



N3 TOLL CONCESSION (PTY) LTD

(Hereinafter referred to as N3TC)

PROFESSIONAL SERVICES PROJECT DOCUMENT (DETAILED DESIGN)

STATUS: TENDER DOCUMENT

BOOK 2 OF 2

CONTRACT NO: N3TC/CU-2022-101 (CS)

**UPGRADE OF THE N3 TOLL ROAD:
N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
HIGHWAY SECTION 15XA and 15XB**

**Part of the operation and maintenance of the
N3 Toll Road under
Contract No: SAPR N0304102/1**

TENDERER'S NAME:.....

MAY 2022

N3 TOLL CONCESSION (RF) PROPRIETARY LTD.
CONTRACT No.: N3TC/CU-2022-101 (CS)
CONSULTING ENGINEERING SERVICES FOR:
UPGRADE OF THE N3 TOLL ROAD: N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
(HIGHWAY SECTION 15XA AND 15XB)

PART C1: AGREEMENTS & CONTRACT DATA

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Notes to tenderer

- 1. Should a tenderer wish to offer a different period of completion than that specified by the Employer, it shall be submitted as an alternative offer on a separate Form of Offer.**
- 2. If more than one alternative tender is submitted each shall be numbered and submitted on a separate Form of Offer duly completed and signed.**

C1.1 FORMS OF OFFER AND ACCEPTANCE

C1.1.1 FORM OF OFFER

N3 Toll Concession (RF) Proprietary Ltd.
1st Floor Block D
Southdowns Office Park
22 Karee Street
Irene 0157

Sir,

CONTRACT No.: N3TC/CU-2022-101 (CS)
CONSULTING ENGINEERING SERVICES FOR:
UPGRADE OF THE N3 TOLL ROAD: N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
(HIGHWAY SECTION 15XA AND 15XB)

1. I/we, by signing this part of the forms of offer and acceptance, confirm that I/we practise the principles of corporate governance that abhors corruption and fraud and that we have examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules and am/are duly authorised to represent and commit the tenderer to the contractual obligations contained therein.
2. I/we further confirm that by submitting this offer the tenderer accepts the conditions of tender and offers to perform all of the obligations and liabilities of the service provider 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 tender and the conditions of contract identified in the contract data.

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

..... (in words)

(R..... in figures)

3. You may accept this offer by signing and returning to the tenderer one copy of the acceptance part of the forms of offer and acceptance before the end of the period of validity stated in the tender data, (or at the end of any agreed extension thereof), whereupon the tenderer becomes the party named as the service provider in the conditions of contract identified in the contract data.
4. Notwithstanding anything contained in a covering letter to this tender, I/we declare this offer is submitted entirely without variations or deviations other than those stipulated in Form A4: Schedule of variations or deviations by the tenderer and that it is made free from any fraud, corruption and misrepresentation.

Yours faithfully

SIGNATURE: DATE:

.....

NAME (IN CAPITALS):

.....

.....

CAPACITY:

Date and minute reference of Board resolution if different from returnable schedule Form A2:

Certificate of Authority for signature

NAME AND ADDRESS OF ORGANISATION:

.....

NAME AND SIGNATURE OF WITNESS:

SIGNATURE: DATE:.....

NAME (IN CAPITALS):

C1.1.2 FORM OF ACCEPTANCE

FORM OF ACCEPTANCE

To *(Name of successful tenderer)*

Dear Sir,

CONTRACT No.: N3TC/CU-2022-101 (CS)
CONSULTING ENGINEERING SERVICES FOR:
UPGRADE OF THE N3 TOLL ROAD: N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
(HIGHWAY SECTION 15XA AND 15XB)

ACCEPTANCE OF OFFER

1. It is our pleasure to inform you that the N3 Toll Concession (RF) Proprietary Ltd. (the Employer) accepts your *(select if applicable corrected/corrected alternative/alternative)* offer in the amount of R..... (i.e. including VAT but excluding CPA and any contingent sum not in the priced schedule).
2. The amount due may not be the accepted price but payment shall be made in accordance with the conditions of contract identified in the contract data.
3. Acceptance shall form an agreement between us according to the terms and conditions contained in this form and in the contract that is comprised of:

Part C1: Agreements and Contract Data (including this form of acceptance),
Part C2: Pricing Data,
Part C3: Scope of the Work and
Part C4: Site Information,
Part C5: Annexures
together with issued drawings and other documents, or parts thereof, which may be incorporated by reference into Parts C1 to C5 listed above.
4. Deviations and/or variations included in your offer as well as any changes to the terms of the offer agreed by us during the process of offer and acceptance shall not be valid unless contained in the appended schedule of deviations. *(If no deviation state "There are no deviations, variations or changes to the documents). Addenda issued during the tender period are deemed not to be deviations to the tender documents and schedules.*
5. Within 14 calendar days of the date of this form of acceptance (including the schedule of deviations if any) you shall deliver to the Employer:
 - Proof of insurance in terms of the information provided in the contract data and clause 5.4 of the General Conditions of Contract. Proof of validity of insured cover shall be provided on a monthly basis until contract completion.
 - Completed Form of Banking details which is attached hereto (Form C.1.1.4).Failure to fulfil this obligation shall constitute a repudiation of this agreement.
6. The effective date of the contract shall be the date of this form of acceptance unless you, within seven (7) calendar days of the effective date, notify the Employer in writing of any justification why you cannot accept the contents of this agreement.
7. The commencement date of the contract shall be that on which the project hand-over meeting is held, which shall not be later than.... *(usually 28 calendar days after the date of this form, or earlier if circumstances demand and as agreed between tenderer/employer)*
8. Notwithstanding that a full, original-signed copy of the contract document containing all contract data and schedules (including that of accepted deviations) will be delivered to you, this form of acceptance constitutes the binding contract between us.

SIGNATURE: DATE:

.....

NAME (IN CAPITALS):

CAPACITY:

EMPLOYER'S NAME AND ADDRESS:

N3 Toll Concession (RF) Proprietary Ltd.

1st Floor Block D
Southdowns Office Park
22 Karee Street
Irene 0157

Pro-forma

C1.1.3 APPENDIX TO FORM OF ACCEPTANCE

Schedule of deviations

The deviations listed below constitute agreed variations/amendments to the tender data and schedules negotiated between the tenderer and the employer based on information provided in Form A4: Schedule of Variations or deviations by tenderer. Addenda issued during the tender period are deemed not to be variations to the tender.

PRO-FORMA

1.

.....

2

.....

3

.....

4 etc.

.....

C1.2 CONTRACT DATA

C1.2.1 CONDITIONS OF CONTRACT

Note to tenderer:

1. The legislated Standard Conditions of Contract for Professional Services (as published and amended from time to time by the Construction Industry Development Board) are included together with the Employer's special conditions of contract where the former is shown in standard format and the Employer's amendments (i.e. special conditions) shown in italics. SANRAL's special conditions of contract are shown in italics as amending clauses of the Standard Conditions.

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CONDITIONS OF CONTRACT

1. DEFINITIONS

In this Contract, unless inconsistent or otherwise indicated by the context, words and expressions defined in the Concession Contract entered into between the South African National Roads Agency SOC Limited and N3 Toll Concession (RF) (Proprietary) Limited dated 27 May 1999, shall bear the same meaning when used in this Contract with capitalised first letters and the following words and expressions shall, when used herein with capitalised first letters, bear the following meanings.

Agent

The Service Provider appointed in terms of the Occupational Health and Safety Act No. 85 of 1993, including the relevant Regulations.

Construction monitoring

The process of managing and co-ordinating the Works Contract and over-seeing and/or inspecting the Works in accordance with the Employer's requirements for a performance guarantee contract.

Construction monitoring and supervision

The process of managing and co-ordinating the Works Contract and over-seeing and/or inspecting the Works ensuring quality Control in accordance with the Employer's requirements for a conventional Works Contract.

Concession Contract

The Concession Contract entered into between the Agency and the Employer (including Annexures 1 to 26 thereto) and dated 27 May 1999, as amended by the Second Concession Contract Amending Agreement entered into between the Agency and the Employer and dated 22 November 2005.

Contract

The Contract signed by the Parties and of which these General Conditions of Contract form part.

Contract Data

Specific data, which together with these General Conditions of Contract, collectively describe the risks, liabilities and obligations of the contracting Parties and the procedures for the administration of the contract.

Contract Price

The price to be paid for the performance of the Services in accordance with the Pricing Data.

Day

A calendar day.

Defect

A part of the Services, as performed, which does not comply with the requirements of the Contract.

Deliverable

Any measurable, tangible, verifiable outcome, result or item that must be produced or completed.

Engineer

The natural or juristic person, partnership, Incorporated Company, Propriety Limited Company or Close Corporation appointed in writing by the Employer for the construction monitoring and management of the engineering Works undertaken by the Contractor.

Employer

The contracting party named in the Contract who employs the Service Provider.

Force Majeure

"For the purpose of this Contract the expression 'Force Majeure' shall mean an event or circumstance described in clause 8.3.1.

Independent Engineer

“The consulting engineer(s) or expert(s) appointed by the Agency and the Employer pursuant to clause 6.1 of the Concession Contract or such other successor or consulting engineer(s) or expert(s) as may be appointed from time to time by the Agency and the Employer and whose duties are set forth in the Independent Engineer’s agreement, the Concession Contract and the Model Form of Construction Contract”

Key Persons

Persons who are named as such in the Contract Data who will be engaged in the performance of the Services.

Others

Persons or organizations who are not the Employer, the Service Provider or any employee, Subcontractor, or supplier of the Service Provider.

Parties

The Employer and the Service Provider. Refer to eligibility requirements of the Service Provider re PDE in the Conditions of Tender (Clause F.1.3.3(i)) and the Tender Data (Clause F3.11.8).

Period of Performance

The period within which the Services are to be performed and completed.

Personnel

Persons hired by the Service Provider as employees and assigned to the performance of the Services or any part thereof.

Personnel Schedule

A schedule naming all personnel and key persons.

Pricing Data

Data that establishes the criteria and assumptions that were taken into account when developing the Contract Price and the record of the components that make up of the Contract Price.

Project

The project named in the Contract Data for which the Services are to be provided.

Scope of Work

The document which defines the Employer’s objectives and requirements and specifies the Services which must, or may, be provided under the Contract.

Service Provider

The contracting party named in the Contract Data who is employed by the Employer to perform the Services described in the Contract, and legal successors to the Service Provider and legally permitted assignees.

Services

The work to be performed by the Service Provider pursuant to the Contract as described in the Scope of Work.

Subcontractor

A person or body corporate who enters into a subcontract with the Service Provider to perform part of the Services.

Technical Personnel

The Key Persons proposed by the Service Provider to undertake the respective functions/duties as defined under the Contract.

Works or Works Contract

That project or part of a project that the employer wishes to have delivered and for which the service provider has been appointed for the performance of the services specified in this contract.

2. INTERPRETATION

- 2.1 Unless inconsistent with the context, an expression which denotes:
- a) any gender includes the other genders;
 - b) a natural person includes a juristic person and vice versa;
 - c) the singular includes the plural and vice versa.
- 2.2 If there is any conflict between the provisions of these General Conditions of Contract and the Contract Data, the provisions of the Contract Data shall prevail.
- 2.3 The clause headings shall not limit, alter or affect the meaning of the Contract.

2.4 Basis of the Contract

It is the basis of this Contract that -

- 2.4.1 the Employer has entered into the Concession Contract in terms of which it has undertaken to design, construct, finance, operate and maintain the N3 Toll Road. In this regard it is a primary obligation of the Employer, under the Concession Contract, to monitor, record and report on the performance of the N3 Toll Road and table future rehabilitation interventions which may be required so as to ensure that the N3 Toll Road complies with the Engineering Requirements;
- 2.4.2 the Employer's obligations with regard to the manner in which it designs, constructs and operates the N3 Toll Road are set forth in the Concession Contract;
- 2.4.3 the Employer has, subsequent to the entering into of the Concession Contract, entered into the Second Concession Contract Amending Agreement, in terms of which it has been agreed that the Employer will undertake the Construction Works, the Upgrade Works and the Repair and Replacement Works in accordance with the Model Form of Construction Contract and not on the basis contemplated in the Initial Construction Works Contract and the Upgrade, Repair and Replacement Contract;
- 2.4.4 the Service provider shall respect those contracts entered into by the Employer.

3. GENERAL

3.1 Governing laws

"Law" means all national (or other spheres of Government) legislation, statutes, ordinances and other laws including the South African Common Law, and regulations and by-laws of any legally constituted public authority.

3.2 Change in legislation

If after the commencement of the Contract, the cost or duration of the Services is altered as a result of changes in, or additions to, any statute, regulation or bye-law, or the requirements of any authority having jurisdiction over any matter in respect of the Project, then the Contract Price and time for completion shall be adjusted in order to reflect the impact of those changes, provided that, within 14 days of first having become aware of the change, the Service Provider furnished the Employer with detailed justification for the adjustment to the Contract Price.

3.3 Language

- 3.3.1 The language of the Contract and of all communications between the Parties shall be English.
- 3.3.2 All reports, recommendations and reports prepared by the Service Provider under the Contract shall be in English.

3.4 Notices

- 3.4.1 Any notice, request, consent, or other communication made between the Parties pursuant to the Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed,

or when *delivered* to such Party at the address *stated* in the Contract *Data*, or one week after having been sent by registered post.

- 3.4.2 If the sender requires evidence of receipt, he shall state such requirement in his communication and, wherever there is deadline for the receipt of the communication, he may demand evidence of receipt of his communication. In any event, the sender shall take all the necessary measures to ensure receipt of communications.
- 3.4.3 A Party may change its address for receipt of communications by giving the other Party 30 days advance notice of such change.

3.5 Location

The Services shall be performed at such locations as are specified in the Contract Data, and where the location of a particular task is not so specified, at such locations as the Employer may approve.

3.6 Publicity and publication

Unless otherwise agreed, the Service Provider shall not release public or media statements or publish material related to the Services or Project within two (2) years of completion of the Services without the written approval of the Employer, which approval shall not be unreasonably withheld.

3.7 Confidentiality

Both Parties shall keep all commercially sensitive information obtained by them in the context of the Contract, confidential and shall not divulge it without the written approval of the other Party except to the *extent strictly necessary to carry out obligations under this Contract or to comply with applicable laws*.

3.8 Variations

- 3.8.1 The Employer may, without changing the objectives or fundamental scope of the Contract, order variations to the Services or may request the Service Provider to submit proposals, including the time and cost implications, for variations to the Services. *No variation shall have any force or effect unless reduced to writing and signed by both Parties*.
- 3.8.2 The reasonable cost of preparation and submission of such proposals and the incorporation into the Contract of any variations to the Services ordered by the Employer, including any change in the Contract Price, shall be agreed in writing between the Service Provider and the Employer, *prior to the change being implemented*.
- 3.8.3 Where a variation is necessitated by default or breach of Contract by the Service Provider, any additional cost attributable to such variation shall be borne by the Service Provider.

3.9 Sole agreement

The Contract constitutes the sole agreement between the Parties for the performance of the Services and no representation not contained therein shall be of any force or effect. No amendments will be of any force or effect unless reduced to writing and signed by both Parties.

3.10 Indemnification

The Service Provider shall, at his own expense, indemnify, protect and defend the Employer, its agents and employees, from and against all actions, claims, losses and damage arising from any *wilful or negligent act or omission by the Service Provider or his subcontractors* in the performance of the Services, including any violation of legal provisions, or rights of others, in respect of patents, trademarks and other forms of intellectual property such as copyrights.

3.11 Penalty

- 3.11.1 In the event that due to his negligence, or for reasons within his control, the Service Provider does not perform the Services within the Period of Performance, the Employer shall without prejudice to his other remedies under the Contract, be entitled to levy a penalty for every Day

or part thereof, which shall elapse between the end of the period specified for performance, or an extended Period of Performance, and the actual date of completion, at the rate and up to the maximum amount stated in the Contract Data.

- 3.11.2 If the Employer has become entitled to the maximum penalty amount referred to in 3.11.1, he may after giving notice to the Service Provider:
- a) terminate the Contract
 - b) complete the Services at the Service Provider's cost.
- 3.11.3 In the event that due to his negligence or for reasons within his control, the Service Provider does not meet the specified target of work stated in the Contract Data to the Targeted Enterprise the Employer shall be entitled to levy a penalty as stated in the Contract Data.
- 3.11.4 In the event that due to his negligence or for reasons within his control, the Service Provider does not disclose subcontracting arrangements the Employer may be entitled to levy a penalty as stated in the Contract Data.

3.12 Equipment and materials furnished by the Employer

- 3.12.1 Equipment and materials made available to the Service Provider by the Employer, or purchased by the Service Provider with funds provided by the Employer for the performance of the Services shall be the property of the Employer and shall be marked accordingly. Upon termination or expiration of the Contract, the Service Provider shall make available to the Employer an inventory of such equipment and materials and shall dispose of them in accordance with the Employer's instructions.
- 3.12.2 *Unless otherwise stated in the Contract Data*, the Service Provider shall, at his own expense, insure the equipment and materials referred to in 3.12.1 for their full replacement value.

3.13 Illegal and impossible requirements

The Service Provider shall notify the Employer immediately, should he become aware that the Contract requires him to undertake anything which is illegal or impossible.

3.14 Programme

- 3.14.1 The Service Provider shall, within the time period set out in the Contract Data, submit to the Employer a programme for the performance of the Services which shall, *inter alia*, include:
- a) the order and timing of operations by the Service Provider and any actions required of the Employer and Others;
 - b) the dates by which the Service Provider plans to complete work needed to allow the Employer and Others to undertake work required of them; and
 - c) other information as required in terms of the Scope of Work or Contract Data.
- 3.14.2 The Employer may, during the course of the Contract, request the Service Provider to amend the programme. Where this is not practicable, the Service Provider shall advise the Employer accordingly and advise him of alternative measures, if any, which might be taken.
- 3.14.3 The Service Provider shall regularly update the programme to reflect actual progress to date and expected future progress.

3.15 Severability

If a court of competent jurisdiction holds that any provision of this Contract is severable by reason of it being invalid, illegal, unlawful or unenforceable and as a consequence of which prevents the accomplishment of the purpose of this Contract, the Employer and the Service Provider shall meet and review the matter to adopt means to fulfil the purpose of the Contract.

3.16 Waiver

No defence of a waiver of any of the provisions of this contract shall be effective unless it is expressly stated in writing, by the Party against whom such defence is raised, to be a waiver of such provisions and is communicated to the other Party in writing in accordance with the provisions of Clause 3.4.

4. EMPLOYER'S OBLIGATIONS

4.1 Information

- 4.1.1 The Employer shall timeously provide to the Service Provider, free of cost, all available information and data in the Employer's possession which may be required for the performance of the Services.
- 4.1.2 The Employer shall provide the Service Provider with any assistance required in obtaining other relevant information that the latter may require in order to perform the Services.
- 4.1.3 The Service Provider shall be entitled to rely on the accuracy and completeness of all information furnished by or on behalf of the Employer.

4.2 Decisions

The Employer shall, within a reasonable time, give his decision on any matter properly referred to him in writing by the Service Provider so as not to delay the performance of Services.

4.3 Assistance

The Employer shall co-operate with the Service Provider and shall not interfere with or obstruct the proper performance of the Services. The Employer shall as soon as practicable:

- 4.3.1 authorise the Service Provider to act as his agent insofar as may be necessary for the performance of the Services;
- 4.3.2 provide all relevant data, information, reports, correspondence and the like, which become available;
- 4.3.3 procure the Service Provider's ready access to premises, or sites, necessary for the performance of the Services;
- 4.3.4 assist in the seeking of all approvals, licenses and permits from state, regional and municipal authorities having jurisdiction over the Project, unless otherwise stated in the Contract Data;
- 4.3.5 designate in writing a person to act with his complete authority in giving instructions and receiving communications on his behalf and interpreting and defining his policies and requirements in regard to the Services.

4.4 Services of Others

- 4.4.1 The Employer shall, at his own cost, engage such Others as may be necessary for the execution of work necessary for the completion of the Project, but not included in the Services.
- 4.4.2 The Employer shall not enter into an agreement or contract with Others which describes any of the duties and responsibilities of the Service Provider in terms of the Contract or which imposes obligations on him, without first obtaining the Service Provider's written agreement thereto.

4.5 Notice of change by Employer

On becoming aware of any matter which will materially change, or has changed, the scope, cost or timing of the Services, or on becoming aware of any defect or deficiency in the Services, the Employer shall immediately advise the Service Provider thereof.

4.6 Issue of instructions

Where the Service Provider is required to administer the work or services of Others, or any contract or agreement, on behalf of the Employer, then the Employer shall issue instructions related to such work, services, contract or agreement only through the Service Provider.

4.7 Payment of Service Provider

The Employer shall pay the Service Provider the Contract Price in accordance with the provisions of the Contract.

