
DESCRIPTION	Brown Coarse Laterite Gravel	Orange Brown Clay			

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm	100				
37.5 mm	99				
28.0 mm	99	100			
20.0 mm	98	100			
14.0 mm	95	100			
5.0 mm	68	100			
2.0 mm	52	98			
0.425 mm	29	79			
0.075 mm	24	74			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	44	19			
FINE SAND <0.425mm >0.075mm	10	5			
MATERIAL <0.075mm	46	76			

CONSTANTS

GRADING MODULUS	1,95	0,49			
PRA CLASSIFICATION	A-1-b(0)	A-7-5(11)			
UNIFIED SOIL CLAS.	SM-SC	OL			
COLTO CLASSIFICATION	G6	---			
LIQUID LIMIT (%)	20	49			
PLASTICITY INDEX (0.425mm)	6	14			
LINEAR SHRINKAGE (%)	3,0	7,0			
MOISTURE CONTENT (%)	4,7	11,8			

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2268	1757			
OPTIMUM MOISTURE CONTENT (%)	7,3	18,5			
MOULDING MOISTURE (%)	7,1	18,5			

TYPE OF TEST	CBR	CBR			
CBR-UCS @ 100% MDD	45	7,3			
CBR-UCS @ 98% MDD	39	6,0			
CBR-UCS @ 97% MDD	37	5,5			
CBR-UCS @ 95% MDD	32	4,5			
CBR-UCS @ 93% MDD	28	3,7			
CBR-UCS @ 90% MDD	22	2,8			

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD (A)(B)(C)	0,00	0,00	0,00	0,25	0,66	1,17													
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Remarks :

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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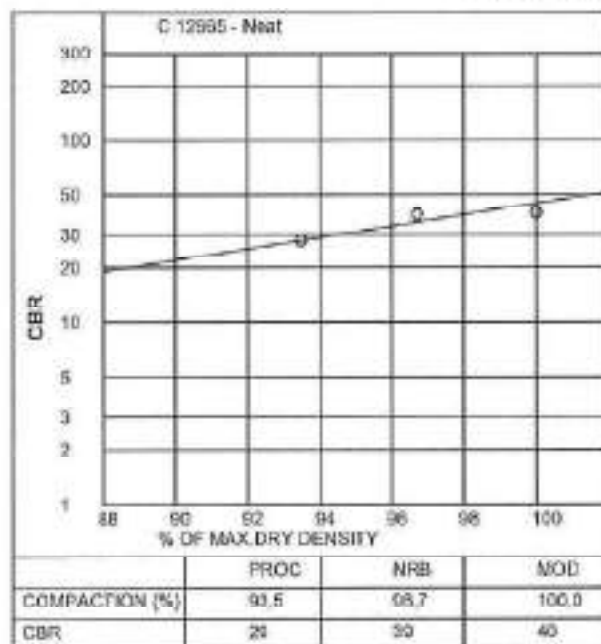
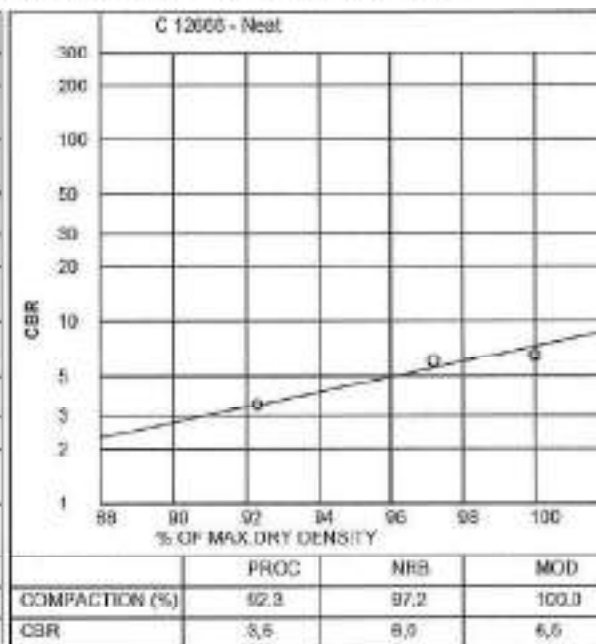
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TEST RESULTS

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BELLVILLE
7535
Attention: Ms Annari Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.3
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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Reg. No.: 2009/0320307 - VAT, Reg. No.: 4130187403

a SANAS Accredited Testing Laboratory, No. T0245

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TEST RESULTS

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BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.4
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12659					Specification
HOLE NO.	TP-5					Min : Max
ROAD NO.	Proposed NMT					
DEPTH	0-1900					
CHAINAGE	Refer to Plan					
LAYER TYPE	Insitu Layer					
STABILISED WITH	Neat					
SUPPLIER	N/A					
CURING METHOD	N/A					
DATE TESTED						
DESCRIPTION	Brown Clay					

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm	100				
28.0 mm	100				
20.0 mm	98				
14.0 mm	98				
5.0 mm	93				
2.0 mm	88				
0.425 mm	67				
0.075 mm	63				

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	24				
FINE SAND <0.425mm >0.075mm	5				
MATERIAL <0.075mm	71				

CONSTANTS

GRADING MODULUS	0,82				
PRA CLASSIFICATION	A-5(6)				
UNIFIED SOIL CLAS.	OL				
CUT TO CLASSIFICATION	—				
LIQUID LIMIT (%)	43				
PLASTICITY INDEX (0.425mm)	10				
LINEAR SHRINKAGE (%)	5,0				
MOISTURE CONTENT (%)	15,4				

MDD

MAXIMUM DRY DENSITY (kg/m³)	1757				
OPTIMUM MOISTURE CONTENT (%)	17,4				
MOULDING MOISTURE (%)	17,3				

TYPE OF TEST	CBR				
CBR-UCS @ 100% MDD	1,5				
CBR-UCS @ 98% MDD	1,5				
CBR-UCS @ 97% MDD	1,4				
CBR-UCS @ 95% MDD	1,4				
CBR-UCS @ 93% MDD	1,3				
CBR-UCS @ 90% MDD	1,3				

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0,22	0,63	1,10															
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Remarks:

FORM: GR40

4-4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip. Civ. Eng)

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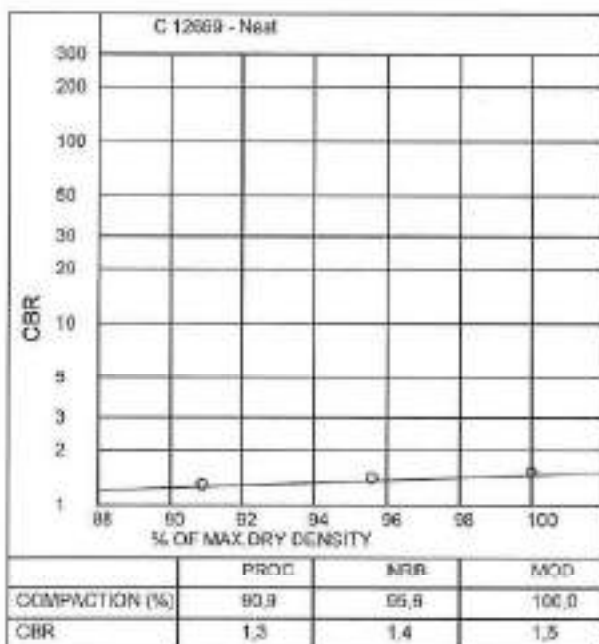
4 HARBOT CLOSE, BRACKENFELL, 7590
P.O. BOX 1106, BRACKENFELL
Tel: : 021 9815588
Fax: : 021 9816729
Email: : g.j.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.4
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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4 HARBOT CLOSE, BRACKENBUSH, 7680

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneli Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.5
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12825	C 12827	C 12828	C 12829	Specification Min : Max
HOLE NO.	TP.6	TP.6	TP.6	TP.6	
ROAD NO.	Pajero Lane	Pajero Lane	Pajero Lane	Pajero Lane	
DEPTH	60-205	205-355	355-380	380-950	
CHAINAGE	Refer to Plan	Refer to Plan	Refer to Plan	Refer to Plan	
LAYER TYPE	Base	Subbase	SSG	Insitu	
STABILISED WITH	Neat	Neat	Neat	Neat	
SUPPLIER	N/a	N/a	N/a	N/a	
CURING METHOD	N/a	N/a	N/a	N/a	
DATE TESTED					
DESCRIPTION	Crushed Grey Hornfels	Br.Crushed Hornfels	Light Brown Sand + Stone	Orange Brown Silty Clay	

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm		100			
37.5 mm	100	99	100		
28.0 mm	90	86	100	100	
20.0 mm	78	69	99	100	
14.0 mm	68	59	99	98	
5.0 mm	48	37	97	92	
2.0 mm	35	28	95	85	
0.425 mm	19	22	78	66	
0.075 mm	9	11	7	43	

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	46	21	18	22	
FINE SAND <0.425mm >0.075mm	29	39	75	27	
MATERIAL <0.075mm	25	40	7	51	

CONSTANTS

GRADING MODULUS	2,37	2,39	1,20	1,06	
PRA CLASSIFICATION	A-1-a(0)	A-1-a(0)	A-3(0)	A-6(2)	
UNIFIED SOIL CLAS.	GP-GC	GP-GM-GC	SP-SC	SM	
COLTO CLASSIFICATION	G4	G5			
LIQUID LIMIT (%)	17	22	-	39	
PLASTICITY INDEX (0.425mm)	4	6	NP	12	
LINEAR SHRINKAGE (%)	2,0	3,0	0,0	6,0	
MOISTURE CONTENT (%)	2,1	3,8	4,7	15,1	

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2380	2328		1776	
OPTIMUM MOISTURE CONTENT (%)	5,4	6,4		12,6	
MOULDING MOISTURE (%)	5,3	6,3		12,6	

TYPE OF TEST	CBR	CBR		CBR	
CBR-UCS @ 100% MDD	195	112		1,5	
CBR-UCS @ 98% MDD	146	79		1,3	
CBR-UCS @ 97% MDD	127	66		1,3	
CBR-UCS @ 95% MDD	96	46		1,1	
CBR-UCS @ 93% MDD	72	32		1,0	
CBR-UCS @ 90% MDD	47	19		0,9	

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0,00	0,00	0,00	0,00	0,00	0,00	0,27	0,96	1,80						
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Remarks :

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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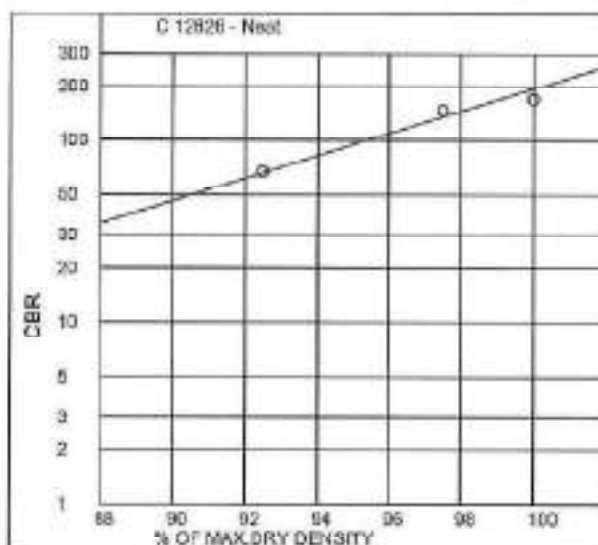
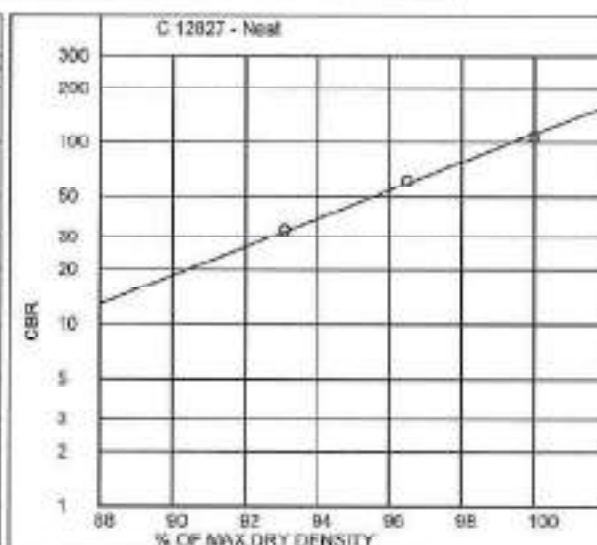
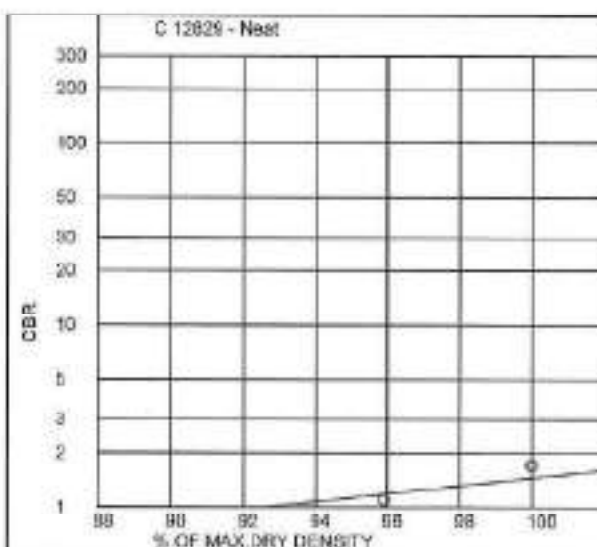
4 HARBOT CLOSE, BRACKENHURST, 2099
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Fax : 021 9616724
Email : glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.5
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



BGB MATHIOGAST (PTY) LTD
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Reg.No.: 2000/D30983/07 - VAT. Reg.No.: 4130197435

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Tel. : 021 981 5558/9

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Email : olyn.hudson@eas.com

TEST RESULTS

ACCOMSA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project:	JAMESTOWN ROAD NETWORK, STELLENBOSCH
	PROPOSED NMT SOILS SURVEY
Your Ref:	
Our Ref:	84139.6
Date Reported:	12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12674			Specification Min : Max
HOLE NO.	TP.7			
ROAD NO.	Jamestown Road			
DEPTH	260-1900			
CHAINAGE	Refer to Plan			
LAYER TYPE	In situ			
STABILISED WITH	Neat			
SUPPLIER	N/a			
CURING METHOD	N/a			
DATE TESTED				
DESCRIPTION	Y Br Decomposed Weathered S/stone			

SIEVE ANALYSIS (% PASSING)

100	mm					
75	mm					
63	mm					
50	mm					
37.5	mm					
28.0	mm					
20.0	mm					
14.0	mm	100				
5.0	mm	98				
2.0	mm	86				
0.425	mm	66				
0.075	mm	53				

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	23				
FINE SAND <0.425mm >0.075mm	15				
MATERIAL <0.075mm	62				

CONSTANTS

GRADING MODULUS	0.85				
PRA CLASSIFICATION	A-7-5(6)				
UNIFIED SOIL CLAS.	OL				
COLTO CLASSIFICATION	---				
LIQUID LIMIT (%)	48				
PLASTICITY INDEX (0.425mm)	14				
LINEAR SHRINKAGE (%)	7.0				
MOISTURE CONTENT (%)	14.0				

MDD

MAXIMUM DRY DENSITY (kg/m ³)	1790				
OPTIMUM MOISTURE CONTENT (%)	17,1				
MOULDING MOISTURE (%)	17,1				

TYPE OF TEST	CBR				
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CBR-UCS @ 100% MDD	1,6				
CBR-UCS @ 98% MDD	1,6				
CBR-UCS @ 97% MDD	1,4				
CBR-UCS @ 95% MDD	1,3				
CBR-UCS @ 93% MDD	1,2				
CBR-UCS @ 90% MDD	1,1				

CBR-UCS @ % MDD derived from calculation

[illegible]

Remarks:

FORM 5640

4.4 1fSGS(2019.12.04)

Technical Signatory: Mr Gregory F Bell (N.Dip.Civ.Eng)

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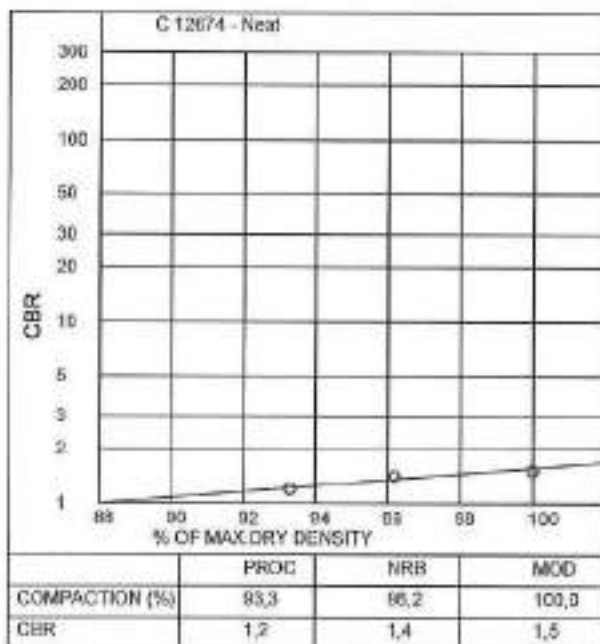
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P.O. BOX 1106, BRACKENFELL
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Fax.: 021 8816724
Email: glyn.hudecn@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Annerl Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 04139.6
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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Email: glyn.hudson@sgs.co.za

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7635
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.7
Date Reported : 12.05.2021
: PROPOSED NMT SOILS SURVEY

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12723	C 12724	C 12725	C 12726	Specification Min : Max
HOLE NO.	TP.8	TP.8	TP.8	TP.8	
ROAD NO.	Pajero Lane	Pajero Lane	Pajero Lane	Pajero Lane	
DEPTH	30-225	225-400	400-465	465-900	
CHAINAGE	Refer to Plan	Refer to Plan	Refer to Plan	Refer to Plan	
LAYER TYPE	Base	Subbase	Insitu	SSG	
STABILISED WITH	Neat	Neat	Neat	Neat	
SUPPLIER	N/a	N/a	N/a	N/a	
CURING METHOD	N/a	N/a	N/a	N/a	
DATE TESTED					
DESCRIPTION	Grey Crushed Hornfels	Brown Crushed Hornfels	Orange Brown Gravelly Sand	D.R.Br.Coarse Sand+Laterite	

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm		100			
50 mm	100	99			
37.5 mm	99	97	100		
28.0 mm	89	88	86	100	
20.0 mm	68	79	92	99	
14.0 mm	58	70	88	95	
5.0 mm	36	50	75	68	
2.0 mm	26	40	62	40	
0.425 mm	18	26	43	20	
0.075 mm	7	15	6	10	

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	31	30	31	50	
FINE SAND <0.425mm >0.075mm	42	32	60	25	
MATERIAL <0.075mm	27	38	9	25	

CONSTANTS

GRADING MODULUS	2.49	2.17	1.89	2.30	
PRA CLASSIFICATION	A-1-a(0)	A-1-a(0)	A-1-b(0)	A-2-4(0)	
UNIFIED SOIL CLASS.	GP-GC	GM-GC	SP-SC	SP-SC	
COLTO CLASSIFICATION	G4	G5	G5		
LIQUID LIMIT (%)	19	22	-	27	
PLASTICITY INDEX (0.425mm)	4	6	NP	8	
LINEAR SHRINKAGE (%)	2.0	3.0	0.0	4.0	
MOISTURE CONTENT (%)	3.8	5.9	8.4	7.6	

MDD

MAXIMUM DRY DENSITY (kp/m ³)	2384	2365	2235		
OPTIMUM MOISTURE CONTENT (%)	5.5	5.7	7.5		
MOULDING MOISTURE (%)	5.6	5.6	7.4		

TYPE OF TEST	CBR	CBR	CBR		
CBR-JCS @ 100% MDD	138	89	73		
CBR-JCS @ 98% MDD	119	82	66		
CBR-JCS @ 97% MDD	111	79	63		
CBR-JCS @ 95% MDD	96	73	57		
CBR-JCS @ 93% MDD	84	67	52		
CBR-JCS @ 90% MDD	67	60	46		

CBR-JCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
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Remarks :

FORM: GR40

1.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Ball (N.Dip.Civ.Eng)

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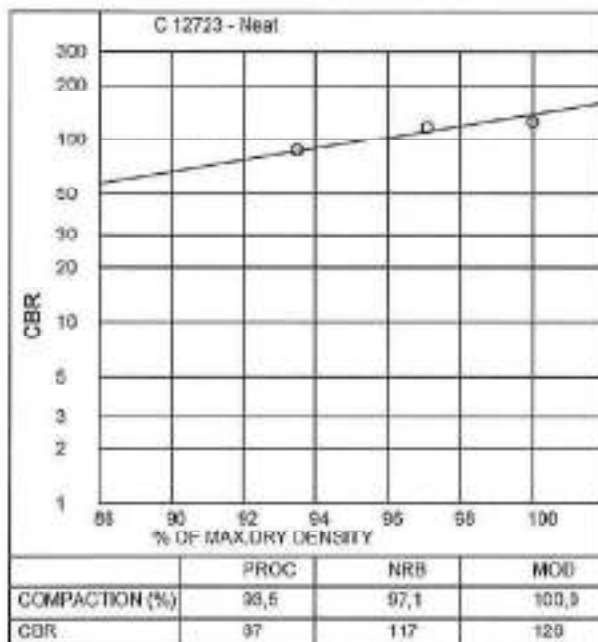
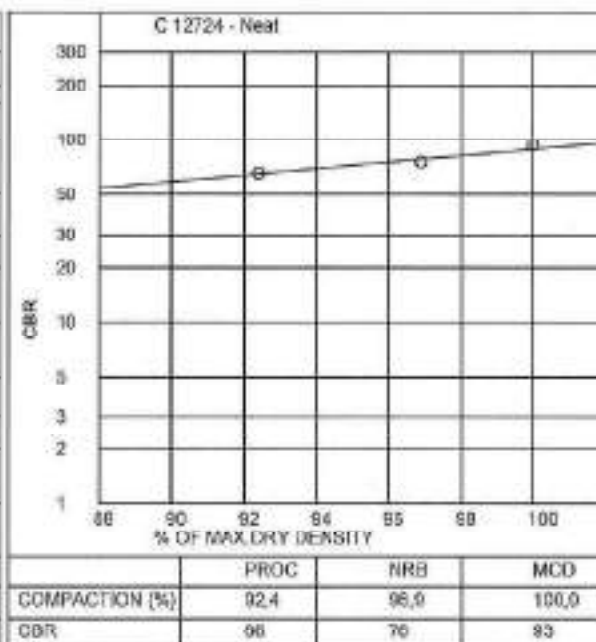
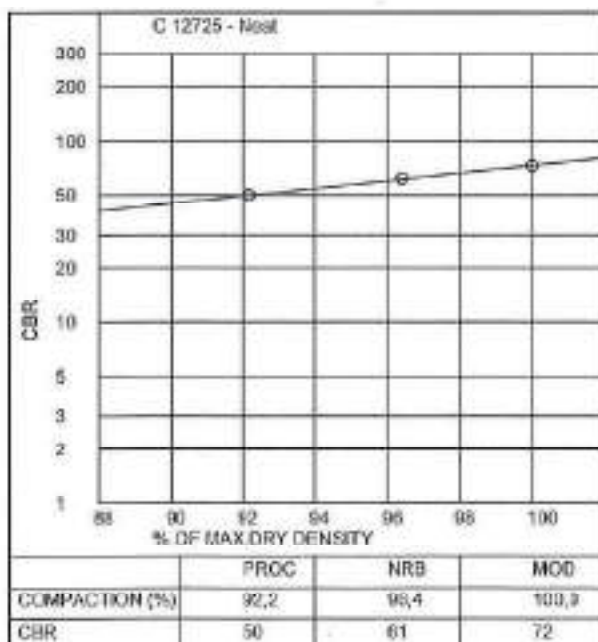
4 HARBOT CLOSE, BRACKENHURST, 2019
P.O. BOX 1100, BRACKENFELL
Tel : 021 9815550/9
Fax : 021 9816724
Email : glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.7
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



Heer

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P.O. BOX 1106, BRACKENFELL
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Fax : 021 9815734
Email : glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.B
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12719	C 12720	C 12721	C 12722	Specification Min : Max
HOLE NO.	TP.9	TP.9	TP.9	TP.9	
ROAD NO.	Pajero Lane	Pajero Lane	Pajero Lane	Pajero Lane	
DEPTH	60-180	180-380	380-620	620-920	
CHAINAGE	Refer to Plan	Refer to Plan	Refer to Plan	Refer to Plan	
LAYER TYPE	Base	Subbase	SSG	In situ	
STABILISED WITH	Neat	Neat	Neat	Neat	
SUPPLIER	N/A	N/A	N/A	N/A	
CURING METHOD	N/A	N/A	N/A	N/A	
DATE TESTED					
DESCRIPTION	Red.Br.Sand+Laterite	Light Red.Brown Laterite + Sand	Light Brown Sand	Orange Brown Clay	

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm	100	100			
37.5 mm	99	97			
28.0 mm	94	93			
20.0 mm	86	88			
14.0 mm	74	74	100	100	
5.0 mm	50	55	100	100	
2.0 mm	37	43	99	99	
0.425 mm	20	23	71	80	
0.075 mm	6	9	2	63	

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	46	47	28	19	
FINE SAND <0.425mm >0.075mm	38	33	70	17	
MATERIAL <0.075mm	16	20	2	64	

CONSTANTS

GRADING MODULUS	2,37	2,26	1,28	0,58	
PRA CLASSIFICATION	A-1-a(0)	A-1-a(0)	A-3(0)	A-7-5(7)	
UNIFIED SOIL CLAS.	GP-GC	SP-SC	SP	OL	
COLTO CLASSIFICATION	G4	G4	G7	---	
LIQUID LIMIT (%)	-	18	-	45	
PLASTICITY INDEX (0.425mm)	SP	SP	NP	12	
LINEAR SHRINKAGE (%)	1,0	1,5	0,0	6,0	
MOISTURE CONTENT (%)	5,5	6,2	3,9	12,5	

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2205	2241	1710	1787	
OPTIMUM MOISTURE CONTENT (%)	6,7	6,9	14,4	17,4	
MOULDING MOISTURE (%)	6,7	7,0	14,6	17,2	

TYPE OF TEST	CBR	CBR	CBR	CBR	
CBR-UCS @ 100% MDD	125	212	45	6,9	
CBR-UCS @ 98% MDD	98	184	35	5,2	
CBR-UCS @ 97% MDD	86	144	31	4,5	
CBR-UCS @ 95% MDD	67	111	23	3,4	
CBR-UCS @ 93% MDD	52	85	18	2,6	
CBR-UCS @ 90% MDD	36	58	12	1,7	

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,04	0,08	0,11			
-------------------------	------	------	------	------	------	------	------	------	------	------	------	------	--	--	--

Remarks :

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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a SANAS Accredited Testing Laboratory, No. T0245