5. SERVICE PROVIDER'S OBLIGATIONS

5.1 General

- 5.1.1 The Service Provider shall perform the Services in accordance with the Scope of Work with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and standards *and shall be responsible for breach of professional duty by reason of any error, omission or neglect in connection with delivering the services*
- 5.1.2 Where the Services include the exercise of powers to certify, decide or otherwise exercise discretion in regard to a contract or agreement between the Employer and Others, then the Service Provider shall act in respect of that contract or agreement as an independent professional
- 5.1.3 If the Service Provider is a joint venture or consortium of two or more persons, the Service Provider shall designate one person to act as leader with authority to bind the joint venture or consortium. *The members of the consortium or joint venture shall, for the purposes of this Contract, be jointly and severally liable to the Employer.* Neither the composition nor the constitution of the joint venture or consortium shall be altered without the prior consent in writing of the Employer, which shall not be unreasonably withheld.
- 5.1.4 Unless specifically instructed differently, the Service Provider is delegated as the Employer's "Mandatory" in terms of the Occupational Health and Safety Act (Act no. 85 of 1993).
- The Employer's OHS Specification for Service Providers including a Project Baseline Risk Assessment is included in Annexure E.
- 5.1.5 The Service Provider, if requested by the Employer, shall provide any plans and calculations for checking by Others.
- 5.1.6 All design calculations shall be kept and safeguarded for the duration of the insurance(s) required in terms of clause 5.4.1.

5.2 Exercise of authority

- 5.2.1 The Service Provider shall have no authority to relieve Others appointed by the Employer to undertake work on the Project of any of their duties, obligations, or responsibilities under their respective agreements or contracts, unless expressly authorised by the Employer in response to an application by the Service Provider in writing to do so.
- 5.2.2 *Whenever necessary to enter upon land for the performance of the Contract the service Provider shall do so in accordance with the provisions of the SANRAL Act, (Act 7 of 1998) and shall indemnify the Employer from all costs arising from any transgression committed by the Service Provider.*

5.3 Designated representative

The Service Provider shall designate in writing a person to act as his representative and such person shall have complete authority to receive instructions from and give information to the Employer on behalf of the Service Provider.

5.4 Insurances to be taken out by the Service Provider

- 5.4.1 The Service Provider shall, at his own cost, unless otherwise agreed, take out and maintain in force such insurance policies in respect of their own risks in performing the Services as are stipulated in the Contract Data, subject to the approval of the Employer, which approved shall not be unreasonably withheld.
- 5.4.2 The Service Provider shall, at the Employer's request, provide evidence to the Employer showing that the insurance required in terms of Clause 5.4.1 has been taken out *with an insurance company registered in the Republic of South Africa, or as otherwise approved by the Employer* and maintained in force.

5.5 Service Provider's actions requiring Employer's prior approval

The Service Provider shall obtain the Employer's prior approval in writing before taking, inter alia, any of the following actions:

- a) appointing Subcontractors for the performance of any part of the Services,
- b) appointing Key Persons not listed by name in the Contract Data.
- c) any other action that may be specified in the Contract Data.

5.6 Co-operation with Others

If the Service Provider is required to perform the Services in co-operation with Others he may make recommendations to the Employer in respect of the appointment of such Others. The Service Provider shall, however, only be responsible for his own performance and the performance of Subcontractors unless otherwise provided for.

5.7 Notice of change by Service Provider

On becoming aware of any matter which will materially change or has changed the scope, cost or timing of the Services, the Service Provider shall give notice thereof to the Employer, save that the Service Provider is empowered to make minor changes or variations within the overall programme or budget and within such parameters as are defined by the Employer, provided that such changes are reported timeously to the Employer.

5.8 Safeguarding the Employer's data

5.8.1 The Parties shall take reasonable precautions (each having regard to the nature of the other's respective obligations under the Contract) to preserve the integrity of the Employer's data including appropriate back-up procedures.

5.8.2 In the event that the Employer's data is corrupted or lost as a result of any default by the Service Provider, the Employer shall at the Service Provider's expense, have the option to:

- *require the Service Provider to restore or procure the restoration of such data; or;*
- *itself restore or procure restoration of such data.*

5.9 Performance Security

Where required, the Service Provider shall obtain (at his cost) a Performance Security for proper performance in the amount and currencies stated in the Contract Data. If an amount is not stated in the Contract Data, this sub-clause shall not apply.

The Service Provider shall deliver the Performance Security to the Employer within 14 days of the date of issue of the Letter of Acceptance. The Performance Security shall be issued by an insurance company or bank registered or licensed as an insurance company or bank to do business in the Republic of South Africa and approved by the Employer and having an office or banking facility in the Republic of South Africa. The Performance Security shall be subject to approval by the Employer and shall be in the form prescribed in the tender documents.

5.10 Co-operation with Independent Engineer

The Service provider shall co-operate with the Independent Engineer:

- *so as to ensure that in undertaking the Services in respect of the Assignment, the Employer complies with its obligations under Concession Contract, as read with the Second Concession Contract Amending Agreement;*
- *in the manner contemplated in each contract entered into pursuant to the Model Form of Construction Contract. In this regard the Engineer shall ensure that it co-ordinates its role with the Independent Engineer so as to give effect to the requirements of the Model Form of Construction Contract and in particular take decisions and make such determinations as contemplated in the Model Form of Construction Contract.*

6. CONFLICTS OF INTEREST, CORRUPTION AND FRAUD

6.1 Service Provider not to benefit from commissions, discounts, etc.

The remuneration of the Service Provider under the Contract shall constitute the Service Provider's sole remuneration in connection with the Contract, or the Services, and the Service

Provider shall not accept for his own benefit any trade commission, discount, or similar payment in connection with activities pursuant to the Contract, or in the discharge of his obligations under the Contract, and shall use his best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them shall, similarly, not receive any additional remuneration.

6.2 Royalties and the like

The Service Provider shall not have the benefit, whether directly or indirectly, of any royalty or of any gratuity or commission in respect of any patented or protected article or process used in or for the purposes of the Contract, or Project, unless so agreed by the Employer in writing.

6.3 Independence

The Service Provider shall refrain from entering into any relationship which could be perceived as compromising his independence of judgment, or that of Subcontractors or Personnel.

6.4 Corruption and Fraud

6.4.1 The Service Provider shall neither:

- (a) Offer or give or agree to give any person of the Employer any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forbore to do any act in relation to the obtaining or performance of this contract or any other contract with the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this contract; nor
- (b) Enter into this contract if in connection with it commission or a reward of any type has been paid, offered or agreed to be paid to any person of the Employer by the Service Provider or on his behalf or knowledge.

6.4.2 In the event that the Employer, in good faith and on reasonable grounds, comes to the opinion, that a breach of any of the provisions of Clause 6.4.1 has been perpetrated by the Service Provider or anyone employed by him or acting on his behalf in relation to this contract or any other agreement with the Employer, the Employer may:

- i. summarily suspend the operation of this Contract by notice in writing to the Service Provider, informing him of the Employer's opinion and the grounds and reasons upon which it is based, and calling upon the Service Provider to show cause, in writing, within fourteen (14) days of receipt of the written notice why the Employer should not terminate this Contract on the grounds of the alleged breach(es) of Clause 6.4.1 of this Contract;
- ii. withhold all payments due;
- iii. terminate this Contract by notice in writing to the Service Provider, if the Service Provider fails to respond to the Employer's written response, to satisfy the Employer that his opinion is unfounded. Provided always that such termination shall not prejudice or affect any right of action or remedy, which shall have accrued or shall accrue thereafter to the Employer and provided also that the Employer may recover from the Service Provider such sum as the Employer deems equivalent to the amount or value of any such gift, consideration or commission.

6.4.3 In the event that the Employer, in good faith and on reasonable grounds, comes to the opinion that any contract with a Government or public sector body has been or was obtained by the Service Provider through actions that mutatis mutandis is similar in nature to those barred in terms of Clause 6.4.2 by the Service Provider or by anyone employed by the Service Provider or acting on the Service Provider's behalf in relation to such Contract, the Employer may:

- (a) summarily suspend the operation of this Contract by notice in writing to the Service Provider, informing him of the Employer's opinion and the grounds and reasons upon which it is based, and calling upon the Service Provider to show cause, in writing within fourteen (14) days of receipt of the written notice why the Employer should not terminate this Contract on the grounds of the alleged breach(es) of Clause 6.4.1 of this contract;
- (b) withholds all payments due
- (c) terminate this Contract by notice in writing to the Service Provider, if the Service Provider fails to respond to the Employer's written notice within the prescribed time, or fails, in his written response, to satisfy the Employer that this opinion is unfounded. Provided always that such termination shall not prejudice or affect any right of action or remedy, which shall have accrued or shall accrue thereafter to the Employer.

7. SERVICE PROVIDER'S PERSONNEL

7.1 Provision of Personnel

- 7.1.1 The Service Provider shall provide appropriate Personnel for such time periods as required in terms of the Contract and shall enter all data pertaining to Personnel including titles, job descriptions, qualifications and estimated periods of engagement on the performance of the Services in the Personnel Schedule.
- 7.1.2 The Services shall be performed by the Personnel listed in the Personnel Schedule for the periods of time indicated therein. The Service Provider may, subject to the approval of the Employer, make such adjustments to the data provided in terms of Clause 7.1.1 above as may be appropriate to ensure the efficient performance of the Services, provided that the adjustments will not cause payments to exceed any limit placed on the Contract Price.
- 7.1.3 The Service Provider shall:
- a) forward to the Employer for approval, within 15 days of the award of the Contract, the Personnel Schedule and a timetable for the placement of Personnel.
 - b) inform the Employer of the date of commencement and departure of each member of Personnel during the course of the Project.
 - c) submit to the Employer for his approval a timely request for any proposed change to Personnel, or timetables.

7.2 Staff and equipment

- 7.2.1 The Service Provider shall employ and provide all qualified and experienced Personnel required to perform the Services.
- 7.2.2 Where required in terms of the Contract, the Service Provider shall provide Key Persons as listed in the Contract Data to perform specific duties. If at any time, a particular Key Person cannot be made available, the Service Provider may engage a replacement who is equally or better qualified to perform the stated duty, subject to the Employer's approval, which approval shall not be unreasonably withheld. Key personnel listed in Clause 7.2 of the Contract Data, not in the permanent employ of the Service Provider at time of tender must be clearly indicated as such.
- 7.2.3 Where the Service Provider proposes to utilise a person not named in the Personnel Schedule, he/she shall submit the name, relevant qualifications and experience of the proposed replacement person to the Employer for approval. Should the Employer not object in writing within 10 days of receipt of such notification, the replacement shall be deemed to have been approved by the Employer.
- 7.2.4 Where the fees for the Services are time-based, the fee payable for a person provided as a replacement shall not exceed that which would have been payable to the person replaced.
- 7.2.5 Where the Employer requests a replacement not provided for by the Contract, the Service Provider shall bear all additional costs arising out of or incidental to such replacement.
- 7.2.6 The Service Provider shall take all measures necessary and shall provide all materials and equipment necessary to enable Personnel to perform their duties in an efficient manner.

7.3 Working hours, overtime and leave

Where the fee for the Services are time-based, working hours, leave entitlement and holidays for Personnel provided in terms of Clause 7 are to be as stated in the Contract Data, or, if not stated, to be determined by the Service Provider. The Employer will not be responsible for overtime payments to Personnel *unless so specifically provided for in the Pricing Schedule*.

8. COMMENCEMENT, COMPLETION, MODIFICATION SUSPENSION AND TERMINATION OF THE CONTRACT

8.1 Commencement

The Contract shall come into effect on the date that it is signed by both Parties or such later date as may be stated in the Contract Data. The Service Provider shall commence the performance of the Services within fourteen (14) days after the date that the Contract becomes effective, or such date as may be specified in the Contract Data.

8.2 Completion

- 8.2.1 Unless terminated in terms of the Contract, or otherwise specified in the Contract Data, the Contract shall be concluded when the Service Provider has completed all Deliverables in accordance with the Scope of Work.
- 8.2.2 The Service Provider, may request an extension to the Period of Performance if he is or will be delayed in completing the Contract by any of the following causes:
- a) *variations to Services* ordered by the Employer.
 - b) failure of the Employer to fulfil his obligations under the Contract.
 - c) any delay in the performance of the Services which is not due to the Service Provider's default.
 - d) *Force Majeure*
- 8.2.3 The Service Provider shall within 14 days of becoming aware that a delay may occur, notify the Employer of his intention to make a request for the extension of the Period of Performance to which he considers himself entitled and shall within 14 days thereafter deliver to the Employer full and detailed particulars of the request, in order that it may be investigated at the time.
- 8.2.4 The Employer shall, within 30 days of receipt of a detailed request either, grant such extension to the Period of Performance as may be justified, either prospectively or retrospectively, or inform the Service Provider that he is not entitled to an extension. Should the Service Provider find the decision of the Employer to be unacceptable he shall, nevertheless, abide by such decision in the performance of the services and the matter shall be dealt with as a dispute in terms of Clause 12.

8.3 Force Majeure

- 8.3.1 *In this clause "Force Majeure" means an exceptional event or circumstance:*
- (a) *which is beyond party's control,*
 - (b) *which such a party could not reasonably have provided against before entering into the Contract,*
 - (c) *which, having arisen, such Party could not reasonably have avoided or overcome, and*
 - (d) *which is not substantially attributable to the other Party*

Force Majeure includes exceptional events or circumstances of the kind listed below;

- (i) *natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity*
- (ii) *war, hostilities (whether war to be declared or not), invasion, act of foreign enemies,*
- (iii) *rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,*
- (iv) *riot, commotion, disorder, strike or lockout all of a National nature, by persons other than the Service Provider's Personnel or other employees of the Service Provider and Sub-contractors,*

An event or circumstance which is attributable to a wilful act, neglect or failure to take reasonable precautions by the affected party, his employees agents, subcontractors or others shall, under no circumstances, be considered Force Majeure.

- 8.3.2 The failure of a Party to fulfil any of its obligations under the Contract shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of *Force Majeure*, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures in order to meet the terms and conditions of this Contract, and has *notified* the other Party within 10 days of its occurrence and within a reasonable time of *its estimated duration and consequences*. *Failure to so notify shall terminate that Party's right to release from his obligations.*

- 8.3.3 In the event that the performance of the Services has to be suspended on the grounds of *Force Majeure*, the time for completion shall be extended by the extent of the delay plus a reasonable period for the resumption of work or, if the speed of performing certain Services has to be reduced, the time for their completion shall be extended as may be necessary in the circumstances.
- 8.3.4 During the period of his inability to perform the Services as a result of an event of *Force Majeure*, the Service Provider shall be entitled to continue to be paid under the terms of the Contract and shall be reimbursed for additional costs reasonably and necessarily incurred by him in suspending, delaying and re-activating the performance of the Services.
- 8.3.5 *If the Force Majeure event continues for more than 90 (ninety) days, either Party shall have the right to terminate this Contract with immediate effect.*

8.4 Termination

- 8.4.1 The Employer may in addition to his rights under sub-clauses 6.4.2, 6.4.3 and 10.5 terminate the Contract by giving not less than thirty (30) days written notice thereof to the Service Provider after the occurrence of any of the following events:
- (a) if the Service Provider does not remedy a failure in the performance of his obligations under the Contract within thirty (30) days after having been notified thereof, or within any further period as the Employer may have subsequently approved in writing;
 - (b) if the Service Provider becomes insolvent or bankrupt; or
 - (c) if, as the result of *Force Majeure*, the Service Provider is unable to perform a material portion of the Services for a period of not less than sixty (60) days;
 - (d) *commission of an offence in terms of clauses 6.1 and 6.4.*

Upon delivery of such notice by the Service Provider he shall immediately vacate the site and deliver to the Employer all drawings, documents and papers relating to the Services and shall within fourteen (14) days after the date of termination submit an account for the Services satisfactorily performed prior to the date of notice. The Employer shall not be liable to the Service Provider for any loss of profit or damages suffered as a result of cancellation of the contract as contemplated in this clause.

- 8.4.2 The Service Provider may terminate the Contract, by giving not less than thirty (30) days written notice to the Employer after the occurrence of any of the following events:
- (a) if the Employer fails to pay any monies due to the Service Provider in terms of the Contract and not subject to dispute pursuant to Clause 12 within forty-five (45) days after receiving written notice from the Service Provider that such payment is overdue; or
 - (b) if, as the result of *Force Majeure*, the Service Provider is unable to perform a material portion of the Services for a period of not less than sixty (60) days; or
 - (c) when the Services have been suspended under Clause 8.5 and the period of suspension exceeds 6 months, or it is clear to the Service Provider that it will be impossible or impractical to resume the suspended Services before the period of suspension has exceeded 6 months; or
 - (d) if the Employer is in material breach of a term of the Contract and fails to rectify such breach within 30 days of the receipt of written notice requiring him to do so.
- 8.4.3 Upon termination of this Contract pursuant to Clauses 8.4.1 or 8.4.2, the Employer shall make the following payments to the Service Provider:
- (a) remuneration in terms of the Contract for Services satisfactorily performed prior to the effective date of termination *less any costs arising from termination.*
 - (b) except in the case of termination pursuant to events (a) and (b) of Clause 8.4.1, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract.
- 8.4.4 Should the Service Provider, being an individual or the last surviving principal of a partnership or body corporate, die or be prevented by illness or any other circumstances beyond his control from performing the obligations implied by the Contract, the Contract shall be terminated without prejudice to the accrued rights of either Party against the other.
- 8.4.5 *Where required in terms of the contract data the surety delivered by the Service Provider in terms of this Contract shall remain in force until the completion of the project.*

8.5 Suspension

- 8.5.1 The Employer may temporarily suspend all or part of the Services by notice to the Service Provider who shall immediately make arrangements to stop the performance of the Services and minimise further expenditure.
- 8.5.2 When Services are suspended, the Service Provider shall be entitled to pro-rata payment for the Services carried out and reimbursement of all reasonable cost incident to the prompt and orderly suspension of the Contract.

8.6 Rights and liabilities of the Parties

Completion, suspension or termination of the Contract shall not prejudice or affect the accrued rights or liabilities of the Parties.

9. OWNERSHIP OF DOCUMENTS AND COPYRIGHT

- 9.1 Copyright of all documents prepared by the Service Provider in accordance with the relevant provisions of the copyright Act (Act 98 of 1978) relating to Project shall be vested in the party named in the Contract Data. Where copyright is vested in the Service Provider, the Employer shall be entitled to use the documents or copy them only for the purposes for which they are intended in regard to the Project and need not obtain the Service Provider's permission to copy for such use. Where copyright is vested in the Employer, the Service Provider shall not be liable in any way for the use of any of the information other than as originally intended for the Project and the Employer hereby indemnifies the Service Provider against any claim which may be made against him by any party arising from the use of such documentation for other purposes.
- 9.2 The ownership of data and factual information collected by the Service Provider and paid for by the Employer shall, after payment by the Employer, lie with the Employer.
- 9.3 The Employer shall have no right to use any documents prepared by the Service Provider whilst the payment of any fees and expenses due to the Service Provider in terms of the Contract is overdue.

10. SUCCESSION AND ASSIGNMENT

- 10.1 Except as defined in Clause 8.4.4 above, each Party binds itself and its partners, successors, executors, administrators, assigns and legal representatives to the other Party and to the other partners, successors, executors, administrators, assigns and legal representatives of the other Party in respect of all obligations and liabilities of the Contract.
- 10.2 An assignment shall be valid only if it is a written agreement, by which the *Parties* transfer *their rights* and obligations under the Contract, or part thereof, to others.
- 10.3 The Service Provider shall not, without the prior written consent of the Employer, assign the Contract or any part thereof, or any benefit or interest there under, except in the following cases:
- (a) by a charge in favour of the Service Provider's bankers of any monies due or to become due under the Contract; or
 - (b) by assignment to the Service Provider's insurers of the Service Provider's right to obtain relief against any other person liable in cases where the insurers have discharged the Service Provider's loss or liability.
- 10.4 The approval of an assignment by the Employer shall not relieve the Service Provider of his obligations for the part of the Contract already performed or the part not assigned.
- 10.5 If the Service Provider has assigned his Contract or part thereof without authorization, the Employer may forthwith terminate the Contract.

11. SUB-CONTRACTING

- 11.1 A sub-contract shall be valid only if it is a written agreement by which the Service Provider entrusts performance of a part of the Services to others.
- 11.2 Save what is required as eligibility, the Service Provider shall not sub-contract to nor engage a Sub-contractor to perform any part of the Services without the prior written authorization of the Employer. The services to be sub-contracted and the identity of the Sub-contractor shall be

notified to the Employer. The Employer shall, within 14 days of receipt of the notification and a full motivation why such services are to be sub-contracted, notify the Service Provider of his decision, stating reasons, should he withhold such authorization, failing which the Sub-contractor shall be deemed to be approved by the Employer. If the Service Provider enters into a sub-contract with a Sub-contractor without prior approval, the Employer may forthwith terminate the Contract.

- 11.3 The Employer shall have no contractual relationships with Sub-contractors. However, if a Sub-contractor is found by the Employer to be incompetent, the Employer may request the Service Provider either to provide a Sub-contractor with qualifications and experience acceptable to the Employer as a replacement, or to resume the performance of the relevant part of the Services himself.
- 11.4 The Service Provider shall advise the Employer without delay of the variation or termination of any sub-contract for performance of all or part of the Services.
- 11.5 The Service Provider shall be responsible for the acts, defaults and negligence of Sub-contractors and their agents or employees in the performance of the Services, as if they were the acts, defaults or negligence of the Service Provider, his agents or employees. Approval by the Employer of the sub-contracting of any part of the Contract or of the engagement by the Service Provider of Sub-contractors to perform any part of the Services shall not relieve the Service Provider of any of his obligations under the Contract.