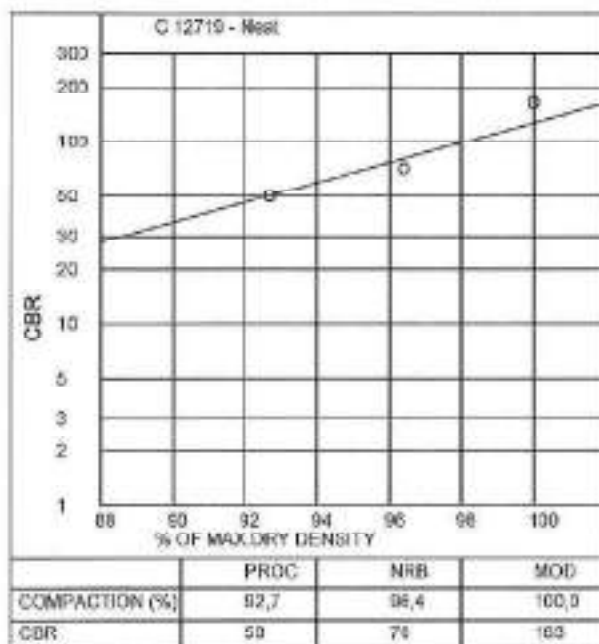
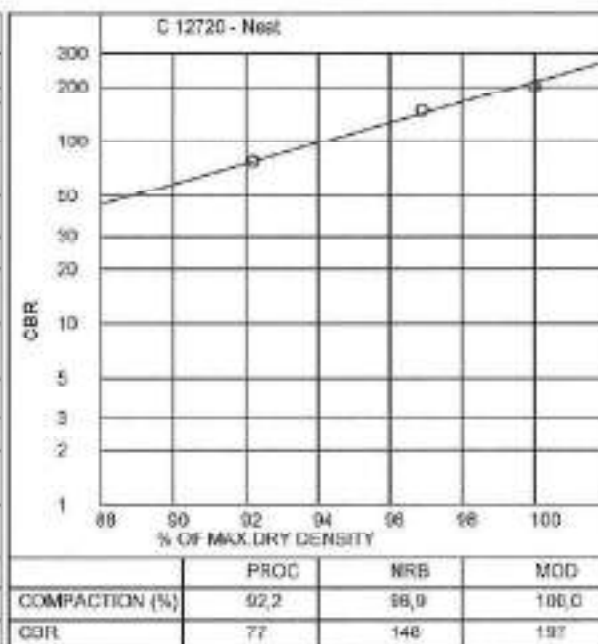
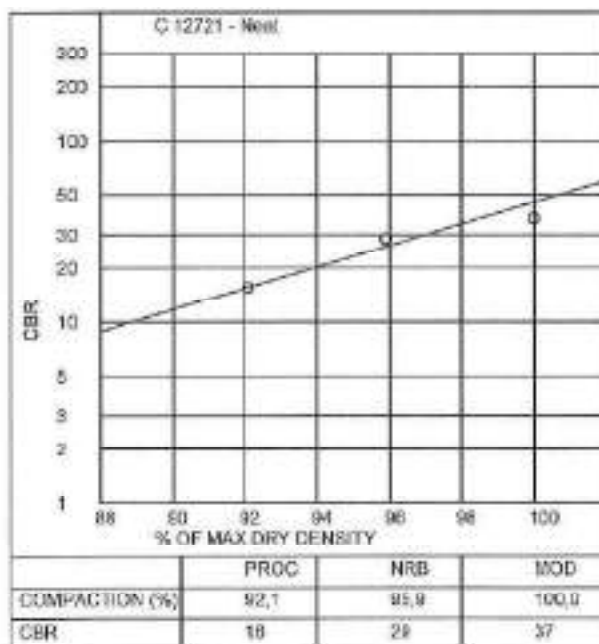
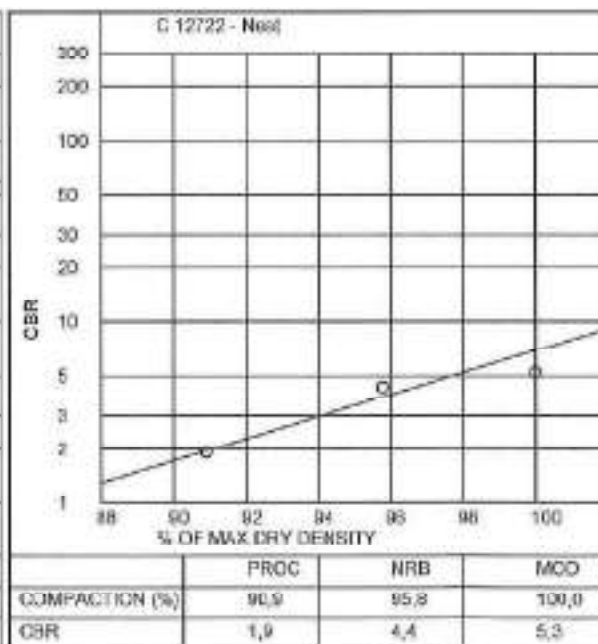
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P.O. BOX 1106, BRACKENFELL
Tel: 021 9515550
Fax: 021 9515724
Email: glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.6
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



Glyn Hudson

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Email : glyn.fuchter@gmail.com

TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

7535

Attention: Ms. Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Project : JAMES TOWN ROAD NETWORK,
: PROPOSED NMT SOILS SURVEY

Your Ref

Our Ref: 84139.0

Date Reported : 12/05/2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO. HOLE NO. ROAD NO. DEPTH CHAINAGE LAYER TYPE STABILISED WITH SUPPLIER CURING METHOD DATE TESTED DESCRIPTION	C 12713 TP.10 Webersvalley Road 30-230 Refer to Plan Base Neat N/a N/a	C 12714 TP.10 Webersvalley Road 230-445 Refer to Plan Subbase Neat N/a N/a	C 12716 TP.10 Webersvalley Road 445-550 Refer to Plan SSG Neat N/a N/a	C 12718 TP.10 Webersvalley Road 550-570 Refer to Plan Insitu Neat N/a N/a	Specification Min : Max
	Crushed Hornfels	R. Crushed Hornfels	Medium Gravel of Laterite	Fine Gravel of Laterite	

SIEVE ANALYSIS (% PASSING)

100 mm		100		
75 mm		99		
63 mm		96	100	
50 mm		90	98	100
37,5 mm	100	83	96	100
28,0 mm	98	74	94	95
20,0 mm	87	66	84	92
14,0 mm	55	46	77	88
5,0 mm	39	30	50	58
2,0 mm	21	17	13	14
0,425 mm	9			
0,075 mm				

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	46	33	35	36
FINE SAND <0.425mm >0.075mm	31	29	48	48
MATERIAL <0.075mm	23	38	17	16

CONSTANTS

GRADING MODULUS	2,31	2,08	1,00	1,42
PRA CLASSIFICATION	A-1-a(0)	A-2-4(0)	A-1-b(0)	A-2-4(0)
UNIFIED SOIL CLASS	SP-SM-SC	SC	SC	SC
COLTO CLASSIFICATION	G6	G6	G6	G6
LIQUID LIMIT (%)	17	21	-	-
PLASTICITY INDEX (0.425mm)	5	8	SP	SP
LINEAR SHRINKAGE (%)	2,5	4,0	0,5	0,5
MOISTURE CONTENT (%)	2,7	5,6	6,0	5,0

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2365	2296	2138	2051
OPTIMUM MOISTURE CONTENT (%)	5.5	5.5	7.7	8.3
MOULDING MOISTURE (%)	6.6	5.5	7.8	8.3

TYPE OF TEST	CBR	CBR	CBR	CBR	
CBR-UCS @ 100% MDD	128	54	193	58	
CBR-UCS @ 96% MDD	83	34	121	43	
CBR-UCS @ 97% MDD	67	28	96	37	
CBR-UCS @ 95% MDD	44	18	60	28	
CBR-UCS @ 93% MDD	29	11	38	21	
CBR-UCS @ 90% MDD	15	5.9	19	13	

CBB-LICS @ % MDD derived from calculation.

[illegible]

Remarks :

FORM: GR40

4 4 1(SGS)2019 12 04

Technical Supervisor: Mr. Gregory F. Bell (N. Dip. Civ. Eng.)

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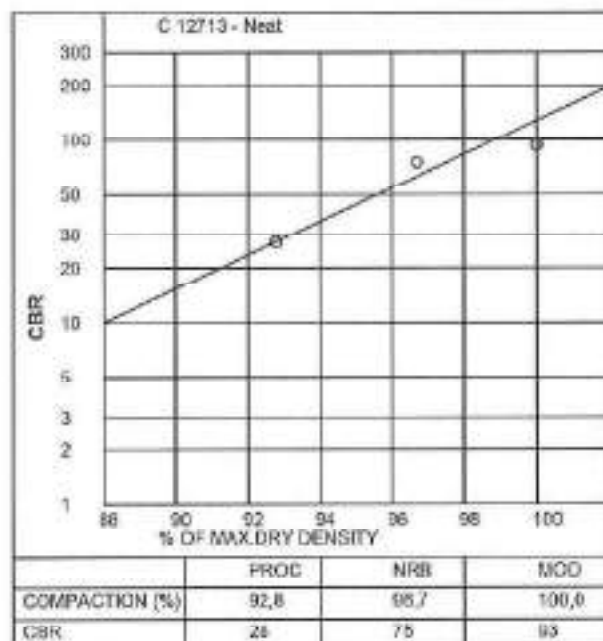
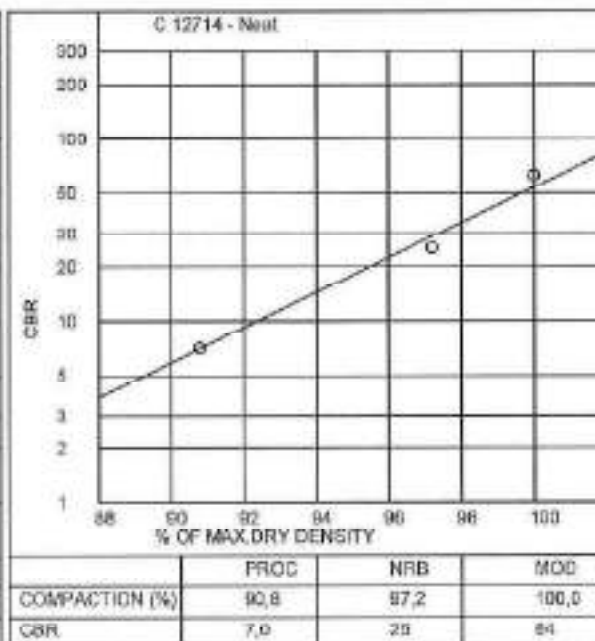
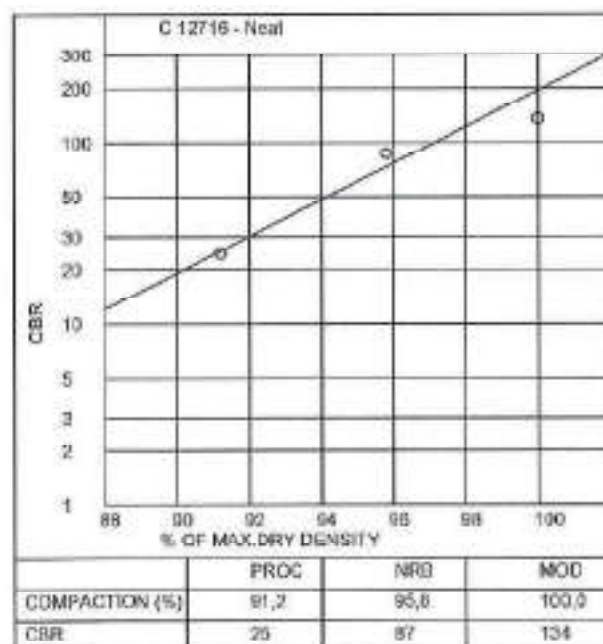
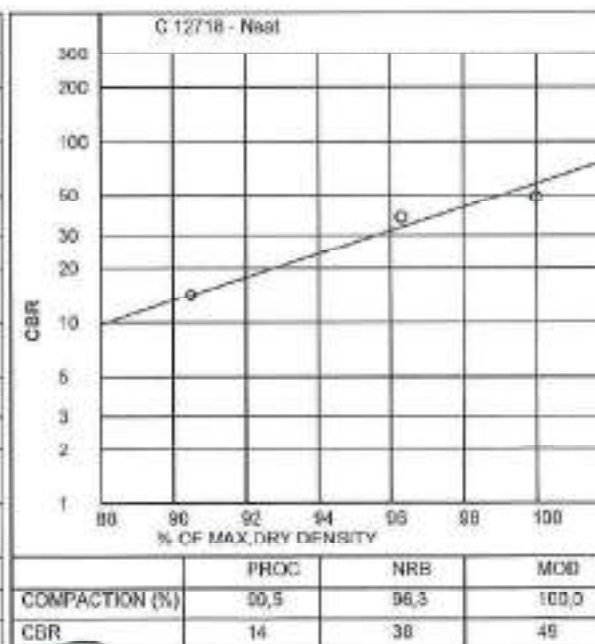
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TEST RESULTS

AECOM SA (PTY) LTD
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BELLVILLE
7535
Attention: Ms Anneri Maritz

Project: JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref:
Our Ref: 84139.9
Date Reported: 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Annerl Maritz

Project: JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref: PROPOSED NMT SOILS SURVEY
Our Ref: 84139.a
Date Reported: 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS(SANS 3001:GR1,GR10,GR12)

SAMPLE NO.	C 12717				Specification
HOLE NO.	TP 10				Min : Max
ROAD NO.	Webersvalley Road				
DEPTH	570-780				
CHAINAGE	Refer to Plan				
LAYER TYPE	In situ				
STABILISED WITH	Neat				
SUPPLIER	N/a				
CURING METHOD	N/a				
DATE TESTED					
DESCRIPTION	Dark Reddish Brown Sand				
SIEVE ANALYSIS (% PASSING)					
100 mm					
75 mm	100				
63 mm	85				
50 mm	82				
37.5 mm	89				
28.0 mm	85				
20.0 mm	79				
14.0 mm	71				
5.0 mm	61				
2.0 mm	41				
0.425 mm	25				
0.075 mm	10				
SOIL MORTAR					
COARSE SAND <2.0mm >0.425mm	39				
FINE SAND <0.425mm >0.075mm	37				
MATERIAL <0.075mm	24				
CONSTANTS					
GRADING MODULUS	2,24				
PRA CLASSIFICATION	A-1-a(0)				
UNIFIED SOIL CLAS.	SP-SM-SC				
LIQUID LIMIT (%)	24				
PLASTICITY INDEX (0.425mm)	5				
LINEAR SHRINKAGE (%)	2,5				
MOISTURE CONTENT (%)	7,3				

Remarks:

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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TEST RESULTS

AECOM SA (PTY) LTD
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Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
: PROPOSED NMT SOILS SURVEY
Your Ref :
Our Ref : 84139.10
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO. HOLE NO. ROAD NO. DEPTH CHAINAGE LAYER TYPE STABILISED WITH SUPPLIER CURING METHOD DATE TESTED DESCRIPTION	C 12709 TP.11 Webersvalley Road 20-110 Refer to Plan Base Neat N/a N/a	C 12710 TP.11 Webersvalley Road 110-380 Refer to Plan Subbase Neat N/a N/a	C 12711 TP.11 Webersvalley Road 380-460 Refer to Plan SSG Neat N/a N/a	C 12712 TP.11 Webersvalley Road 460-900 Refer to Plan Insitu Neat N/a N/a	Specification Min : Max
	Red.Br.Sand+ Ferricrete Stone	Orange Brown Sand	Dark Brown Sand +Laterite	Orange Brown Sand	

SIEVE ANALYSIS (% PASSING)

100 mm				
75 mm				
63 mm				
50 mm				
37.5 mm	100		100	100
28.0 mm	98	100	99	100
20.0 mm	91	100	98	100
14.0 mm	87	100	91	100
5.0 mm	61	95	77	96
2.0 mm	46	89	63	94
0.425 mm	31	53	38	63
0.075 mm	14	11	10	14

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	33	40	40	33
FINE SAND <0.425mm >0.075mm	37	47	44	52
MATERIAL <0.075mm	30	13	16	15

CONSTANTS

GRADING MODULUS	2.09	1.47	1.89	1.29
PRA CLASSIFICATION	A-1-b(0)	A-2-4(0)	A-1-b(0)	A-2-4(0)
UNIFIED SOIL CLAS	SM-SC	SP-SC	SP-SC	SC
COLTO CLASSIFICATION	G5	G6	G6	G9
LIQUID LIMIT (%)	18	-	-	-
PLASTICITY INDEX [0.425mm]	8	SP	SP	SP
LINEAR SHRINKAGE (%)	2.5	0.5	0.5	0.5
MOISTURE CONTENT (%)	5.0	4.5	6.0	5.9

NCO

MAXIMUM DRY DENSITY (kg/m ³)	2326	2133	2245	2069
OPTIMUM MOISTURE CONTENT (%)	5.9	7.2	6.5	7.4
MOULDING MOISTURE (%)	6.0	7.1	6.4	7.3

TYPE OF TEST	CBR	CBR	CBR	CBR	
CBR-UCS @ 100% MDD	105	90	109	85	
CBR-UCS @ 98% MDD	80	81	74	35	
CBR-UCS @ 97% MDD	70	50	61	26	
CBR-UCS @ 95% MDD	54	34	41	14	
CBR-UCS @ 93% MDD	41	23	26	7.7	
CBR-UCS @ 90% MDD	26	13	15	3.1	

CBR-UCS @ % MDO derived from calculation.

[illegible]

Remarks :

FORM GR40

4.4.1/(SG5)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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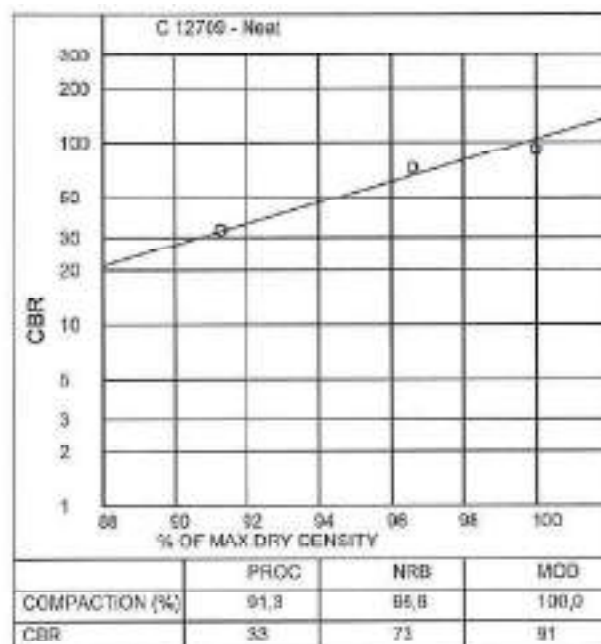
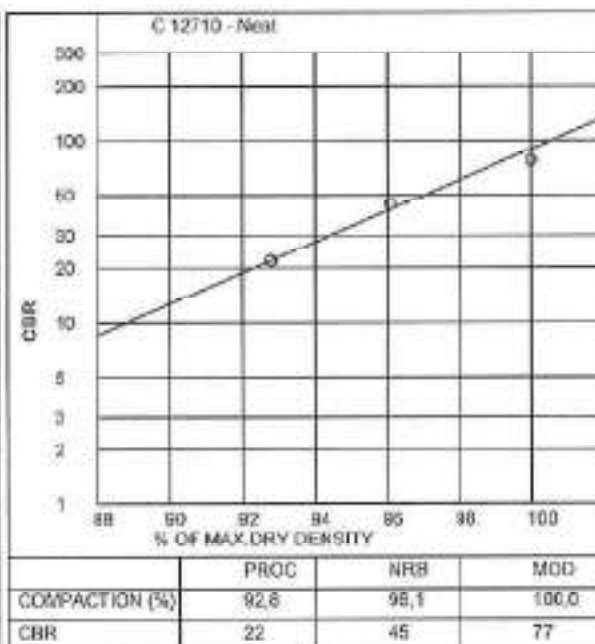
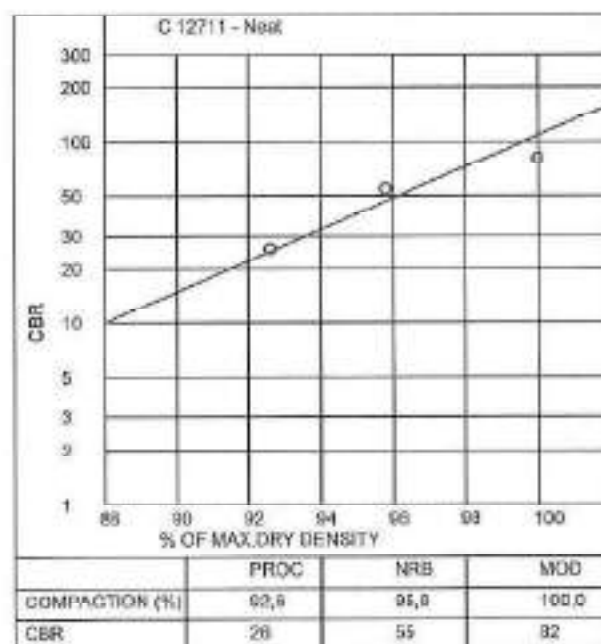
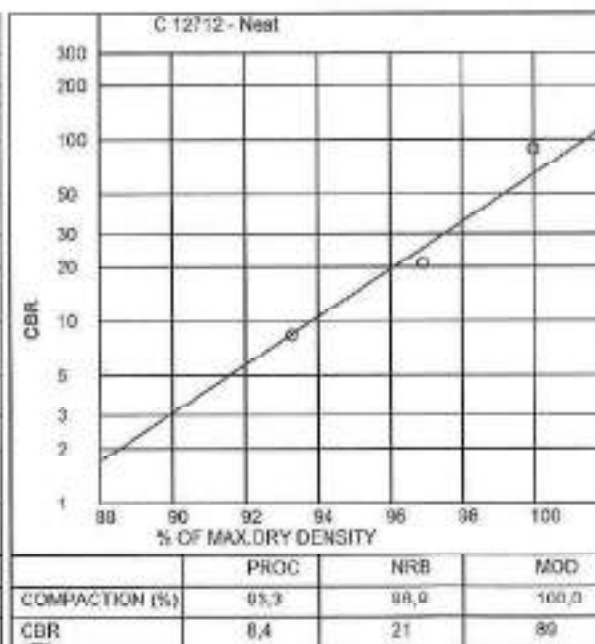
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TEST RESULTS

AECOM SA (PTY) LTD
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BELLVILLE
7535
Attention: Ms Anneri Maritz

Project: JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref: :
Our Ref: 84139.10
Date Reported: 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



Glyn Hudson



MATROCAST



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TEST RESULTS

AECOM SA (PTY) LTD
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7535
Attention: Ms Annari Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 64139.11
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12830	C 12831	C 12832	Specification
HOLE NO.	TP.12	TP.12	TP.12	Min : Max
ROAD NO.	Webersvalley Road	Webersvalley Road	Webersvalley Road	
DEPTH	70-190	190-340	340-480	
CHAINAGE	Refer to Plan	Refer to Plan	Refer to Plan	
LAYER TYPE	Base	Subbase	SSG	
STABILISED WITH	Neat	Neat	Neat	
SUPPLIER	N/a	N/a	N/a	
CURING METHOD	N/a	N/a	N/a	
DATE TESTED				
DESCRIPTION	Grey Crushed Hornfels	Br. Crushed Hornfels	Laterite Gravel	

SIEVE ANALYSIS (% PASSING)

100 mm				
75 mm		100	100	
63 mm		99	100	
50 mm		96	100	
37.5 mm	100	88	99	
28.0 mm	96	87	98	
20.0 mm	87	79	94	
14.0 mm	79	60	83	
5.0 mm	53	50	73	
2.0 mm	39	34	45	
0.425 mm	23	23	13	
0.075 mm	12			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	41	32	38	
FINE SAND <0.425mm >0.075mm	28	22	44	
MATERIAL <0.075mm	31	46	18	

CONSTANTS

GRADING MODULUS	2,26	1,93	1,89	
PRA CLASSIFICATION	A-2-4(0)	A-2-4(0)	A-1-b(0)	
UNIFIED SOIL CLAS	SP-SC	SC	SC	
COLTO CLASSIFICATION	G5	G6	G6	
LIQUID LIMIT (%)	20	23	-	
PLASTICITY INDEX (0.425mm)	8	9	SP	
LINEAR SHRINKAGE (%)	4,0	4,5	0,5	
MOISTURE CONTENT (%)	3,8	7,1	7,0	

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2368	2274	2188	
OPTIMUM MOISTURE CONTENT (%)	5,3	6,7	7,2	
MOULDING MOISTURE (%)	5,4	6,6	7,1	

TYPE OF TEST	CBR	CBR	CBR	
CBR-UCS @ 100% MDD	84	78	106	
CBR-UCS @ 98% MDD	75	57	79	
CBR-UCS @ 97% MDD	70	49	68	
CBR-UCS @ 95% MDD	62	36	51	
CBR-UCS @ 93% MDD	55	27	38	
CBR-UCS @ 90% MDD	46	17	24	

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD (A)(B)(C)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00						
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Remarks:

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: M Gregory F Bell (N Dip Civ Eng)

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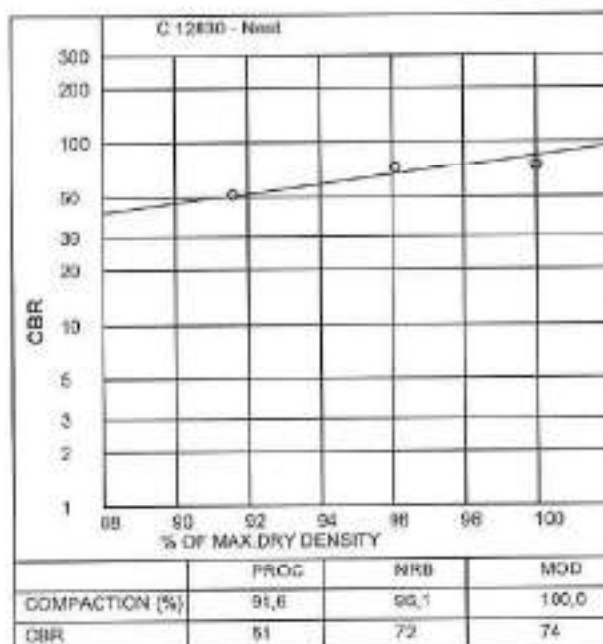
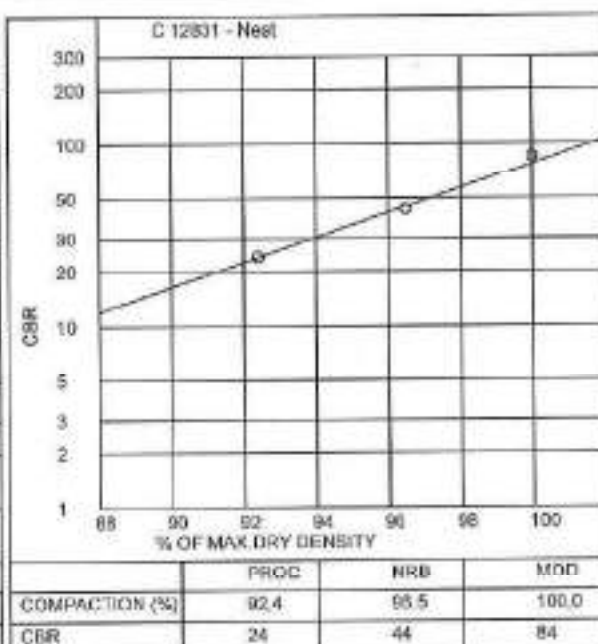
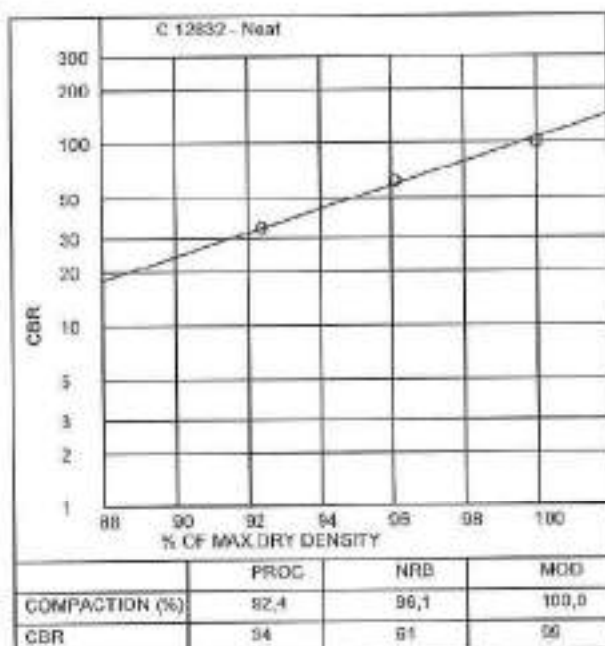
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TEST RESULTS

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BELLVILLE
7635
Attention: Ms Annel Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.11
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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TEST RESULTS

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P.O. BOX 112
BELLVILLE
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Attention: Ms Anneri Mantz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.12
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO.	C 12833	C 12834			Specification
HOLE NO.	TP.12	TP.12			Min : Max
ROAD NO.	Webersvalley Road	Webersvalley Road			
DEPTH	480-690	690-950			
CHAINAGE	Refer to Plan	Refer to Plan			
LAYER TYPE	Insttu	Fill			
STABILISED WITH	Neat	Neat			
SUPPLIER	N/a	N/a			
CURING METHOD	N/a	N/a			
DATE TESTED					
DESCRIPTION	Orange Brown Laterite Gravel	Red Brown Laterite Gravel			

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm		100			
28.0 mm	100	99			
20.0 mm	100	97			
14.0 mm	99	93			
5.0 mm	95	72			
2.0 mm	89	57			
0.425 mm	58	34			
0.075 mm	12	10			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	35	40			
FINE SAND <0.425mm >0.075mm	52	42			
MATERIAL <0.075mm	13	18			

CONSTANTS

GRADING MODULUS	1,41	1,98			
PRA CLASSIFICATION	A-2-4(0)	A-1-b(0)			
UNIFIED SOIL CLAS.	SP-SC	SP-SC			
COLTO CLASSIFICATION	06	05			
LIQUID LIMIT (%)	-	15			
PLASTICITY INDEX (0.425mm)	NP	SP			
LINEAR SHRINKAGE (%)	0,0	1,5			
MOISTURE CONTENT (%)	7,0	6,2			

MDD

MAXIMUM DRY DENSITY (kg/m ³)	2111	2253			
OPTIMUM MOISTURE CONTENT (%)	6,3	6,4			
MOULDING MOISTURE (%)	6,2	6,4			

TYPE OF TEST	CBR	CBR			
--------------	-----	-----	--	--	--

CBR-UCS @ 100% MDD	80	170			
CBR-UCS @ 98% MDD	51	105			
CBR-UCS @ 97% MDD	41	83			
CBR-UCS @ 95% MDD	26	51			
CBR-UCS @ 93% MDD	16	31			
CBR-UCS @ 90% MDD	6,3	15			

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0,00	0,00	0,00	0,00	0,00	0,00													
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Remarks :

FORM: GR40

4.4.1(SGS)2019.12.04

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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Reg. No.: 2000/03090307 - VAT Reg. No.: 4130167405

a SANAS Accredited Testing Laboratory, No. T0245

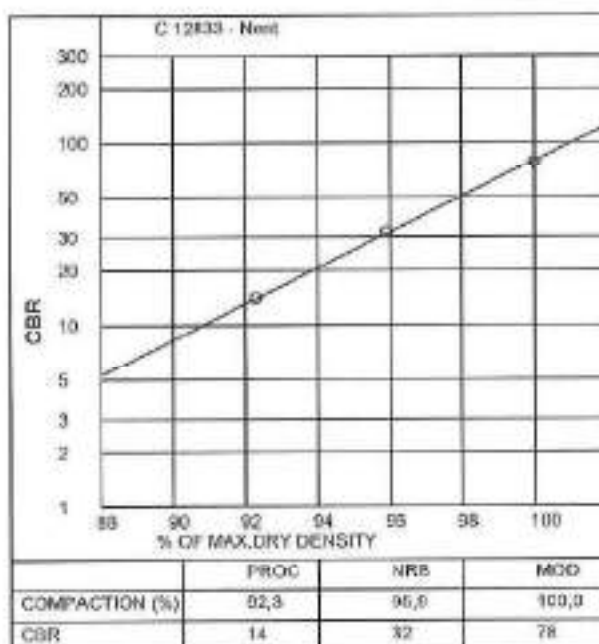
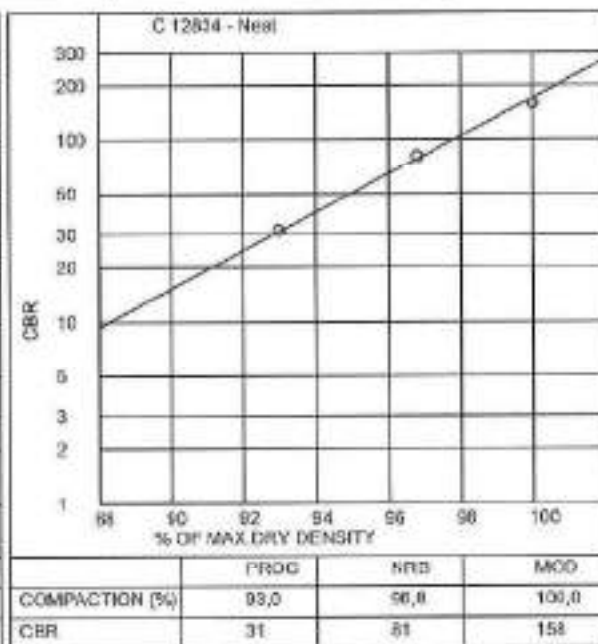
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Tel.: 021 5015558/9
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Email: glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84138.12
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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MATROCAST



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Reg No: 2003/0308507 - VAT Reg No: 4130197405

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TEST RESULTS

ARECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Annari Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.13
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO. HOLE NO. ROAD NO. DEPTH CHAINAGE LAYER TYPE STABILISED WITH SUPPLIER CURING METHOD DATE TESTED DESCRIPTION	C 12670 TP.24 Jamestown Road 0-500 Refer to Plan Base Neat N/a N/a Brown Clayey Sand+Rubble	C 12671 TP.24 Jamestown 500-1500 Refer to Plan Subbase Neat N/a N/a Yellow Br. Laterite Ferticrete Gravel	Specification Min : Max
---	---	---	----------------------------

SIEVE ANALYSIS (% PASSING)

100 mm	100		
75 mm	97		
63 mm	97		
50 mm	97		
37.5 mm	96	100	
28.0 mm	96	100	
20.0 mm	96	100	
14.0 mm	88	97	
5.0 mm	80	93	
2.0 mm	66	70	
0.425 mm	51	66	
0.075 mm			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	30	25	
FINE SAND <0.425mm >0.075mm	6	4	
MATERIAL <0.075mm	64	71	

CONSTANTS

GRADING MODULUS	1.13	0.71	
PRA CLASSIFICATION	A-4(3)	A-7-5(8)	
UNIFIED SOIL CLAS.	OL	OL	
COLTO CLASSIFICATION	—	—	
LIQUID LIMIT (%)	36	44	
PLASTICITY INDEX (0.425mm)	10	12	
LINEAR SHRINKAGE (%)	5.0	6.0	
MOISTURE CONTENT (%)	5.9	8.2	

MDD

MAXIMUM DRY DENSITY (kg/m³)	2056	1717	
OPTIMUM MOISTURE CONTENT (%)	10.4	20.3	
MOULDING MOISTURE (%)	10.4	20.3	

TYPE OF TEST	CBR	CBR	
CBR-UCS @ 100% MDD	7.7	2.0	
CBR-UCS @ 90% MDD	6.5	1.9	
CBR-UCS @ 97% MDD	6.0	1.9	
CBR-UCS @ 95% MDD	5.1	1.8	
CBR-UCS @ 93% MDD	4.3	1.7	
CBR-UCS @ 90% MDD	3.4	1.6	

CBR-UCS @ % MDD derived from calculation.

% SWELL MOULD [A][B][C]	0.28	0.53	0.63	0.22	0.58	0.83													
-------------------------	------	------	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--

Remarks :

FORM: GR40

4.4.1(SGS)(2010.12.04)

Technical Signatory : M. Gregory F. Bell (N Dip Civ Eng)

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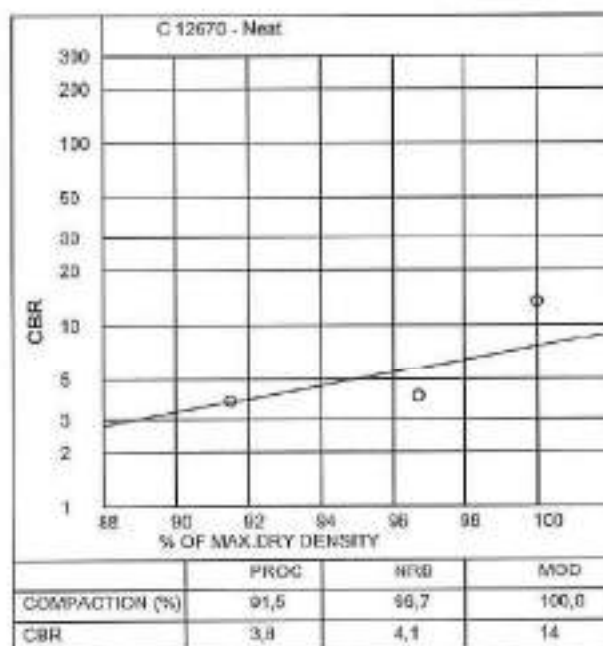
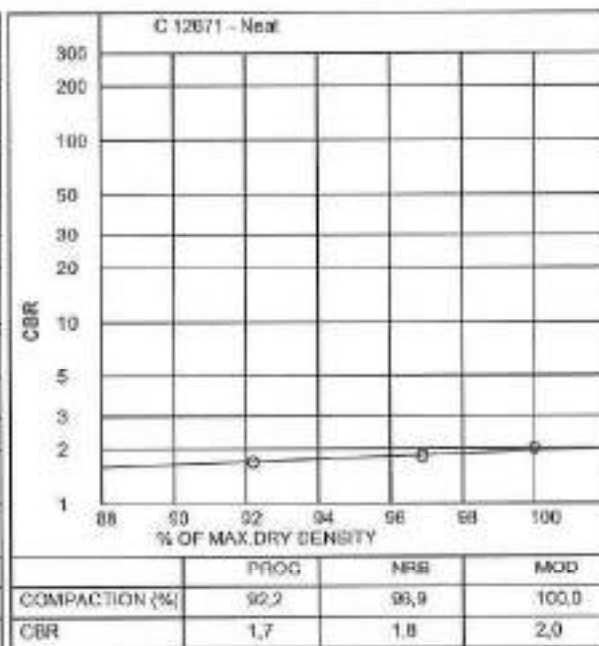
4 HARBOT CLOSE, BRACKENHURST, 7999
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Tel.: 021 5015559
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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
: PROPOSED NMT SOILS SURVEY
Your Ref :
Our Ref : 84139.13
Date Reported : 12.05.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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TEST RESULTS

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P.O. BOX 112
BELLVILLE
7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK ,STELLENBOSCH
Your Ref :
Our Ref : 84139.14
Date Reported : 12.05.2021

SIEVE ANALYSIS, ATTERBERG LIMITS, CBR(SANS 3001:GR1,GR10,GR12,GR20,GR30,GR40)

SAMPLE NO. HOLE NO. ROAD NO. DEPTH CHAINAGE LAYER TYPE STABILISED WITH SUPPLIER CURING METHOD DATE TESTED DESCRIPTION	C 12667 TP.25 Jamestown Road 0-340 Refer to Plan Base Neat N/a N/a	C 12668 TP.25 Jamestown 340-1550 Refer to Plan Subbase Neat N/a N/a	Specification Min : Max
	Brown Sand+ Laterite	DK.Br.Sand+ Dec.W/Ferricrete	

SIEVE ANALYSIS (% PASSING)

100 mm					
75 mm					
63 mm					
50 mm					
37.5 mm					
28.0 mm					
20.0 mm	100				
14.0 mm	99	100			
5.0 mm	89	86			
2.0 mm	76	93			
0.425 mm	48	75			
0.075 mm	37	70			

SOIL MORTAR

COARSE SAND <2.0mm >0.425mm	37	19		
FINE SAND <0.425mm >0.075mm	14	5		
MATERIAL <0.075mm	49	76		

CONSTANTS

GRADING MODULUS	1,39	0,62			
PRA CLASSIFICATION	A-4(0)	A-7-5(7)			
UNIFIED SOIL CLAS.	SM-SC	OL			
COLTO CLASSIFICATION	G8				
LIQUID LIMIT (%)	21	41			
PLASTICITY INDEX (0.425mm)	6	10			
LINEAR SHRINKAGE (%)	3,0	5,0			
MOISTURE CONTENT (%)	4,7	9,8			

NOI

MAXIMUM DRY DENSITY (kg/m ³)	2107				
OPTIMUM MOISTURE CONTENT (%)	9.7				
MOULDING MOISTURE (%)	9.9				

TYPE OF TEST	CBR				
--------------	-----	--	--	--	--

CBR-UCS @ 100% MDD	21				
CBR-UCS @ 98% MDD	18				
CBR-UCS @ 97% MDD	18				
CBR-UCS @ 95% MDD	14				
CBR-UCS @ 93% MDD	12				
CBR-UCS @ 90% MDD	9.1				

CBR-UCS @ % MDD derived from calculation.

[illegible]

Remarks

FORM: GR40

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F Bell (N.Dip.Civ.Eng)

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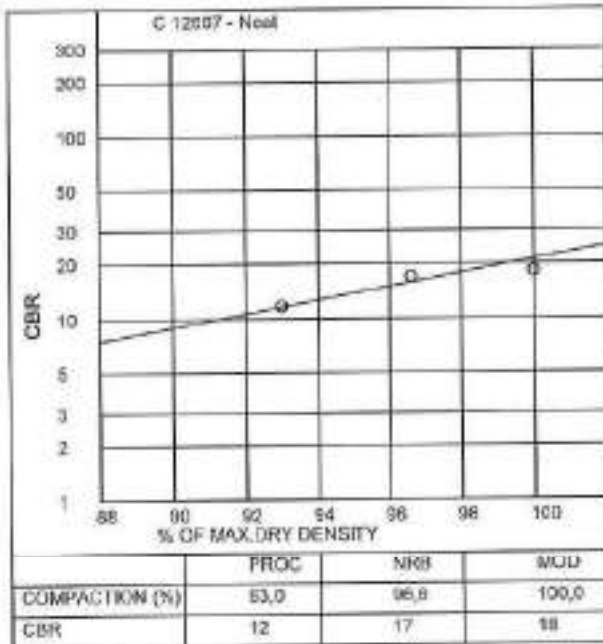
4 HARBOT CLOSE, BRACKENDUST, 7560
P.O. BOX 1106, BRACKENFELL
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Fax : 021 8616724
Email : glyn.tudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
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7535
Attention: Ms Anneri Maritz

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.14
Date Reported : 12.06.2021

CBR-UCS GRAPH/S (OPTIONAL INFORMATION)



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Tel.: 021 9615550/9
Fax: 021 9615724
Email: sgs.matrocast@sgs.com

CLIENT: AECOM SA (PTY) LTD
ADDRESS: P.O. BOX 112
BELLVILLE
7535
ATTENTION: MS ANNIE MARITZ

OUR REF.: 84139.1

YOUR REF.:

DATE: 13.04.2021

PROJECT: JAMESTOWN ROAD NETWORK, STELLENBOSCH

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Tests marked * "Not SANAS Accredited" in this Report are not included in the
SANAS Schedule of Accreditation for the laboratory.

TEST REPORT / RESULTS

Sample/s: Sampled by: SGS MATROCAST
Date Received / Sampled: 04.12.2021
Date Tested: 04.12.2021-13.04.2021

Sampling method: N/A

Section / Position tested identified by: CUSTOMER

Number of pages in this Report: 20

General: *DCP TEST RESULTS
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Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

No. of Pages: 20

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

7535

Attention: MR. ANNERI MARITZ

Project

JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref

Our Ref

Date Reported

84139

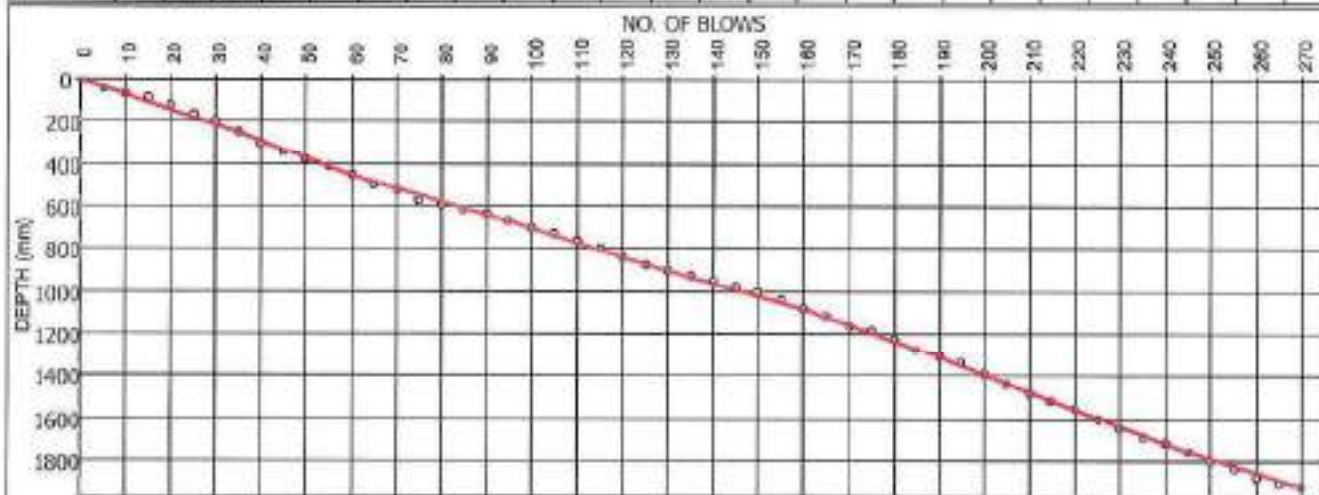
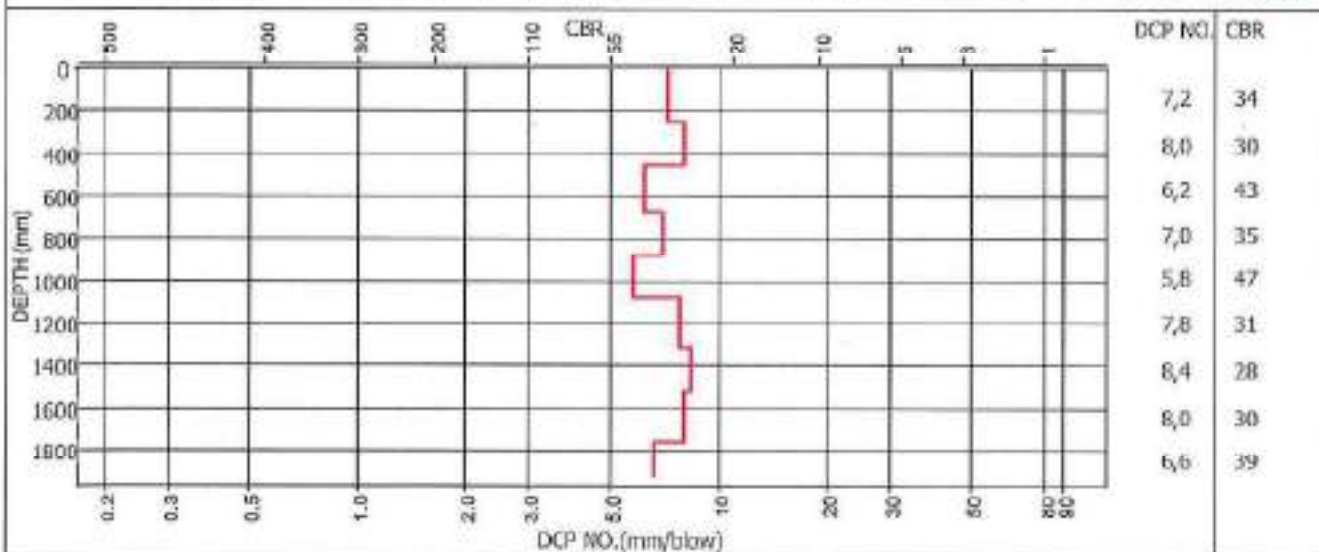
13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION: 84139 - TP.1

INITIAL DEPTH (mm): 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	48	68	89	116	154	199	251	296	342	377	411	452	496	521	574	589	613	634	669	699	731	766	799	842	877
CBR	24	67	71	51	23	35	21	25	24	35	37	29	25	55	21	110	59	71	35	45	41	35	39	27	35
BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250
DEPTH	899	921	948	977	1004	1037	1078	1114	1161	1178	1222	1277	1311	1338	1389	1442	1478	1519	1551	1599	1642	1684	1716	1758	1801
CBR	67	67	51	47	51	39	29	34	24	96	25	20	37	51	22	21	34	29	41	23	27	28	41	28	27
BLOWS	256	260	265	270																					
DEPTH	1831	1879	1898	1921																					
CBR	45	24	75	63																					



Remarks: "..."

FORM: ST6

4.4.1(SGS)2019.12.04

Technical Signature: Mr. Gregory F. Bell (N.Dip. Civ. Eng.)

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

7535

Attention: MR ANNELI MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :

Our Ref : 84139

Date Reported : 13.05.2021

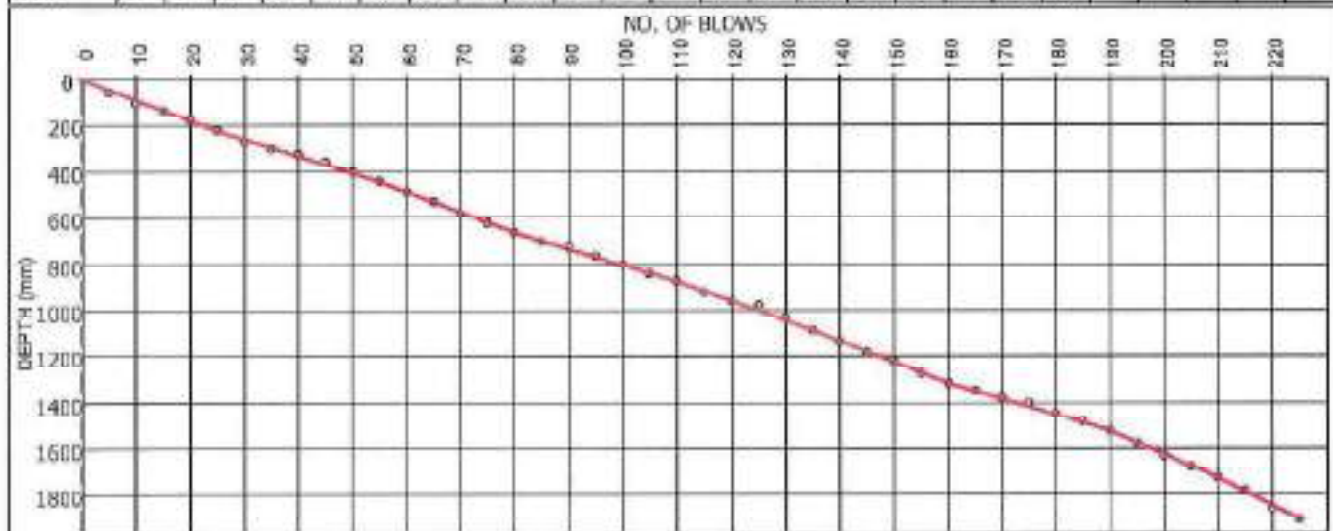
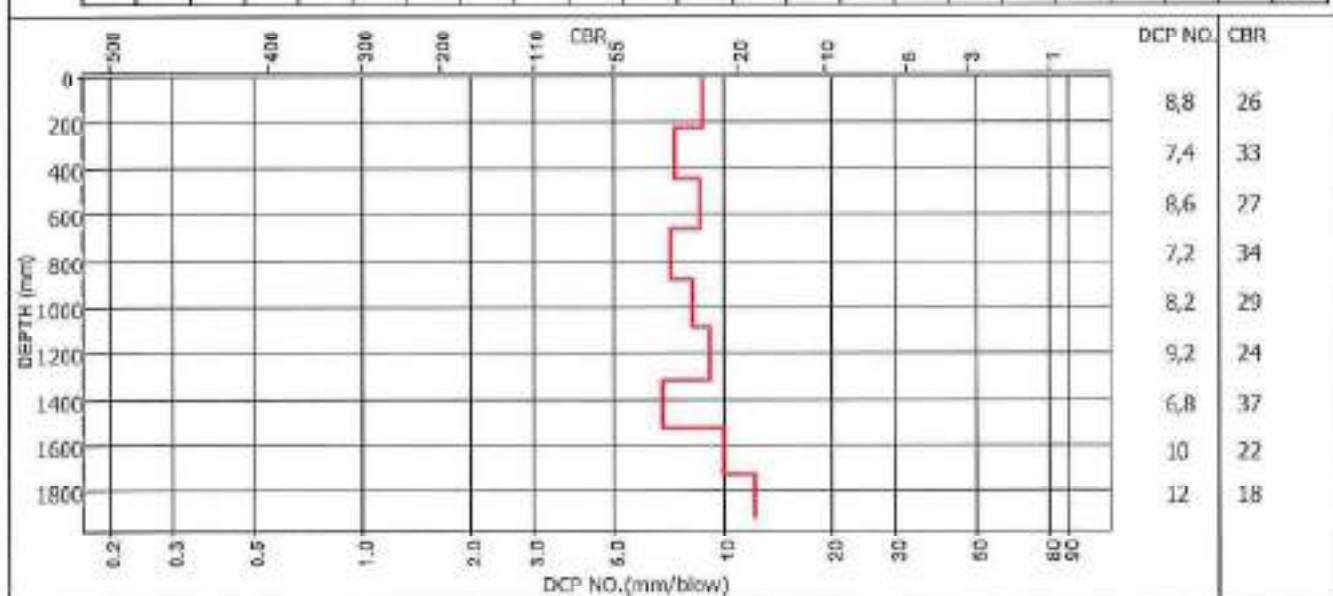
DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.2

INITIAL DEPTH (mm) : 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	53	99	131	177	221	264	299	322	358	399	442	489	531	584	619	658	699	722	766	801	846	877	921	958	978
CBR	21	24	41	24	26	27	36	63	34	29	27	24	28	21	36	31	28	63	26	36	25	43	28	33	75

BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225					
DEPTH	1031	1084	1134	1178	1222	1279	1315	1348	1377	1406	1446	1478	1522	1577	1631	1678	1724	1777	1858	1906					
CBR	21	21	24	23	27	19	33	41	47	47	30	41	26	20	20	24	24	21	13	23					



Remarks : "..."

FORM: ST6

4.4.1(SGS)2019.12.94

Technical Signatory : M. Gregory F. Bell (N Dip Civ. Eng.)