12. RESOLUTION OF DISPUTES

12.1 Settlement

- 12.1.1 Any dispute between the Parties shall arise by either party presenting to the other in writing the nature of the dispute and the facts to be dealt with. The Parties shall negotiate in good faith with a view to settling any dispute or claim arising out of or relating to the Contract and may not initiate any further proceedings until either Party has, by written notice to the other, declared that such negotiations have failed.
- 12.1.2 Any dispute or claim arising out of or relating to the Contract which cannot be settled between the Parties shall in the first instance be referred by the Parties to either mediation or adjudication as provided for in the Contract Data.

12.2 Mediation

- 12.2.1 If the Contract Data does not provide for dispute resolution by adjudication, not earlier than ten working days after having advised the other Party, in terms of Clause 12.1, that negotiations in regard to a dispute have failed, an aggrieved Party may require that the dispute be referred, without legal representation, to mediation by a single mediator. The mediator shall be selected by agreement between the Parties, or, failing such agreement, by the person named for this purpose in the Contract Data. The costs of the mediation shall be borne equally by the Parties.
- 12.2.2 The mediator shall convene a hearing of the Parties and may hold separate discussions with any Party and shall assist the Parties in reaching a mutually acceptable settlement of their differences through means of reconciliation, interpretation, clarification, suggestion and advice. The Parties shall record such agreement in writing and thereafter they shall be bound by such agreement.
- 12.2.3 The mediator is authorised to end the mediation process whenever in his opinion further efforts at mediation would not contribute to a resolution of the dispute between the Parties and shall do so, if after a period of ninety days from entering into the mediation process, no resolution has been achieved.
- 12.2.4 If either Party is dissatisfied with the opinion expressed by the mediator or should the mediation fail, then such Party may require that the dispute be referred to arbitration or litigation in a competent civil court, as provided for in the Contract Data; *provided that the dissatisfied Party notifies the other in writing within 28 Days of mediator's decision being issued or the mediator declaring the mediation to have ended, as provided for in the Contract Data.* Claims not brought within the time periods set out herein will be deemed to be waived.

12.3 Adjudication

- 12.3.1 If the Contract Data does not provide for dispute resolution by mediation, an aggrieved Party may refer the dispute to adjudication. Adjudication shall be in accordance with the latest edition of the separately published CIDB Adjudication Procedures.
- 12.3.2 The adjudicator shall be appointed in terms of the Adjudicator's Agreement bound in the Construction Industry Development Board's Adjudication Procedure.
- 12.3.2 The Adjudicator shall be any person agreed to by the parties or, failing such agreement, shall be nominated by the person named in the Contract Data. The Adjudicator shall be appointed in accordance with the Adjudicator's Agreement contained in the CIDB Adjudication Procedure.
- 12.3.3 If a Party is dissatisfied with the decision of the Adjudicator, the Party may give the other Party *written* notice of dissatisfaction within 28 days of the receipt of that decision and refer the dispute to arbitration or litigation in a competent civil court as provided for in the Contract Data. If notice of dissatisfaction is *not* given within the specified time, the decision shall be final and binding on the Parties.

12.4 Arbitration

- 12.4.1 Arbitration, where provided for in the Contract Data, shall be by a single arbitrator in accordance with the provisions of the Arbitration Act of 1965 as amended and shall be conducted in accordance with such procedure as may be agreed between the Parties or, failing such agreement, in accordance with the Rules for the Conduct of Arbitrations, current at the date of the contract, published by the Association or Arbitrators.
- 12.4.2 The arbitrator shall be mutually agreed upon or, failing agreement, to be nominated by the person named in the Contract Data.

13. LIABILITY

13.1 Liability of the Service Provider

- 13.1.1 The Service Provider shall be liable to the Employer arising out of or in connection with the Contract if a breach of Clause 5.1 is established against him.
- 13.1.2 The Service Provider shall correct a Defect on becoming aware of it. If the Service Provider does not correct a Defect within a reasonable time and the Defect arose from a failure of the Service Provider to comply with his obligation to provide the Services, the Service Provider shall pay to the Employer the amount which the latter assesses as being the cost of having such Defect corrected by Others.
- 13.1.3 *The Service Provider shall be liable for and indemnify the Employer and hereby indemnifies the Employer against loss, damage or liability suffered by the Employer or any other party from any negligence, wilful or intentional act, error, omission or neglect arising in connection with any of the Services rendered by the Service Provider or any other party for whom the Service Provider is responsible including any conduct which amounts to a breach of professional duty.*

13.2 Liability of the Employer

The Employer shall be liable to the Service Provider arising out of or in connection with the Contract if a breach of an obligation of his in terms of the Contract is established. The Service Provider shall have no separate intellectual right of action against the Employer.

13.3 Compensation

If it is established that either Party is liable to the other, compensation shall be payable only on the following terms:

- (a) Compensation shall be limited to the amount of reasonably foreseeable loss and damage suffered as a result of the breach.
- (b) The compensation payable by either Party shall be reduced by the arbitrator/mediator/adjudicator to such extent as is deemed just and equitable having regard to the degree in which the other Party or any third party was at fault in relation to the loss or

damage. The liability of the Parties is not joint and each Party shall only be liable for that proportion of the compensation which is attributable to his fault.

- (c) In any event, the amount of compensation will be limited to the amount specified in Clause 13.5.

13.4 Duration of Liability

Notwithstanding the terms of the Prescription Act No. 68 of 1969 (as amended) or any other applicable statute of limitation neither the Employer nor the Service Provider shall be held liable for any loss or damage resulting from any occurrence unless a claim is formally made within the period stated in the Contract Data or, where no such period is stated, within a period of three years from the date of termination or completion of the Contract.

13.5 Limit of Compensation

13.5.1 The maximum amount of compensation payable by either Party to the other in respect of liability under the Contract is limited to:

- a) the sum insured in terms of 5.4. in respect of insurable event; and
- b) the sum stated in the Contract Data or, where no such amount is stated, to an amount *equal to twice the Contract Price (inclusive of VAT) payable to the Service Provider under the Contract.*

13.5.2 Each Party agrees to waive all claims against the other insofar as the aggregate of compensation which might otherwise be payable exceeds the aforesaid maximum amount payable.

13.5.3 If either Party makes a claim for compensation against the other Party and this is not established, the claimant shall reimburse the other for his reasonable costs incurred as a result of the claim or if proceedings are initiated in terms of Clause 12 for such costs as may be awarded.

13.6 Indemnity by the Employer

The Employer shall indemnify the Service Provider against all claims by third parties which arise out of or in connection with the performance of the Services save to the extent that such claims do not in the aggregate exceed the limit of compensation in Clause 13.5 or are covered by the insurances arranged under the terms of Clause 5.4.

13.7 Exceptions

13.7.1 Clauses 13.5 and 13.6 shall not apply to claims arising from deliberate misconduct.

13.7.2 The Service Provider shall have no liability whatsoever for actions, claims, losses or damages occasioned by:

- a) the Employer omitting to act on any recommendation, or overriding any act, decision or recommendation, of the Service Provider, or requiring the Service Provider to implement a decision or recommendation with which the Service Provider disagrees and on which he expresses a serious reservation; or
- b) the improper execution of the Service Provider's instructions by agents, employees or independent contractors of the Employer.

14. REMUNERATION AND REIMBURSEMENT OF SERVICE PROVIDER

The Employer shall remunerate and reimburse the Service Provider for the performance of the Services as set out in the Pricing Data *and Scope of Works*. If not otherwise stated in the Pricing Data, the following shall apply:

14.1 The Service Provider shall be entitled to render interim monthly accounts for fees and reimbursements throughout the duration of the Contract. Interim amounts of lump sum fees due *(or any specified fixed-progressed payments due that have been delayed by the acts of the Employer)* shall be based on progress by the Employer's assessment of percentage complete.

14.2 Amounts due to the Service Provider shall be paid by the Employer within thirty (30) days of receipt by him of the relevant invoices. If the Service Provider does not receive payment by the due date, he shall be entitled to charge interest on the unpaid amount, which is payable by the

Employer, at the overdraft rate charged him by his bank plus 2% per annum, compounded monthly and calculated from the due date of payment.

- 14.3 If any item or part of an item in an invoice submitted by the Service Provider is disputed by the Employer, the latter shall, before the due date of payment, give notice thereof with reasons to the Service Provider, but shall not delay payment of the balance of the invoice. Clause 14.2 shall apply to disputed amounts which are finally determined to be payable to the Service Provider.
- 14.4 In respect of Services charged for on a time basis and all other reimbursable expenses the Service Provider shall maintain records in support of such charges and expenses for a period of six months after the completion or termination of the Contract. Within this period the Employer may, on not less than 14 days' notice, require that a reputable and independent firm of accountants, nominated by him at his expense, audit any claims made by the Service Provider for time charges and expenses by attending during normal working hours at the office where the records are maintained.
- 14.5 *All accounts presented for payment shall be according to the Employers prescribed format.*
- 14.6 *Payments due shall be subject to the deduction of retention monies as stated in the Contract Data. The retention monies so deducted shall be released in accordance with the phases and conditions stated in the Contract Data.*
- 14.7 *If applicable, Contract Price Adjustment will be paid according to the method stated in the Contract Data.*

15 *Employers Insurance*

The Employer shall be entitled, but not obliged, at its cost to procure and arrange for a top-up professional indemnity insurance policy (herein referred to as the "Top-Up Indemnity Policy") with an insurance company or companies of the Employer's choice which shall comply with the following provisions -

- the Top-Up Indemnity Policy shall indemnify, inter alia, the Employer and the Service provider against loss and/or damage arising out of the action(s) of, or on behalf of, the Service provider in connection with this Contract, the Assignment and/or the Services;*
- the Top-Up Indemnity Policy shall be valid and enforceable and shall provide top-up professional indemnity over and above the cover provided by the Service Providers Professional Indemnity Policy referred to in 5.4 for such period and in such amount and subject to such terms and conditions as shall be determined by the Employer in its sole discretion from time to time during this Contract.*

The failure by the Employer to procure a Top-Up Indemnity Policy in terms of the above, shall not in any way limit -

- the Service Providers responsibilities, liabilities and/or undertakings towards the Employer under this Contract; or*
- the Employer's rights and remedies against the Service provider arising out of this Contract or the breach by the Service Provider of any provisions thereof.*

C1.2.2 CONTRACT DATA: INFORMATION PROVIDED BY THE EMPLOYER

Clause No Contract Data

The Employer is the N3 Toll Concession (RF) Proprietary Ltd. (N3TC)

The Employer's domicilium citandi et executandi (permanent physical business address) is:

1ST Floor, Block D, Southdowns Office Park,
22 Karee Street
Irene, 0157

The authorised and designated representative of the Employer is:

Name: Mr Christi Botha
Telephone: (087) 285-6382

3.4 The address for receipt of communications is:

Name: Mr Christi Botha
Telephone: (087) 285-6382
E-mail: christib@n3tc.co.za
Address: 1ST Floor, Block D, Southdowns Office Park,
22 Karee Street Irene, 0157

3.5 The project is Consulting Engineering Services (Detailed Design and Construction Documentation and Procurement services) for:

UPGRADE OF THE N3 TOLL ROAD: N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6 (HIGHWAY SECTION 15XA AND 15XB)

The location for the performance of the Project is:
Between Harrismith (Warden Street interchange) and Warden (Vrede interchange)
National Route 3 in the Free State Province.
N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6 (HIGHWAY SECTION 15XA AND 15XB)

3.6 The Service Provider may only release public or media statements or publish material related to the Services or Project subject to the approval of the Employer.

3.11.1 The penalty payable is R5, 000.00 per day subject to a maximum amount of R300,000.00

3.14 The programme shall be submitted within 14 days of the award of the Contract.

5.1.4 The Service Provider is delegated as the Employer's "Mandatory" in terms of the Occupational Health and Safety Act (Act no. 85 of 1993), and as the Employer's Agent as defined in Construction Regulations 6 of the said Act in so far as it relates to the Services covered by this Contract. The Employer's "Mandatory" and Agent for the Works Contract shall be appointed separately.

5.4 The Service Provider is required to provide the Service with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and standards.

The Service Provider is required to provide the following insurances:

1. Insurance against Professional Indemnity
 - Cover is: R 100,000,000.00 (one hundred million rand)Period of cover:
 - a) R100,000,000.00 (one hundred million rand)
Structures plus other works – Completion/termination of Contract plus 5 years
 - b) R50,000,000.00 (fifty million rand)
Structures – 10 years: all other instances – 5 years
2. Insurance against general public liability
 - Cover is: R 5,000,000.00Period of cover: Structures – 25 years: all other instances – 10 years
3. Third Party Liability
 - Cover is: R50,000,000.00Period of cover: Duration of contract.
4. Motor Vehicle Liability for Service Provider vehicles and Staff vehicles.
 - Full comprehensive cover for business use.

5.5 The Service Provider is required to obtain the Employer's prior approval in writing before taking any of the following actions:

1. Appointing Key Personnel not listed by name in the Contract Data.
2. Appointing sub-contractors for the performance of any part of the Service.
3. Expending any Provisional Sum in the Contract or Works Contract.
4. Authorising any work under a Variation Order for the Works Contract.
5. Over-expenditure on the Works Contract.
6. Changing the scope of work for the Works Contract.
7. Acceptance of sub-standard work under the Works Contract.
8. All aspects requiring the Employers approval in terms of SANRAL's Works Manual.
9. Making statements to the media regarding the project.

The Service Provider shall inform the Employer who in turn will obtain the Independent Engineer's prior approval in writing before taking any of the following actions:

1. Any amendment to the Detailed Design and as previously approved by the Independent Engineer;
2. Variations to the Detailed Design and which have a time and/or cost implication;
3. SANRAL variations as contemplated in Clause 8.1.2 of the Concession Contract;
4. Any other variation to the Works that has a time and/or cost implication;
5. Any variation which may result in a relaxation and/or non-compliance with SANRAL Requirements as defined in the Concession Contract; and
6. Issue of any Taking Over Certificate or Performance Certificate for the works Contract.

5.9 The provision of a Performance Guarantee will not be required under this Contract.

7.2 The Key Persons required for this project are:

- Project Leader
- Design Specialist (Geometric Engineer)
- Design Specialist (Structural Engineer) Lead Consultant
- Design Specialist (Structural Engineer) Sub Consultant
- Design Specialist (Pavement and Materials Engineer)

Key personnel not in the permanent employ of the Service Provider at time of tender must be clearly indicated as such.

- 7.3 The working hours and holiday for site staff are:
- Site working hours (23 days per month average)
 - Annual leave shall be taken during the recognized construction industry shutdown period.
- 8.1 The time to commence the performance of the Services is within 14 days after the date that the Contract becomes effective.
- 8.2 The Contract is concluded on the date when the Service Provider has completed all deliverables in accordance with the Scope of Work. Should the Service Provider not provide the deliverables within 14 days of the Letter of Acceptance, the Employer reserves the right to cancel the Letter of Acceptance with no further payment to or recourse by the Service Provider.
- 9.1 Copyright of documents prepared for the Project shall be vested with the Employer.
- 12.2.1 Interim settlement of disputes is to be by mediation.
- In the event that the parties fail to agree on a mediator, the mediator is to be nominated by the President of the South African Institution of Civil Engineering.
- 12.2.4 Final settlement is by litigation.
- 13.4 Neither the Employer nor the Service Provider is liable for any loss or damage resulting from any occurrence unless a claim is formally made within 48 months from the date of termination or completion of the Contract.
- 13.5 The maximum amount of compensation payable by either Party to the other in respect of liability under the Contract is limited to R 100,000,000.00
- 14.6 Retention monies shall be 10% of the value of completed works up to a maximum of R200 000.00 (excluding VAT). Such retention monies shall be released by the Employer as follows:
- 70% on receipt of the Detailed Design report, the Construction Tender Document and the Working Drawings.
 - 30% on the expiry of the Construction Contract tender period.
- 14.7 Contract Price Adjustment: refer to pricing instructions in clause C2.1.6 of the pricing schedule. Base date for this contract is May 2022.

C1.2.3 CONTRACT DATA: INFORMATION PROVIDED BY THE TENDERER

The Service Provider is

Address:

Telephone:

Facsimile:

The authorised and designated representative of the Service Provider is:

Name:

The **postal address** for receipt of communications is:

Telephone:

Facsimile:

Address:

Key Persons (Positions)	Name

PART C2: PRICING DATA

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C2.1 PRICING INSTRUCTIONS

C2.1.1 For the purposes of this Pricing Schedule, the following words shall have the meanings hereby assigned to them.

Unit: The unit of measurement for each item of work as defined in the standard specifications or the Scope of Works.

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.

Provisional Sum: An amount allowed for an item and its extent of which is alluded to in the Pricing Schedule, the Scope of Work or elsewhere, but of which the quantity of work is not known.

C2.1.2 The quantities set out in the Pricing Schedule are only approximate quantities. The quantities of work finally accepted and certified for payment, and not the quantities given in the Pricing Schedule, will be used to determine payments to the Service Provider.

The validity of the Contract shall in no way be affected by differences between the quantities in the Pricing Schedule and the quantities finally certified for payment. Work is valued at the rates or lump sums tendered.

C2.1.3 Rates and lump sums shall include full compensation for overheads, profits, incidentals, tax (other than VAT), etc., and for the completed items of work as specified in the standard specifications and Project Data and for all the risks, obligations and responsibilities specified in the General Conditions of Contract, Particular or Special Conditions of Contract, except in so far as the quantities given in the Pricing Schedule are only approximate.

C2.1.4 The tenderer shall fill in a rate or a lump sum for each item where provision is made for it even where no quantities are given. Items against which no rate or lump sum has been entered in the tender will not be paid for when the work is executed, as payment for such work will be regarded as being covered by other rates or lump sums in the pricing schedule.

The tenderer shall fill in a rate against all items where the words "rate only" appears in the amount column. Although no work is foreseen under such item and no quantities are consequently given in the quantity column, the tendered rate shall apply should work under this item actually be required. Tenders should note the provisions of clause C2.1.10 of this preamble.

If the tenderer should group a number of items together and tender one lump sum for each group of items, this single tendered lump sum shall apply to that group of items and not to each individual item, or should he indicate that full compensation for any item has been included in the rate for another item, the rate for the item included in another item shall be deemed to be nil.

The tendered lump sums and rates shall be valid irrespective of any change in the quantities during the execution of the contract.

C2.1.5 The short descriptions of the payment items in the Pricing Schedule are only given to identify the items and to provide specific details. Reference shall, *inter alia*, be made to the Contract Data, General Conditions of Contract and Particular / Special Conditions of Contract for more detailed information regarding the extent of work entailed under each item.

C2.1.6 Prices or rates will be subject to adjustment for escalation as provided for below:

- The prices or rates shall be fixed for the first 12-month period determined from the tender base date and no change during this period will be allowed for escalation.

- On the 12-month anniversary date of the Contract base date the rates or sums shall be adjusted by the twelve-month year on year CPI index (as published in the monthly bulletin PO141. of Statistics South Africa under table B) and fixed at this value for the following 12-month period. Subsequent 12-month periods shall be dealt with on the same basis.
- Adjustment of lump sum prices for escalation shall only be applicable to that portion of the relevant Service which is incomplete at the end of the 12-month anniversary date and shall not be applicable to any progress payments already claimed.

Adjustment for escalation shall only be applicable for services or portions thereof, that are still within the prescribed programme and any approved extensions of time.

C2.1.7 Interim payments for lump sum payment items may be permitted. Such interim payments shall however be limited to proven progress achieved for that particular service deliverable. The sum of any progress payments made under a particular lump sum payment item shall be deducted prior to calculating any adjustments for escalation as described in clause C2.1.6 above.

C2.1.8 Provisional Sums: Each Provisional Sum shall only be used, in whole or in part, in accordance with the Employer's instructions and the Contract Price shall be adjusted accordingly. The total sum paid to the Service Provider shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Employer shall have instructed.

For each Provisional Sum, the Employer may instruct plant, materials or services to be procured by the Service Provider in accordance with the Employer's policies, and for which there shall be included in the Contract Price:

- The actual amounts paid (or due to be paid) by the Service Provider, and
- A sum for compilation and printing of procurement documentation, quotation/tender process and evaluation, and all overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate tendered in the Pricing Schedule.

The Service Provider shall produce all quotations, invoices, vouchers and accounts or receipts in substantiation of any claim under a Provisional Sum.

C2.1.9. Subject to the conditions stated clause C2.1.10 below, the rates and lump sums filled in by the tenderer in the pricing schedule shall be final and binding with regard to submitting the tender, and may not be adjusted should there be any mistakes in the extensions thereof and in the total sums appearing in the tender. Should there be any discrepancies between the tender sum and the correctly extended and totalled pricing schedule, the rates will be regarded as being correct, and the Employer shall have the right to make adjustments to the tender sum to reconcile the tender sum with the total of the pricing schedule. In such an event the tenderer will be consulted but, failing agreement between the parties, the decision of the Employer shall be final and binding. Adjustment of the tender sum will take place prior to the signing of the contract. In their own interest tenderers must make doubly sure of the correctness of their tendered rates, the extensions and the tender sum.

C2.1.10 A tender may be deemed unresponsive if the unit rates or lump sums for some of the items in the Pricing Schedule are, in the opinion of the Employer, unreasonable or out of proportion, and if the tenderer fails, within a period of seven (7) days of having been notified in writing by the Employer to adjust the unit rates or lump sums for such items, to make such adjustments.

C2.1.11 All rates and sums of money quoted in the Pricing Schedule shall be in South African Rand and whole cents

C2.1.12 The item numbers appearing in the Pricing Schedule refer to the corresponding item numbers in the Scope of Work.