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Email: glyn.hutson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR ANNEMARITZ

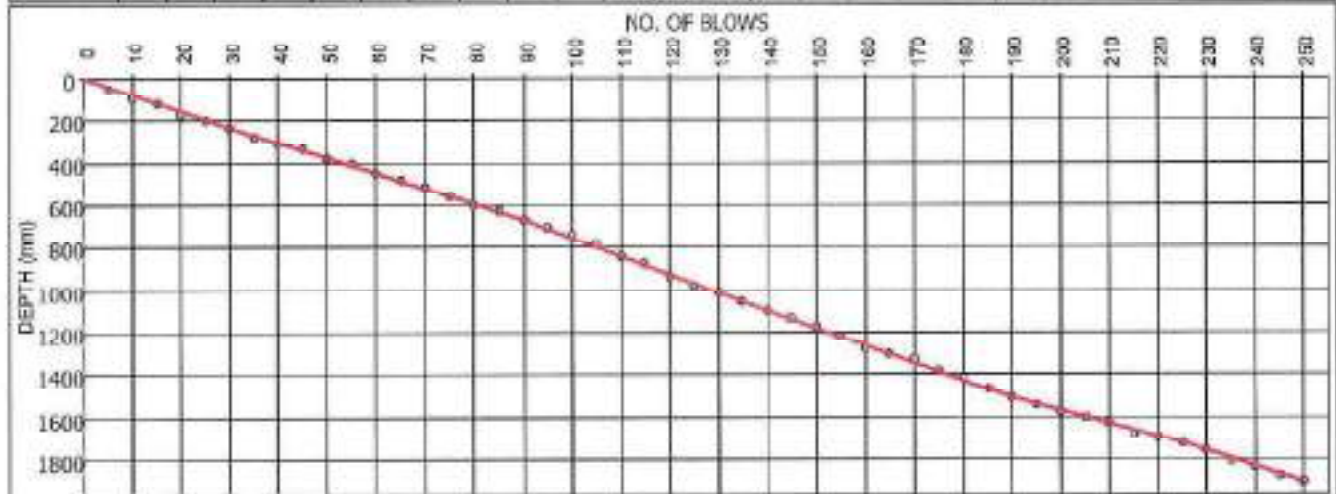
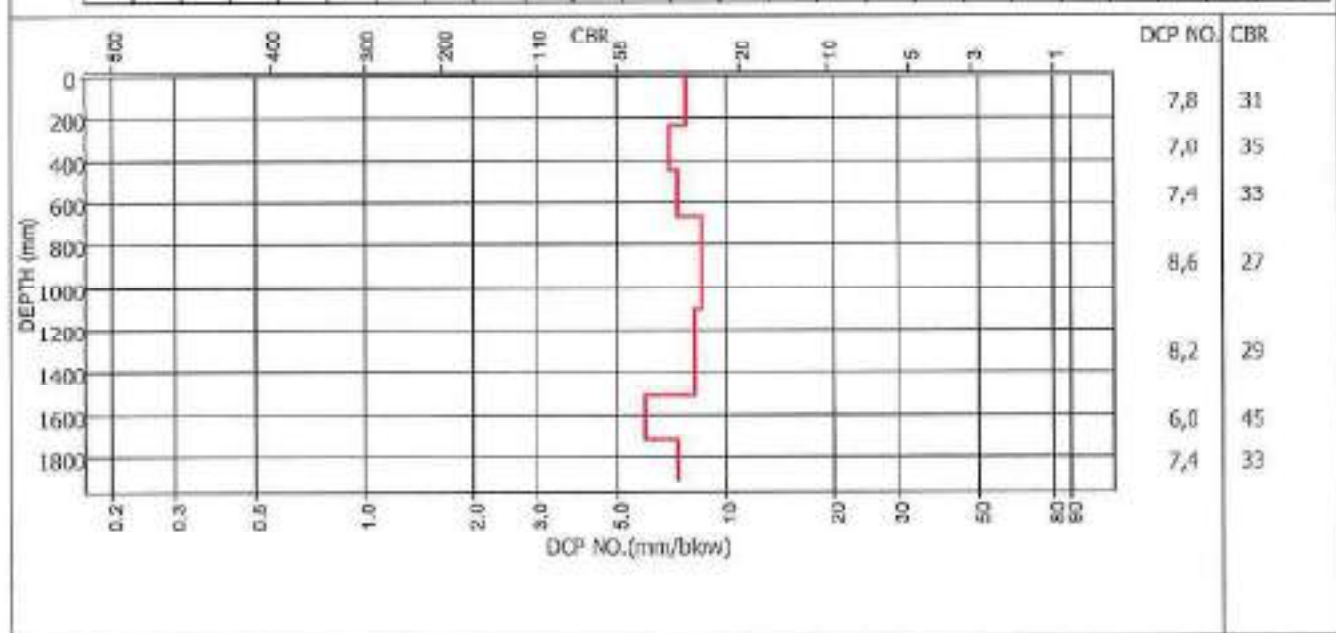
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.3

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
BLOWS	61	96	122	168	199	231	277	311	337	377	401	442	477	514	558	599	622	684	699	734	777	836	877	931	977
DEPTH	1014	1055	1099	1131	1177	1214	1278	1306	1331	1377	1413	1464	1511	1546	1577	1599	1631	1678	1699	1721	1756	1804	1831	1877	1904
CBR	33	28	27	41	24	33	16	49	55	24	34	22	24	35	43	67	41	24	71	67	35	23	51	24	51



Remarks : 33.96375° - 16.84548°

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Secretary: M. Gregory F. Ball (N Dip Civ Eng)

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TEST RESULTS

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7535
Attention: MR ANNERI MARITZ

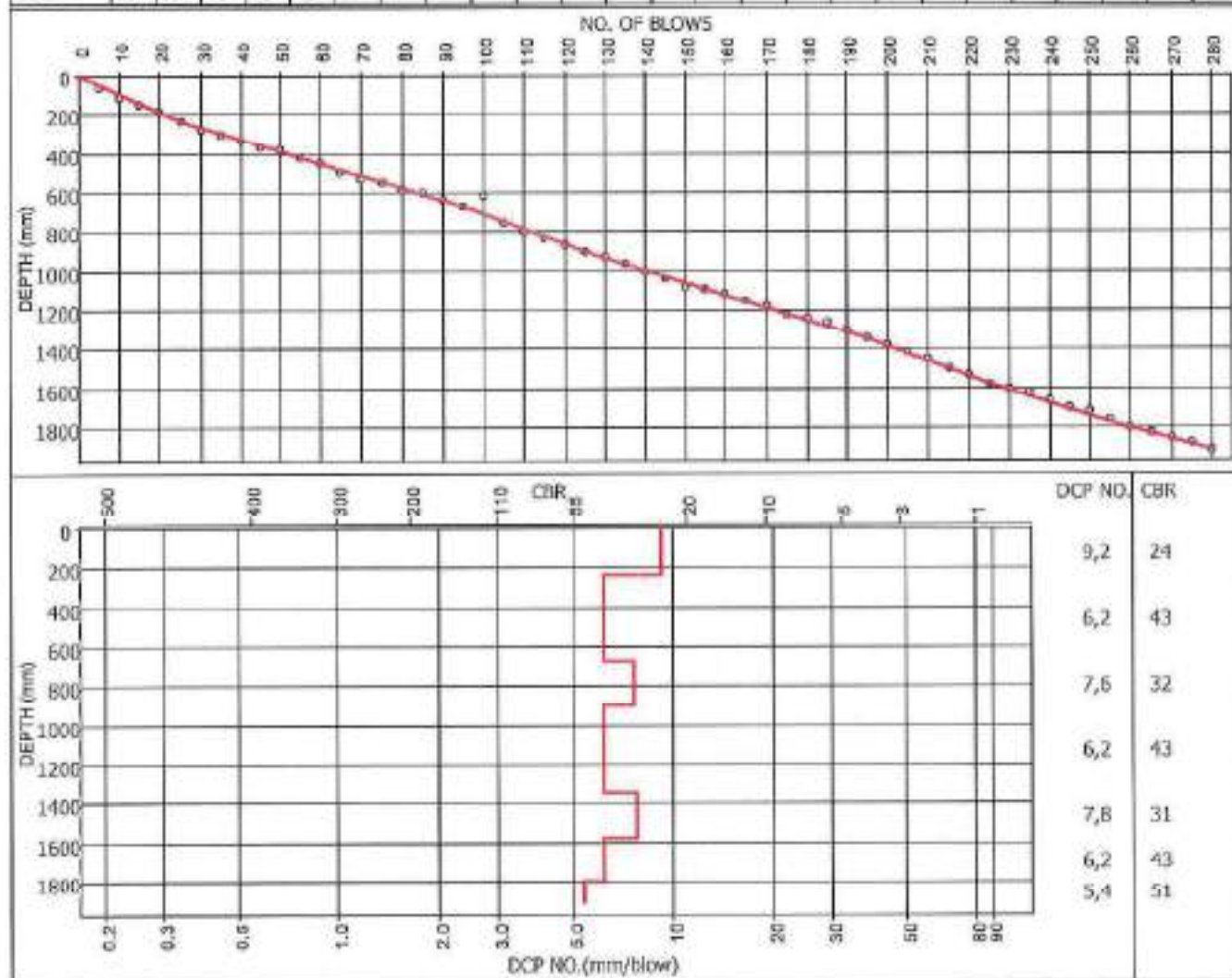
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.4

INITIAL DEPTH (mm) : 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	64	111	146	184	231	278	304	331	368	377	416	448	499	534	548	581	602	637	669	614	701	789	831	864	898
CBR	16	24	35	32	24	24	53	51	33	185	31	41	22	35	162	39	71	35	41	1,226	64	23	41	39	35
BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250
DEPTH	921	958	999	1036	1077	1084	1113	1148	1177	1222	1238	1258	1295	1342	1379	1417	1451	1499	1531	1577	1598	1622	1664	1699	1713
CBR	67	33	29	33	29	232	47	35	47	25	103	75	29	27	33	32	37	23	41	24	67	63	28	35	162
BLOWS	255	260	266	270	275	280																			
DEPTH	1758	1796	1822	1846	1877	1905																			
CBR	25	32	53	59	43	47																			



Remarks : 33.98238° - 18.84648°

FORM: ST6

4.4.1(SGS)(2018.12.04)

Technical Signatory : Mr Gregory F. Bell (N.Dip.Civ.Eng)

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a SANAS Accredited Testing Laboratory, No. T0245

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Email: glyn.hutson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR ANNERI MARITZ

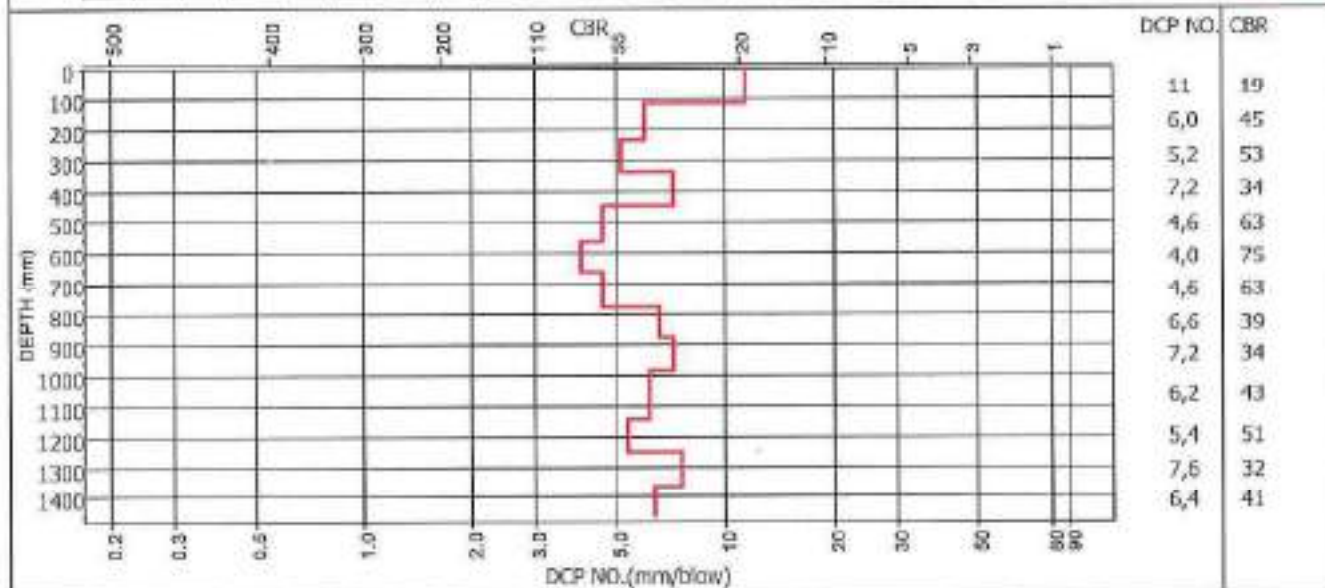
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 64139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.5

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5 66 16	10 114 23	15 147 39	20 177 45	25 211 37	30 234 53	35 258 59	40 279 71	45 311 41	50 337 53	55 388 43	60 401 39	65 446 25	70 477 43	75 499 67	80 504 300	85 537 39	90 561 55	95 579 89	100 594 110	105 601 232	110 634 39	115 661 51	120 677 103	125 711 37
BLOWS DEPTH CBR	130 742 43	135 753 160	140 777 59	145 811 37	150 842 43	155 877 35	160 899 67	165 942 27	170 984 28	175 1011 51	180 1036 55	185 1068 41	190 1077 185	195 1141 16	200 1163 67	205 1184 71	210 1219 35	215 1248 47	220 1277 47	225 1322 25	230 1361 31	235 1411 22	240 1437 53	245 1458 71	



Remarks : * - *

FORM: ST6

4.4.1(SGS)(2010.12.04)

Technical Signatory : Mr Gregory F. Bell (N.Dip Civ. Eng)

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Reg No: 2000/000803/07 - VAT Reg No: 4130197405

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4 HARBOT CLOSE BRACKENHURST, 7080

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Fax: 021 981 6724

Email: glyn.hudson@sgs.com

TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR ANNRI MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

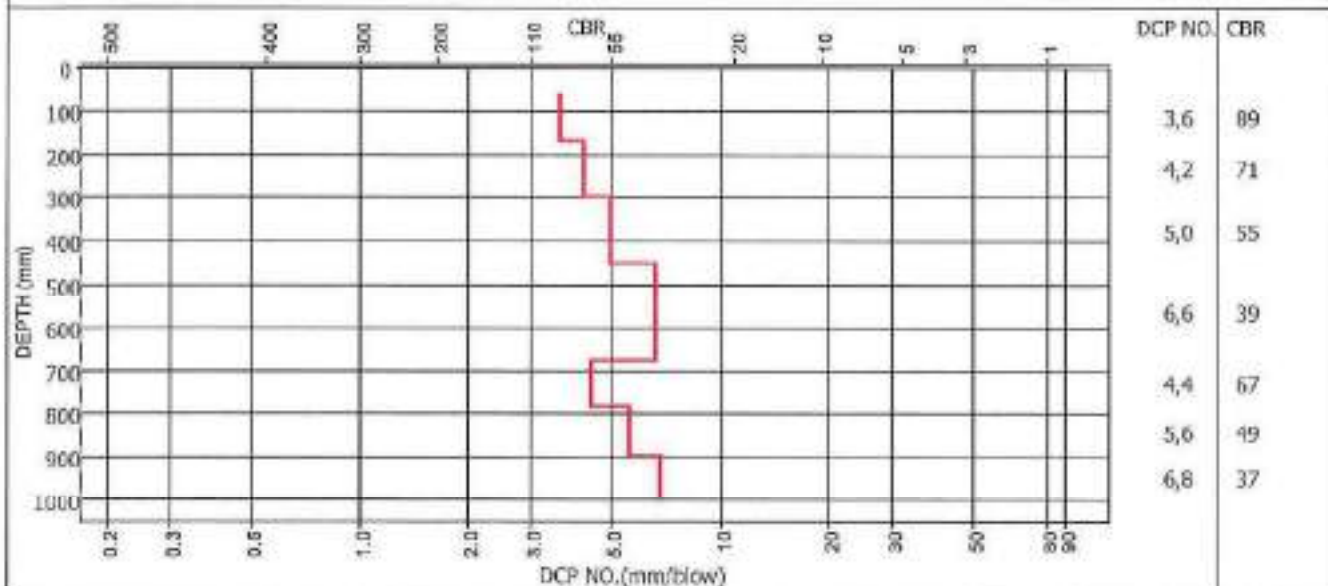
DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.6

INITIAL DEPTH (mm) : 60

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	89	97	109	122	141	168	177	189	201	232	264	296	312	341	367	394	421	448	469	521	546	567	604	636	674
CBR	47	206	155	156	82	51	185	155	155	43	41	41	103	47	53	51	51	51	71	21	51	82	33	37	34

BLOWS	130	135	140	145	150	155	160	165	170	175	180	185													
DEPTH	693	721	748	759	782	804	831	852	894	921	967	996													
CBR	82	49	51	180	63	67	51	43	41	51	24	47													



Remarks : 33.98101* - 18.84787*

FORM: ST6

4.4.1(SGS)(2018.12.04)

Technical Signatory : Mr Gregory F. Bell (N.Dip.Civ.Eng)

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

7535

Attention: MR ANNERI MARITZ

Project

: JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref

:

Our Ref

: 84139

Date Reported

: 13.05.2021

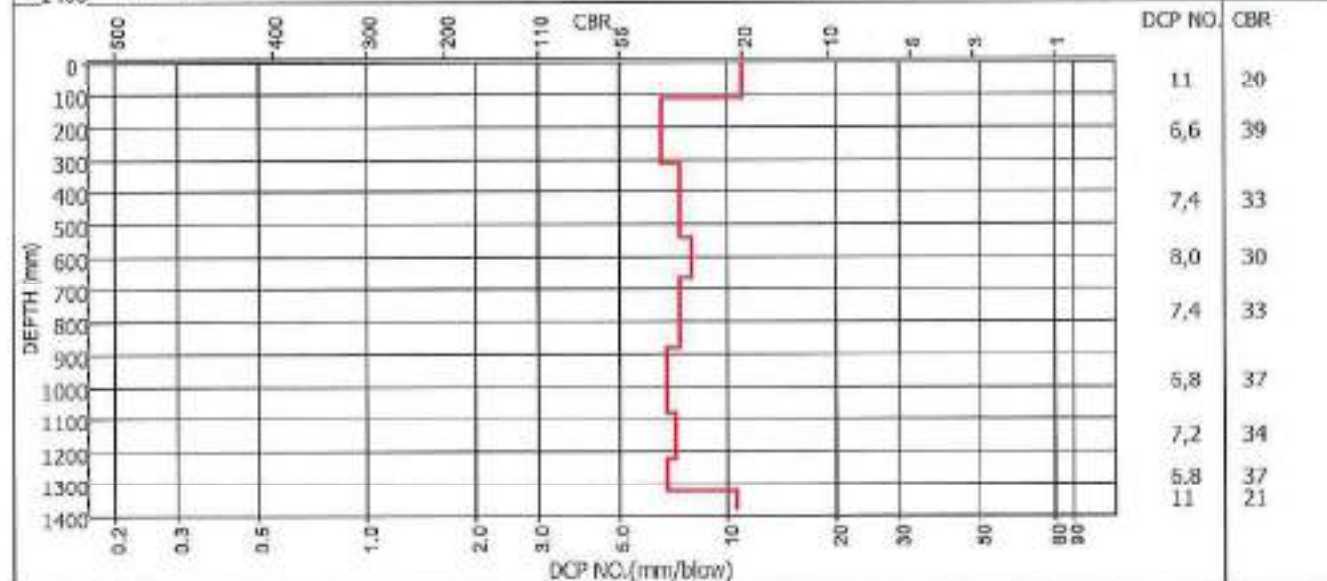
DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.7

INITIAL DEPTH (mm) : 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	64	111	158	189	211	251	279	312	342	377	422	458	506	537	584	613	658	699	732	768	800	841	877	904	942
CBR	16	24	24	43	67	30	49	39	45	35	25	34	23	43	24	47	25	29	39	34	41	29	34	51	32

BLOWS	130	135	140	145	150	155	160	165	170	175	180	185													
DEPTH	978	1017	1058	1079	1099	1131	1177	1222	1264	1299	1324	1377													
CBR	34	31	29	71	76	41	24	25	28	35	55	21													



Remarks : * * *

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory : Mr Gregory F Bell (N Dip Civ. Eng)

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
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7535
Attention: MR ANNRI MARITZ

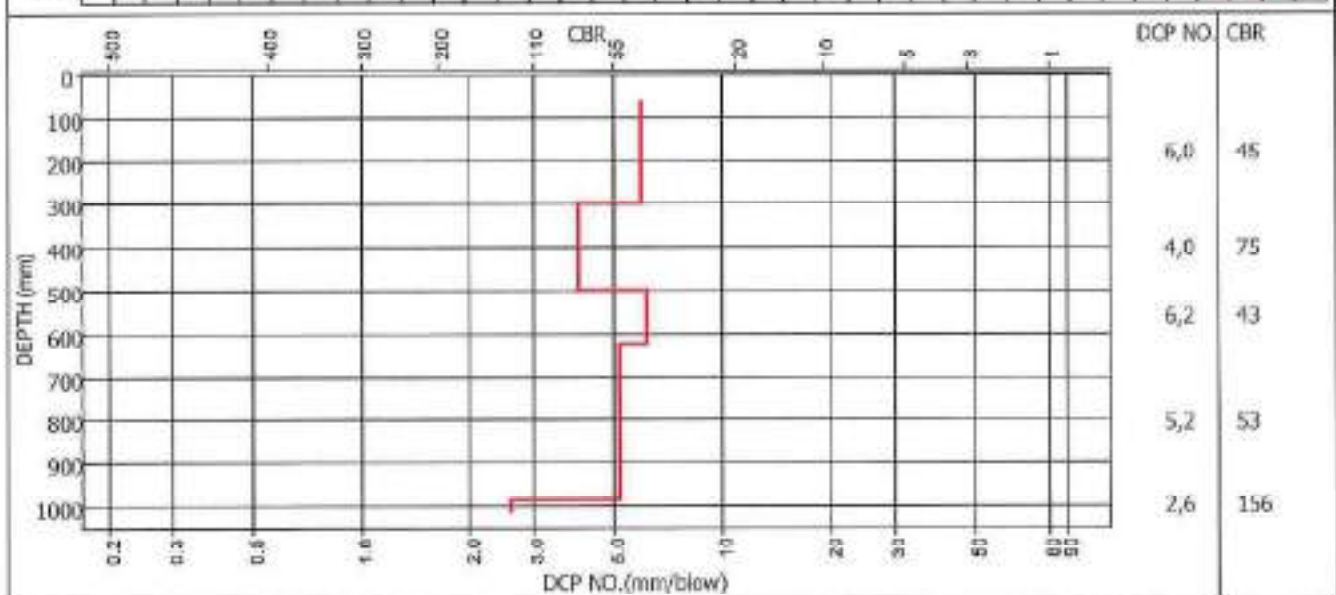
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP 8

INITIAL DEPTH (mm) : 60

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
	119	134	158	181	197	234	261	297	319	331	352	378	397	419	431	456	481	497	533	561	578	621	651	697	701
	18	110	67	55	103	33	51	34	67	155	71	53	82	67	155	55	55	103	34	49	96	27	45	24	342



Remarks : 33,98255° - 1885167°

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory : Mr Gregory F Bell (N Dip Civ Eng)

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TEST RESULTS

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7535
Attention: MR ANNER MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :

Our Ref : 84139

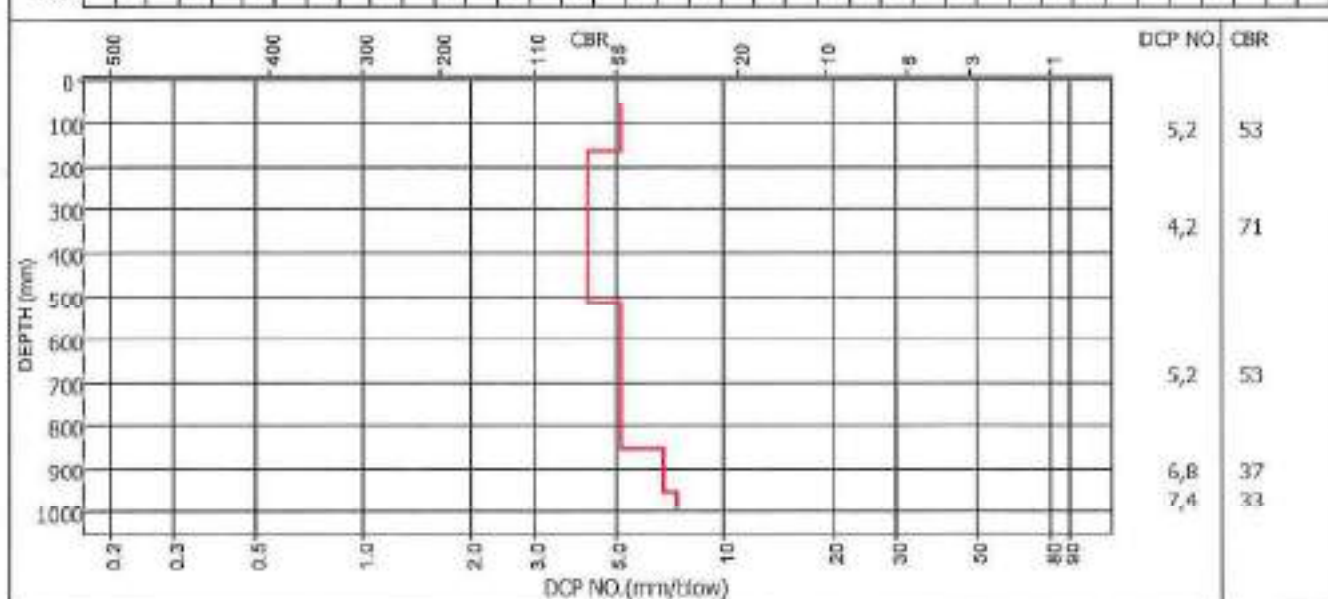
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.9

INITIAL DEPTH (mm) : 60

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	94	121	138	164	189	201	234	259	271	289	312	338	341	367	389	401	422	438	467	471	512	527	541	567	601
CBR	37	51	56	53	55	155	39	67	110	89	63	53	389	53	67	155	71	103	47	342	29	110	162	53	37



Remarks : 33.97941° - 18.84921°

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip Civ.Eng)

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
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7535
Attention: MR ANNERI MARITZ

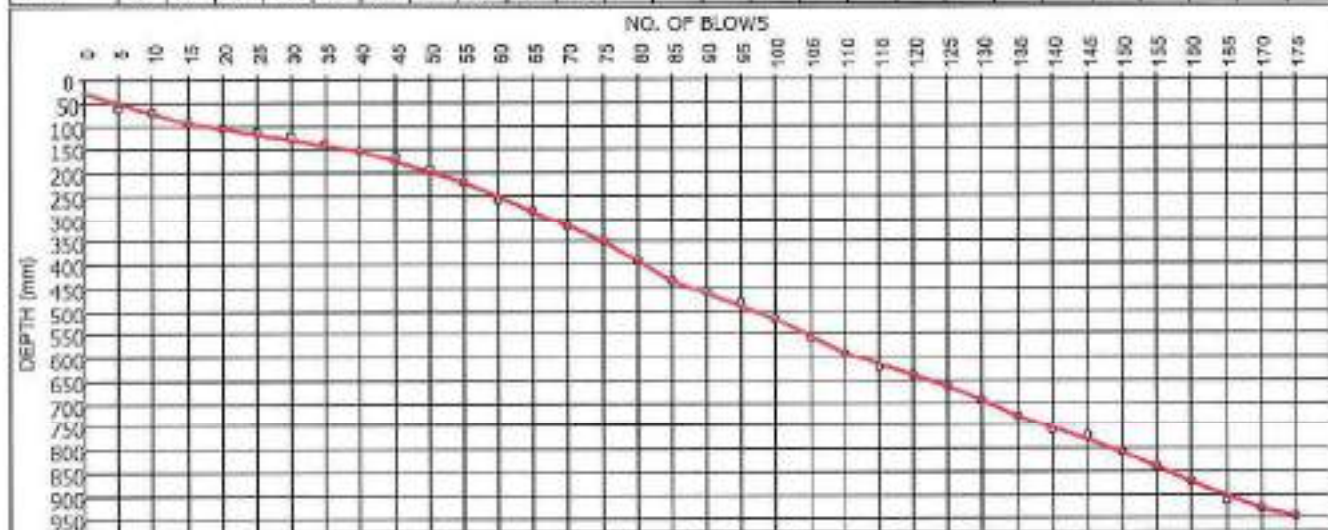
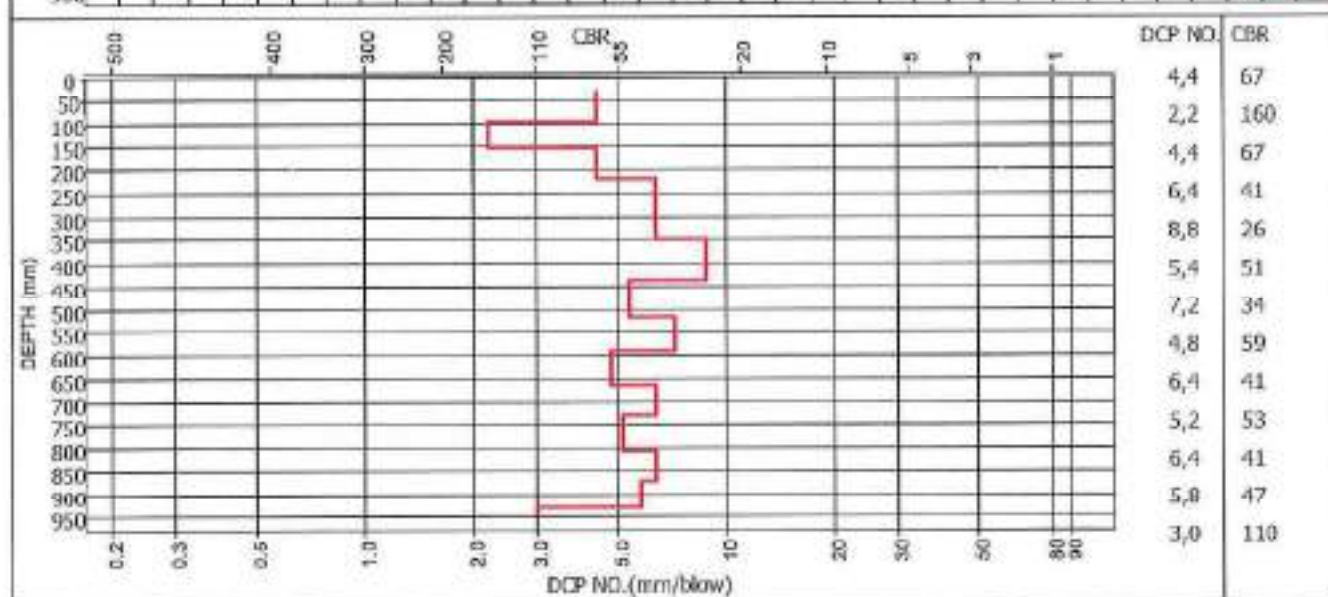
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.10

INITIAL DEPTH (mm) : 30

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
BLOWS	84	72	56	108	113	122	137	152	164	191	218	259	282	318	349	391	437	459	482	518	558	591	622	637	664
DEPTH	37	206	60	170	232	185	110	110	155	51	51	29	63	34	43	28	24	67	63	34	29	41	43	110	51
CBR	130	135	140	145	150	155	160	165	170	175															
	894	728	759	773	806	839	871	912	929	944															



Remarks : -

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technician Signature: Mr Gregory F Bell (N Dip Civ Eng)