C2.2 PRICING SCHEDULE

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3200	DETAILED ASSESSMENT				
32.01	Detailed Assessment				
	(a) Initial Detailed Assessment, Design and Report: Part 1 excluding access elimination bridges/Interchanges scheduled separately in (b) below	Lump Sum	1		
	(b) Initial Detailed Assessment Concept Design and Cost estimates: Part 1. Grade separated facilities at (As per C3.1.3 Part 1 (2).)				
	(i) 42 nd Hill R722 IC. Full IC not included in Part 1.				
	(ii) Balmoral IC & Bridge NBTN2	No	1		
	(iii) Raal Underpass & Bridge NBTN3	No	1		
	(iv) Eeram IC & Bridge NBTN4	No	1		
	(v) Bosch IC & Bridge NBTN5	No	1		
	(vi) Agrimeul IC & Bridge NBTN6	No	1		
	(vii) Burlesca IC & Bridge NBTN7	No	1		
	(viii) Clear Waters & Bridge NBTN8	No	1		
	(ix) Warden North IC & Bridge	No	1		
	(c) Establishment of and managing Liaison Committee for development of access road network	Hour	40		
	3200 TOTAL CARRIED FORWARD TO SUMMARY				

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3300	DETAILED DESIGN & REPORT				
33.01	Detailed Design:				
	(a) Detailed Assessment and Design Report: Part 2	Lump Sum	1		
	(b) Bridge Reports and Detailed Design: New Structures, Part 2 Phase 1 Bridges				
	(i) Bridge NBTN1 42nd Hill IC	No	1		
	(ii) Bridge NBTN2 Balmoral IC	No	1		
	(iii) Bridge NBTN3 Raal Underpass	No	1		
	(iv) Bridge NBTN4 Eeram IC	No	1		
	(v) Bridge NBTN5 Bosch IC	No	1		
	(c) Bridge Reports and Detailed Design: New Structures, Part 2 Phase 2 Bridges				

	(vi) Bridge NBTN6 Agrimeul IC	No	1		
	(vii) Bridge NBTN7 Burlesca IC	No	1		
	(viii) Bridge NBTN8 Clear Waters IC	No	1		
	(ix) Warden North IC	No	1		
	(d) Detailed Design and Design Reports: Widening of Existing Structures, Part 2 Phase 2 Bridges (Bridge reports completed in PD)				
	(i) B1391 Balmoral Spruit	No	1		
	(ii) B1392 Riet Spruit	No	1		
	(iii) B1393 Meul River	No	1		
	(iv) B1394 Leeuwbank Spruit	No	1		
	(v) B1395 Warden Rail	No	1		
	(vi) B1396 Cornelis River	No	1		
	(e) Property Reports & Land Acquisition diagrams for interchange development (including Do-Minimum solution):				
	(i) Interchanges and related access roads	No	8		
	(ii) Raal Underpass and access roads	No	1		
	(iii) Other Access Roads	Lump Sum	1		
	(iv) Identified borrow pits	No	6		
	(f) Stakeholder engagement for final comments on Interchange, Service and Access roads positions	Hour	24		
	(g) Travel and subsistence cost	Lump Sum	1		
33.02	Geotechnical Services:				
	(a) Geotechnical investigations for structural works during design stage	Prov. Sum	1		R2,000,000.00
	(b) Handling Costs i.r.o. sub item 33.02 (a)	%	2,000,000		
33.03	Drilling and Geotechnical Works:				
	(a) Planning, procurement and administration	Lump Sum	1		
	(b) Supervision of the Works				
	(i) Full Time	Month	0.5		
	(ii) Accommodation and cost	Prov. Sum	1		R15,000.00
	(c) Handling Costs i.r.o. sub item 33.03 (b) (ii)	%	15,000.00		
33.04	Occupational Health and Safety Requirements	Lump Sum	1		
	3300 TOTAL CARRIED FORWARD TO SUMMARY				

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3400	TENDER DOCUMENTATION				
34.01	Tender Documentation: (COTO)				
	(a) Preparation of tender documentation (All)	Lump Sum	1		
	(b) Ten Tender Documents (10) (Provided on flash drive) and Three Tender Documents (3) (Hardcopy)	Lump Sum	1		
	3400 TOTAL CARRIED FORWARD TO SUMMARY				

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3500	SITE INSPECTION, TENDER PERIOD & TENDER EVALUATION				
35.01	Site Inspection and Tender Period				
	(a) Service Providers Cost	Lump Sum	1		
	(b) Hiring of Venue and/or coach	Prime Cost	1		R35,000.00
	(c) Handling Costs i.r.o. sub item 35.01(b)	%	35,000.00		
35.02	Tender Evaluation Report:				
	(a) Tender Evaluation (All)	Lump Sum	1		
	(b) Evaluation of Alternative Tenders (Time/Cost)	Hour	40		
	3500 TOTAL CARRIED FORWARD TO SUMMARY				

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3700	ADDITIONAL DUTIES				
37.01	Additional Duties by Service Provider				
	(a) Personnel - Category A	Hour	50		
	(b) Personnel - Category B	Hour	150		
	(c) Personnel - Category C	Hour	100		
	(d) Personnel - Category D	Hour	100		
37.02	Additional Duties by the Employer				
	(a) Personnel – Category B	Hour	-	-1,550.00	Rate only
	(b) Personnel – Category C	Hour	-	- 920.00	Rate only
	(c) Personnel – Category D	Hour	-	- 670.00	Rate only
	3700 TOTAL CARRIED FORWARD TO SUMMARY				

Item No.	Description	Unit	Quantity	Rate	Amount (R)
3800	MATERIALS INVESTIGATION AND TESTING: DESIGN PHASE				
38.01	Pavement investigation (including roadbed investigation) and sampling:	Prov. Sum	1		R500,000.00
38.02	Borrow pit investigation and sampling	Prov. Sum	1		R900,000.00
38.03	Laboratory testing and reporting; Detailed Assessment/Design Phase:	Prov. Sum	1		R900,000.00
	(a) Handling costs i.r.o. pay item 38.01, 38.02 and 38.03	%	700,000.00		
	3800 TOTAL CARRIED FORWARD TO SUMMARY				

SUMMARY OF PRICING SCHEDULE

3200	Detailed assessment	R
3300	Detailed design and report	R
3400	Tender Documentation	R
3500	Site inspection, tender period and tender evaluation	R
3700	Additional duties	R
3800	Materials investigation and testing: design phase	R

SUB TOTAL	R
VAT (15%)	R

TENDER SUM CARRIED FORWARD TO FORM OF OFFER (C1.1.1) R

SIGNED BY TENDERER:

C3.1 BREAKDOWN OF RATES: DETAILED ASSESSMENT

CORE STAFF	Name	No. of Hours	Hourly Rate	Value
Project Leader				
Design Specialist (Geometrics)				
Design Specialist (Traffic)				
Design Specialist (Pavement/Materials)				
SUB-TOTAL				
TECHNICAL/SUPPORT STAFF				
Drainage Design				
Traffic/Geometric Design				
Materials/Pavement Engineering				
Administration				
Transport				
SUB-TOTAL				
TOTAL				
TOTAL COST (EXCLUDING VAT)				

C3.2 BREAKDOWN OF RATES: DETAILED DESIGN

CORE STAFF	Name	No. of Hours	Hourly Rate	Value
Project Leader				
Design Specialist (geometrics)				
Design Specialist (traffic)				
Design Specialist (flexible pavements)				
Design Specialist (rigid pavements)				
Design Specialist (geotechnical)				
CAD Services				
General technical support				
Administrative support and overheads				
Transport				
Accommodation				
TOTAL COST(EXCLUDING VAT)				

PART C3: SCOPE OF WORK

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C3 SCOPE OF WORKS

C3.1 GENERAL REQUIREMENTS

C3.1.1 Scope

This section covers matters that relate to the Contract as a whole. Definitions, phrases or wording that would otherwise require repetition in other sections of this document are also covered in this section. Matters covered by the General and/or Particular Conditions of Contract are not repeated in this section, except to provide more detailed information.

The Service Provider shall take due cognisance of the Employers contractual obligations, and in particular comply with the Engineering Requirements contained in Annexure 1 of the Concession Contract (CC) for the Design, Construction, Financing, Operating and Maintenance of a Portion of National Route 3 from Cedara to Heidelberg as a Toll Highway with Associated Facilities.

The scope of works is divided into two parts namely:

- **Part 1:** The Initial Detailed Assessments, Design and Reports for the Upgrade of National Route 3 Section 7X between km 36.0 to km 63.0 and Section 8X between km 0.0 to km 24.6, between Harrismith (Warden Street interchange) and Warden (Vrede interchange), National Route 3 in the Free State Province.
- **Part 2:** The Final Detailed Assessments, Design and Reports and Tender Documentation for the Upgrade of National Route 3 Section 7X between km 36.0 to km 63.0 and Section 8X between km 0.0 to km 24.6, between Harrismith (Warden Street interchange) and Warden (Vrede interchange), National Route 3 in the Free State Province.

Refer to Section C3.1.3 for description of works.

C3.1.2 Location of the project and pavement history.

The proposed project is located on National Route 3: National Route 3 Section 7X between km 36.0 to km 63.0 and Section 8X between km 0.0 to km 24.6, between Harrismith (Warden Street interchange) and Warden (Vrede (R103) interchange).

A locality plan is included in Part C5: Annexure A of this document. Details of the construction history and existing pavement structure along this portion of the route are also included in Part C4.4.

C3.1.3 Description of the project

This project entails the upgrade of Highway Section 15X (HS15X) which forms part of the N3 "X Sections". The project aims to improve the operational constraints (Level of Service), related mainly to eliminating direct access onto the N3 where feasible and improving safety.

Harrismith to Warden

This section (also known as HS15XA and HS15XB) is currently the most critical part of the X Sections as it has the most direct accesses and is used extensively by the local farming community for their agricultural activities. The cross section will remain as a four-lane undivided carriageway which may in the future be developed into a dual carriageway six lane facility should traffic volumes require such a further upgrade.

The preliminary design for the Harrismith to Warden Section (HS15XA and XB) was developed and is now considered further for Detailed Design and Implementation. SANRAL has instructed N3TC to proceed to Detailed Design on the basis of a "Do-minimum" that is defined as an appropriate solution to eliminate direct accesses onto the highways as well as other safety improvements. The "Do-minimum" solution is required to provide appropriate / fit for purpose design standards. Should any of the "Do-minimum" standards deviate from that contained in Annexure 1 of the CC, a schedule of deviations must be compiled.

The Services required of the Service Provider are divided into the following distinct parts.

Part 1: The Initial Detailed Assessments, Design and Reports for the Upgrade of National Route 3 Section 7X between km 36.0 to km 63.0 and Section 8X between km 0.0 to km 24.6, between Harrismith (Warden Street interchange) and Warden (Vrede interchange), National Route 3 in the Free State Province.

1. Assessment of the Geometric Standards along the existing N3 route:
 - Assess the feasibility of applying the geometric standards that do not comply with the requirements for a design speed of 120 km/h only at sections where permanent infrastructure is required. Refer to PD report Annexure C.
 - Agree Scope of Works at these sections.

2. Eliminate Direct Access and Refine Agricultural Road Network Interchanges
 - Interchanges: Eliminate direct access onto the N3 through the construction of interchanges as proposed in the PD.
 - Design “Do-minimum” solutions
 - Prepare to a PD level of study, in order to compare Left-In-Left-Out plus overpass/underpass (LILO) options (refer to PD report supplied) with Narrow Diamond options at each intersection including land requirements and detailed cost estimates.
 - The structural work for both options of the bridges will require bridge width schedules, concept layouts and general arrangement in sufficient detail to provide detailed cost estimates for comparative purposes. The design concept of the bridge layout in both instances shall consider a future bay for a future dual carriageway.
 - SANRAL and the IE will agree on the preferred solutions at each intersection and this solution will be taken forward to Part 2. Detailed Design.
 - Review the support Access Roads as per PD for the Do-minimum option
 - Establish liaison committee between Free State Province / SANRAL / Stakeholders / N3TC.
 - Engage with the Free State Department: Police, Roads and Transport together with SANRAL to discuss and report on the preferred option of proclaiming the road reserves required along with compensation for land owners in the proclamation of the roads on their property as well as provisions for future maintenance.
 - Address the recommendations noted in the Environmental section of the PD
 - Establish co-ordination and Liaison for land requirements with Province.
 - N3TC will appoint the EAP for all Environmental Authorisation requirements. The Service Provider shall provide the EAP with relevant information as required by the EAP.

Part 2: The Final Detailed Design and Reports and Tender Documentation for the Upgrade of National Route 3 Section 7X between km 36.0 to km 63.0 and Section 8X between km 0.0 to km 24.6, between Harrismith (Warden Street interchange) and Warden (Vrede interchange), National Route 3 in the Free State Province.

1. Assessment of the **Geometric Standards** along the existing N3 route:
 - Design scope of works agreed in Part 1

2. Traffic Review.
 - Review the latest N3TC Annual Traffic Report and traffic forecasts

3. Eliminate Direct Access and Refine Agricultural Road Network Interchanges:
 - Interchanges: Eliminate direct access onto the N3 through the construction of interchanges as proposed in the PD
 - Design “Do-minimum” solutions based on outcome of Part 1 (i.e. LILO with overpasses/underpasses or Narrow Diamond at each intersection)
 - LILO options to allow for widening for median rope barrier or concrete New Jersey Barrier with guardrail openings.
 - Overpass structures to be able to accommodate for future widening of the highway to a dual carriageway option, but constructed for single carriageway
 - The design to include *inter alia*: interchange geometric design, interchange structural design, provision for abnormal vehicles, interchange drainage design
 - The phasing of the bridge design shall be as per the Pricing Schedule and include submission of the Bridge Reports followed by the Detailed Design of the preferred option.
 - Detailed traffic assessments, including dynamic traffic assignment modelling, is required.

- Bridge design to consider potential future dual carriageway layout, however, design only for single carriageway (4-lane)
 - The interchange access roads to be designed as per the outcome of Part 1.
 - Design the Service and Access Roads as per PD for the Do-minimum option
 - Ensure elimination of direct access to the N3 is achieved. Some local access will not have right turn options and will need to use the LILO single side access and use the N3 to access the closest interchange / overpass to turn around.
 - Coordinate and consult with Liaison committee established in Part 1 between Province / SANRAL / Stakeholders / N3TC. Agreement required on acquisition, declaration and future maintenance
 - Include service access road geometric design
 - Include drainage design
 - Road reserves to comply with Provincial Standard for Secondary Roads.
 - Detailed costing of Service and Access Roads (Access implementation is subject to Service and Access road implementation.)
 - Alternative pavement options to be considered for the Service and Access roads.
 - Address Land requirements for the implementation of the Interchanges and Service and Access Roads
 - Prepare Property Reports for the acquisition of land for the interchange development, including the Do-Minimum design
 - For the Service and Access roads: engage with the Free State Department: Police, Roads and Transport along with SANRAL to discuss and report on the preferred option of proclaiming the road reserves required along with compensation for land owners in the proclamation of the roads on their property
 - Address the recommendations noted in the Environmental section of the PD
 - Coordinate and consult to reach agreement for land requirements with Province
 - N3TC will appoint the EAP for all Environmental Authorisation requirements The Consultant shall provide the EAP with relevant information as required by the EAP
 - The following list of environmental activities and approvals will be dealt with by the N3TC Independent Environmental Consultant:
 - Environmental Authorisation for the project
 - Water Use Licence (Under the General Authorisation procedure.)
 - Freshwater specialist studies
 - Wetland specialist studies
 - Legal status of private dams in the vicinity of the proposed Interchanges and Service and Access Roads
 - Heritage study
 - Ecological survey to identify sensitive fauna and flora
 - Environmental authorisation for use (mining of borrow areas) of borrow pits
 - Geotechnical and Material utilisation
 - Including interchanges, service and access roads, bridge widening and widening of surface shoulders
 - Review borrow areas identified in PD. Determine the material usage and requirements and source additional / alternate borrow pits if required.
 - Material utilisation is key to the development of the Service and Access roads and borrow areas identified will need to be acquired, and
 - EAP to include borrow pit authorisation. Service Provider to supply borrow pit diagrams etc. (Apply for approval from the Department of Mineral Affairs (mining of borrow areas) as well as Environmental Authorisations to be able to use the proposed borrow areas.)
 - Detailed costing
 - Assessment of all slopes and embankments
 - Services and Utilities
 - Review PD
 - Advise employer of discrepancies
 - Include utilities diagram in detail design
- 4. Slow shoulders:
 - Upgrade design for the surfaced shoulders is required.
 - Upgrade road width to 19,6m including surfaced shoulder width over the length of the project
 - Pavement design to be agreed taking cognizance of moisture movement barriers
 - Detailed costing
- 5. New Bridges and Bridge widening:
 - Design of widening of the six bridges on the N3 requiring widening indicated in the PD,

- Prepare Bridge Reports for the 9 new bridges. Bridge reports to be approved by SANRAL with the assistance of N3TC.
 - Detailed design for 9 new bridges and widening of 6 existing bridges from 15.1 m to 20.8 m. (Review PD bridge reports for the bridges to be widened. (Hydrology included)
 - Provide a General Arrangement of the bridge sufficient for the purposes of obtaining Environmental Authorisation and a WULA where required.. The provision of the General Arrangement must be prioritised and submitted to the Employer.
 - Detailed costing
6. Pavement Rehabilitation of existing N3:
- Detailed assessment, design and design report and tender documentation
 - Pavement test pits
 - Non-intrusive investigations
 - Consideration of hand-back requirements. Consider analysis methodology
 - Latest traffic forecast

During the detailed design phase, the Service Provider will review the pavement strategy for Highway Section 15X (the project limits) over the remaining life of the concession, until 2029, details of which are contained in Part C5: Annexures. The Service Provider shall either prove that the proposed design is compatible with the current N3TC approach, or propose a completely new strategy that satisfies the Employers Engineering Requirements including residual life at hand-back in 2029.

7. Tender Documentation (including Drawings)

It is anticipated that the entire project will be implemented in a phased approach with at least three phase. The first two phases will be for the upgrade works only and the third phase will include the remaining upgrade works and the rehabilitation works.

The tender document will be based on the N3TC conditions of tender and conditions of contract to be provided to the Service Provider. The Service Provider shall prepare the Pricing Schedule and Specifications which will be based on COTO 2020 as well as the Site Information, supporting Volumes and Drawings.

The schedule of Volumes in the Tender Documents is provided in C3.4.3

C3.1.4 Project Cost Estimate

For the purposes of this tender, the current budget for the Works is based on a combination of the upgrade works and the rehabilitation of the existing carriageway.

The budget for the Works based on current estimates is:

Road upgrade works:	R480 million
Road rehabilitation works:	R240 million

The final cost of the Works will, however, depend on the final requirements selected by the Employer, left-in left out vs interchanges, based on the most appropriate and cost-effective options identified by the Service Provider during the detailed assessment and design phase. Tenderers shall note that no adjustments to any tendered rates will be applicable irrespective of the actual final cost of the Works.

C3.1.5 Standards, Manuals and Guideline Documents

The standards, manuals and guideline documents to be used in the project are as follows (as applicable):

- TMH 9: (Standard Visual Assessment Manual for Flexible Pavements)
- Draft TMH 11: Standard Survey Methods
- Draft TRH 12: (Flexible Pavement Rehabilitation and Design)
- Draft TRH 19:1989 (Standard Nomenclature and Methods for Describing the Condition of Jointed Concrete Pavements)
- The Employer's M1 Manual: (Code of Procedure Manual for Geotechnical and Materials Investigation, Design and Documentation)
- Code of Procedure for the Planning and Design of Highway Structures in South Africa
- SANRAL's Geometric Design Manual
- SANRAL's Drainage Manual
- SANRAL's Land Acquisition Guideline Manual for Consulting Engineers

- SANRAL's Statutory Control Guideline Manual
- The Highway Capacity Manual (latest edition)
- SANRAL's Highway Traffic Model (HTM)
- South African Pavement Engineering Manual (SAPEM)
- Highway Development and Management Model (HDM)
- South African Pavement Design Manual (SAPDM) (when available)
- South African Road Safety Audit Manual (SARSAM)
- The SAICE Code of Practice: The Safety of Persons Working in Small Diameter Shafts or Test Pits for Civil Engineering Purposes
- Current industry best practice
- Conditions of Contract for Construction: FIDIC; 1999
- COTO Standard Specifications for Road and Bridge Works for South African Road Authorities; 2020
- The Employer's relevant pro-forma documentation for services, sub-services, evaluations, etc.
- Guidelines to formalise SANRAL's jurisdiction on National Roads (N14/5/6 revised manual)

The Employer is in Contract with SANRAL and therefore all documentation shall conform to SANRAL standards.

The style, format and presentation of the documents prepared by the Service Provider shall be in accordance with the requirements of the SANRAL.

The latest versions and editions of these standards shall always be used. These standards are generally available on the SANRAL's website (www.sanral.co.za) or other industry role players' websites, e.g. CSIR website (www.csir.org.za). Others can be purchased from SANRAL and organisations such as CESA, SAICE, etc.

Guidelines for drawings are contained in Annexure 21: CAD Symbols, Signs and Weights of Technical Methods for Highways TMH 11: Standard Survey Methods. This reference contains all the relevant information relating to grid intervals, topographical detailing, symbols, colours, weight and letter sizes etc.

The above is not an exhaustive list but shall be viewed as being the minimum standards applicable to the project. The Service Provider must apply his own knowledge and experience and recommend to the Employer other appropriate standards for his consideration.

C3.1.6 Existing contracts / Community Structures

- a) Existing contracts; The Employer currently has a routine road maintenance (RRM) contract in progress along the route. The Service Provider shall timeously inform the route manager of any assessment/investigation work to be carried out within the road prism. The contact details of the parties involved in the RRM contract are as follows:

Route Manager: Mr Anesh Madanlal (0586230860) based at N3TC regional office in Harrismith.

- b) Community Structures; The project is located within the Maluti-a-Phofung Local Municipality (Free State) and the Phumelela Local Municipality (Free State) with the town of Harrismith being the main centre on the southern end and the town of Warden being the main centre on the northern end. The Employer has established Public Liaison Committees (PLC's) with communities adjacent to the N3 corridor and liaison / consultation with them is an integral part of the Employers policies. Should contact be required with the relevant PLC's it shall be via the Employer's representative.

C3.1.7 Permits and authorisations

Any Environmental Management Plans/Programmes (EMPr's) over and above the Employer's standard EMPr, which may be required will be treated as a specialised additional service. Similarly, the compilation of any plans/reports necessary to comply with the relevant Minerals and Energy Act pertaining to quarries and borrow pits will be treated as an additional specialised service. Procurement of sub-service providers in such instances shall be in accordance with the requirements of clause C3.1.13. As approvals of any EMPr's etc. are essential prior to the commencement of the Works, the Service Provider shall be responsible to ensure that all submissions to the relevant approving authorities is completed by the milestone date tabled in clause C3.1.8.

C3.1.8 Project Programme

The Service Provider shall programme its duties in such a manner so as to complete the various phases of the total project within the milestone dates specified below.

The Employer's programme for this project is as follows:

	Project Phase	Phase Completion Date
A	Submission of Tenders / Proposals	20 June 2022
B	Anticipated appointment of Service Provider	July 2022
C1	Part1: Submission of Initial Detailed Assessment and Design Report including Structures	25 October 2022
C2	Submission of relevant design detail (alternatives) to the third party environmental consultant	25 November 2022
C2.1	Part 2: Submission of Bridge Reports Phase 1 Bridges	28 February 2023
C2.2	Phase 2 Bridges	14 April 2023
C2.3	Part 2: Submission of Bridge Detailed Design and Drawings Phase 1 Bridges	30 June 2023
C2.4	Phase 2 Bridges	30 July 2023
C3	Part2: Submission of Detailed Design Report	31 August 2023
	Attach program to scope of work	
E	Submission of design information and land acquisition diagrams to SANRAL's central survey organisation for land acquisition purposes	10 January 2023
F	Submission of EMPr's to approving authority. To be drafted in consultation with third party Consultant	25 November 2022
G	Submission of Draft Tender Documents for the Works	31 October 2023
H	Submission of Final Tender Documents for the Works	8 December 2023
I	Tender Advertisement	No later than May 2024
J	Site Inspection	No later than June 2024
K	Tender Closure	No later than June 2024
L	Submission of Tender Evaluation Report	No later than June 2024

C3.1.9 Penalties and delays

Penalties shall be applied for each calendar day by which the Service Provider fails to meet the prescribed dates for submission of the required Detailed Design Report, Tender Documentation for the Works or Tender Evaluation Report. The quantum of the penalty shall be as listed in the Contract Data. Draft reports and documents shall be submitted to the Employer at least seven working days prior to any meetings scheduled for the discussion and finalisation thereof. The Service Provider shall thus take this period into account in compiling its programme.

Any delays to the above programme that are attributable to the Employer, or to other approved mitigating circumstances, will not be subject to penalties. In the event of such instances arising, any extensions of time granted shall be limited to the equivalent number of calendar days attributable to each instance.

C3.1.10 Key Personnel

The key personnel required for this project are listed in Form C1.2.2 Contract Data: Information provided by the Employer. The tenderer must list proposed candidates for the prescribed positions in the core team in Form C1.2.3 Contract Data: Information provided by the Tenderer and each candidate must complete the relevant B1 and B2 forms included in the Returnable Schedules. An individual, except for

the site staff may be proposed to carry out a number of functions, in which instance, however, a separate form is to be completed for each separate function proposed. The threshold of the Technical Proposal indicates the importance of the quality and standard of engineering and administration expected of the Service Provider.

It is a requirement of this Contract that:

- The Project Leader is a permanent employee of the Service Provider.
- The tenderer appoints at least one (1) Sub-Consultant.
- For tenderers to be eligible tenderers shall ensure that:
- The Service Provider is PDE compliant or
- The PDE Shareholding in a Joint Venture/Consortium is at least 30%. No less than 30 % of the work shall be carried out by the PDE Shareholder who shall participate in all facets of the work.
- Tenderers shall demonstrate in their tenders that these requirements are valid at the closing time for submission of tenders.
- The above percentages apply to all facets of the work.

The scoring in the Technical Evaluation will be done on the basis that any of the Key Personnel not in the permanent employ of the Service Provider shall score only one half of the score allocated to that key person. Any changes to the key personnel, as proposed in this tender, after award will thus only be permitted in exceptional circumstances. In such circumstances the competence and experience of any replacement personnel shall also meet the threshold of the Technical Proposal. Re-evaluation by the Employer of any replacement personnel shall be paid for by the Service Provider as specified in Clause 3.7.3.

C3.1.11 Progress/ Report meetings

The Service Provider shall meet with the Employer as and when instructed by the Employer to discuss and minute the progress of the Services. The Service Provider shall also submit draft copies of all design and tender documents for review and discussion prior to their finalisation.

The Service Provider shall also submit any reports regarding training, empowerment, capacity building, small contractor development, labour and staff returns and any such aspects as may be required by the Employer.

C3.1.12 Safety

This part of the specification has the objective to assist the Service Provider entering into contracts with the Employer that they comply with the Occupational Health and Safety (OHS) Act, No 85 of 1993, as well as all applicable Regulations. Compliance with this document does not absolve the Service Provider from complying with minimum legal requirements and the Service Provider remains responsible for the health and safety of his employees and those of his Mandataries. The Service Provider shall therefore include this part of the specification to any contract that he may have with sub-service providers and/or suppliers.

This part also 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 the Service Provider 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 Regulation 5(1)(l) of the Construction Regulations, 2014, regarding negotiations between the parties, related to the contents and approval of the Health and Safety Plan, must be complied with.

The Service Provider on award of this contract will become the Client's Agent in terms of Construction Regulation 6 of the Occupational Health and Safety Act, (Act 85 of 1993).

For purposes of clarity typical duties required of the Service Provider are given in (b) and (c) below, but they shall not be interpreted as being exhaustive and if any conflict between them and the legislated Construction Regulations occurs the latter shall rule.

- a) Project Specific Requirements
 - i) Baseline Risk Assessment for Design Phase

Review the Employer's OHS Specification and Baseline Risk Assessment. The Service Provider shall review and amend the Designer's risk control measures as per Construction Regulation 6.

ii) OHS Specification for Construction Phase

This will be prepared by the Employer's Agent on completion of the Detailed Design taking cognizance of the designer's risk assessment and mitigation plans and provided to the Service Provider for inclusion in the Contract Document.

b) Design Phase

The Service Provider or his registered Professional Client Health & Safety Agent must identify elements of the design that are inherently dangerous or hazardous during the construction phase and design in such a manner as to mitigate or eliminate the risk where possible. To this avail the Service Provider (or his Agent as outlined above) must prepare a baseline risk assessment and mitigation plans for the intended construction work project, and make the same available to the Employer. This duty of identification continues into the construction phase of the project regardless that the designer may not be monitoring the construction phase. All identified dangers/hazards are to be listed and brought to the attention of potential contractors by means of the baseline risk assessment as outlined above and envisaged in Construction Regulations 5(1)(a); (b) and (c).

For example, staging for bridge decks or shoring of unstable excavations is the designer's responsibility to identify and notify of the health and safety risk. It is also the designer's responsibility to undertake inspections at critical phases of construction to ensure that the identified risks are continuously and appropriately mitigated.

c) — Construction Phase

~~During the construction phase the supervising Service Provider must ensure that the Employer's duties are continuously fulfilled, meaning that the Service Provider has to include amongst its permanent monitoring staff at least one appropriately trained member. In addition, the Service Provider must conduct monthly internal audits to ensure the site personnel are adhering to the statutory requirements. Costs for performing this duty are recoverable via the rate offered for this scheduled item of work. An Occupational Health and Safety Audit Questionnaire is included in Annexure E in Part C4 for this purpose.~~

~~The Employer will appoint the Agent to monitor monthly the Contractor's OHS Plan.~~

~~Furthermore, the Service Provider must, in compliance with Section 24 of the Occupational Health and Safety Act (Act 85 of 1993) report immediately to the Employer's Health and Safety Officer and the relevant project manager the details of a Section 24 incident, including confirmation that the construction contractor has similarly reported the same incident directly to the Department of Labour.~~

d) General Occupational Health and Safety Provisions

Site specific health and safety specifications for the intended construction work based on the Baseline Risk Assessment is included in Annexure E in Part C4.

The above duties shall not be interpreted as being exhaustive and if any conflict between them and the Legislated Construction Regulations arises, the latter shall rule.

C3.1.13 Procedure for procurement of sub-service providers

Provisional sums have been provided in the pricing schedule if work is required to be undertaken by external sub-service providers. Procurement of such services, or any other services that may be required (e.g. compilation of an EMPr, survey service, materials investigation and site laboratory services etc.) shall be undertaken by means of a quotation/tender process. The Service Provider shall compile and issue relevant and approved terms of reference, together with the relevant work/pricing schedules, in accordance with the Employer's standard procurement policies to all potential sub-service providers who shall submit their quotations/tenders, in a sealed envelope, directly to the Employer's regional office by the date and time agreed. If deemed necessary, quotations/tenders will be opened in public. The Service Provider shall analyse all quotations/tenders received and submit recommendations to the Employer for approval prior to the appointment of any sub-service provider. Once approved, the Service Provider shall enter into an agreement with the sub-service provider with a copy of same

submitted to the Employer. The handling fee tendered for any such Provisional Sums shall include all costs associated with compiling the procurement documentation and selecting the sub-service provider. The Service Provider is responsible for the performance of the sub-service.

C3.1.14 Management of Drawings

When the Service Provider produces drawings he shall, where applicable, use the Employer's typical details and when doing so they shall become integrated into the Service Provider's detail design for which he will assume full professional responsibility.

As the Employer is in Contract with SANRAL, the requirements shown on the SANRAL's pro-forma drawing, available on the SANRAL's web site, shall be used. Drawings shall incorporate what has been discussed and agreed at the various progress meetings. All drawings issued to the contractor shall be fully signed and any amendments thereof shall also carry full original signatures.

C3.2 DETAILED ASSESSMENT

C3.2.1 Scope

This section covers the part of the design process which requires detailed assessment and/or intrusive investigations.

C3.2.2 Assessment in Phases

~~Assessment of the project shall be conducted in the sequence described hereunder.~~

~~In the first part of project assessment the Service Provider shall undertake an initial assessment, i.e. a desktop assessment of the information provided, which may also include additional data, reports, studies etc. issued with the letter of acceptance of an offer. This part culminates with attendance at the project hand-over meeting at which the Service Provider will put forward for discussion and approval of the planned assessments in the context of an overall design development strategy.~~

~~The second part of project assessment is the visual assessment and thorough analysis of information provided, where after the Service Provider shall arrange for the first progress meeting with the Employer for the purpose of confirming the design strategy and acquiring approval for the type, quantity and positioning of intrusive and other investigations which form the third part of project assessment.~~

~~First and second parts of the assessment requirements are summarised below and expanded in the following paragraphs:~~

- ~~● Review and analyse information provided~~
- ~~● Conduct visual assessment of the road~~
- ~~● Identify statutory and regulatory requirements~~
- ~~● Identify other stakeholders with whom consultations may be needed~~
- ~~● Consider feasibility of various construction strategies~~
- ~~● Evaluate risk that the project presents to the Employer~~
- ~~● Other criteria~~

C3.2.3 Preliminary Design

A Preliminary Design Report has been completed by Aecom and this report is available to tenderers for review.

~~Existing information with respect to the relevant project is given in Part C4: Site information and/or Part C5: Annexures. The information provided there is deemed sufficient both for purposes of tendering and for initial assessment (i.e. desktop assessment). This information shall be studied and used to determine the extent of intrusive investigations that need to be undertaken to prove pavement or existing ground or structural conditions. In the case of reports, studies or designs previously undertaken and not able to be condensed into Part C4: Site Information, these must be collected from the Employer by the Service Provider and returned together with the submission of the Detailed Design report. Failure to return information for which the Service Provider will have signed out from the Employer's registry will constitute reason for the Employer to withhold payment until such information has been returned in an acceptable condition for continued archiving.~~

~~The Service Provider should not take the existing data at face value only but shall interrogate its integrity and accuracy as well as determine the need to access any additional data such as as-built drawings, plans, traffic counts etc. and enquire from the Employer whether such additional information does exist and assist in sourcing same if possible.~~

~~Existing data is, by itself, insufficient to conduct a detailed assessment and must be amplified by visual inspections and subsequent surveys and investigations.~~

a) Traffic assessment

The Service Provider shall review the traffic data provided to determine any potential need for pavement improvement and identify any need for additional traffic counts or studies.

b) Geometric assessment

The Service Provider shall review the PD and also assess the feasibility of applying geometric standards that do not comply with the requirements for as design speed of 120 km/h only at sections where permanent infrastructure is required.

c) Pavement assessment

Identify uniform sections within the project site.

d) Structures assessment

The new bridge structures to be designed and bridges to be widened are identified in Table 4.11. The initial assessment shall include the Preliminary Assessment and Design as well as the Bridge Reports (Refer to clause 13.3.1 of the Code of Procedure for the Planning and Design of Highway and Road Structures in South Africa.) to enable the Employer to submit to SANRAL for approval. This shall also include General Arrangement drawings to enable the employer to submit a Water Use Licence Application (WULA).

e) Drainage assessment

Assess all drainage systems and compare to drainage manual guidelines.

f) Geotechnical assessment

Identify potential geotechnical risks from the provided Slope Management System data or any other information provided.

g) Assessment of material sources

Assess information provided from previous contracts (if available).

h) Land Assessment

At this stage, the identification of informal settlements that may impact on the project must be carried out. Where the project traverses land under the control of a Tribal (Traditional) Authority then the identification of clusters of homes and/or other structures that may require relocation should be made. The above, if evident, must immediately be reported to the Employer.

i) Safety Assessment

Assess Incident Management System (IMS) data for potentially hazardous locations.

j) Environmental Assessment

The Employer anticipates that the appropriate environmental authorisation process is a Basic Assessment. Refer to C3.2.8 for additional information and duties.

C3.2.4 Existing data

Existing information with respect to the relevant project is in given in PART C4: SITE INFORMATION.

C3.2.5 Visual condition survey

The Service Provider shall carry out a detailed visual assessment survey of the pavement's existing condition utilising experienced personnel in order to ascertain the current overall pavement condition and identify the type, extent, as well as probable cause, of any evident distress. This survey shall also include the identification of any other associated aspects located within the road prism affecting the functionality/structural integrity of the pavement and/or road safety issues including:

- Surface drainage
- Sub-surface drainage (including pipe culverts)
- Present or potential geotechnical instability
- Excessive shoulder drop-off
- Line marking details
- Intersection details
- Pedestrian issues
- Any evident or suspected road safety issues
- Condition of bridge joints and balustrades/handrails
- Any other issues that may be glaringly evident

The visit should include an inspection of all borrow pits and quarries identified during the initial assessment.

The existing bridge structures shall not be inspected as this has already been undertaken. The inspection sheets shall be forwarded to the successful tenderer on request. All culverts and other structures shall however be inspected.

C3.2.6 Preliminary Design Report

It is not a requirement of this contract to prepare a preliminary design report. The service provider shall prepare detailed assessment reports as described in C3.1.3.

Provision has been made in the in the pricing schedule for the preliminary design of the project with the main purpose to determine the appropriate cross section for the dualling portion of the Works in addition to conduct an investigation to manage pedestrian and public transport activities in this area. The preliminary design must take cognizance of the Detailed Assessment and Design Report that follow later on in the Report.

The rate tendered shall include full compensation for costs (excluding survey or materials investigation costs) associated with the provision of all preliminary design plans, reports, drawings, quantities and any other information necessary to enable the Employer to commence with the environmental phase.

The Service Provider shall liaise with other Road / Rail Authorities as required and hold regular progress meetings with the Employer as appropriate.

The process of submission of the Preliminary Design Report shall be as follows:

- Compilation and submission of two copies of a DRAFT Report.
- Discussion of DRAFT report with Employer.
- Amendments and submission of one hard copy of and one electronic copy of the Preliminary Design Report.

The content and submission of the Preliminary Design Report and relevant drawings must cover;

- Description of the works
- Traffic analyses
- Preliminary materials report and pavement design information
- Details regarding drainage design
- Conceptual design(s) for bridges
- Details containing utility services to be cleared and/or relocated
- Details regarding land and road reserve requirements
- Details pertaining to the negotiations with landowners, where applicable
- Traffic accommodation during construction
- New toll plaza location, layout and conceptual operational systems
- Environmental impact details
- Recommendations on specific measures with reference to standards in Table 2.1, 2.2 and 2.3 of Annexure 1 of the Concession Contract.

- ~~Layout drawings, where applicable, indicating horizontal alignment details, intersections, accesses and lane configurations~~
- ~~Longitudinal sections indicating proposed vertical alignments, if applicable~~
- ~~Typical road cross section information~~
- ~~Arrangements and agreements on technical and socio-economic matters with Relevant Authorities and other role players.~~

~~The Service Provider shall submit the DRAFT reports to the Employer a minimum of 7 (seven) working days prior to the agreed date for the discussion there off.~~

C3.2.7 Intrusive investigations, sampling and testing of pavement layers and borrow pits

The Service Provider shall identify any intrusive investigations such as test pits, DCP's, coring, sampling etc., as well as associated laboratory testing, that may be required in order to assess, quantify or confirm in-situ pavement materials properties or causes of distress as well as any potential borrow pits or quarries. All intrusive investigations shall be supervised and logged by the pavement/materials engineer who has been proposed in the Service Providers' accepted Technical Proposal. The Service Provider shall ensure that all of the above services and associated analyses are completed within the time frames necessary to ensure compliance with the Employer's programme as specified in clause C3.1.7.

Requirements for the physical execution of intrusive investigations, field testing and sampling by an external sub-service provider are detailed in section 3.8 and included in the Pricing Schedule as estimated individual pay items, or shall be undertaken under a Provisional Sum. Where any investigations etc. are to be undertaken under a Provisional sum, the Service Provider shall compile a schedule which shall be divided into relevant rates for labour, plant hire, materials, field-testing, traffic accommodation, transport and subsistence etc. and shall be subject to the approval of the Employer. The percentage handling fee tendered in the Pricing Schedule for work carried out under a Provisional Sum shall include for all costs associated in:

- compiling a schedule of all envisaged investigation work
- production of a document for procurement purposes (including printing etc.)
- evaluation of quotations/tenders received and recommendations to the Employer.
- handling fees
- profit

Procurement of such services shall be in accordance with clause C3.1.13.

C3.2.8 Survey Services

The survey for this project was completed in 2018. The service provider shall review the survey provided and advise the Employer of any additional survey required.