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

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Attention: MR ANNERI MARITZ

Project

: JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref

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Our Ref

: 84139

Date Reported

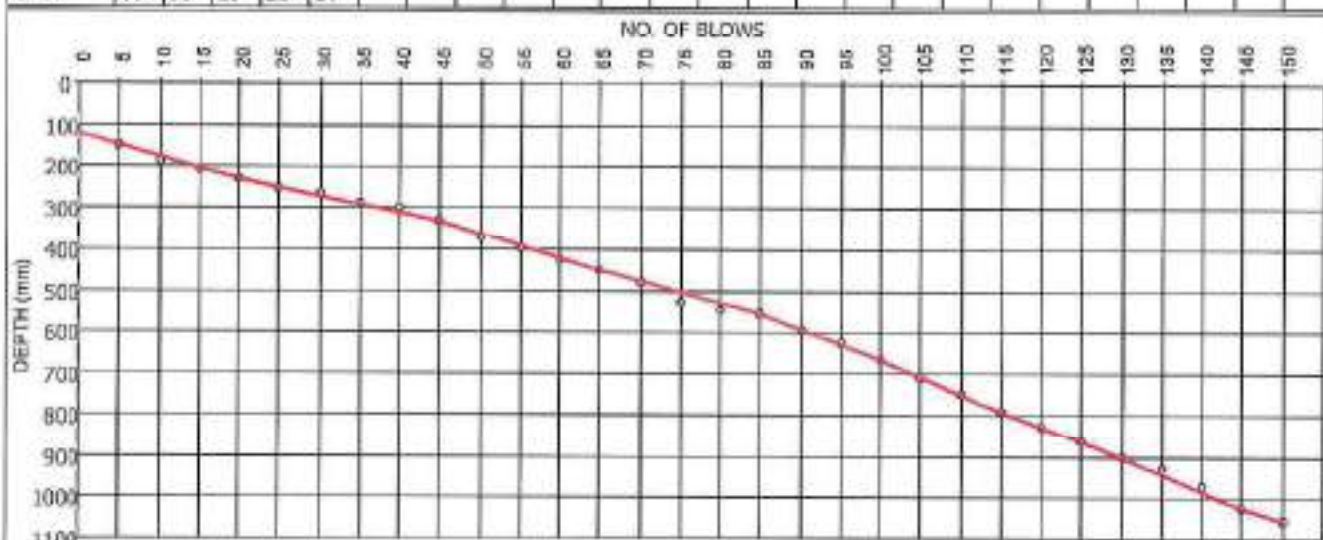
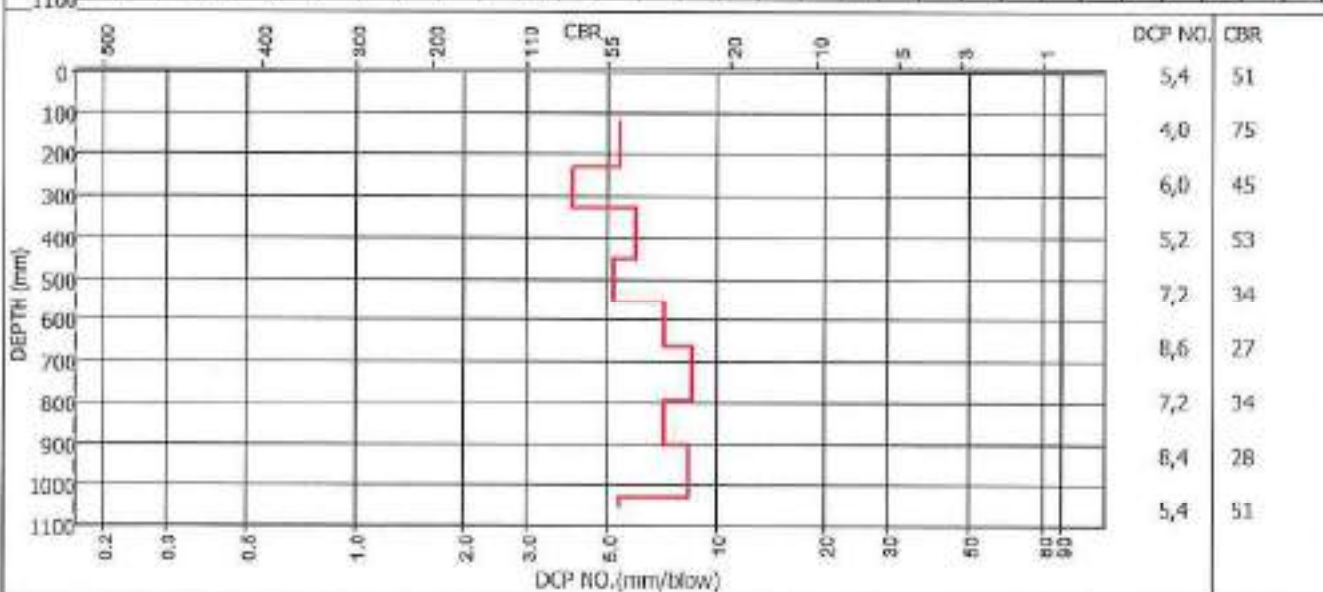
: 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.11

INITIAL DEPTH (mm) : 120

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	149	186	206	227	249	264	287	301	328	368	398	422	449	481	527	546	554	592	627	683	708	749	792	827	861
CBR	47	33	75	71	67	110	63	162	51	29	47	59	51	41	24	82	206	32	35	34	25	29	27	35	37



Remarks: -

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Beli (N.Dip. Civ. Eng)

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR ANNERI MARITZ

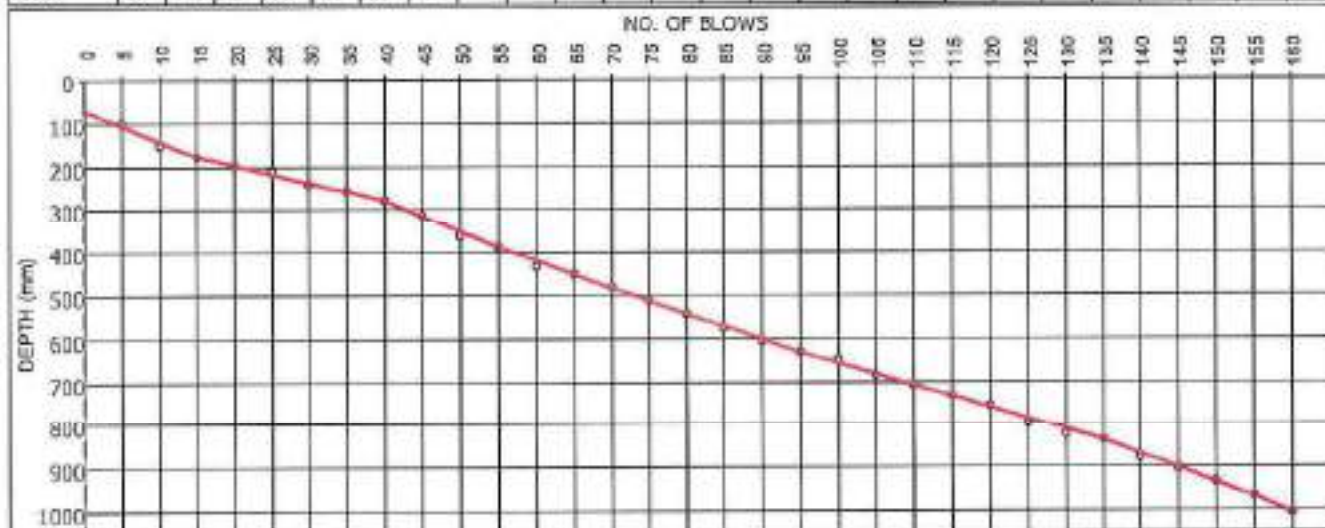
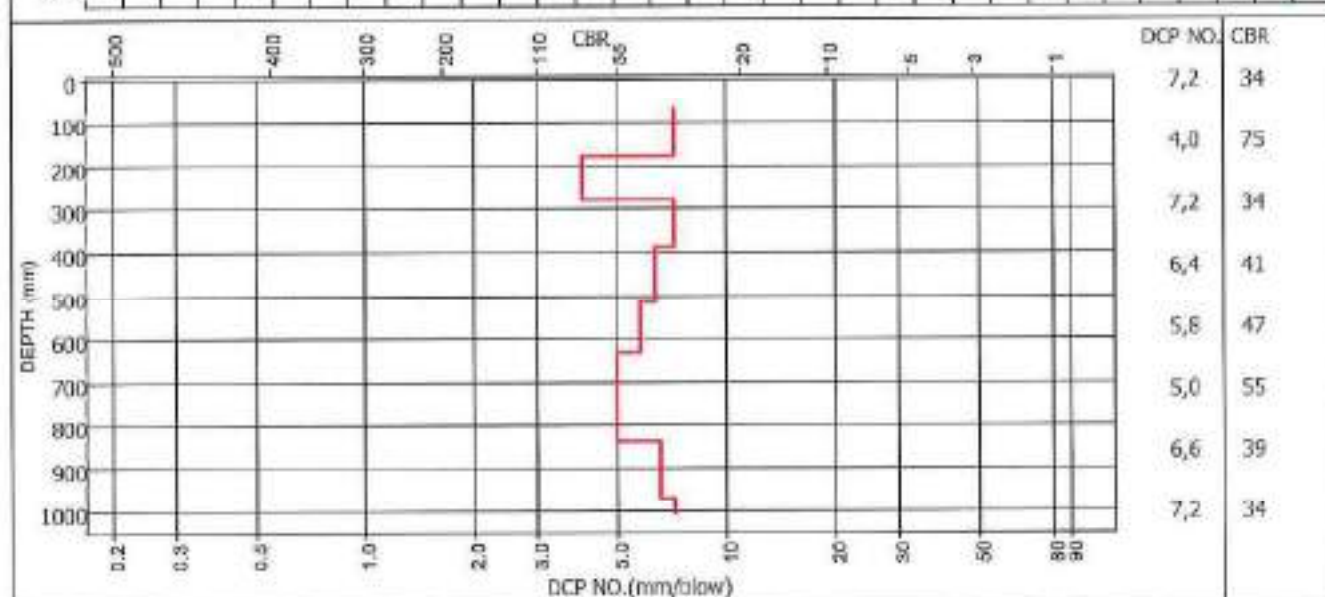
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP 12

INITIAL DEPTH (mm) : 70

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	89	151	177	189	211	241	258	277	311	381	386	431	448	477	514	542	577	604	631	648	684	708	731	758	799
CBR	47	21	63	67	165	45	96	82	37	22	65	25	96	47	33	40	35	51	51	96	34	67	55	51	29
BLOWS	130	135	140	145	150	155	160																		
DEPTH	822	837	879	904	931	968	1004																		
CBR	63	110	28	55	51	33	34																		



Remarks : 33.97643° - 18.84476°

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bel (N.Dip.Civ.Eng)

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TEST RESULTS

AECOM SA (PTY) LTD

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BELLVILLE

7535

Attention: MR ANNIE MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :

Our Ref : 84139

Date Reported : 13.05.2021

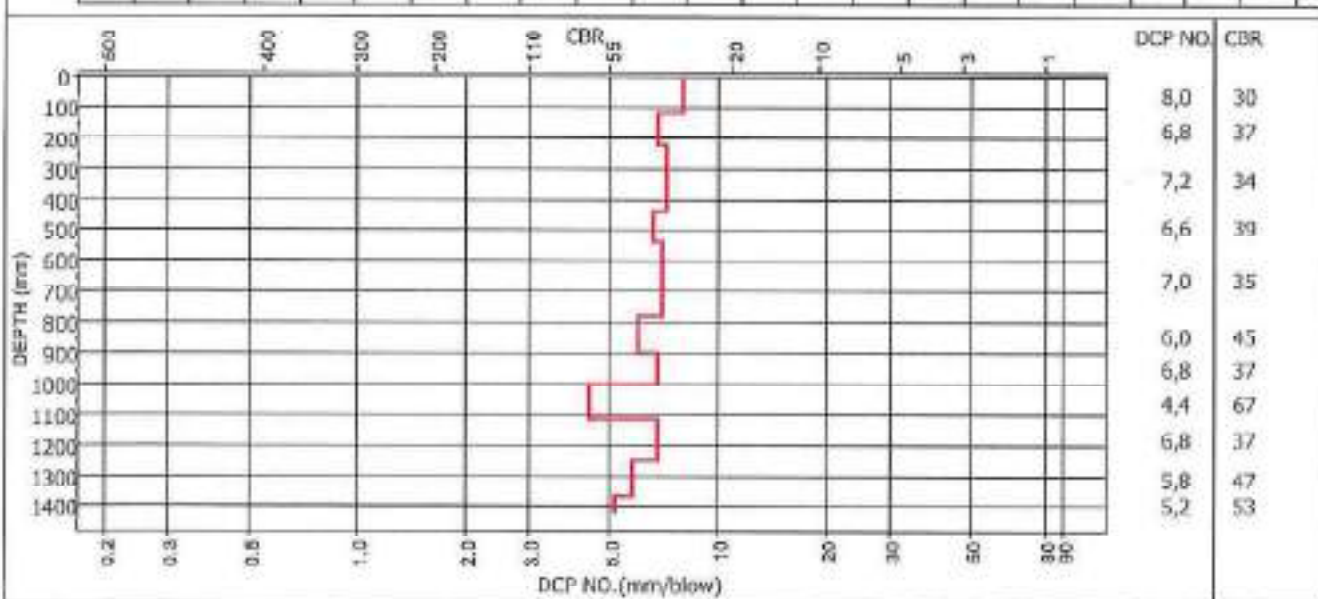
DYNAMIC CONE PENETRATION TEST (TMH6-ST5)

TEST POSITION : 84139 - TP.24

INITIAL DEPTH (mm) : 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	58	79	119	149	184	222	268	306	331	377	401	437	474	501	537	578	604	631	678	714	746	779	822	848	858
CBR	19	71	30	47	34	32	24	32	56	24	58	34	33	51	34	29	53	51	24	34	41	39	27	53	170

BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220						
DEPTH	899	921	977	1001	1034	1048	1077	1099	1113	1151	1177	1211	1248	1279	1299	1331	1364	1366	1417						
CBR	29	67	20	59	39	162	47	67	162	32	53	37	33	43	75	41	39	59	47						



Remarks : 33.98180° - 18.84741°

FORM: ST6

4.4.1(SGS)(2019.12.04)

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR ANNRI MARITZ

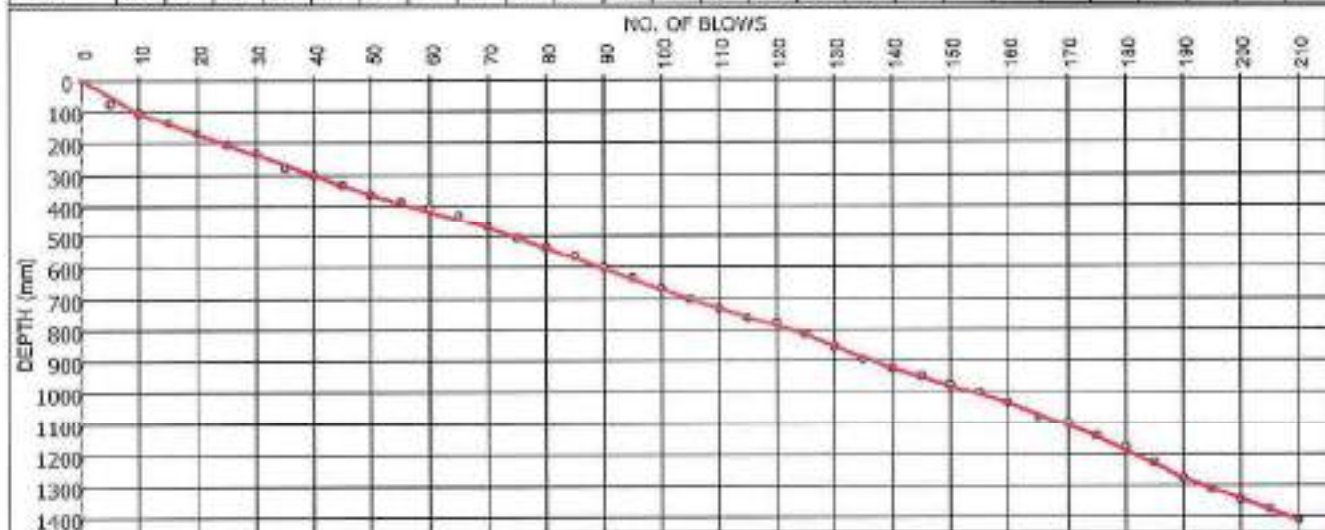
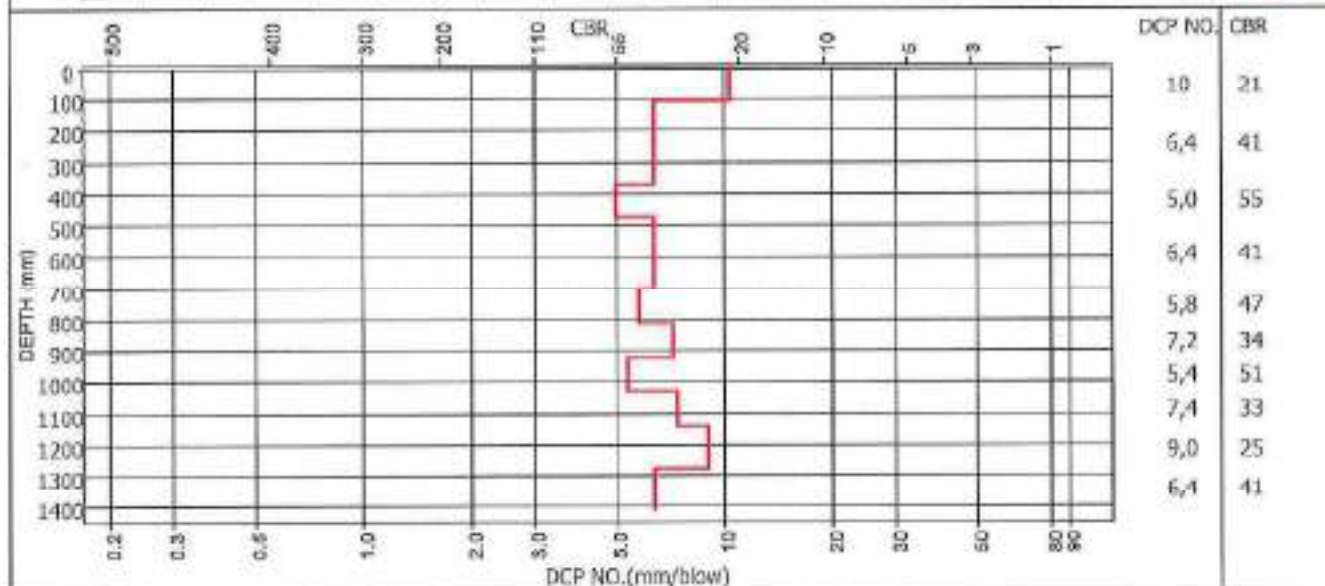
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - TP.25

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
	77	104	131	168	201	234	278	304	331	368	389	404	431	470	503	531	584	599	631	668	699	731	758	779	813
	14	51	51	33	30	30	25	53	51	33	71	110	51	31	39	49	39	35	41	33	43	41	51	71	37
BLOWS DEPTH CBR	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210								
	851	892	922	948	977	999	1031	1077	1099	1142	1179	1231	1278	1311	1346	1377	1407								
	32	29	45	53	47	67	41	24	57	27	33	21	24	39	35	43	45								



Remarks : 33.95104° - 18.84798°

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr. Gregory F. Bell (N Dip Civ. Eng.)

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

7535

Attention: MR ANNERI MARITZ

Project

JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref

:

Our Ref

: 84139

Date Reported

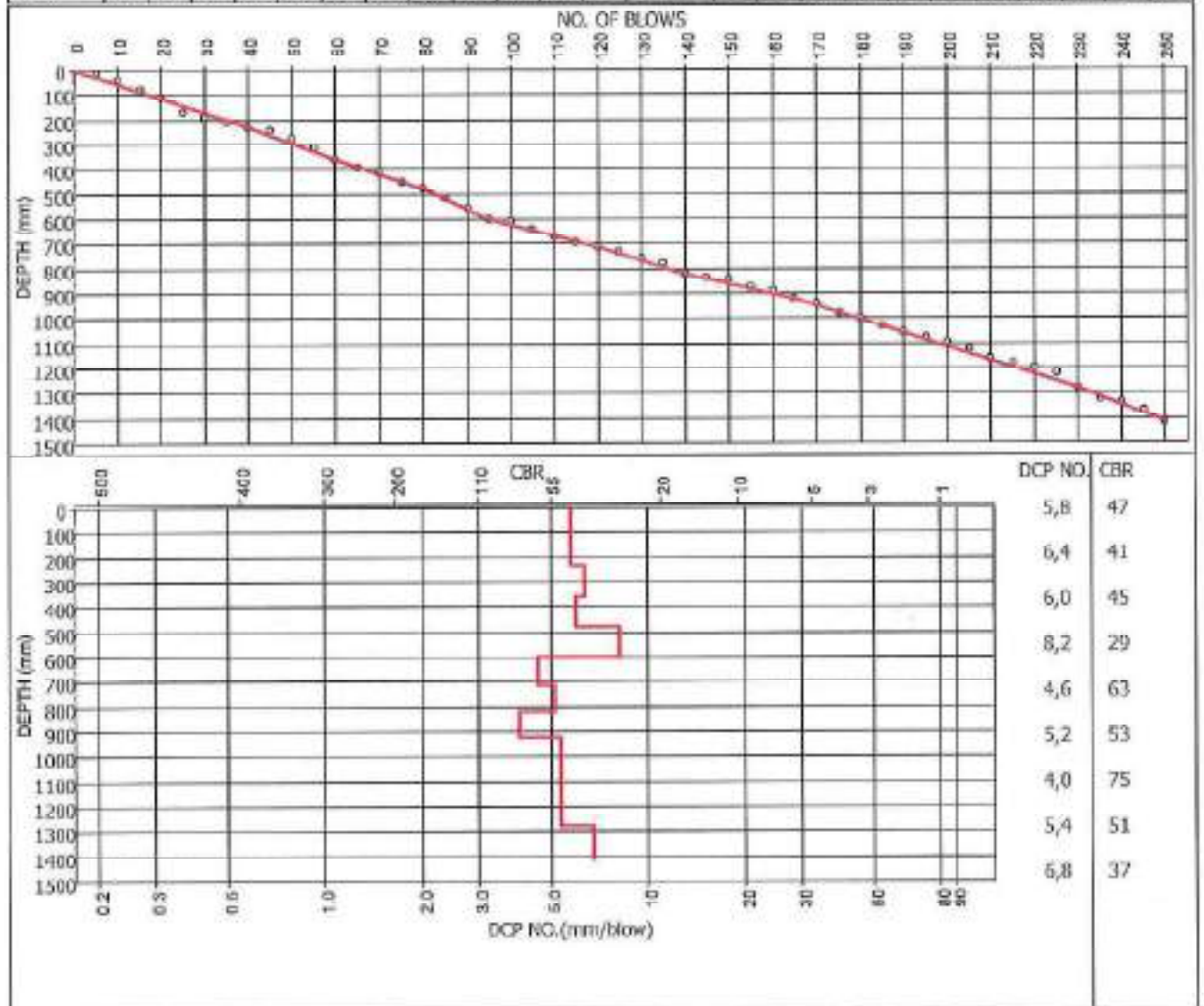
: 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH5-ST6)

TEST POSITION : 84139 - A

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
BLOWS	14	36	77	114	168	188	206	231	244	277	311	358	389	413	448	477	514	552	599	604	642	671	694	713	731
DEPTH	162	67	29	33	20	75	69	55	156	39	37	24	43	53	35	47	33	32	24	300	32	47	63	82	89
BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250
DEPTH	758	777	819	836	842	877	884	921	937	977	999	1031	1058	1079	1094	1118	1151	1179	1198	1222	1277	1321	1339	1369	1413
CBR	51	82	20	96	253	35	232	33	103	30	67	41	51	71	110	65	28	89	75	63	120	26	89	45	26



Remarks :

FORM: ST6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory P Bell (N Dip Civ Eng)

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P.O. BOX 1100, BRACKENFELL
Tel : 021 9815558/9
Fax : 021 9815724
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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7535
Attention: MR. ANNIE MARITZ

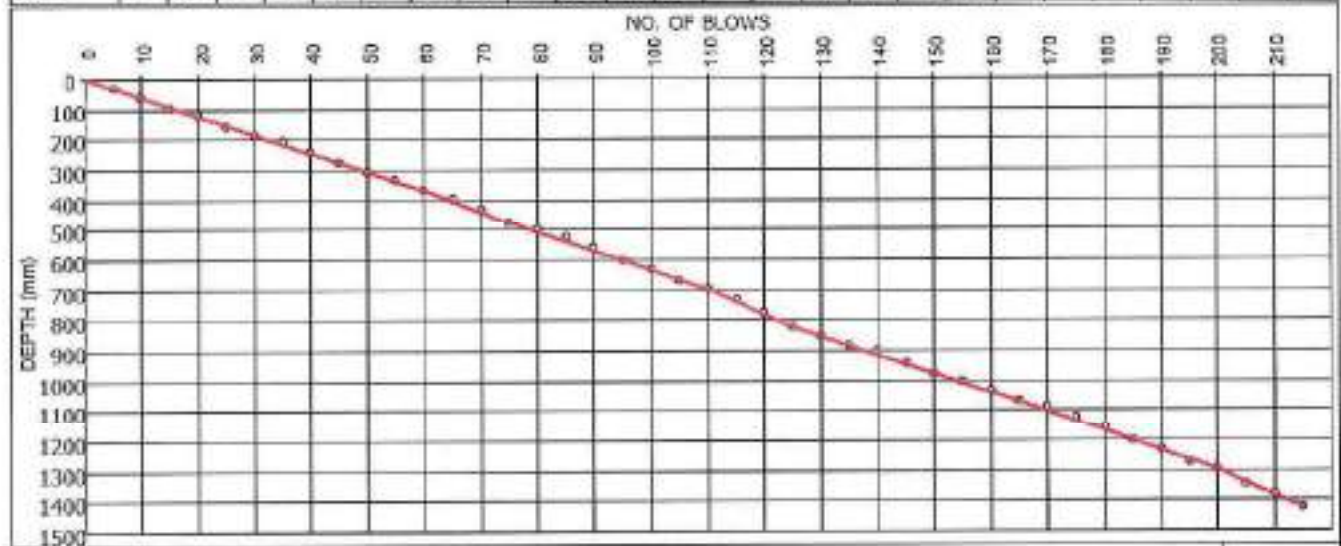
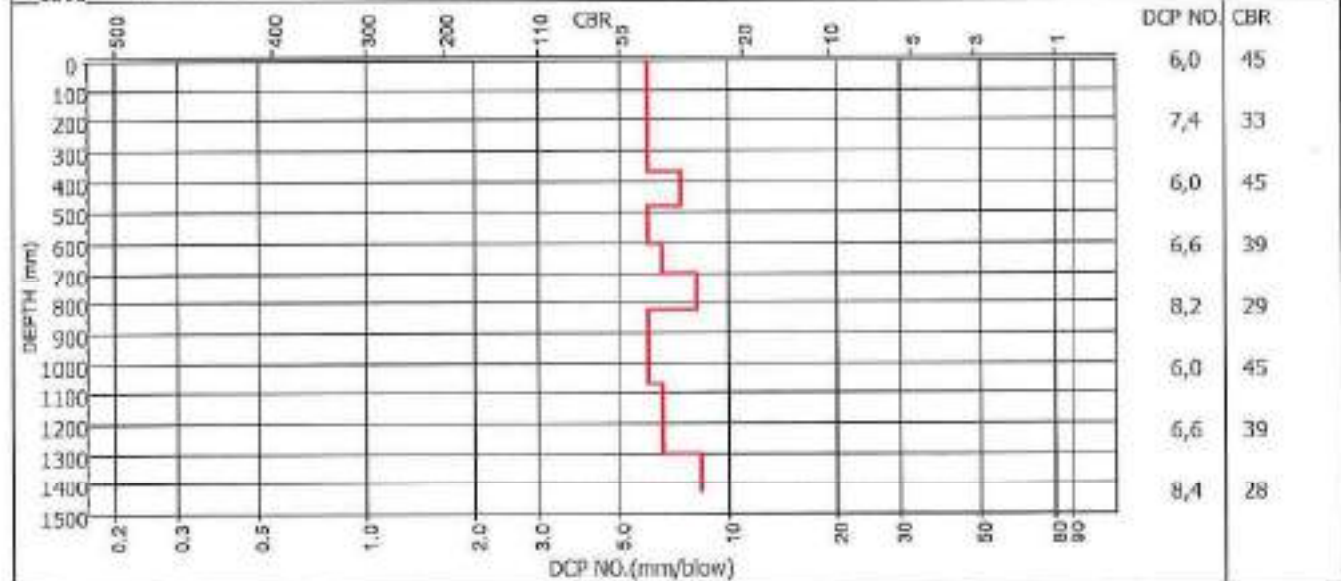
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - B

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5 31 43	10 58 61	15 89 29	20 121 67	25 156 35	30 188 41	35 204 103	40 241 33	45 274 39	50 306 41	55 331 55	60 365 35	65 399 39	70 431 41	75 477 24	80 499 67	85 522 63	90 558 34	95 599 29	100 631 41	105 664 39	110 699 35	115 731 41	120 777 24	125 822 25
BLOWS DEPTH CBR	130 851 47	135 884 39	140 903 82	145 942 31	150 977 35	155 1004 51	160 1031 51	165 1068 33	170 1086 89	175 1121 35	180 1158 33	185 1199 29	190 1231 41	195 1274 27	200 1299 55	205 1342 27	210 1374 41	215 1425 22							



Remarks :

FORM ST6

4.4.1/SGS(2010.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip. Civ. Eng.)