~~(a) Procurement of services~~

~~The Service Provider shall identify all survey requirements during the detailed assessment and preliminary design phase, including the survey of potential borrow pits and/or quarries.~~

~~The Service Provider shall procure the survey services. Tenders shall be invited only from Surveyors who are suitably registered in terms of the Professional and Technical Surveyors Act, Act 40 of 1984, and who are preferably full members (not affiliated members) of the South African Geomatics Institute (SAGI). In procuring the service themselves the Service Provider will follow the procedures guide as below.~~

~~All surveys are to be carried out to TMH11 standards as amended by the Employer in his pro-forma tender document for survey. The percentage handling fee tendered in the Pricing Schedule shall include for all costs associated in:~~

- ~~Compiling a schedule of all envisaged survey work~~
- ~~Compilation of a document for procurement purposes (including printing etc.)~~
- ~~Evaluation of tenders received and recommendations to the Employer~~
- ~~Handling fees~~
- ~~Profit~~

~~The Service Provider shall ensure that the invited Tenderers comply with the above minimum requirements and the tender will be based on financial offer only.~~

Tender process:

- ~~Compile the survey tender documents and detailed project specifications with SANRAL's latest pro-forma documents as reference. It is important to advise the potential tenderers and ultimately the successful tender on the survey datums, verifications of existing survey control and tying the survey into existing control and previous surveys.~~
- ~~The tender must be made available on CD's for collection at the Consultant's offices. These CD's can be collected by potential tenderers themselves or by their courier service.~~
- ~~Arrange for a compulsory tenderers briefing meeting if necessary. The Consultant will chair such a meeting.~~
- ~~Attend to all enquiries during the tender period and issue and administer addenda, if necessary.~~
- ~~Attend to the tender opening at N3TC.~~
- ~~Undertake the financial evaluation and compile a tender evaluation report for N3TC's approval.~~
- ~~Submit the tender evaluation report to N3TC and appoint the successful tenderer agreed to by the Employer.~~
- ~~Brief the successful tenderer about the detailed requirements of the survey and reporting intervals.~~

(b) ~~Project Management Process~~

- ~~Call for and evaluate regular progress reports.~~
- ~~Attend to enquiries from the survey company. Liaise with SANRAL and the survey company where necessary.~~
- ~~It is a tender requirement for the Surveyor to submit the survey verification report for existing beacons prior to using these values. The verification entails the following:~~
 - ~~_____ Evaluate the verification survey methodology~~
 - ~~_____ Evaluate the verification residuals~~
 - ~~_____ Advise the Surveyor to re-survey the existing control beacons or to adopt their values for the rest of the survey~~
- ~~Receive the newly established permanent survey control survey data and co-ordinates for approval prior to the acceptance of the values for any further surveys.~~

~~The approval of the co-ordinates will entail the following:~~

- ~~_____ Evaluate survey methodology for height and position determination~~
- ~~_____ Evaluate the reduction for height and position~~
- ~~_____ Evaluate the survey datums and the connection to other control~~

(c) ~~Completion of the Survey~~

- ~~Receive the completed survey data from the survey company.~~
- ~~Check that all deliverables have been submitted by the Survey Contractor in terms of the tender requirements.~~
- ~~Submit the complete data set to the PSP for quality control.~~
- ~~Receive quality control reports from the PSP and forward it to the Survey Contractor for corrections. The date by when the corrections have to be completed must be advised by the Consultant.~~
- ~~Re-submit the corrected data to PSP for verification. The entire survey has to be re-submitted each time corrections have been undertaken in order for all previous data to be destroyed.~~
- ~~Arrange payment for the survey Contractor taking possible penalties for late delivery into consideration.~~

C3.2.9 Environmental services

The Employer anticipates that the appropriate environmental authorisation process for the Project is a Basic Assessment. In addition to this, the widening of the 5 river bridges will require a WULA. The Employer will be responsible for appointing an Environmental Service Provider to undertake the Basic Assessment and WULA processes. The Service Provider to provide a General Arrangement of the bridge(s) sufficient for the purposes of obtaining a WULA. The provision of the General Arrangement must be prioritised and submitted to the Employer as soon as is practical.

Procurement of such services shall be in accordance with clause C3.1.13.

C3.2.10 Geotechnical and drilling contracts (Refer to Pricing Schedule Section 3300)

The Service Provider shall use the Employer's standard documentation for the procurement of geotechnical and drilling services. Once appointed, the drilling contract will be performed as a direct contract between the drilling contractor and the Employer and the role of the Service Provider is that of the Employer's Agent. The cost of geotechnical and drilling contracts shall not be added to the total cost of the Contract but shall be treated separately. The actual cost of this work shall be paid for separately by the Employer. The lump sum tendered for contract administration of any such drilling/geotechnical work shall include for all costs associated with the planning, documentation, printing and letting thereof in accordance with the Employer's pro forma document and policies and shall also include for head office administration. The documentation shall be based on the CSRA Standard Specifications for Subsurface Investigations (1993) as amended by the Employer in the pro forma tender document.

Supervision of such work shall only be undertaken by suitably qualified and experienced personnel. Logging of cores may only be undertaken by a registered engineering geologist. Dependant on the scope and/or scale of such investigations, supervision may be required on a full time or part time basis as approved by the Employer. The rate tendered in the Pricing Schedule for full time supervision shall include for all personnel costs (including subsistence) associated with such service but shall exclude transport and accommodation costs. Transport costs shall be claimed at the kilometre rate for transport under payment item 36.05. A Provisional Sum has been allowed in the Pricing Schedule for any accommodation that may be required during the full time or part time supervision services but shall be subject to the Employer's prior approval.

C3.2.11 Land Acquisition (Refer to Pricing Schedule Section 3300)

Where temporary or permanent acquisition of any land has been identified for purposes such as road widening, interchange/intersection improvements, gravel/hard rock material sources etc., the Service Provider (Consulting Firm) shall compile and submit to the Employer a Property Report in accordance with the Employers standard requirement.

Property Reports shall be compiled for each individual portion of land required and shall include the following:

Property description

- *Insert property description e.g. Portion 1 (a portion of Portion 35 of the Farm Kleinfontein 453 HS*
- *Insert province in which property is situated*
- *Insert size of full property in hectares*
- *Insert Title Deed Number of property*

Owner details

- *Insert Owner name*
In the event of
A natural person/s include identity number/s
A company include the company number
A Closed Corporation include the CC number
A Trust, the Trust number
- *Insert contact details of owner. This should include physical address, postal address and telephone/cell phone numbers*
- *Insert name of representative. Please indicate any representative that should be contacted (mostly in the cases of companies, trusts and CC's) and/or the legal representative (Attorney) of the landowner*

Type of land

- *Insert the type of land Please also refer to the guideline document for types of land – in this instance it is important to note if the property is Tribal Land. Un-alienated State Land. Agriculture, Residential, Commercial, Mining etc. as this might influence the compensation to be paid*
- *Insert the zoning of the land if available*

Required area and use

- *Insert required area/size of property required*
- *Insert the use for which portion of property is required. Example – road reserve, access, access road, borrow pit, quarry etc. In the event that more than one use is envisaged please indicate the required area/size for each use*

Improvement affected by acquisition

- *Insert any and all improvement within the required area. Please note that under this section improvement should not only be seen as structures but must also include such improvements as boreholes, electrical installations including sub terrain installations any other movable improvements currently within the acquired area e.g. animal drinking troughs, borehole pumps etc. Also indicate the type of crops on the affected area if agricultural land. This list should be as all-inclusive as possible and indicate all aspects that might influence the acquisition. Please also indicate whether special fencing e.g. game fencing is currently erected on the property*

Occupants

- *Insert names and identity numbers of all occupants on the required area as well as the date from which they occupied the area. Please be very meticulous as certain occupants may have rights in terms of various legislation of which the Extension of Security of Tenure Act is but one*

Rights on Property

- *Insert any and all rights registered against the property. This portion to be provided by Land Portfolio Service Provider. In this instance all rights registered against the Title Deed should be listed. This must also include any servitudes, Deeds of Restraints, Lease Agreements, Usufructuaries, Bonds etc.*
- *Insert all rights suspected but not registered against the Title Deed. In this instance the landowner must be interrogated to make sure that all other rights that may be applicable to the property are listed. Please be very meticulous in this regard and be especially vigilant as regards to mining rights or surface rights. Permits of whatsoever nature must also be indicated here*

Access to property

- *Insert a statement as to how access will be gained to the property. In the event that access is negatively affected by the acquisition please indicate how access will be re-instated. Please indicate whether the access road has been discussed with the landowner and if the landowner is agreeable to such solution. Also indicate whether the relevant Roads Authority has been contacted and approval been obtained if roads are re-aligned to ensure access*

Landowner's request

- *Insert the market value of the land that the landowner is requesting to be paid*
- *Insert any financial losses that the landowner is requesting as well as what such financial losses comprise of. In this instance it is important to also note if the design of the road can be adjusted to minimise any of the financial losses that the landowner will experience*
- *Insert any further request that the landowner may have*

Severed land

- *Insert a statement if land is severed or not*
- *If severed, insert the approximate extent of land that is severed*

C3.2.12 Measurement and payment

Item	Unit
32.01 Detailed Assessment	
(a) Initial Detailed Assessment, Design and Report: Part 1 excluding access elimination bridges/Interchanges scheduled separately in (b) below	Lump Sum

(b) Initial Detailed Assessment Concept Design and Cost estimates: Part 1. Grade separated facilities at interchanges (As per C3.1.3 Part 1 (2))	Lump Sum
(i) 42nd Hill R722 IC. Full IC not included in Part 1	No
(ii) Balmoral IC & Bridge NBTN2	
(iii) Raal Underpass & Bridge NBTN3	No
(iv) Eeram IC & Bridge NBTN4	No
(v) Bosch IC & Bridge NBTN5	No
(vi) Agrimeul IC & Bridge NBTN6	No
(vii) Burlesca IC & Bridge NBTN7	No
(viii) Clear Waters & Bridge NBTN8	No
(ix) Warden North IC & Bridge	No
(c) Establishment of and managing Liaison Committee for development of access road network	Hour

The unit of measurement under these pay items shall be as indicated. The sum tendered under these pay items shall include full compensation for personnel, transport, accommodation, materials, printing and all other costs for the analysis, compilation and submission of the reports as specified. In addition, the Service Provider shall provide a breakdown of the rate makeup of this payment item under the relevant Form C3 of the Pricing Schedule.

C3.3 DETAILED DESIGN AND REPORT

C3.3.1 Scope

This section covers the requirements for the compilation and submission of a Detailed Assessment and Design Report to enable the Employer to select the most appropriate maintenance/repair/upgrade strategy as well as the relevant detailed design of the option/s selected by the Employer.

C3.3.2 Standards and presentation

- a) Any normal duty or additional service undertaken for, or on behalf of, the Employer shall be in accordance with the current specifications of the Employer for such work.
- b) Similarly, the geometric design, structural design, pavement design, rehabilitation investigation and design as well as all investigations shall be in accordance with the Employer's current standards, specifications, criteria, manuals, codes, guidelines and/or industry best practice.
- c) If the nature of the project is such that some or all of the Employer's current requirements referred to in (b) above are not appropriate the Service Provider shall propose to the Employer products fit for the intended purposes and shall perform the Services in accordance with such proposals as are accepted by the Employer.
- d) Where the project includes Works that are under the control of another authority or controlling body (e.g. Transnet) the design of these Works must take due account of the requirements, standards and procedures of the controlling authority.
- e) The Final Detailed Assessment and Design Report shall conform to the following requirements:
 - Reports must be A4-DIN size (210x297mm).
 - The information on the front cover must be in accordance with the Employer's pro-forma document.
 - The cover shall be white.
 - Reports must be bound on the left side.
- f) Preparation of designs inclusive of all calculations, drawings, project specifications and engineering schedules of quantities in accordance with the requirements of the Employer's current appropriate Codes, Manuals and Guidelines. Refer to C3.1.5.
- g) All hydraulic calculations shall be done in accordance but not necessarily limited to the Employer's Drainage manual.
- h) The Detailed Assessment must include the identification of health and safety risks inherent to the project as well as appropriate mitigation measures.

C3.3.3 Report content

The Service Provider shall complete a draft Detailed Assessment and Design Report which shall include analysis of the findings from investigative studies undertaken and identify appropriate options for consideration and selection by the Employer. Thereafter the Service Provider shall compile and submit a final Detailed Assessment and Design Report for approval by the Employer.

The content and format of the report shall be in accordance with the Employer's standard requirements and shall include, but not necessarily be limited to, the following, as may be relevant:

- a) Locality Plan
- b) Executive Summary
- c) Introduction
 - Terms of reference
 - General description of the Project
 - Objectives and strategies
 - Scope of the investigations
- d) Road Cross-Section
 - Standard Cross-Section
 - National Road
 - Batter Slopes
- e) Existing pavement
 - Pavement history
 - Maintenance history
- f) Existing pavement evaluation
 - Visual condition survey
 - Instrument/mechanical surveys
 - Test pit information (Refer to SANRAL's Draft M1 (2004) Manual for Design Specialist's (Pavement and Materials Engineer) professional responsibilities and modus operandi)
 - Core profiles (Refer to SANRAL's Draft M1 (2004) Manual for Design Specialist's (Pavement and Materials Engineer) professional responsibilities and modus operandi)
 - DCP analysis
- g) Traffic information
 - Available data
 - Past traffic loading
 - Future traffic growth
 - Recommended design loading
 - Traffic accommodation considerations
 - Detailed traffic assessments
- h) Structural analysis
 - Analysis of deflections
 - Assessment of deflection bowl parameters
 - Overlay structural analysis
- i) Geometric Design
 - National Road
- j) Structures
 - The Bridge Reports, completed during the PD Phase, ~~referred to in C3.2.3 (d)~~ shall be referenced to the Detailed Design Report with any recommendations required by SANRAL.
 - The Employer will provide details of the 5 yearly structural inspections of all bridges and major culverts carried out in 2020.
- k) Hydraulic Capacity of Bridges and Major Culverts
 - New bridge structures
 - Bridges to be widened

- l) Traffic Accommodation
The proposal developed by the designer to accommodate existing traffic during the construction to be included in this chapter. Reference shall be made to the Employer's standard drawings for accommodating traffic on 4 lane undivided highways.
- m) Ancillary works
All ancillary works over and above the main focus of the project should be included in this chapter e.g. sub-soil drainage, surface drainage, shoulder make up, road signs etc.
- n) Environmental and OHS obligations and considerations
- o) Summary of recommendations, including but not restricted to;
 - Geometric improvements
 - Cross section development
 - Capacity improvements
 - Structures (Bridge Reports)
 - Safety improvements
 - Pavement design options
 - Cost benefit analysis
 - Climatic influences
- p) Construction materials (Refer to SANRAL's Draft M1 (2004) Manual
 - Aggregate sources
 - Sand sources
 - Gravel sources
 - Fill material sources
 - Water sources
 - Bituminous products
- q) Estimated costs of alternative strategies
Construction programme
- r) Annexures
The Report shall also contain the following annexures where relevant:
 - Pavement analysis:
 - Summary of condition survey
 - Pavement evaluation sheets
 - Riding quality measurements
 - Deflection measurements
 - Deflection vs. rut depth analysis
 - FWD parameter analysis
 - Materials investigations: (Refer to SANRAL's Draft M1 (2004) Manual for Design Specialist's (Pavement) professional responsibilities and modus operandi)
 - Test pit profiles
 - Summary of test results
 - Analysis of cores
 - Existing binder property results
 - Texture depth and Ball Pen survey
 - Construction materials:
 - Test results summary
 - Materials designs
- s) Draft pricing schedule and cost estimate.
- t) Draft specifications differing from the COTO Standard or Employer's pro-forma document.

The new structures (bridges) to be constructed are identified in Table 4.11. The initial assessment shall include the Preliminary Assessment and Design as well as the Bridge Reports (Refer to clause 13.3.1 of the Code of Procedure for the Planning and Design of Highway and Road Structures in South Africa.) to enable the Employer to submit to SANRAL for approval. This shall also include General Arrangement drawings to enable the employer to submit a Water Use Licence Application (WULA).

C3.3.4 Submission process for Detailed Design and Report

The Service Provider shall liaise and hold regular progress meeting with the Employer as appropriate.

The process of submission of the final Detailed Assessment and Design Report shall be as follows:

- Compilation and submission of two copies of a draft report
- Discussion of draft report with Employer
- Amendment and submission of one hard copy and one electronic copy of the Final Detailed Design Report

The Service Provider shall submit the draft reports to the Employer a minimum of 7 (seven) working days prior to the agreed date for the discussion thereof. Note that the Bridge Schedule as described in clause 12.15.1 of the Code of Procedure for the Planning and Design of Highway and Road Structures in South Africa must be agreed with the Employer and SANRAL prior to commencing with any structural design as is described in the Preliminary Design Phase.

C3.3.5 Detailed design

Regardless of the agreed rehabilitation plan for the existing carriageway, the agreed cross sections for the access roads and service roads and the agreed bridge designs, there will be one lump sum payment for the respective Detailed Assessment and Design Reports as well as the Detailed Design.

C3.3.6 Occupational Health and Safety obligations

Notwithstanding that this scope of works prescribes various procedures in terms of health and safety requirements the Service Provider cannot rely on these as the sole source of his obligations in terms of The Occupational Health and Safety Act (Act 85 of 1993) and accompanying Construction Regulations. Nothing herein shall absolve the Service Provider from conforming to all the requirements of the said Act and Regulations and in the event of conflict between the provisions of this scope of works and the statutory provisions, the latter shall prevail. The Service Provider shall take note of the 2014 Construction Regulations, as amended, requirements.

The Employer will be responsible for appointing an Occupational Health, Safety and Construction Regulations Compliance Management Specialist for the Works Contract. This OHS Specialist will act as the Employer's Agent in this regard.

The Employer's OHS specifications for the Service Provider is contained in Annexure E.

C3.3.7 Review of final tender documentation by the designer

Where the Service Provider is not appointed for the tender and documentation stage of a project it may be necessary for the designer to review the final tender documentation compiled by another service provider to ensure that the original design and specifications are still appropriate for the prevailing circumstances and/or conditions.

C3.3.8 Inspection of the Works by the designer

Where the Service Provider is only appointed for the design phase of a project and not the tender and construction monitoring phase, the designer shall nevertheless inspect the site to ensure compliance with his professional obligations as legislated. The frequency of any such inspections shall be appropriate to the scope and scale of the Works.

C3.3.9 Measurement and payment

Item	Unit
33.01 Detailed Design	
(a) Detailed Assessment and Design Report: Part 2	Lump Sum

(b) Bridge Reports and Detailed Design: New Structures, Part 2 Phase 1 Bridges	No
(i) Bridge NBTN1 42 nd Hill IC	No
(ii) Bridge NBTN2 Balmoral IC	No
(iii) Bridge NBTN3 Raal Underpass	No
(iv) Bridge NBTN4 Eeram IC	No
(v) Bridge NBTN5 Bosch IC	
(c) Bridge Reports and Detailed Design: New Structures, Part 2 Phase 2 Bridges	No
(vi) Bridge NBTN6 Agrimeul IC	No
(vii) Bridge NBTN7 Burlesca IC	No
(viii) Bridge NBTN8 Clear Waters IC	No
(ix) Warden North IC	
(d) Detailed Design and Design Reports: Widening of Existing Structures, Part 2 Phase 2 Bridges (Bridge reports completed in PD)	No
(i) B1391 Balmoral Spruit	No
(ii) B1392 Riet Spruit	No
(iii) B1393 Meul River	No
(iv) B1394 Leeuwbank Spruit	No
(v) B1395 Warden Rail	No
(vi) B1396 Cornelis River	
(e) Property Reports & Land Acquisition diagrams for interchange development (including Do-Minimum solution):	No
(i) Interchanges and related access roads	No
(ii) Raal Underpass and access roads	Lump Sum
(iii) Other Access Roads	No
(iv) Identified Borrow Pits	
	Hours
(f) Stakeholder engagement for final comments on Interchange, Service and Access roads positions	
	Lump Sum
(g) Travel and subsistence cost	

The unit of measurement under these pay items shall be as indicated. The sum tendered under these pay items shall include full compensation for personnel, transport, accommodation, materials, printing and all other costs for the analysis, compilation and submission of the reports as specified. In addition, the Service Provider shall provide a breakdown of the rate makeup of this payment item under the relevant Form C3 of the Pricing Schedule.

The Lump Sum rate tendered in Item 33.01 shall also include full compensation for personnel, transport, accommodation, materials, printing and all other costs associated with the detailed analysis, production of all plans, drawings, quantities and any other information necessary to enable the Employer to invite tenders for the Works. In addition, the Service Provider shall provide a breakdown of the rate makeup of this payment item under the relevant Form C3. of the Pricing Schedule.

Item	Unit
33.02 Geotechnical Services	
(a) Geotechnical investigations for structural works during design stage.	Prov. Sum
(b) Handling cost in respect of item 33.02(a)	Percentage (%)

The Prov. Sum allowed is for an investigation into the founding conditions of new structures and/or stability of cut/fill slopes by an **experienced** Geotechnical Engineer if identified during the detail assessment/design of the project and the pay item shall be paid in accordance with Clause C2.1.8.

The % tendered for handling costs shall include for all costs associated with the planning, scheduling, compilation of quotation/tender documentation issuing of 6 (six) quotations/tenders in electronic format and evaluation for the procurement of the sub-service, as well as handling fees and profit.

Item	Unit
33.03 Drilling and Geotechnical works	
(a) Planning, procurement and administration	Lump Sum
(b) Supervision of the Works	
(i) Full time	Month
(ii) Accommodation and cost	Prov. Sum
(c) Handling Costs i.r.o. of item 33.03 (b)(ii)	Percentage (%)

The Lump Sum tendered under pay item 33.03(a) shall include full compensation for personnel, transport, accommodation, materials, printing and all other costs for the compilation of tender/quotation documents, issuing of up to 6 quotation documents and subsequent evaluation for the procurement of the sub-service, as well as handling fees and profit.

The unit of measurement for payment item 33.03(b)(i) shall be Month or part thereof and the rate tendered shall include full compensation for all personnel costs including all subsistence costs associated with providing full time supervision of the work including any core logging, preparation and submission of contractor's payment certificates etc.

The Provisional Sum under payment item 33.03(b)(ii) shall cover all costs associated with the accommodation of full time or part time supervision of the work.

The % tendered for handling costs is a percentage of the amount actually spent under the relevant item, which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing the specified service.

Item	Unit
33.04 Occupational Health and Safety Requirements	Lump Sum (LS)

The Lump Sum rate tendered in Item 33.04 shall include for all costs associated with compliance with the Construction Regulations of the Occupational Health and Safety Act (No. 85 of 1993) as relevant for the design and documentation of the Works contract.

C3.4 TENDER DOCUMENTATION

C3.4.1 Scope

This section covers the requirements and process for the compilation of tender documentation and invitation to tender for the Works Contract.

C3.4.2 Standards

The tender documentation for the Works Contract shall be compiled in accordance with the following:

- Conditions of Contract for Construction: FIDIC; 1999.
- COTO Standard Specifications for Road and Bridge Works for South African Road Authorities; 2020
- The Employer's pro-forma tender document.

The style, format and presentation of the tender documents shall be in accordance with the requirements listed in the Employer's pro-forma document.