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TEST RESULTS

AECOM SA (PTY) LTD

P.O. BOX 112

BELLVILLE

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Attention: MR ANNERI MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :

Our Ref : 84139

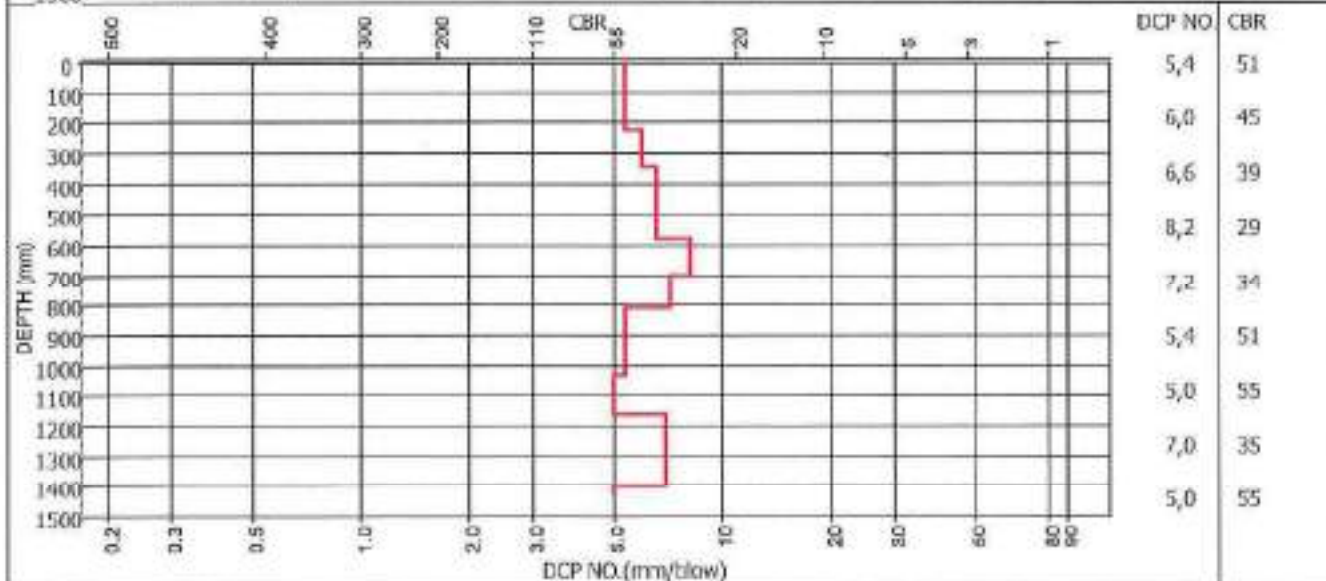
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - C

INITIAL DEPTH (mm) : 0

BLOWS DEPTH CBR	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
	48	58	77	108	141	177	199	222	258	279	311	342	368	399	442	477	499	531	577	599	651	699	731	756	806
	23	170	82	43	39	34	67	83	34	71	41	43	103	29	27	35	67	41	24	67	21	23	41	55	22
BLOWS DEPTH CBR	130	136	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230				
	842	874	889	916	946	977	999	1031	1058	1077	1099	1121	1158	1199	1227	1264	1289	1311	1358	1399	1424				
	34	41	110	51	45	43	67	41	51	82	67	87	33	29	49	33	55	67	24	29	55				



Remarks :

FORM: ST6

4.4.1 (SGS) (2019.12.04)

Technician Signature: Mr Gregory F. Bell (N.Dip Civ. Eng)

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TEST RESULTS

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Attention: MR ANNIE MARITZ

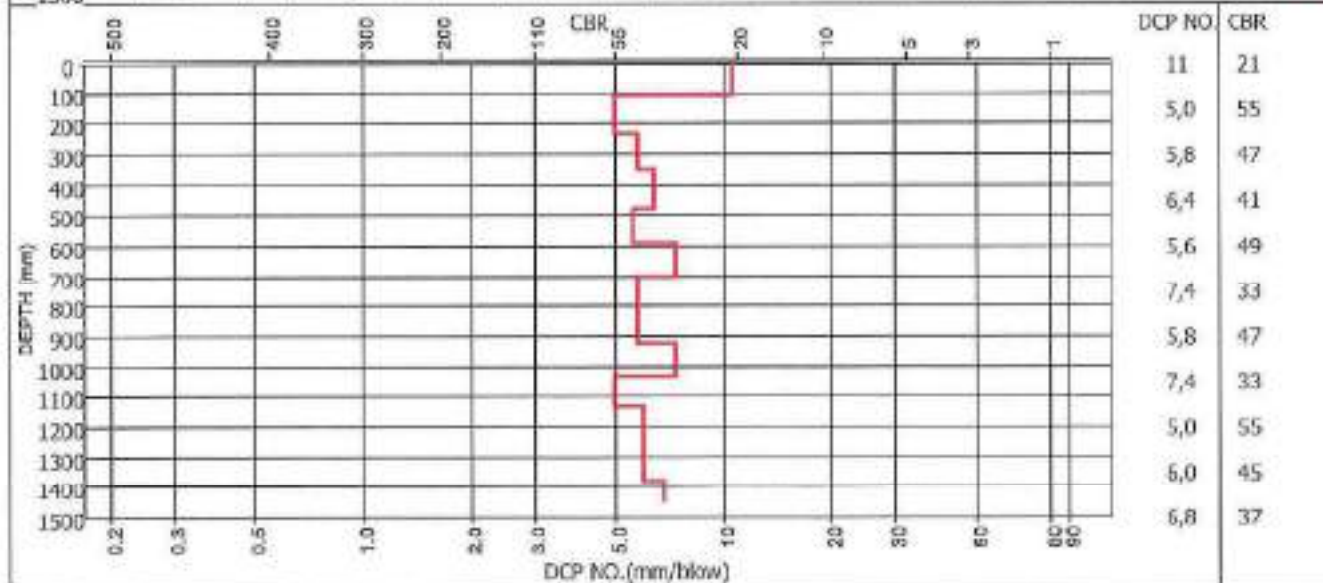
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

DYNAMIC CONE PENETRATION TEST (TMH6-ST6)

TEST POSITION : 84139 - D

INITIAL DEPTH (mm) : 0

BLOWS	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
DEPTH	54	106	124	148	174	199	231	277	289	323	348	377	404	431	477	499	531	564	589	614	652	689	731	762	779
CBR	16	28	39	59	63	55	41	24	67	59	55	47	51	51	24	67	41	39	55	55	32	24	41	43	36
BLOWS	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235			
DEPTH	813	831	858	879	921	978	1004	1031	1058	1079	1094	1131	1177	1194	1214	1252	1296	1324	1346	1377	1413	1445			
CBR	37	39	51	71	28	19	53	51	51	71	110	33	24	96	75	32	26	49	87	43	34	41			



Remarks :

FORM ST6

4.4.1(SGS)(2010.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip. Civ. Eng.)

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CLIENT: AECOM SA (PTY) LTD

ADDRESS: P.O. BOX 112
BELLVILLE
7535

ATTENTION: MS ANNEMI MARITZ

OUR REF.: 841393

YOUR REF.:

DATE: 13.04.2021

PROJECT: JAMESTOWN ROAD NETWORK, STELLENBOSCH

SGS MATROCAST

a SANAS Accredited Testing Laboratory, No. T0245

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TEST REPORT / RESULTS

Sample/s: Sampled by: SGS MATROCAST
Date Received / Sampled: 04.12.2021
Date Tested: 04.12.2021-13.04.2021

Sampling method: TMH5 - MA2

Section / Position tested identified by: CUSTOMER

Number of pages in this Report: 8

General: INSITU NUCLEAR DENSITY TEST RESULTS

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TEST RESULTS

AECOM SA (PTY) LTD
P.O. BOX 112
BELLVILLE
7536
Attention: MS ANNERIE MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.8
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5, GR20, GR30)

Section : See Site Plan	Tested By : Lwazi Noah	Date Tested : 15.04.2021
Layer Type : Base/Subbase	Compaction Energy : MOD	Date Compacted: 15.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.6b	60-225	Crushed Hornfels	2380	5,4	2289	2,1	96,2
TP.6c	205-355	Crushed Hornfels	2328	6,4	2208	3,8	94,8

Test Positions

TP.6b - BASE

TP.6c- SUBBASE

Remarks :

FORM: NG5

4.4.1(SGS)(2019.12.04)

Technical Signatory : Mr Gregory F. Bell (N.Dip.Civ.Eng)

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TEST RESULTS

AECOM SA (PTY) LTD
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BELLVILLE
7535
Attention: MS ANNERIE MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.8
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5, GR20, GR30)

Section : See Site Plan	Tested By : Lwazi Noah	Date Tested : 15.04.2021
Layer Type : Base/Subbase	Compaction Energy: MOD	Date Compact: 14.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.8b	30-225	Crushed Hornfels	2384	5,5	2244	3,6	94,1
TP.8c	225-400	Crushed Hornfels	2385	5,7	2161	5,9	91,4

Test Positions

TP.8b - BASE
TP.8c - SUBBASE

Remarks :

FORM: NG5

4.4 1(SGS)(2019.12.04)

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TEST RESULTS

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7535
Attention: MS ANNERIE MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.0
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5, GR20, GR30)

Section : See Site Plan	Tested By : Lwazi Noah	Date Tested : 15.04.2021
Layer Type : Base/Subbase/SSG	Compaction Energy : MOD	Date Compacted : 15.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.9b	60-180	Crushed Hornfels	2206	6,7	2104	5,5	95,4
TP.9c	180-380	Crushed Hornfels	2241	6,9	2163	5,2	96,5
TP.9d	380-620	Fine Sand	1710	14,4	1693	3,9	99,0

Test Positions

TP.9b - BASE
TP.9c - SUBBASE
TP.9d - SSG

Remarks :

FORM: NGS

4.4.1(SGS)(2018.12.04)

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TEST RESULTS

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7636
Attention: MS ANNERIE MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.10
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5, GR20, GR30)

Section : See Site Plan	Tested By : Lwazi Ntsh	Date Tested : 15.04.2021
Layer Type : Base/Subbase/SSG	Compaction Energy: MOD	Date Compacted: 15.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.10b	30-230	Crushed Homfels	2365	5,5	2141	5,5	90,5
TP.10c	230-445	Crushed Homfels	2296	5,5	2145	5,5	93,4
TP.10d	570-780	Fine Sand	2138	7,7	1968	7,7	92,0

Test Positions

TP.10b - BASE

TP.10c - SUBBASE

TP.10d - SSG

Remarks :

FORM: NG5

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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TEST RESULTS

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Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.11
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5, GR20, GR30)

Section : See Site Plan	Tested By : Lwazi Noah	Date Tested : 15.04.2021
Layer Type : Subbase/SSG	Compaction Energy: MOD	Date Compacted: 15.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.11b	20-110	Sand+Fertl.Stone	2326	5,9	2113	5,0	90,8
TP.11c	110-380	Fine Sand	2133	7,2	1832	4,5	85,9

Test Positions

TP.11b - SUBBASE

TP.11c - SSG

Remarks :

FORM: NG5

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N Dip Civ Eng)

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TEST RESULTS

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Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139.12
Date Reported : 13.05.2021

IN-SITU DRY DENSITY REPORT (SANS 3001: NG5,GR20,GR30)

Section : See Site Plan	Tested By : Lwazi Noah	Date Tested : 15.04.2021
Layer Type : Base/Subbase/SSG	Compaction Energy: MOD	Date Compacted: 15.04.2021

Position	Depth (mm)	Material Description	Maximum Dry Density (kg/m ³)	Optimum Moisture Content (%)	In-Situ Dry Density (kg/m ³)	Moisture Content (%)	Relative Compaction (%)
TP.12b	70-190	Crushed Hornfels	2366	5,3	2264	3,8	95,7
TP.12c	190-340	Crushed Hornfels	2274	6,7	2138	7,1	94,0

Test Positions

TP.12b - SUBBASE

TP.12c - SSG

Remarks :

FORM: NG5

44.1(SGS)(2019.12.04)

Technical Signatory: M. Gregory F. Bell (N.Dip.Civ.Eng)

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ADDRESS : P.O. BOX 112
BELLVILLE
7535
ATTENTION : MS ANNIE MARITZ

OUR REF.: 84139

YOUR REF.:

DATE : 13.04.2021

PROJECT : JAMESTOWN ROAD NETWORK, STELLENBOSCH

SGS MATROCAST

a SANAS Accredited Testing Laboratory, No. T0245

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TEST REPORT / RESULTS

Sample/s: Sampled by : SGS MATROCAST
Date Received / Sampled : 04.12.2021
Date Tested : 04.12.2021-13.04.2021

Sampling method : TMH5 - MA2

Section / Position tested identified by : CUSTOMER

Number of pages in this Report : 17

General : FOUNDATION INDICATOR TEST RESULTS

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4.4.1(SGS)(2015.12.04)

Technical Secretary: Mr Gregory P. Bell (N.Dip Civ. Eng)

No. of Pages: 2

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TEST RESULTS

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Attention: MS ANNERI MARITZ

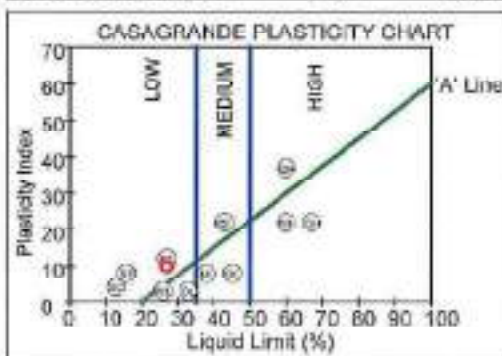
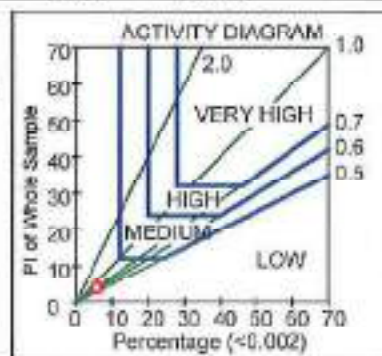
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

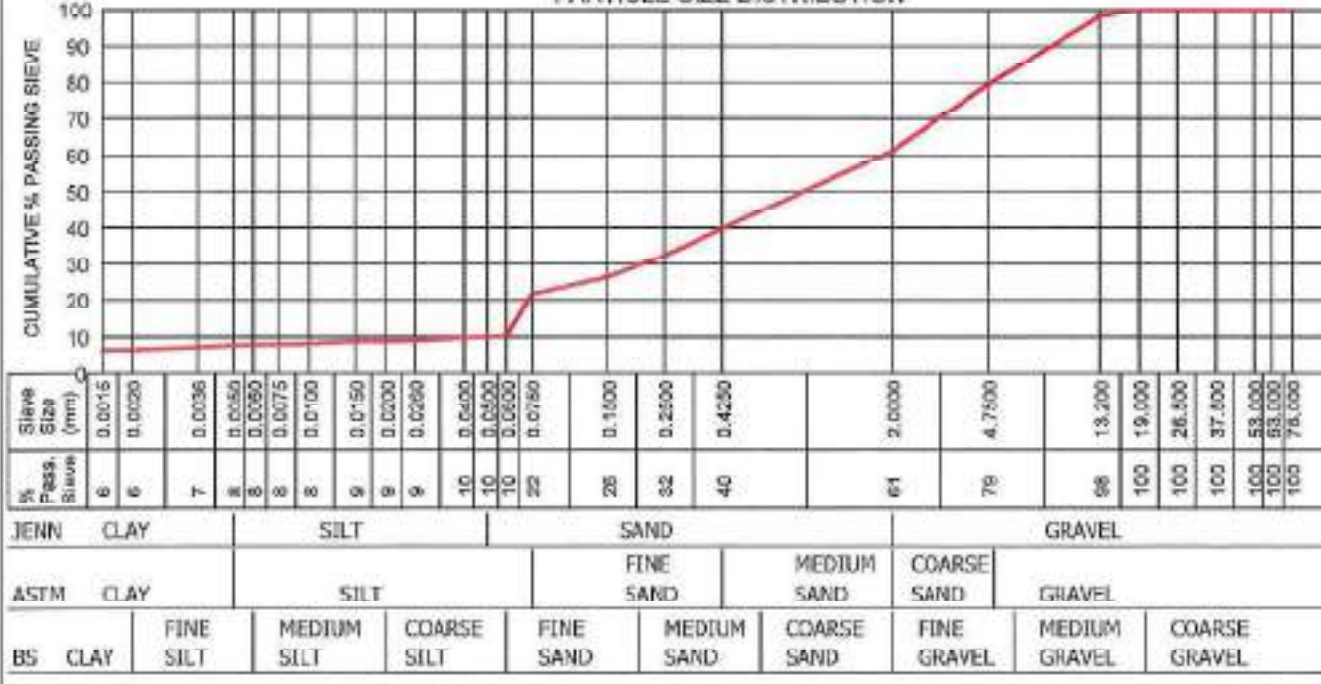
Sample No. : C 12658
Hole No. : TP.1
Depth : 0-800
Liquid Limit (%) : 27
Plasticity Index : 10
Linear Shrinkage (%) : 5,0
PI of Whole Sample : 4
P.R.A. Classification : A-2-4(0)
Unified Soil Classification: SC
Activity : 0,67
Heave Classification : LOW
Grading Modulus : 1,77
Percentage (<0.002) : 6,0
Moisture Content (%) : 5,5
Relative Density : 2,584

Material Description : BROWN FINE SAND + COURSE LATERITE SILTY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	7,7	2,4	51,1	38,8	SAND
Astn	7,7	13,9	57,8	20,6	SILTY SAND
British Standard	6,4	4,0	50,8	38,8	SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

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Technical Signatory: Mr Gregory F. Bell (N.Dip.Civ.Eng)

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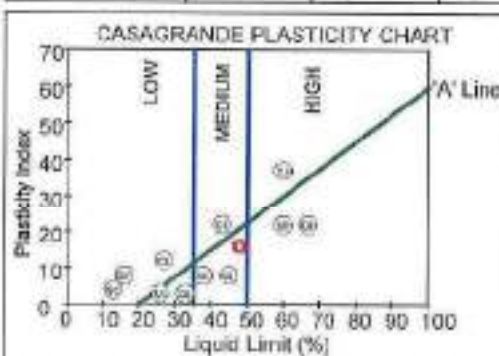
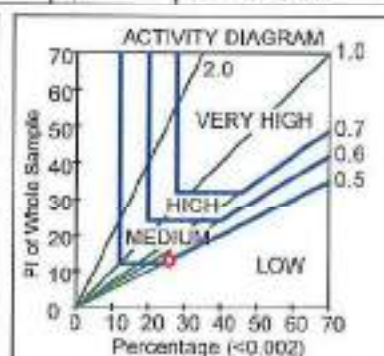
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Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

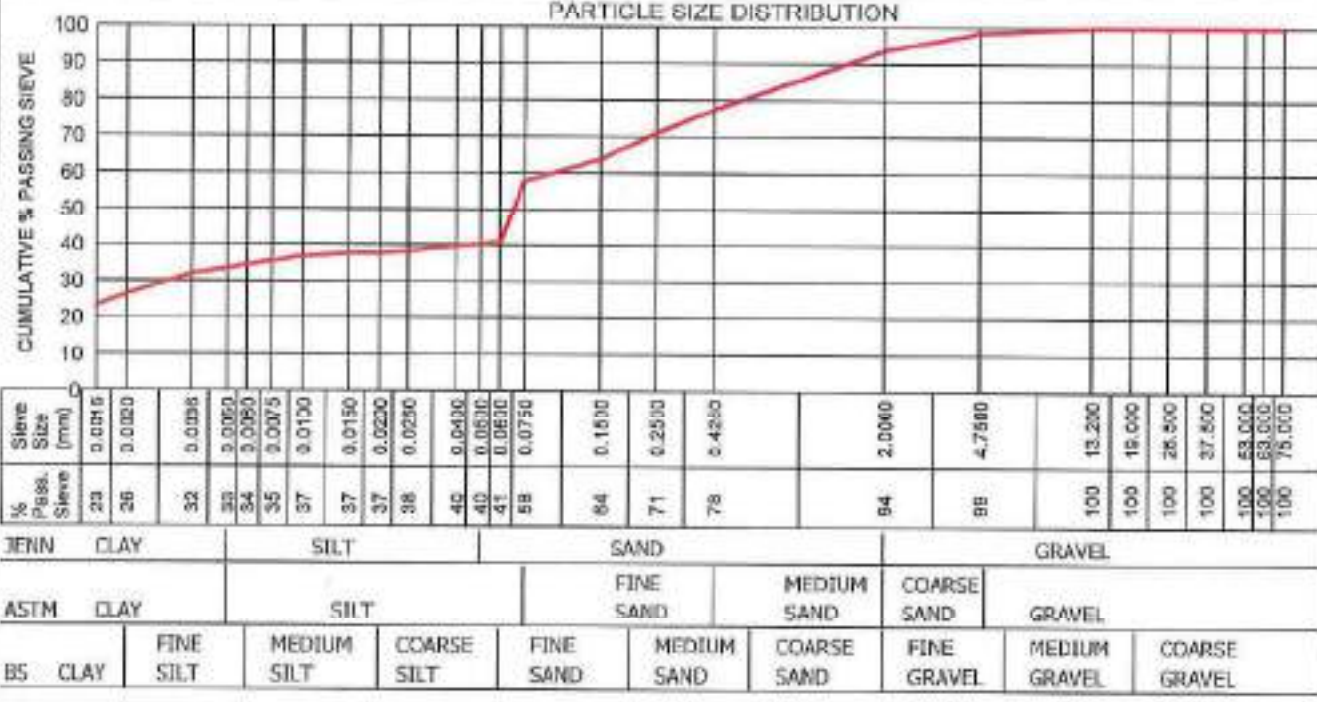
Sample No. : C 12659
Hole No. : TP.1
Depth : 900-2700
Liquid Limit (%) : 48
Plasticity Index : 16
Linear Shrinkage (%) : 8.0
PI of Whole Sample : 13
P.R.A. Classification : A-7-5(8)
Unified Soil Classification: ML
Activity : 0.50
Heave Classification : MEDIUM
Grading Modulus : 0.70
Percentage (<0.002) : 26.0
Moisture Content (%) : 15.5
Relative Density : 2.528

Material Description : OR.BR.DECOMPOSED W/FERRICRETE + SANDY CLAY

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	33.3	6.9	53.5	6.2	SANDY CLAY
Astm	33.3	24.5	40.7	1.5	SANDY CLAY
British Standard	26.3	14.6	52.9	6.2	CLAYEY SAND



PARTICLE SIZE DISTRIBUTION



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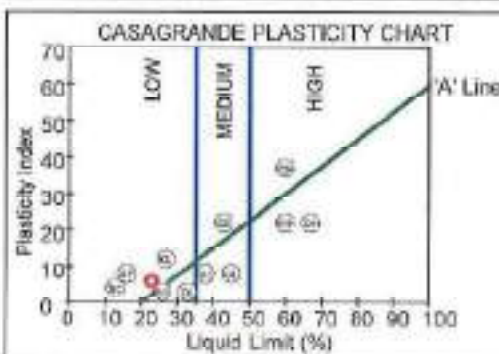
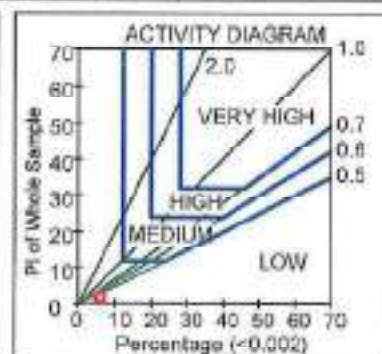
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Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

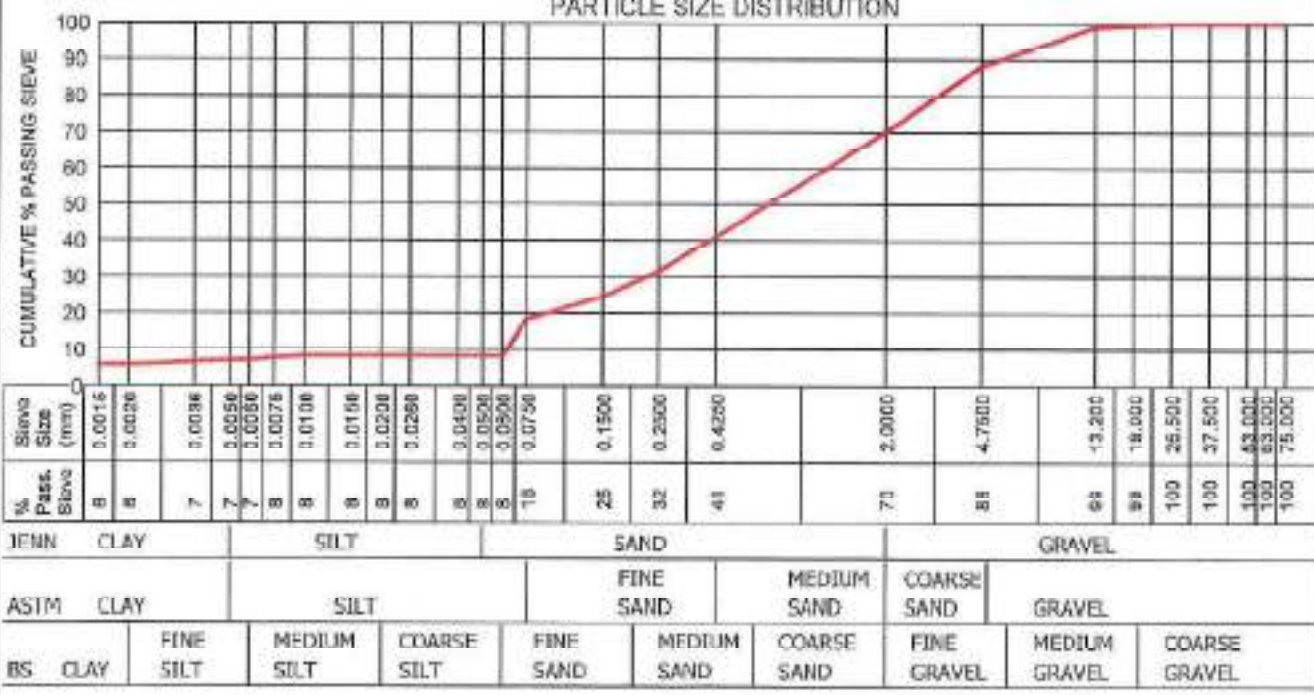
Sample No. : C 12660
Hole No. : TP.2
Depth : 0-800
Liquid Limit (%) : 23
Plasticity Index : 6
Linear Shrinkage (%) : 3,0
PI of Whole Sample : 2
P.R.A. Classification : A.L.b(0)
Unified Soil Classificat: SM-SC
Activity : 0,33
Heave Classification : LOW
Grading Modulus : 1,71
Percentage (<0.002) : 5,0
Moisture Content (%) : 6,2
Relative Density : 2,560

Material Description : BR.FINE SAND +LATERITE SILTY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	7,0	1,2	62,1	29,7	SAND
Astm	7,0	11,5	69,8	11,8	SILTY SAND
British Standard	5,7	2,5	62,1	29,7	SAND



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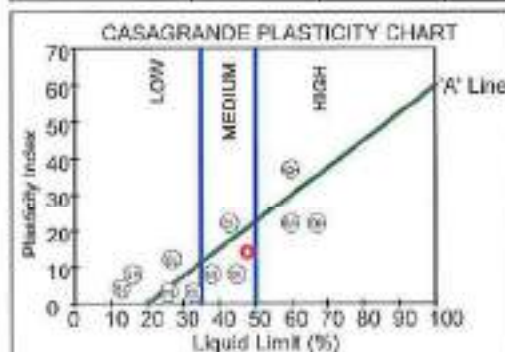
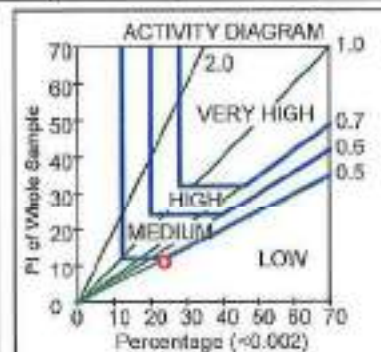
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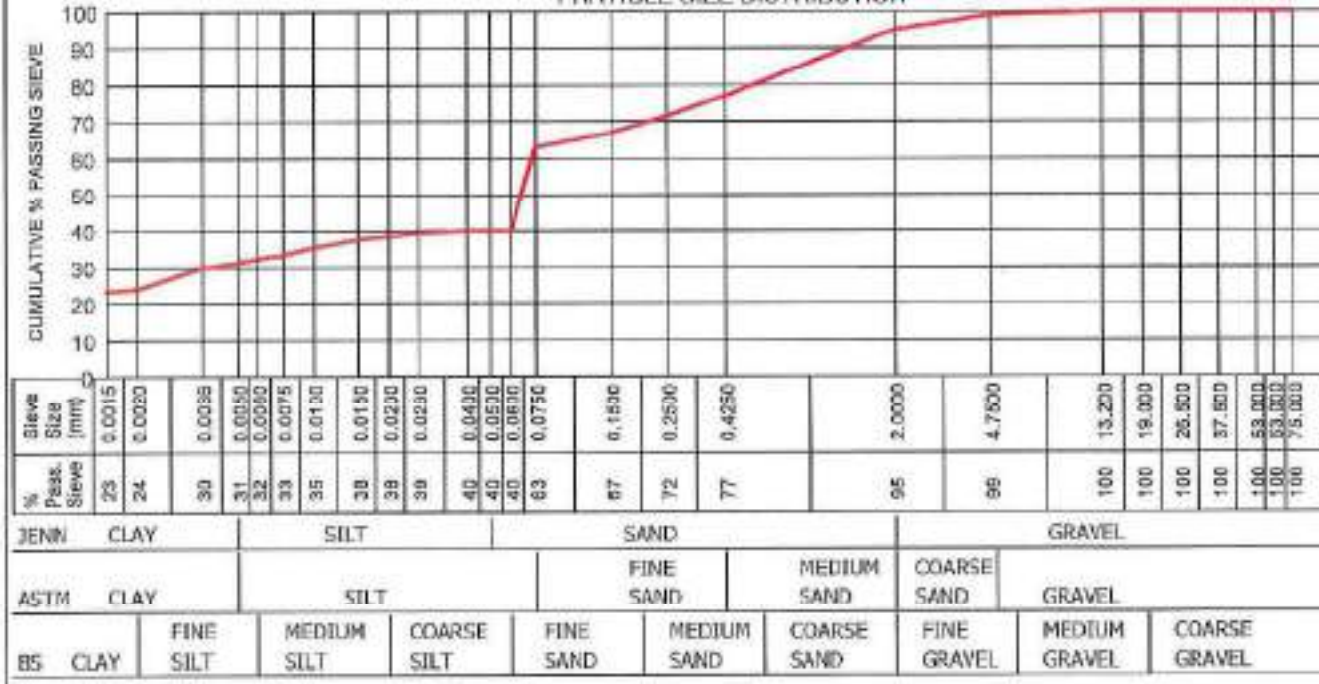
Sample No. : C 12661
Hole No. : TP.2
Depth : 800-2700
Liquid Limit (%) : 48
Plasticity Index : 14
Linear Shrinkage (%) : 7.0
PI of Whole Sample : 11
P.R.A. Classification : A-7-5(8)
Unified Soil Classification: ML
Activity : 0.46
Heave Classification : LOW
Grading Modulus : 0.65
Percentage (<0.002) : 24.0
Moisture Content (%) : 12.3
Relative Density : 2.493

Material Description : OR.BR .DEC.W/FERRICRETE+ SANDY CLAY

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	31,3	8,7	55,1	4,9	SANDY CLAY
Asbm	31,3	31,8	35,8	1,0	SANDY CLAY
British Standard	24,2	15,9	55,1	4,9	CLAYEY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

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Technical Signatory : Mr Gregory F. Bell (N.Dip.Civ.Eng)

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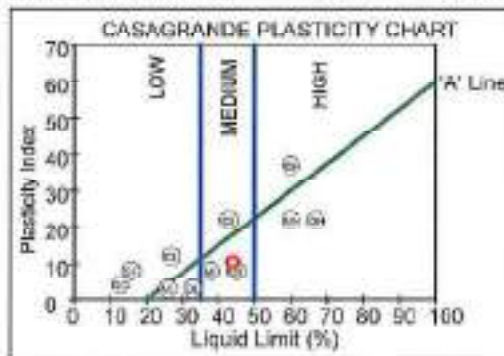
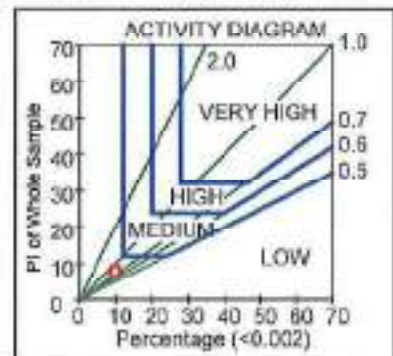
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

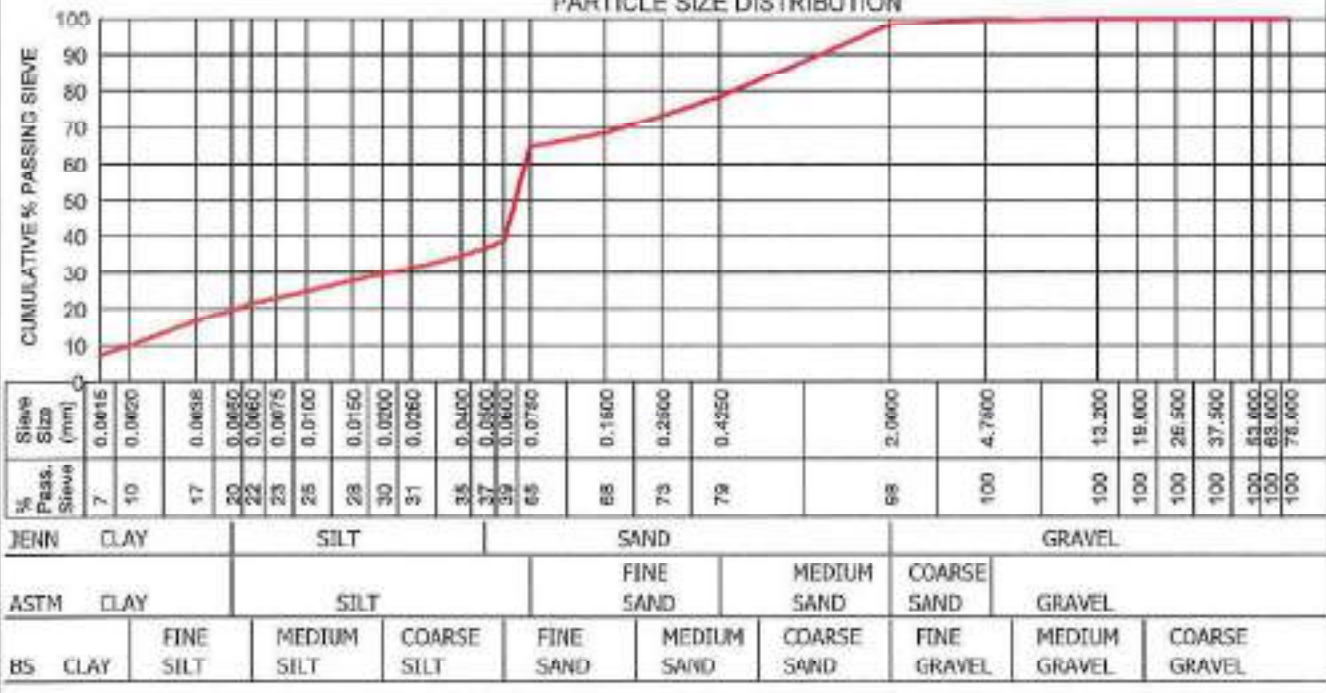
Sample No. : C 12662
Hole No. : TP 3
Depth : 0-900
Liquid Limit (%) : 44
Plasticity Index : 10
Linear Shrinkage (%) : 5.0
PI of Whole Sample : 8
P.R.A. Classification : A-7-5(7)
Unified Soil Classificati: ML
Activity : 0.80
Heave Classification : LOW
Grading Modulus : 0.58
Percentage (<0.002) : 10.0
Moisture Content (%) : 8.6
Relative Density : 2.477

Material Description : LOR.BROWN FINE SANDY SILT

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	19,6	17,1	61,4	1,8	SILTY SAND
Astm	19,6	45,0	35,0	0,4	SANDY SILT
British Standard	10,1	28,7	59,3	1,8	SILTY SAND



PARTICLE SIZE DISTRIBUTION



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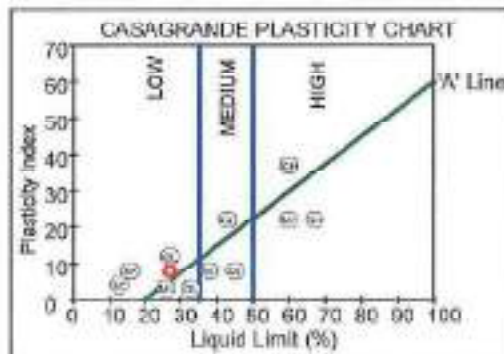
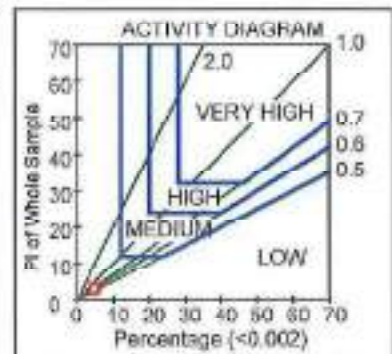
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Your Ref :
Our Ref : 64139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

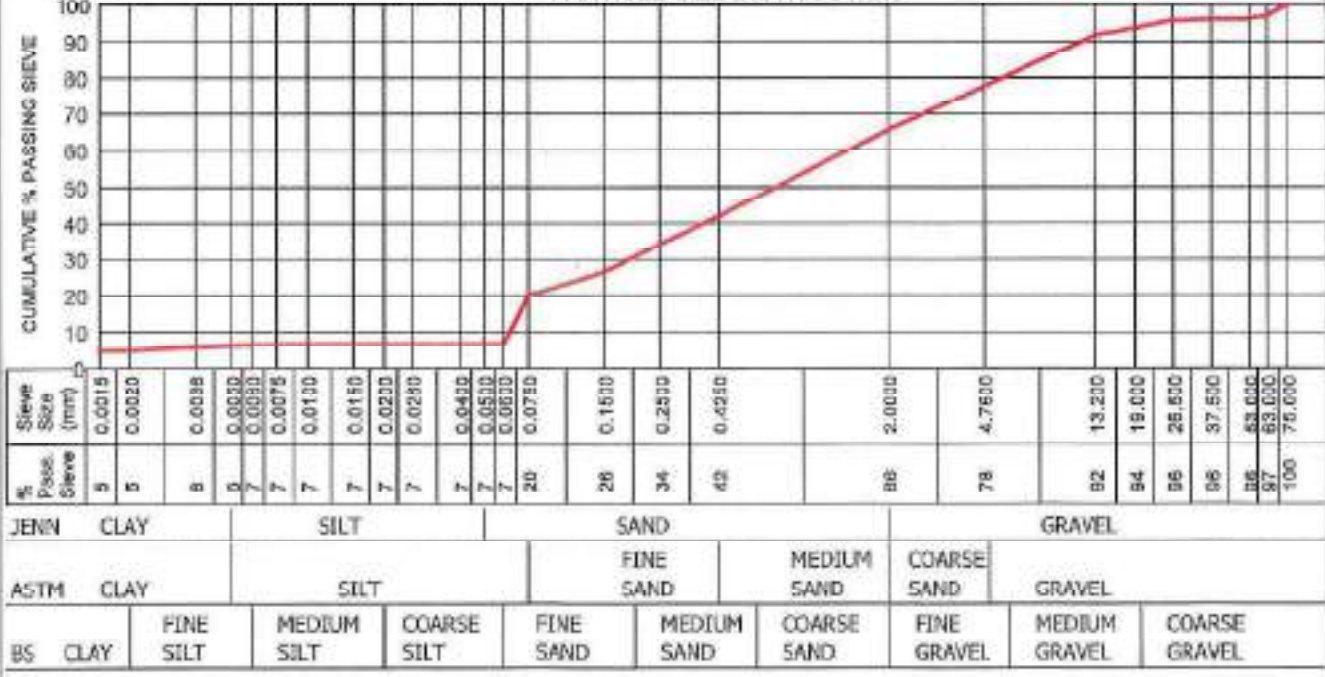
Sample No. : C 12663
Hole No. : TP.3
Depth : 900-1500
Liquid Limit (%) : 27
Plasticity Index : 8
Linear Shrinkage (%) : 4,0
PI of Whole Sample : 3
P.R.A. Classification : A-2-4(0)
Unified Soil Classification : SC
Activity : 0,60
Heave Classification : LOW
Grading Modulus : 1,72
Percentage (<0,002) : 5,0
Moisture Content (%) : 6,6
Relative Density : 2,510

Material Description : BROWN FINE SAND + LATERITE SILTY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	6,3	0,4	60,1	34,2	SAND
Astm	6,3	13,7	57,6	22,4	SILTY SAND
British Standard	5,0	1,7	59,1	34,2	SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

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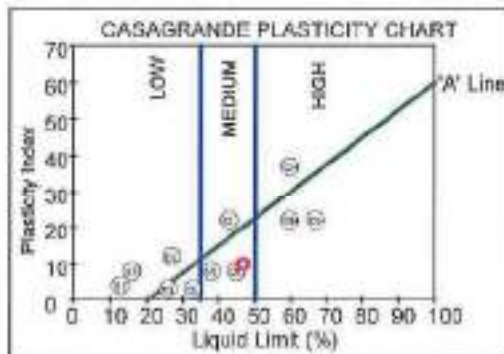
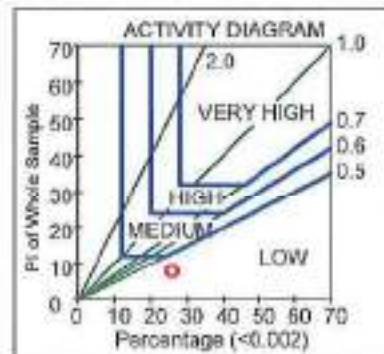
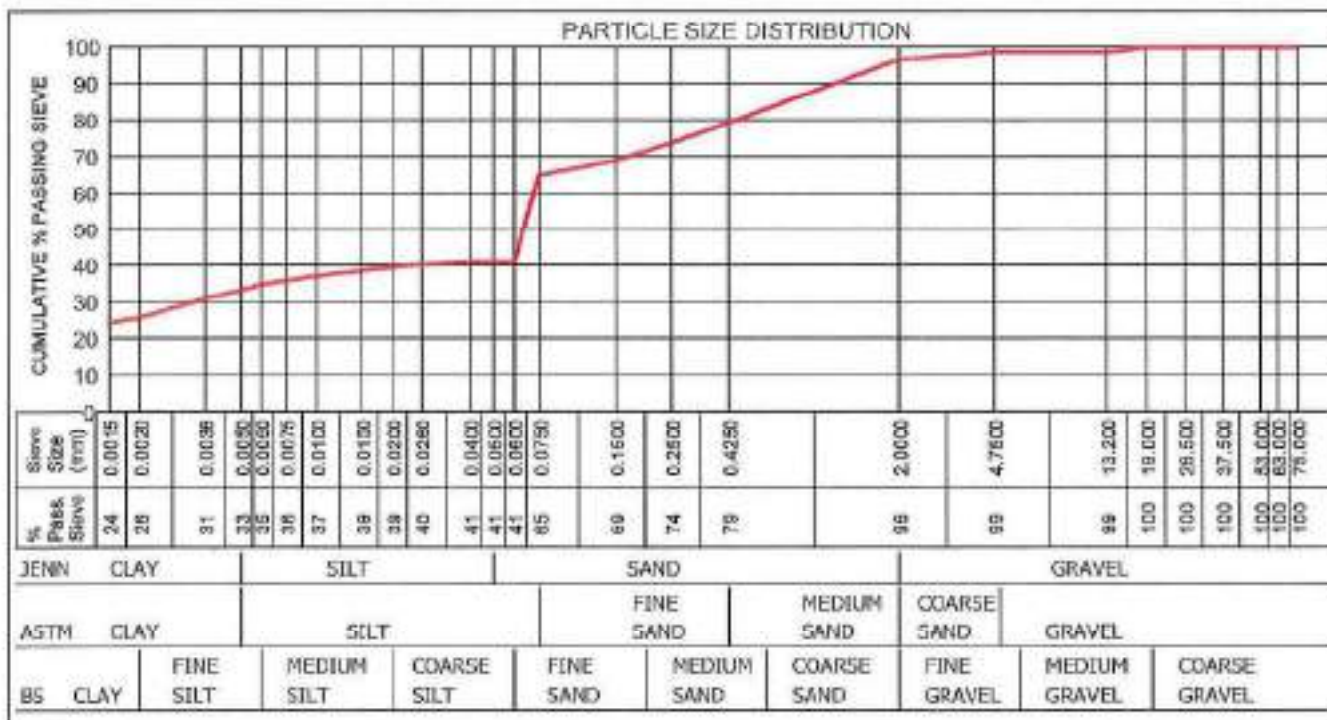
Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH
Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

Sample No. : C 12684
Hole No. : TP.3
Depth : 1500-2850
Liquid Limit (%) : 47
Plasticity Index : 10
Linear Shrinkage (%) : 5.0
PI of Whole Sample : 8
P.R.A. Classification : A-7-5(7)
Unified Soil Classification : ML
Activity : 0.31
Heave Classification : LOW
Grading Modulus : 0.60
Percentage (<0.002) : 28.0
Moisture Content (%) : 13.7
Relative Density : 2.460

Material Description : DARK BROWN FINE SAND + FERRICRETE SANDY CLAY

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	33.3	7.8	55.4	3.5	SANDY CLAY
Astm	33.3	31.7	33.6	1.5	SANDY CLAY
British Standard	25.9	15.2	55.4	3.5	CLAYEY SAND



Remarks :

FORM: A6

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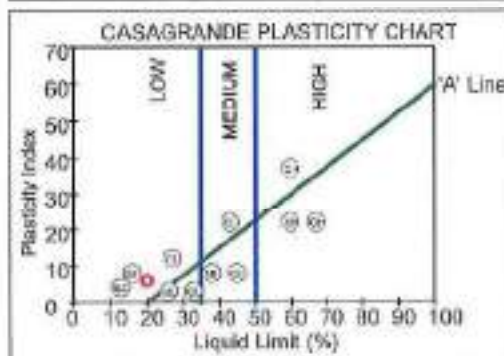
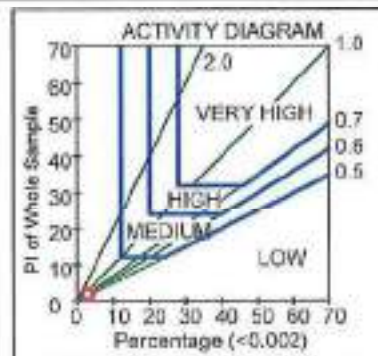
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Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

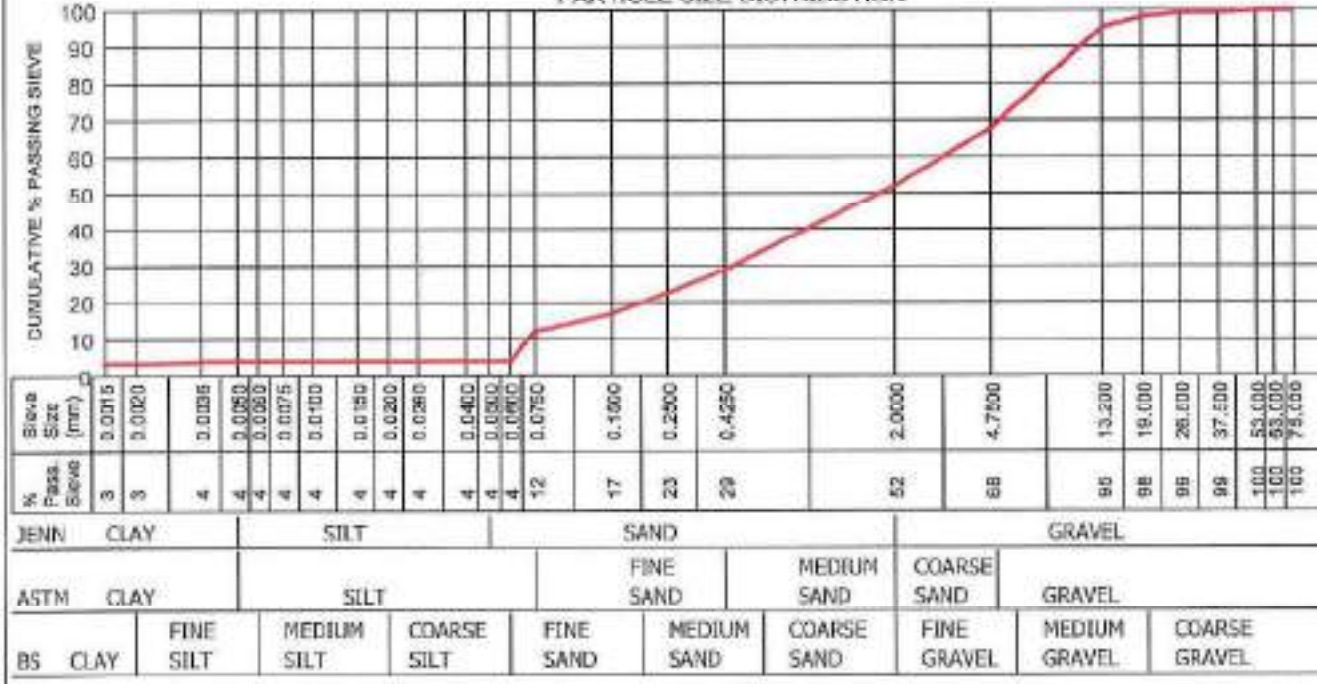
Sample No. : C 12665
Hole No. : TP.4
Depth : 0-800
Liquid Limit (%) : 20
Plasticity Index : 6
Linear Shrinkage (%) : 3.0
PI of Whole Sample : 2
P.R.A. Classification : A-1-b(0)
Unified Soil Classification : SW-SM-SC
Activity : 0.67
Heave Classification : LOW
Grading Modulus : 2.07
Percentage (<0.002) : 3.0
Moisture Content (%) : 4.7
Relative Density : 2.607

Material Description : BROWN FINE SAND+LATERITE SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	4.1	0.0	48.0	47.9	SAND
Astm	4.1	8.2	55.4	32.4	SAND
British Standard	3.5	0.6	48.0	47.9	SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

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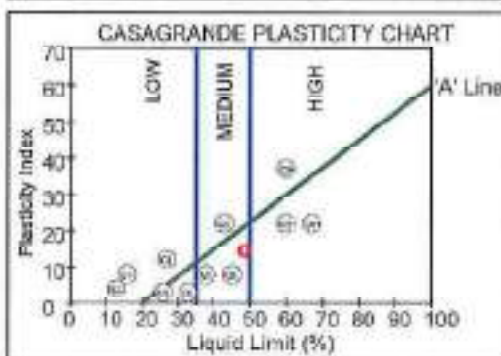
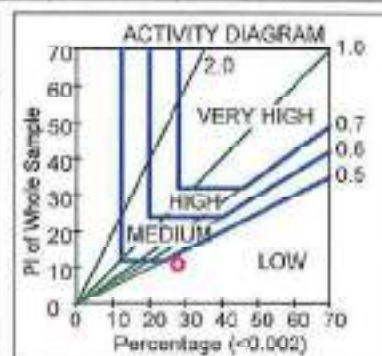
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Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

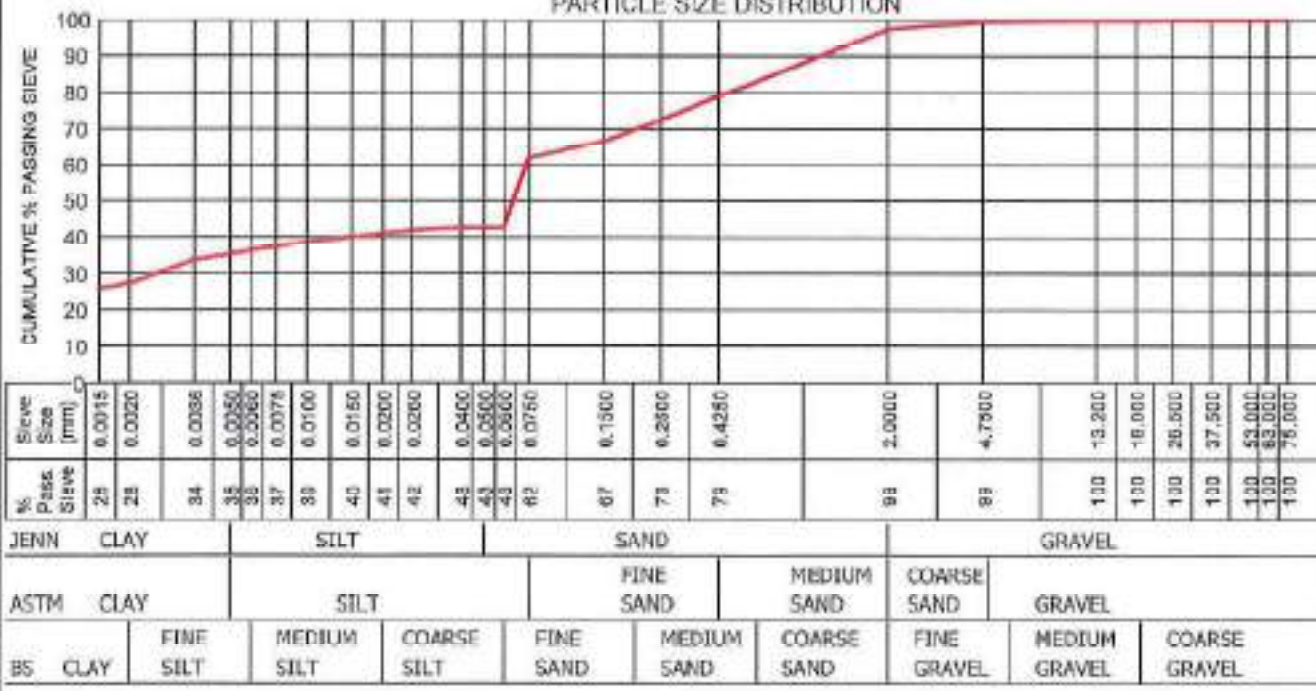
Sample No. : C 12666
Hole No. : TP.4
Depth : 600-2950
Liquid Limit (%) : 49
Plasticity Index : 14
Linear Shrinkage (%) : 7,0
PI of Whole Sample : 11
P.R.A. Classification : A-7-5(8)
Unified Soil Classification: ML
Activity : 0.39
Heave Classification : LOW
Grading Modulus : 0.61
Percentage (<0.002) : 26,0
Moisture Content (%) : 11,9
Relative Density : 2,515

Material Description : D.BR.DEC.W/FERRICRETE+ SANDY CLAY

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	35,4	7,3	54,9	2,4	SANDY CLAY
Astm	35,4	26,6	37,5	0,5	SANDY CLAY
British Standard	27,5	15,1	54,9	2,4	CLAYEY SAND



PARTICLE SIZE DISTRIBUTION



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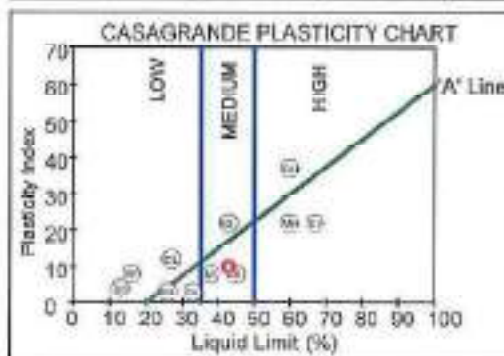
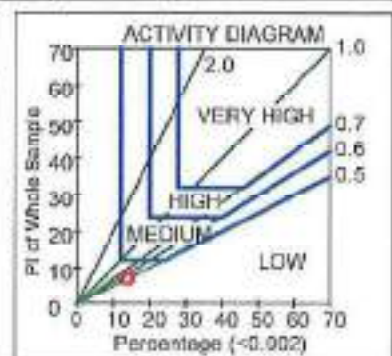
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Your Ref :
Our Ref : 04139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