C3.4.3 Tender Documentation

The following documents shall form the Tender Documents for the Works Contract:

- i) **VOLUME 1:** The FIDIC Conditions of Contract for Construction, 1999 issued by the International Federation of Consulting Engineers (to be purchased separately by tenderers).
- ii) **VOLUME 2:** COTO Standard Specifications for Road and Bridge Works for South African Road Authorities; 2020
- iii) **VOLUME 3:** The Project Document, which includes Conditions of Tender, Particular Conditions of Contract, Scope of Works and Forms, all in accordance with the Employer's standard pro forma document.
- iv) **VOLUMES 4 and 5:** Books of Construction Drawings for tender purposes (if required).
- v) **VOLUME 6:** Materials Investigation and Utilisation Information (if required by the Employer to be bound separately).
- vi) **VOLUME 7:** Environmental Management and the Employer's Health and Safety Specification. (if required by the Employer to be bound separately).

For the purposes of this project the Service Provider shall compile and submit the required number of sets of contract documents (volumes 3 to 7 as relevant) in CD format.

C3.4.4 Submission procedure

The service provider shall adhere to the following process:

- i) Compile and submit two copies of a draft Volume 3 (Project Document) in accordance with COTO and the Employer's standard pro-forma document as well as two draft copies of Volumes 4-7 (if relevant and required) for the purpose of discussion with the Employer.
- ii) Attendance at meetings (including proposed Resident Engineer) with the Employer for the purposes of discussion and finalisation of the tender documentation.
- iii) Subsequent to discussion of the draft documentation, the service provider shall compile the final documents incorporating all the amendments arising there from and deliver the requisite number of complete sets of numbered documents burnt on CD's and two hard copies to the Employer's regional office with the employer's standard cover on or before the date specified in clause C3.1.7.

In the event where draft documentation is of sub-standard/poor quality, the above-mentioned process will be repeated. In such circumstances the additional time spent by the Employer shall be paid for by the Service Provider as specified in Clause C3.7.3.

C3.4.5 Tender Advertisement

The Employer will prepare and submit the tender advertisement to the relevant organisations.

C3.4.6 Measurement and payment

Item	Unit
34.01 Tender documentation: (COTO)	
(a) Preparation of tender documentation (All)	Lump Sum
(b) Ten Tender Documents (10) (Provided on flash drive) and Three Tender Documents (3) (Hardcopy)	Lump Sum

The unit of measurement under pay item 34.01(a) shall be the Lump Sum. The sum tendered shall include for the compilation of two (2) full sets of draft tender documents (comprising Volumes 3, 4, 5, 6 and 7, as relevant) for discussion with the Employer. Payment of the lump sum tendered shall be due on receipt, by the Employer, of the draft tender documents.

The rate tendered under payment item 34.01(b) shall include for all costs associated with the provision of a flash drive of each full set and two hard copy sets of final Tender Documents, and shall include for all expenditure on labour and materials, communication, postage and packaging incurred by the service provider in the production of the documents (including drawings and plans) in accordance with clause C3.4.3. Delivery of the documents shall be on or before the date specified in clause C3.1.7.

C3.5 SITE INSPECTION, TENDER PERIOD AND TENDER EVALUATION

C3.5.1 Scope

This section covers the requirements and process for the Contractors' site inspection, tender period and evaluation of tenders received for the Works Contract.

C3.5.2 Standards

The Service Provider shall arrange and conduct the site inspection in accordance with the Employer's pro-forma document and standard requirements. The Tender Evaluation Report shall be compiled in accordance with the Employer's pro forma and standard requirements.

C3.5.3 Site inspection

The Service Provider shall arrange and conduct a compulsory site inspection meeting for prospective tenderers for the Works Contract in accordance with the Employer's standard requirements, which shall, inter alia, include the following:

- i) Acquiring a suitable venue
- ii) If required, arranging a coach at the venue for the safe transport of prospective tenderers
- iii) Preparing the agenda and all necessary visual aids.
- iv) Compiling a site inspection information booklet for distribution to tenderers (Volume 8)
- v) Providing an attendance register in accordance with the Employer's requirements.
- vi) Chairing the meeting
- vii) Recording and distributing minutes of the meeting
- viii) Attending to any queries or points of clarification requested by tenderers during the tender period
- ix) Compilation and distribution of any addenda to the Tender Document.
- x) Informing the Employer of any potential alternative proposals of which notice has been received from tenderers.

The provision of refreshments and/or meals for those attending the site inspection or tenderers meeting shall be at the discretion of and to the account of the Service Provider.

Additional notes:

Unless otherwise instructed, 6 sets of tender documents, each with an additional schedule of quantities (unbound) shall be available at the site inspection.

The fee for the tender documents must be collected from the person taking them, names and addresses recorded and all passed on to the Employer. In the case of payment by cheque, the name of the company must be clearly printed on the cheque and the cheque made payable to The South African National Roads Agency Limited.

PROCEDURE AT SITE INSPECTION

The site inspection meeting shall start strictly at the time as advertised. The Employer's Representative shall circulate the attendance register for completion. This may take 10-15 minutes. During this time latecomer may enter. On completion of the attendance register by all present the Employer's Representative shall:

- (a) read out from the collected lists calling for confirmation that all have signed
- (b) ensure that the date of the Inspection or Meeting is recorded on the Attendance Register
- (c) cross out any unused space below the last entry
- (d) write his name and sign the Attendance Register in the appropriate places

- (e) close the door and not allow any latecomers to enter.

Thereafter the Employer's Project Manager will open the meeting by introducing herself/himself and welcoming all present. She/He will then introduce the Employer's personnel, the Employer's agent, if any, (for example, a Provincial Government representative) and the Employer's Service Provider.

She/He may then hand over to the Service Provider who will, thereafter, conduct the meeting along the following lines:

The Agenda for the meeting and the arrangements for the day should be outlined. The stages of the proceedings will include the following:

- Announce any amendments made to the tender documents (including change to date for submission of tenders).
- Describe the works with as much detail as is required for specific items or operations.
- Invite questions.
- Remind those present that, before leaving, they must complete and sign the "FORM A: CERTIFICATE OF TENDERER'S VISIT TO THE SITE" and get it signed by the Employer's Representative.

Description of the works should include the requirements in respect of the Engineer's office accommodation.

Estimate:

It is sound practice not to divulge the estimate for the project. Knowledge of the estimated cost can influence the values of tenders submitted and it is not unknown for estimates to be significantly out of the range of the tenders received and short-listed for detailed evaluation.

C3.5.4 Tender opening and tender evaluation

The Service Provider shall be represented at the opening of tenders for the Works Contract that shall take place at the Employer's relevant regional office. The Tender Documents shall then be taken (after signing for the receipt thereof) by the Service Provider for the purpose of tender evaluation.

The Service Provider shall evaluate all tenders received and compile a Tender Evaluation Report, including recommendations. During tender evaluation, the service provider shall:

- Assess all tenders received with respect to responsiveness.
- Identify and call for any additional information that may be required from tenderers in terms of the Conditions of Tender for the Works contract and ensure that the relevant replies are taken into account in the evaluation process.
- Advise tenderers, in terms of Conditions of Tender of any arithmetical, or other corrections made to errors in the extension of rates and/or totals in their tenders and the effect of such corrections, and receive written acceptance of such corrections.
- Identify imbalanced rates and request acceptable explanations and/or adjustments thereof in terms of Conditions of Tender, which shall be taken into account in the tender evaluation process.
- Check and assess the BEE scorecard of all competitive tenderers

The Service Provider shall, during the tender evaluation, liaise closely with the Employer with respect to any possible disqualification of tenders or issues of a substantive nature identified prior to submission of the Tender Evaluation Report.

The Tender Evaluation Report shall conform to the requirements of the Employer's pro forma document with respect to content and format. Two hard copies as well as one electronic copy of the tender Evaluation Report shall be submitted to the Employer on or before the date specified in clause C3.1.7.

C3.5.5 Alternative Tenders

The Employer promotes the submission of appropriate/innovative alternative tenders. The Service Provider shall liaise closely with the Employer as to the acceptability/or otherwise of the principles of any alternative tenders proposed by a tenderer during the tender period.

Any alternative tenders of a substantive nature which may have potential economic and or engineering merit shall be analysed by the Service Provider with recommendations included in the Tender Evaluation

Report. Payment for any such analysis shall be claimable on a time basis for the appropriate staff level required at the rates tendered in accordance with clause C3.7.3. The Service Provider shall submit a motivation, together with a cost estimate, to the Employer for approval prior to commencing with any additional detailed design analysis. Assessment and evaluation of alternative tenders pertaining to, for example, alternative seal or asphalt types, changes to contract period or such like shall not be subject to additional payment.

3.5.6 Measurement and payment

Item	Unit
35.01 Site Inspection and Tender Period	
(a) Service Provider's Cost	Lump Sum
(b) Hiring of Venue and/or coach	Prime Cost Sum
(c) Handling Costs i.r.o. of sub item 35.01(b)	Percentage (%)

The Lump Sum tendered under this pay item shall include for all costs (excluding those for which a Prime Cost Sum has been provided) incurred by the Service Provider with respect to its obligations for site inspection and tender period as specified in clauses C3.5.3 and C3.5.4.

The Prime Cost Sum items shall be paid for in accordance with clause C2.1.8. The tendered percentage is a percentage of the amount actually spent under these provisional sums, which shall include full compensation for the handling costs of the Service Provider.

Item	Unit
35.02 Tender Evaluation Report:	
(a) Tender Evaluation (All)	Lump Sum (LS)
(b) Evaluation of Alternative Tenders (Time/Cost)	Hour

The Lump Sum tendered under pay item 35.02 (a) shall include for all costs associated with the compilation and production of two hard copies and one electronic copy of the Tender Evaluation Report in accordance with clause C3.5.4. Payment of the lump sum will be made on receipt and acceptance by the Employer of the Tender Evaluation Report.

The Hour tendered under pay item 35.02 (b) shall include full compensation for personnel, transport, accommodation, materials, printing and all other costs for the evaluation of alternative tenders, compilation and submission of the reports as specified.

~~C3.6 ADMINISTRATION AND MONITORING OF THE WORKS CONTRACT~~

~~C3.6.1 Scope~~

~~This section covers the duties and obligations of the Service Provider in the provision of the Engineer and site supervisory staff for the supervision of the works including administration, construction monitoring, quality control and measurement of the Works carried out by the Contractor appointed by the Employer.~~

~~The construction contract will be a conventional type contract where the works are supervised by the Employer however, the Contractor shall guarantee his works for a period of 4 years after TOC.~~

~~C3.6.2 Standards~~

~~The Service Provider shall administer and monitor the Works Contract in accordance with the following requirements and guidelines:~~

- ~~— Government legislation.~~
- ~~— The Contract Documents as issued for the Works Contract.~~
- ~~— The Employer's manuals of procedures and guidelines.~~
- ~~— Current industry good practice.~~

C3.6.3 Fulfilling the functions of the Contract Engineer

(a) Appointment of the Engineer

~~The appointed Engineer for the project shall be that person listed in the tender who shall be authorized by the Service Provider to carry out the work intended by the specifications and the duties required by the FIDIC general conditions of contract. The Engineer shall be a registered professional engineer with the Engineering Council of South Africa or other international body recognised by the Employer, with at least 10 years relevant experience. Any alternative person to that offered in the tender shall possess similar competencies and experience and shall only be approved by the Employer if such alternative offer is as a result of genuine unforeseen circumstances.~~

~~The duties of the Engineer shall be in accordance with the Employer's standard requirements and shall, inter alia, include:~~

- ~~i) Conduct meetings with affected communities and relevant forums at design stage, if necessary, to establish communication channels and to determine issues impacting on the tender and construction phase.~~
- ~~ii) Appointment of suitable, able and competent site staff, together with the administration of such staff (including those of any independent service provider/s as approved).~~
- ~~iii) Arranging and attending monthly technical and site meetings and keeping minutes of such meetings.~~
- ~~iv) Making arrangements on behalf of the Employer for the provision and reproduction of such drawings and documents as may be required by the contractor and site staff for the execution of the works.~~
- ~~v) Fulfilling all functions and obligations stated or implied for the Engineer, and delegated to the Engineer's Representative, in the Employer's Particular Conditions of Contract, Standard Specifications or Scope of Works or any other document applicable to the control and administration of a works contract.~~
- ~~vi) Issuing instructions to the Contractor, co-coordinating and generally inspecting the execution of the Works for compliance with the contract at such intervals as appropriate for the purpose of the proper inspection of the works, directing site staff and delegating the detailed and day-to-day supervision/inspection of the works and site administration.~~
- ~~vii) Advising the Employer regarding the inspection and testing of such materials and plant as are usually inspected and tested and arranging for such inspection and testing to be carried out in accordance with current appropriate codes, manuals and guidelines.~~
- ~~viii) Arranging for the carrying out of performance or acceptance tests and surveys as required by the Employer.~~
- ~~ix) Approve all materials and or surfacing designs as may be required.~~
- ~~x) Monitor and report on training, development and empowerment programmes committed to by the Contractor in relation to his tendered Contract Participation Goals.~~
- ~~xi) Monitor and report on conformance to all relevant Occupational Health and Safety legislation including regular internal audits to be conducted by the Employers nominated specialist, arrangement for visits by the designer at identified critical phases of construction and recording/reporting of Section 24 incidents.~~
- ~~xii) Monitor and report on conformance to all relevant Environmental and/or Minerals and Energy legislation.~~
- ~~xiii) Checking and controlling of quantities measured and agreed by the Contractor and the site supervisory staff and settling any disputes that may arise in this regard.~~
- ~~xiv) Issuing certificates for payment to the Contractor in accordance with the conditions of contract.~~
- ~~xv) Advising the Employer on disputes or differences that may arise between the Employer and the Contractor, except for litigation and mediation.~~
- ~~xvi) Issuing variation orders, as agreed with and approved by the Employer.~~
- ~~xvii) Provide the Employer with progress and other reports on all aspects of material importance regarding the Works.~~
- ~~xviii) Identification of risks to the Employer under the Works Contract, as well as communicating mitigations measures to the Employer.~~
- ~~xix) Provide the Employer within 3 months of issuing the Taking-over Certificate of the works with such draft construction reports, materials as-built records, as-built plans in PDF format and all other documents normally associated with contract administration. The final reports/records~~

~~shall be provided within 1 month of the issue of the Performance Certificate for the Works contract.~~

- ~~xx) Certain construction monitoring duties may be obligated to a Resident Engineer who shall be a registered professional engineer or registered professional technologist with ECSA or any other international body recognized by the Employer, with at least 10 years relevant experience.~~

~~(b) Head office administration~~

~~The Service Provider shall supply sufficient head office administrative support to the site personnel to ensure efficient and timeous administration of the Works Contract.~~

~~The Service Provider shall furthermore be responsible for the safe keeping of all original Roadworks and Structural Drawings for a period of at least 5 (five) years after the defects notification period. No additional payment will be made for this.~~

~~(c) Occupational Health and Safety obligations~~

~~The Employer will be responsible for appointing an Occupational Health, Safety and Construction Regulations Compliance Management Specialist. This OHS Specialist will act as the Employer's Agent in this regard.~~

~~The Service Provider shall arrange, formally and in writing, for the Works Contractor to provide documentary evidence of compliance with all the requirements of the said Act. The Service Provider shall also carry out regular site audits to ensure compliance thereto. Provision for payment for all OHS obligations during the construction phase has been included in the Pricing Schedule.~~

~~(d) Monthly Technical and Site Meetings~~

~~The appointed Engineer for the project shall visit the site at least 2 (two) times per month on **separate** occasions. One visit shall be scheduled for the Technical Meeting with a thorough site inspection with the Contractor and the Engineer's representative. A second visit shall be scheduled for the monthly Site Meeting with a thorough site inspection with the Contractor and Employer's representative.~~

C3.6.4 Contract Documents for the Works

~~The service provider shall, within 14 (fourteen) days of the award of the contract, prepare 2 (two) sets of contract documents for signature and 1 (one) electronic copy in *.pdf format. These documents shall be prepared in accordance with the requirements listed in the Employer's Pro Forma document and shall be submitted together with the successful tenderer's original tender. The number of additional sets of contract documents for use by the Engineer and his site staff shall be at the discretion of the service provider.~~

~~The following shall be bound at the back of Volume 3, or bound together as a separate volume together with a table of contents:~~

- ~~(i) All addenda issued, together with proof of issue, proof of receipt, completed and signed by the successful tenderer.~~
- ~~(ii) All letters, statements and documents submitted by the successful tenderer with his tender~~
- ~~(iii) All correspondence between the Service Provider and the successful tenderer prior to tender acceptance.~~
- ~~(iv) The Employer's letter of acceptance of tender.~~
- ~~(v) The Contractor's letter of acceptance, including any conditions.~~

~~The contract documents shall comprise all the documents mentioned above, together with Volumes 1 and 2 and the performance guarantee, which shall remain separate documents.~~

~~The Engineer shall assess the performance guarantee provided by the Contractor for conformance with the pro forma wording in the tender documentation and if satisfied, shall thereafter submit it to the Employer for safe keeping.~~

C3.6.5 Establishment of supervisory personnel on site

- ~~(a) Supervisory team~~

~~The Service Provider shall be required to provide a team on site to monitor, administer and measure the Works in accordance with the requirements of the Works Contract, Employer's standard requirements and industry good practice.~~

~~Provision has been made in the Pricing Schedule for the envisaged staffing requirement. The establishment of such staff shall, however, shall be subject to the approval of the Employer. For the envisaged scope of the Works, the supervisory team will consist of the following:~~

- ~~i) Resident engineer~~
- ~~ii) Senior Materials technician x 2~~
- ~~iii) Assistant resident engineer (Roadworks)~~
- ~~iv) Assistant resident engineer (Structures) x 2~~
- ~~v) Surveyor~~

~~The competence and experience of the tenderer's proposed key personnel shall form part of the Employer's tender evaluation process. The minimum requirements for qualification and experience of the resident engineer is specified in Clause C3.6.3 (a)(xix). The minimum requirements for the senior material technician shall be 10 years relevant experience, 5 of which are on projects of a similar size and scope. On acceptance of their tender by the Employer, the Service Provider shall not be permitted to offer alternative key personnel unless such alternative offer is as a result of a genuine unforeseen circumstance. In such event, the Employer shall only accept alternative personnel possessing at least similar provable capacities and experience to those persons proposed in the tender. Re-evaluation by the Employer of any replacement personnel shall be paid for by the Service Provider as specified in Clause C3.7.3.~~

~~The Employer shall be entitled to instruct the Service Provider to remove forthwith from the Works any person employed by the Service Provider on or about the execution of the Works who, in the opinion of the Employer, misconducts himself or is incompetent or negligent in the proper performance of his duties, or whose presence on site is otherwise considered by the Employer, on reasonable grounds, to be undesirable.~~

~~(b) Relocation of site staff~~

~~Provision has been made in the Pricing Schedule for the costs to relocate specific individual members of the supervisory team to site. Should a member of staff elect not to relocate, but to be temporarily accommodated on site, incidental trips home during the Contract period shall be included in the monthly rate tendered for the staff.~~

~~(c) Accommodation~~

~~Appropriate housing for the supervisory team and any allowances for meals, services etc. shall be deemed to be included in the monthly rate tendered for the relevant staff.~~

~~Accommodation of the site staff shall be located as near to the location of the Works as may be practically possible.~~

~~(d) Trainee personnel~~

~~A Provisional Sum has also been included in the Pricing Schedule to cover the costs of a trainee on site. The objective is to afford a locally based university or technicon student/s mainly from the historically disadvantaged group the opportunity to receive experiential training. The appointment of any such trainees, their length of time on site, as well as the monthly allowance to be paid, shall be approved by the Employer. The Service Provider shall, if ordered by the Employer, identify any such local trainees for temporary appointment and implement and monitor appropriate training in accordance with the tertiary institutions requirements.~~

~~(e) Establishment of site office~~

~~Provision for the erection and maintenance of a site office building, all related services and supply of office furniture will be made under the Works Contract. The Service Provider shall however provide all cell phones, photo copiers, fax machines, personal computers and printers.~~

C3.6.6 Monitoring of the Works Contract

The Service Provider shall ensure that all the work required under the Works Contract is carried out in accordance with the specifications and current best practice and shall include effective financial control. Construction monitoring shall be carried out in a pro-active manner and in accordance with the Employer's standard requirements and current best practice.

The Service Provider shall be responsible for the normal duties associated with the management and supervision of a Works contract, which duties shall, *inter alia*, include:

- Monitoring and reporting of the Contractor's programme.
- Implement Engineer's quality control plan.
- Monitor Contractor's quality control plan.
- Site audits, inspection, quality control testing, approval, rejection of work.
- Measurement and certification of completed work inclusive of cash flow forecasts.
- Regular Site Meetings with Contractor and Employer.
- Monitoring of the Contractor's third party claims.
- Monitoring and reporting of Contractor's CPG commitments.
- Supervision of traffic accommodation arrangements.
- Statutory control functions.
- Attend public liaison committee meetings.
- Monitoring and reporting of the project's EMP requirements.
- Implement the Engineers requirements in terms of compliance with the OHS Act.
- Monitor the Contractor's compliance with the OHS Act.
- Compile all reports and as-built data in accordance with the Employer's standard requirements.