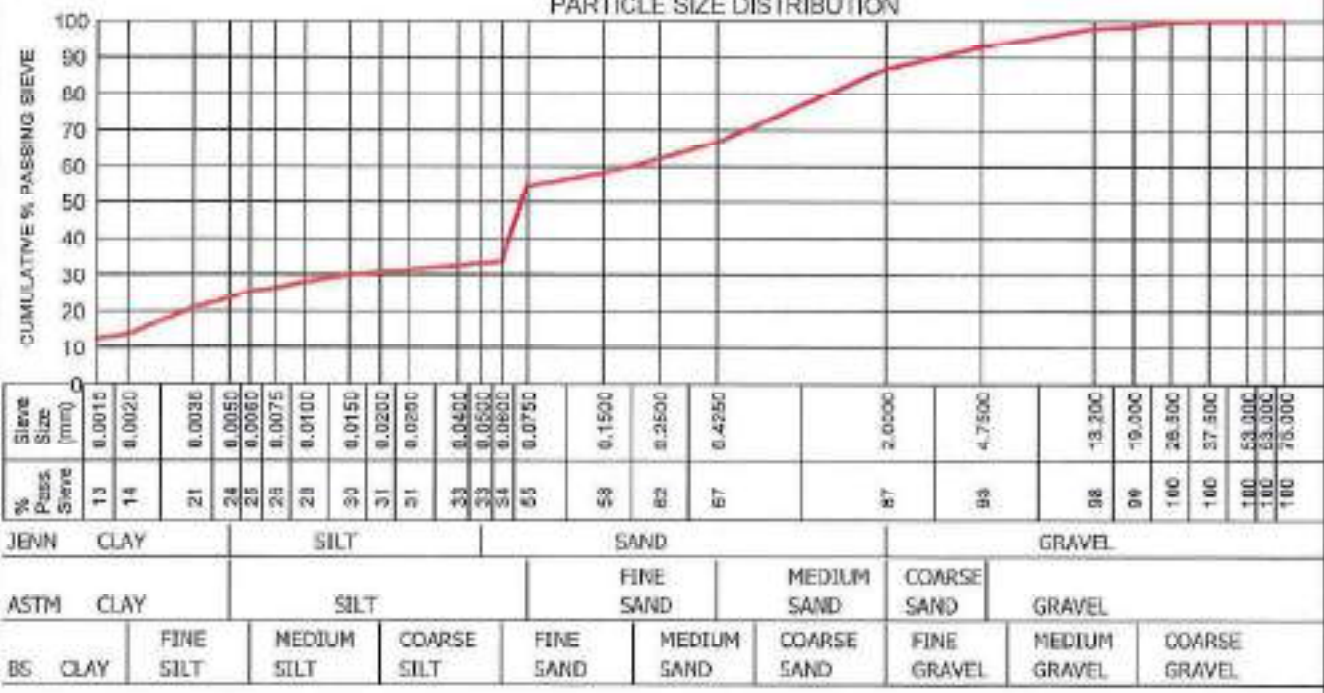
Material Description : D.BR.DEC.W/FERRICRETE STONE + CLAYEY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	23,6	9,8	53,9	12,9	CLAYEY SAND
Aslm	23,6	30,9	38,5	7,0	CLAYEY SAND
British Standard	13,8	20,0	53,4	12,9	SILTY SAND



Sample No. : C 12668
Hole No. : TP.5
Depth : 0-1900
Liquid Limit (%) : 43
Plasticity Index : 10
Linear Shrinkage (%) : 5.0
PI of Whole Sample : 7
P.R.A. Classification : A-5(4)
Unified Soil Classification: ML
Activity : 0.50
Heave Classification : LOW
Grading Modules : 0.91
Percentage (<0.002) : 14.0
Moisture Content (%) : 15.4
Relative Density : 2.637

PARTICLE SIZE DISTRIBUTION



Remarks :

FORM: A6

4.4.1(SOS)(2019.12.04)

Technical Signatory : Mr Gregory F. Bell (N.Dip.Civ.Eng)

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TEST RESULTS

AFCOM SA (PTY) SA
P.O. BOX 112
BELLVILLE
7535
Attention: MS ANNERI MARITZ

Project : JAMESTOWN ROAD NETWORK, STELLENBOSCH

Your Ref :

Our Ref : 84138

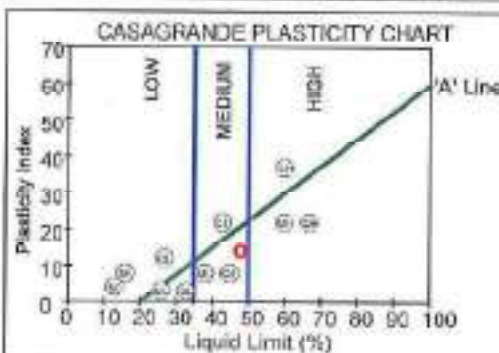
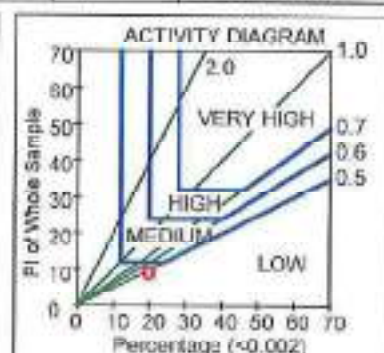
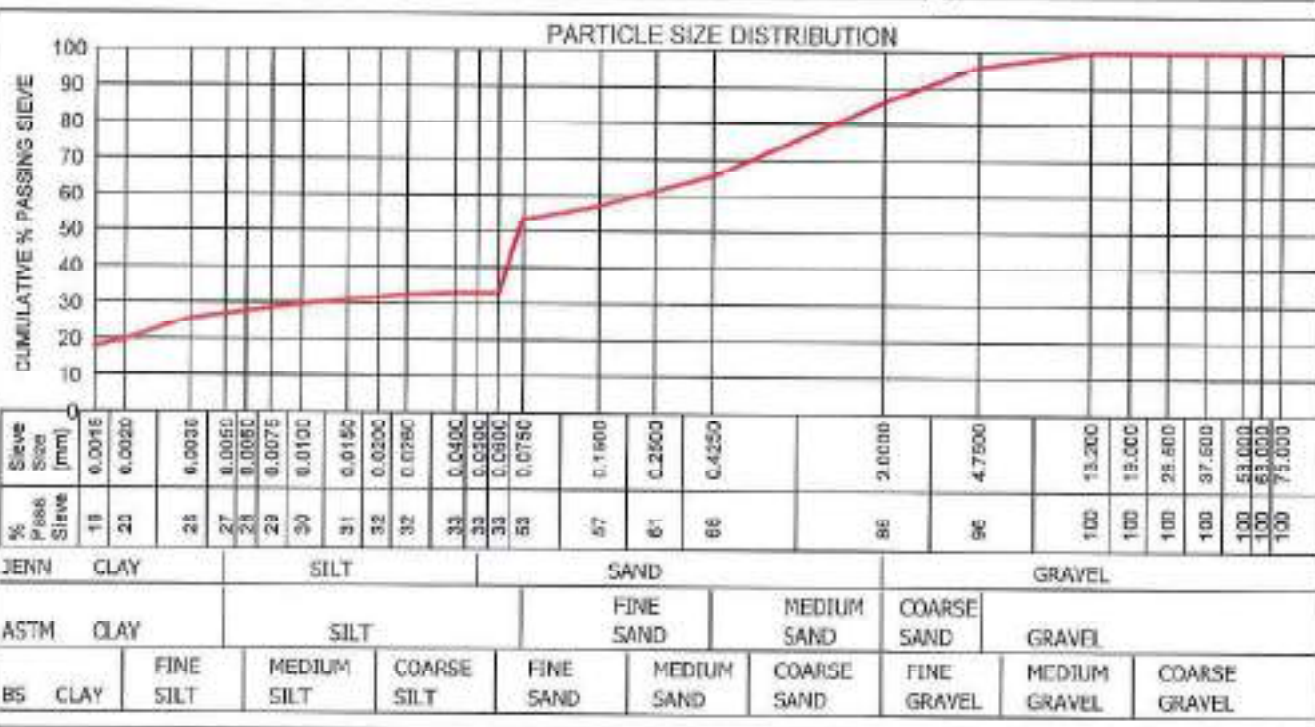
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

Sample No. : C 12574
Hole No. : TP.7
Depth : 250-1900
Liquid Limit (%) : 48
Plasticity Index : 14
Linear Shrinkage (%) : 7,0
PI of Whole Sample : 9
P.R.A. Classification : A 7-6(6)
Unified Soil Classification: ML
Activity : 0,45
Heave Classification : LOW
Grading Modulus : 0,95
Percentage (<0,002) : 20,0
Moisture Content (%) : 14,0
Relative Density : 2,457

Material Description : Y.BR.DEC.W/STONE + COURSE CLAYEY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	26,9	6,1	53,3	13,7	SANDY CLAY
Astm	26,9	26,4	42,7	4,0	CLAYEY SAND
British Standard	19,9	13,1	53,3	13,7	CLAYEY SAND



Remarks :

FORM: A6

4.4.1(SGS) (2018.12.04)

Technical Signatory: Mr Gregory F Bell (N.Dip.Civ.Eng)

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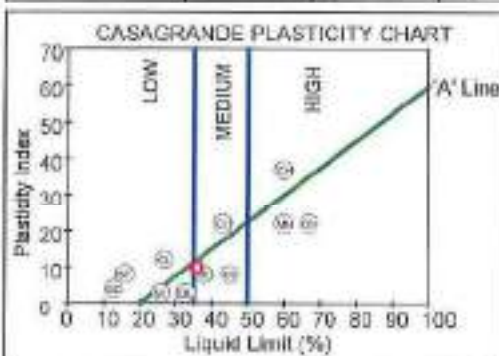
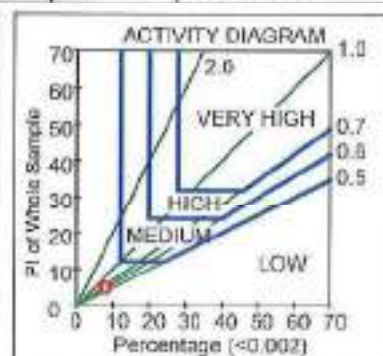
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Your Ref :
Our Ref : 84139
Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

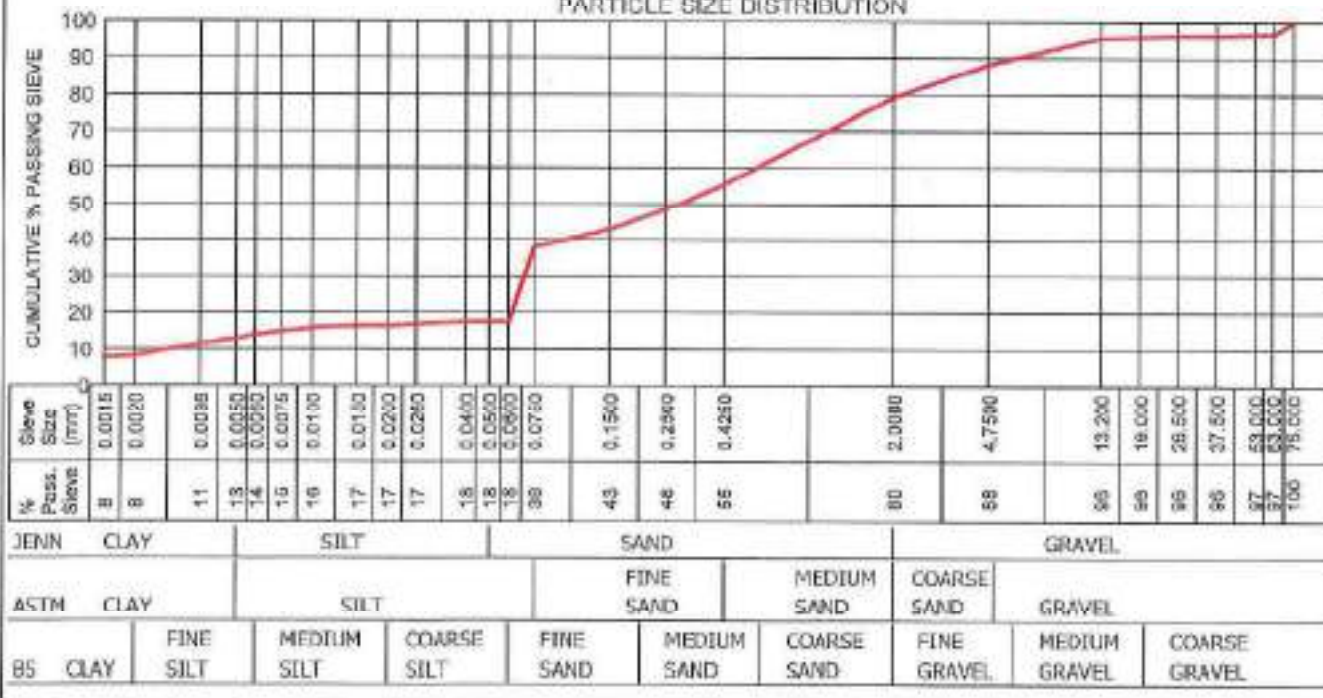
Sample No. : C 12670
Hole No. : TP 24
Depth : 0-500
Liquid Limit (%) : 36
Plasticity Index : 10
Linear Shrinkage (%) : 5,0
PI of Whole Sample : 5
P.R.A. Classification : A-4(1)
Unified Soil Classification : SM
Activity : 0,62
Heave Classification : LOW
Grading Modulus : 1,27
Percentage (<0.002) : 8,0
Moisture Content (%) : 5,9
Relative Density : 2,467

Material Description : BR.FINE SAND+STONES+RUBBLE SILTY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	13,0	4,6	61,9	20,5	SILTY SAND
Asm	13,0	24,9	50,5	11,6	SILTY SAND
British Standard	8,4	9,2	61,9	20,5	SILTY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

FORM: A6

4.1.1(SGS)(2019.12.04)

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TEST RESULTS

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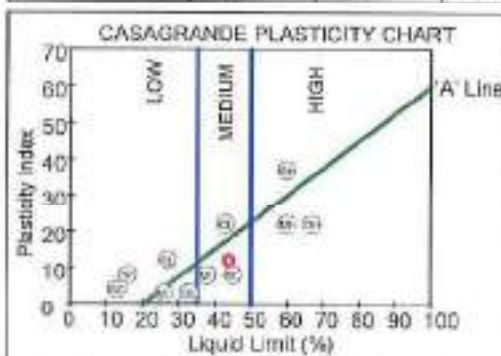
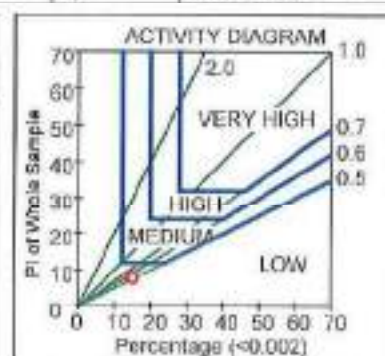
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Date Reported : 13.05.2021

FOUNDATION INDICATOR (ASTM: D422)

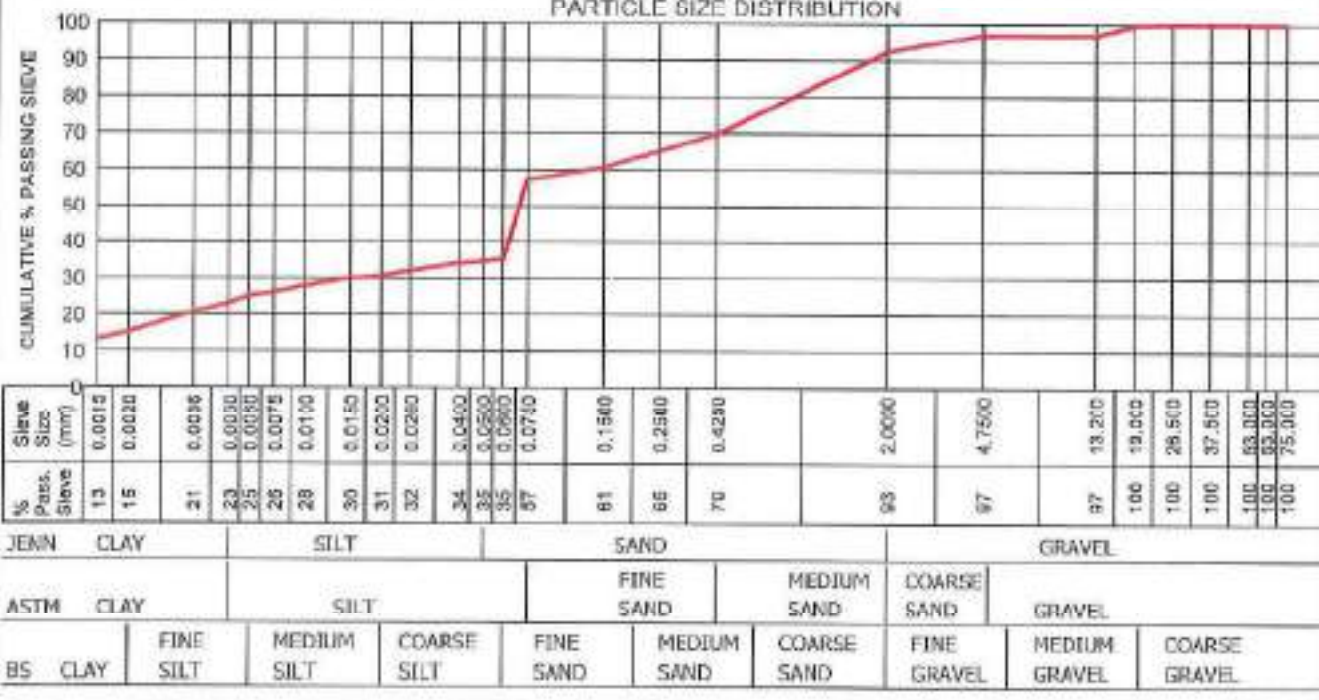
Sample No. : C 12871
Hole No. : TP 24
Depth : 500-1500
Liquid Limit (%) : 44
Plasticity Index : 12
Linear Shrinkage (%) : 6,0
PI of Whole Sample : 8
P.R.A. Classification : A-7-5(6)
Unified Soil Classification : ML
Activity : 0,53
Heave Classification : LOW
Grading Modulus : 0,80
Percentage (<0.002) : 15,0
Moisture Content (%) : 8,2
Relative Density : 2,403

Material Description : YELLOW BROWN DEC. W/FERRICRETE CLAYEY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	23,2	11,5	57,8	7,4	CLAYEY SAND
Astm	23,2	34,0	39,8	2,9	CLAYEY SAND
British Standard	15,3	20,0	57,3	7,4	SILTY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

FORM: A6

4.4.1(SGS)(2019.12.04)

Technical Signatory: Mr Gregory F. Bell (N.Dip. Civ. Eng)

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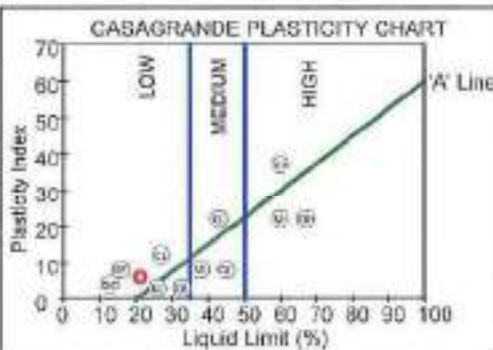
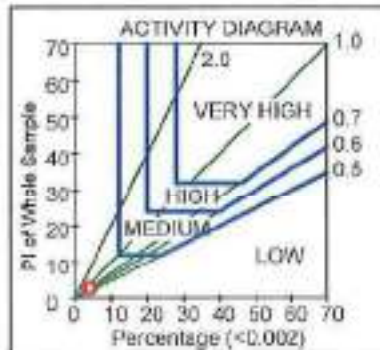
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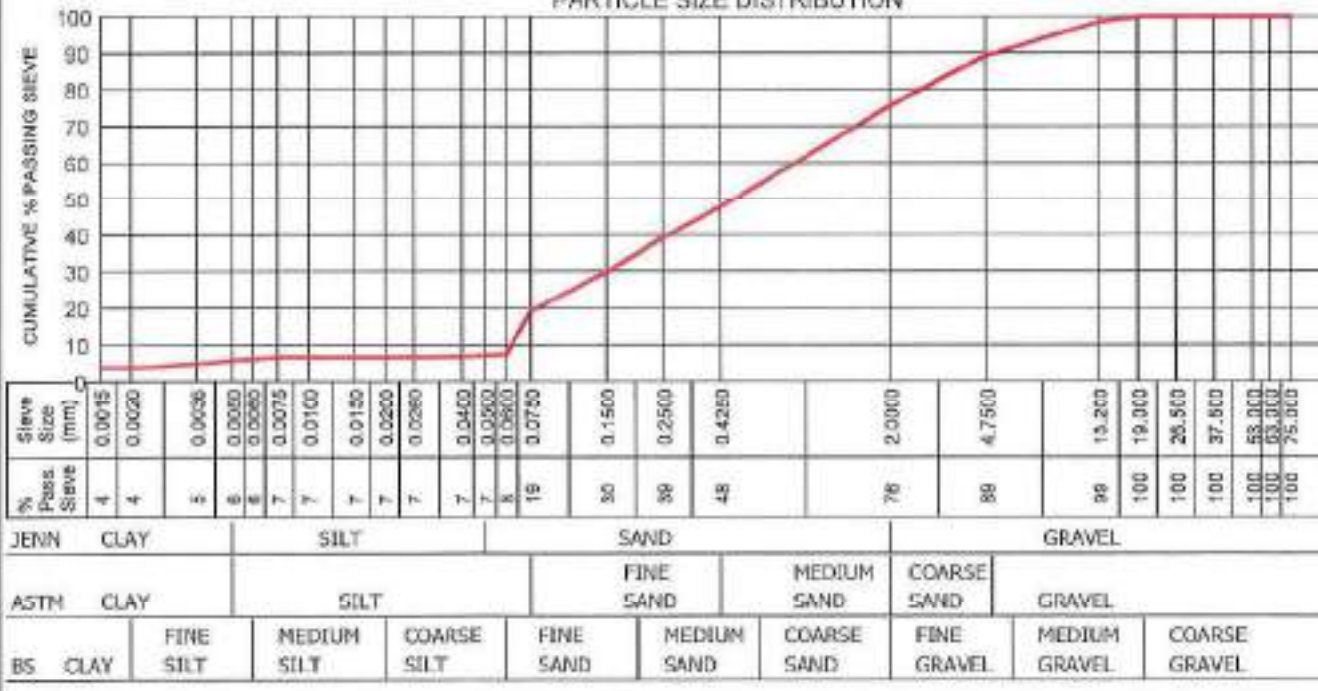
Sample No. : C 12657
Hole No. : TP.25
Depth : 0-340
Liquid Limit (%) : 21
Plasticity Index : 6
Linear Shrinkage (%) : 3.0
PI of Whole Sample : 3
P.R.A. Classification : A-1-b(0)
Unified Soil Classification : SM-SC
Activity : 0.75
Heave Classification : LOW
Grading Modulus : 1.57
Percentage (<0.002) : 4.0
Moisture Content (%) : 4.7
Relative Density : 2.576

Material Description : BR.FINE SAND + COURSE LATERITE SILTY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	5.8	1.4	68.5	24.2	SAND
Astm	5.8	13.5	70.1	10.6	SILTY SAND
British Standard	3.8	3.8	68.1	24.2	SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

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4.4.1(SGS)(2019.12.04)

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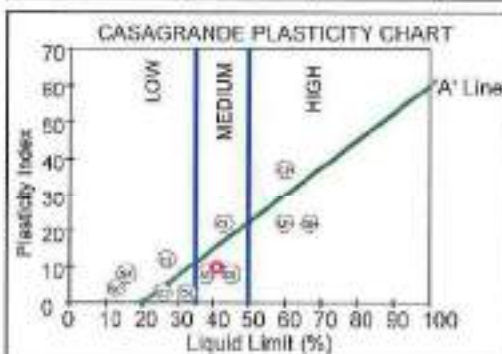
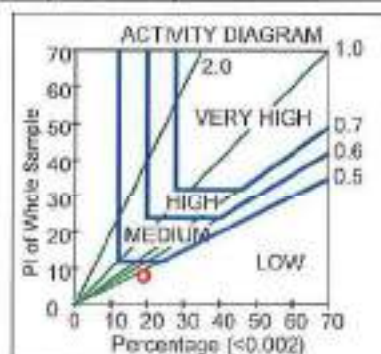
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FOUNDATION INDICATOR (ASTM: D422)

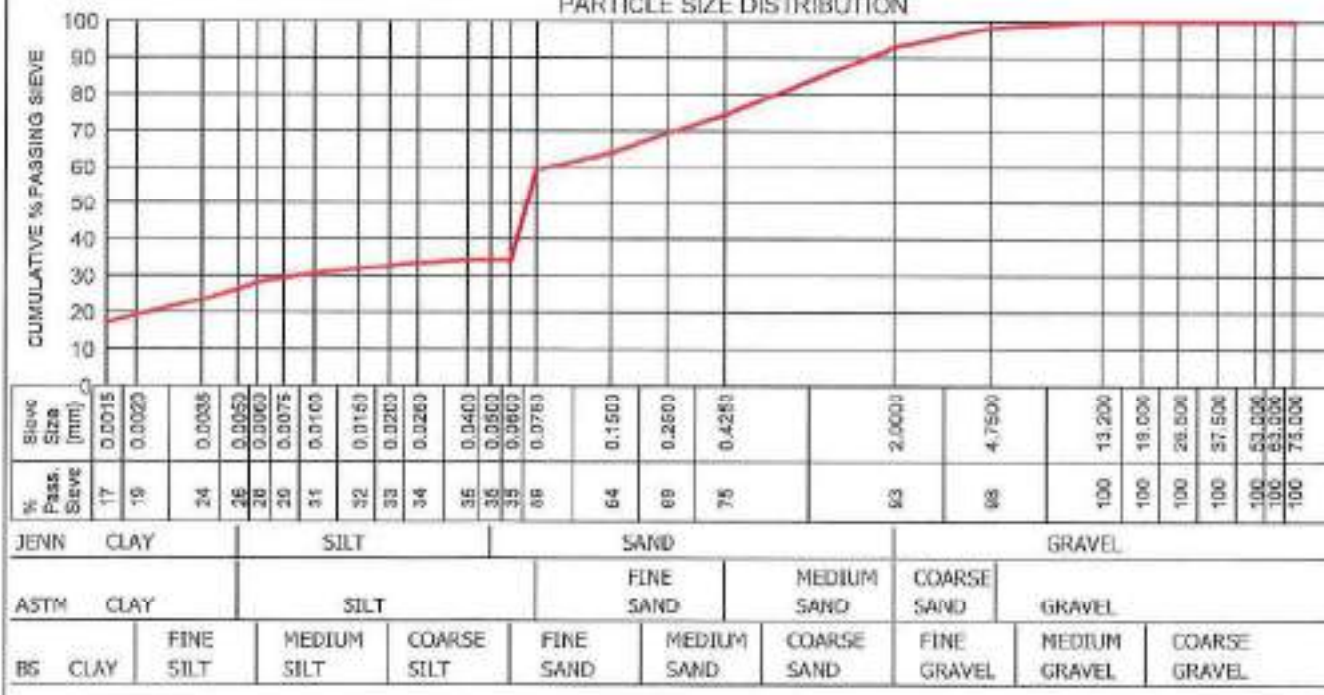
Sample No : C 12668
Hole No. : TP.25
Depth : 340-1550
Liquid Limit (%) : 41
Plasticity Index : 10
Linear Shrinkage (%) : 5.0
PI of Whole Sample : 8
P.R.A. Classification : A-7-5(5)
Unified Soil Classification: ML
Activity : 0.42
Heave Classification : LOW
Grading Modulus : 0.73
Percentage (<0.002) : 19.0
Moisture Content (%) : 9.8
Relative Density : 2.502

Material Description : BR.FINE SAND + DEC.W/FERRICRETE CLAYEY SAND

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	26.4	8.1	58.6	6.9	CLAYEY SAND
Astm	26.4	33.0	38.9	1.7	CLAYEY SAND
British Standard	19.5	15.0	58.6	6.9	CLAYEY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

FORM: A6

4.4.1(SGS)(2019.12.04)

Technical Signatory : Mr Gregory F. Bdl (N.Dip.Civ.Eng)

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