C3.6.7 Transport for site supervisory / laboratory staff and additional services

The Service Provider shall provide sufficient appropriate vehicles on site to carry out the duties as specified in clause C3.6.6 above, including materials sampling and testing. Only travel in the execution of these duties, as well as any other travel necessary as a result of any additional duties as ordered by the Employer, shall be claimable. Travel costs incurred as a result of week end travel by site staff to their place of permanent residence shall not be claimable and shall be deemed to be included in the monthly rate tendered for the relevant site staff.

Travel log sheets for each vehicle utilised shall be certified by the Engineer and included under cover of the payment certificates submitted to the Employer. The kilometre rate for all travel in excess of 3000 kilometres per vehicle per calendar month shall be reduced and paid for at 60% of the rate.

The re-imbusement for the Resident Engineer's mileage will be based on a maximum engine capacity of 2000 (cc). Re-imbusement for all other staff will be based on a maximum engine capacity of 1800 (cc).

Schedule of Travel Tariffs (cents per kilometre)

ENGINE VOL (cc)	A	B	C	D
Up to 1400	279 + 7.24 x PP	204 + 9.8 x PP	-	-
1401 – 1600	314 + 7.88 x PP	230 + 9.8 x PP	-	-
1601 – 1800	363 + 7.88 x PP	230 + 9.8 x PP	-	363 + 7.88 x PP
1801 – 2000	421 + 8.77 x PP	311 + 9.8 x PP	311 + 9.8 x PP	372 + 8.77 x PP
2001 – 2501	469 + 10.56 x PP	315 + 13.1 x PP	413 + 13.1 x PP	469 + 10.56 x PP
Over 2501	482 + 10.98 x PP	415 + 13.8 x PP	456 + 13.8 x PP	482 + 10.98 x PP

NOTE:

- The tariffs in this table are fixed for 1 (one) year only (April-March of each year) after which the revised tariffs will be applicable regardless of the Stage of the Project.
- "PP" is the lowest octane rating petrol price in Rand, for the month, in Harrismith FS. "PD" is the 0.05% sulphur diesel price in rand for the month. The "PP" & "PD" rate can be downloaded from the AA website www.aa.co.za on a monthly basis. "PD" = wholesale price x 1.12. The price shall be the price as at the first of the month.

Vehicle Classes

~~Ap — Passenger motor cars, station wagons and Double Cabs. (Petrol engines)~~
~~Bp — Two wheel drive light delivery vehicle, panel vans and other similar goods vehicles with a carrying capacity up to one metric ton. (Petrol engines)~~
~~Ad and Bd — Refers to vehicles with a Diesel Motor and will be provided by the Employer if applicable.~~

C3.6.8 Administration during the defects notification period

~~The Service Provider shall administer the Works Contract during the period subsequent to the issuing of the Taking Over Certificate of the Works up to and including the issuing of the Performance Certificate to the Contractor. Such administration shall be in accordance with the following requirements and guidelines:~~

~~The Contract Documents as issued for the Works Contract.
The Employer’s pro-forma project document and standard requirements.
Current industry good practice.~~

~~The Service Provider shall undertake a full inspection of the Works to identify any defects or non-conformance prior to the issuing of the Performance Certificate to the Contractor. The inspections shall be undertaken by the Engineer and resident engineer for the Works or, failing the availability of one or both of them, a person having sufficient knowledge of the work to be assessed.~~

C3.6.10 Measurement and payment

Item	Unit
36.01 Engineer and Head Office	
(a) Duties of the Engineer	Month
(b) Head Office Overhead Costs	Month
(d) Monthly Technical Meeting and Site Visit	Number
(e) Monthly Site Meeting and Site Visit	Number

~~The unit of measurement under pay items 36.01(a) shall be the rate per Month (pro rata for part of a month). The tendered rate shall include full compensation for all costs, including personnel, transport, accommodation and subsistence, submission of reports and all other things associated with fulfilling the duties of the Engineer as specified in clauses C3.1.11 and C3.6.3(a).~~

~~The unit of measurement under pay item 36.01(b) shall be the rate per calendar Month (pro rata for part of a month). The tendered rate shall include for all overhead costs, including levies, taxes, insurances, provision of sureties, profit etc. associated with the engineering services as specified in Clause C3.6.3(b).~~

~~The unit of measurement under pay item 36.01(c)(i) shall be the rate per Month (pro rata for part of a month). The tendered rate shall include full compensation for all costs, including personnel, transport, accommodation and subsistence of the Occupational Health and Safety Specialist for fulfilling the Service Providers obligations as the Employer’s agent with respect to the requirements of the Construction Regulations of the Occupational Health and Safety Act (Act 85 of 1993).~~

~~The services required under 36.01(c)(ii) shall be undertaken by an independent auditor whom the Service Provider shall procure and be approved by the Employer. The provisional sum shall cover all the independent auditor’s costs for travel, accommodation and fulfilment of the service (including reports). The provisional sum shall be paid for in accordance with Clause C2.1.8.~~

~~The percentage tendered for handling costs under 36.01(c)(iii) shall include for all costs associated with the planning, scheduling, compilation of quotations, issuing of **3 (three)** quotations in electronic and/or paper format and evaluation for the procurement of the sub-service, as well as handling fees and profit.~~

~~The unit of measurement under pay item 36.01(d) and (e) shall be the number. The tendered rate shall include full compensation for all costs, including personnel, transport, accommodation and subsistence and all other things associated with fulfilling the duties as specified in Clause C3.6.3(d).~~

~~Payment under these pay items may only be claimed from the date of official handover of the Works to the Contractor up to and including the issue of the Taking Over Certificate.~~

~~Contract price adjustment shall be applicable in accordance with clause C2.1.6.~~

Item	Unit
36.02 Preparation of Works contract documents	Lump Sum (LS)

The lump sum tendered under this pay item shall be for the preparation of 2 (two) Contract Documents for signature by the Employer and the appointed Contractor for the Works and 1 (one) electronic copy in *.pdf format in accordance with clause C3.6.4. The sum tendered shall include for all expenditure on labour, materials, communication, postage and packing incurred by the Service Provider in the production and delivery of the documents. Payment of the lump sum will be made on receipt of 2 (two) copies of the Contract Documents and 1 (one) electronic copy in *.pdf format, as specified, by the Employer. The cost of producing any additional copies for use by the Service Provider shall be deemed to be included in the lump sum tendered for this item.

Item	Unit
36.03 Establishment of supervisory personnel on site	
(a) Relocation costs of individual site personnel staff as listed	
i) Resident engineer	Lump Sum (LS)
ii) Senior Material Technician	Lump Sum (LS)
iii) Ass. Res. Engineer (Roadworks)	Lump Sum (LS)
iv) Ass. Res. Engineer (Structures)	Lump Sum (LS)
v) Surveyor	Lump Sum (LS)
(b) Establishment of office equipment	Lump Sum (LS)

The unit of measurement under this pay item shall be the Lump Sum for each individual as listed.

The sums tendered under sub item 36.03(a) shall include full compensation for all costs related to establishing the individual supervisory personnel as listed in the Pricing Schedule on site and their removal after completion of the Works, and shall include all travelling costs, furniture removal costs if required, etc.

The sum tendered under sub item 36.03(b) shall be for establishing of all office equipment (including computers and printers) on site and shall include for all associated costs.

The lump sums tendered shall be payable in two instalments as follows:

- _____ 50% of the sum tendered when the team and office equipment has established on site.
- _____ 50% when the team and equipment has disestablished from site.

Contract price adjustment shall be applicable in accordance with clause C2.1.6.

Item	Unit
36.04 Monitoring of the Works Contract	
(a) (i) Resident Engineer (RE)	Month
(ii) Mark-up i.r.o. sub item 36.04(a)(i)	Month
(b) (i) Senior Materials Technician	Month
(ii) Mark-up i.r.o. sub item 36.04(b)(i)	Month
(c) (i) Assistant resident engineer (Roadworks)	Month
(ii) Mark-up i.r.o. sub item 36.04(c)(i)	Month
(d) (i) Assistant resident engineer (Structures)	Month
(ii) Mark-up i.r.o. sub item 36.04(d)(i)	Month
(e) (i) Surveyor	Month
(ii) Mark-up i.r.o. sub item 36.04(e)(i)	Month
(f) Trainee Personnel	Prov. Sum
(ii) Handling Cost i.r.o. sub item 36.04(f)(i)	Percentage (%)
(g) Provision of office equipment (All site staff)	Month

The unit of measurement for pay items 36.04(a), (b), (c), (d), (e) and (f) part (i) shall be the rate per calendar Month (pro rata for part of a month). Payment under these pay items shall only be applicable for the period actually established on site and shall in no instance be prior to the date of official handover

of the Works to the Contractor or after the date of issue of the Taking-Over Certificate for the Works contract. The rates tendered for items 36.04(a), (b), (c), (d), (e) and (f) part (i) shall cover the total annual cost of employment (TACE) of the relevant personnel and shall be a maximum amount in the event of replacement staff becoming applicable. Should any of the tendered personnel not be available at the start of construction a replacement will be evaluated and if approved his/her monthly salary based on TACE will become applicable if it is lower than the tendered rate. The TACE is to be verified by means of an audited statement.

The rates tendered for items 36.04(a), (b), (c), (d), (e) and (f) part (ii) shall include full compensation for all other expenses related to the employment of the relevant personnel. These expenses shall include but not be limited to any additional allowances (whether for site, week-end travel or otherwise), levies, bonuses, handling cost and profit. The ratio of the mark-up to the relevant rate shall be maintained in the event that the rate, based on TACE, is adjusted in case of staff replacement. Replacement of staff as a result of any extended period of leave or sick leave outside the normal contractor's year end break shall be to the approval of the Employer.

Accommodation and subsistence shall be included in the tendered rates.

The unit of measurement for pay item 36.04 (g) shall be the rate per calendar month (pro-rata for part of a month). The rate tendered for office equipment shall include full compensation for supplying and maintaining all office equipment, and incidentals required for carrying out administration, supervision and inspection of the Works in accordance with clause C3.6.6 including:

- i) Cell phones, including rental and call charges.
- ii) All safety equipment for supervisory and laboratory personnel in accordance with the OHS requirements (e.g. safety jackets, orange lights, boots, etc.).
- iii) All equipment including copier rental, fax machine, consumables, stationary etc.
- iv) Digital cameras
- v) All necessary computer hardware, software, printers and modems and associated consumables.
- vi) Any other items necessary for the capture of all relevant data required for administrating the contract and reporting to the Employer

Contract price adjustment shall be applicable in accordance with clause C2.1.6.

Item	Unit
36.05 Transport for site personnel and additional duties	
(a) Travelling to perform duties	Prov. Sum (PS)
(b) Handling cost i.r.o. item 36.05(a)	Percentage (%)

The Provisional Sum is to cover the cost of travelling to perform the duties as specified in clause C3.6.6 and any additional duties as may be ordered by the Employer. The provisional sum shall cover all costs associated in providing transport as specified in Clause C3.6.7. The rate for transport in excess of 3000km per vehicle per month shall, however, be reduced and paid for at 60% of the rate. Completed log sheets for each vehicle shall be certified by the Engineer and included in the monthly payment certificate. All site staff will be deemed to be resident on site and therefore only on-site travelling will be measured for payment.

The % tendered for handling cost under pay item 36.05(a) shall include for all costs associated with providing transport for site personnel, as well as handling fees and profit.

Item	Unit
36.06 Administration during the defects notification period	Hour (hr)

The unit of measurement shall be the Hour. The sum tendered shall include for all costs, including personnel, transport and subsistence costs, associated in undertaking the administrative duties during the defects notification period and carrying out a final inspection of the Works prior to the issuing of the Performance Certificate to the Contractor.

Contract price adjustment shall be applicable in accordance with clause C2.1.6.

C3.7 ADDITIONAL DUTIES

C3.7.1 Scope

This section covers additional work, duties etc. that the Service Provider may be required to undertake over and above the normal duties and obligations as specified in the project

C3.7.2 Standards

The Service Provider shall undertake all additional duties as ordered by the Employer in accordance with:

- The Contract Documents as issued for the Works Contract
- The Employer's pro-forma project document
- The Employer's standard requirements
- Current industry good practice

C3.7.3 Additional Duties

(a) By the Service Provider

The Employer may order additional duties that fall outside the scope of the project as tendered. Such additional duties may involve, but not be limited to:

- Alterations to the scope of Works
- Additional design requirements
- Evaluation of alternative tenders
- Additional investigations during the Defects Notification Period
- Diverse other services etc.

Allowance is made in the Pricing Schedule for payment on a time basis for any such additional services that may be required. The level of expertise necessary for any such additional work shall be concomitant with the issues to be addressed. The category of personnel necessary to undertake the work shall be approved by the Employer in accordance with the following definitions:

- i) **Category A** shall mean a top practitioner whose expertise is nationally or internationally recognised and who provides advice at a level of specialisation where such advice is recognised as that of an expert.
- ii) **Category B** shall mean a partner, a sole proprietor, a director, or a member who, jointly or severally with his other partners, co-directors, or co-members, bears the risks of business, takes full responsibility for the liabilities of such practice, performs work of a conceptual nature in engineering design and development, provides strategy guidance in planning and executing a project and/or carries responsibility for quality management pertaining to a project. (e.g. The Engineer for the project)
- iii) **Category C** shall mean all salaried senior professional and technical staff performing work of an engineering nature and who carry the direct technical responsibility for one or more specific activities related to the project. A person referred to in Categories A or B may also fall in this category if such person performs work of an engineering nature at this level. (e.g. the resident engineer for the project)
- iv) **Category D** shall mean all other salaried technical staff performing work of an engineering nature under the direction and control of any person contemplated in categories A, B or C.

Any additional identified service shall be fully scheduled and submitted to the Employer for approval prior to the commencement therewith.

(b) By the Employer

Additional duties performed by the Employer may involve, but not be limited to:

- re-evaluation of any replacement personnel by the Tender Evaluation Panel
- proof reading draft documentation submitted more than once

Allowance is made in the Pricing Schedule for payment on a time basis for any such service performed more than once.

C3.7.4 Measurement and payment

Item	Unit
37.01 Additional duties by the Service Provider	
(a) Personnel - Category A	Hour (hr)
(b) Personnel - Category B	Hour (hr)
(c) Personnel - Category C	Hour (hr)
(d) Personnel - Category D	Hour (hr)

The rate tendered shall be for the carrying out of any additional duties extra-over the normal Services as specified and as ordered by the Employer. The rates tendered shall include for all personnel costs including overheads and profit. Transport, if required, shall be paid at the rates under payment item 36.05 or as agreed beforehand with the Employer.

Contract price adjustment shall be applicable in accordance with clause C2.1.6.

Item	Unit
37.02 Additional duties by the Employer	
(a) Personnel - Category B	Hour (hr)
(b) Personnel - Category C	Hour (hr)
(c) Personnel - Category D	Hour (hr)

The unit of measurement shall be the Hour for all categories of Employer personnel utilised for additional duties. The provided negative rate shall be for carrying out additional duties as specified in Clauses C3.1.9, C3.4.4 and C3.6.5.

C3.8 MATERIALS INVESTIGATION AND TESTING: DESIGN PHASE

C3.8.1 Scope

This section covers the requirements for the provision of the following services by an external sub-service provider:

- pavement test pitting, profiling by prescribed specialist and material sampling and testing during assessment/design phase
- gravel borrow pit and/or natural ground test-pitting sampling and testing during assessment/design phase

C3.8.2 Standards

The excavation, profiling and sampling of all test pits shall be undertaken in conformance with the Employer's M1 Manual (Draft 2004): Materials Investigation & Design and the SAICE Code of Practice (2003): The Safety of Persons Working in Small Diameter Shafts or Test Pits for Civil Engineering Purposes.

Where required, all traffic accommodation measures shall conform to the requirements specified in the South African Road Traffic Signs Manual: Volume 2: Chapter 13.

All laboratory testing shall be carried out in SANAS accredited facilities. All material testing shall be carried out strictly in accordance with the relevant TMH1, SANS etc. test methods.

C3.8.3 Pavement investigations/testing: design phase

- (a) Establishment of personnel and equipment

The sub-service provider shall establish on site all staff, equipment and tools necessary to undertake the work in the most efficient manner.

- (b) Pavement test-pitting and sampling

All test pits shall be excavated in accordance with the M1 Manual and industry best practice. The dimensions of the excavation shall be sufficient to permit safe working conditions and to allow for adequate quantities of material to be sampled from each horizon for the envisaged testing. All test pits shall be excavated to a minimum depth of 800mm, or deeper if so specified by the design engineer.

During the process the sub-service provider shall adhere to the guidelines contained in the SAICE Code of Practice: The Safety of Persons Working in Small Diameter Shafts or Test Pits for Civil Engineering Purposes.

All test pits shall be profiled and sampled in accordance with the M1 Manual and industry good practice.

All test pits shall be backfilled utilizing material which is at least of a similar quality as that removed from the relevant horizon. The upper 150mm horizon shall consist of at least G2 quality material stabilized with 2% emulsion and 1% cement. The surfacing shall consist of hot/cold asphalt or prefabricated seal patches as appropriate to the existing surfacing and traffic/road class. Compaction shall be by appropriate compaction equipment in layers not exceeding 150mm.

(c) Traffic accommodation at intrusive testing/sampling sites

Where traffic accommodation is to be undertaken by the Employer's routine road maintenance contractor, the Service Provider shall timeously liaise with the Employer and his appointed route manager in order to program the service. The cost of this work will be for the account of the appointed Service Provider and will not be borne by the Routine Road Maintenance contractor.

(d) Dynamic Cone Penetration (DCP) testing

Dynamic Cone Penetration (DCP) testing shall be carried out in accordance with the standard test method. Appropriate drilling equipment shall be utilized to penetrate asphalt, highly stabilized or cemented layers prior to proceeding with the testing. Results of DCP testing shall be produced in a format enabling full assessment of the various pavement layers to be done.

Traffic accommodation requirements shall be in accordance with sub clause 3.8.3 (c)

(f) Coring in pavement layers

Where required and scheduled, coring shall be carried out utilizing appropriate equipment. The layer type and diameter of the cores shall be as specified in the pricing schedule. The rate tendered shall be fixed, irrespective of the height of the core extracted.

Traffic accommodation requirements shall be in accordance with sub clause 3.8.3 (c)

(g) Transport of samples to laboratory

All samples shall be securely fastened, labelled and transported to the laboratory appointed to carry out the required testing. Distinction has been made in the Pricing Schedule between large bags and small bags/cores.

C3.8.4 Borrow pit and/or road bed investigations: design phase

(a) Establishment of personnel and equipment

The sub-service provider shall establish on site all staff, equipment and tools necessary to undertake the work in the most efficient manner.

(b) Hire of excavator

Where an excavator is required to excavate the test pits, the Service Provider shall source such plant on a plant hire basis. The Service Provider shall determine the required capacity of such plant appropriate to the expected material category and call for quotations from locally based plant hire firms. All test pits shall be excavated in accordance with the M1 Manual and industry best practice. The depth of the test pits shall be as required by the design engineer but in all instances shall conform to the

requirements contained in the SAICE Code of Practice: The Safety of Persons Working in Small Diameter Shafts or Test Pits for Civil Engineering Purposes.

The excavation of test pits by mechanical means shall be done in such a manner so as to prevent any contamination of the specific soil/gravel horizons encountered.

(c) Test pit excavation by hand

All test pits shall be excavated in accordance with the M1 Manual and industry best practice. The dimensions of the excavation shall be sufficient to permit safe working conditions and to allow for adequate quantities of material to be sampled from each horizon for the envisaged testing. All test pits shall be excavated to 1200mm, or deeper if so specified by the design engineer. During the process the sub-service provider shall adhere to the guidelines contained in the SAICE Code of Practice: The Safety of Persons Working in Small Diameter Shafts or Test Pits for Civil Engineering Purposes.

All test pits that are required to be left open and unattended shall be secured by means of appropriate fencing and danger tape.

At the commencement of excavation, all topsoil shall be stockpiled separately and replaced after completion of the backfilling operation.

(d) Sampling of test pits

All test pits shall be profiled and sampled in accordance with the Employer's M1 Manual and industry good practice.

All test pits shall be backfilled utilizing excess material excavated and additional material to ensure that there will be no unsafe depressions. The backfill shall be compacted sufficiently to ensure that no significant settlement occurs subsequent to completion of the investigation.

(e) Transport of samples to laboratory

All samples shall be securely fastened, labelled and transported to the laboratory appointed to carry out the required testing. Distinction has been made in the Pricing Schedule between large bags and small bags.

C3.8.5 Laboratory testing

Provision for the costs of any laboratory testing by an external sub-service provider has been included under specific tests and/or under a Provisional Sum item in the Pricing Schedule. Only SANAS accredited laboratories shall be permitted to carry out laboratory testing of materials. All testing shall be carried out in accordance with the methods specified in TMH1, SANS or any other relevant standard test method.

After completion of the assessment/investigation stage, the design engineer shall submit a schedule of all envisaged testing to the Employer for approval prior to commencing therewith.

The numbers of tests scheduled in the Pricing Schedule are only estimates for tender purposes. Only approved testing quantities and valid test results shall be eligible for payment.

Where the prior identification of materials testing requirements is not possible, a Provisional sum has been included in the Pricing Schedule for the procurement of such services. Where testing is carried out under a Provisional Sum the percentage handling fee tendered in the Pricing Schedule shall include for all the Service Provider's costs associated with:

- compiling a schedule of all envisaged work
- production of a document for procurement purposes (including printing etc.)
- calling for quotations/tenders
- evaluation of quotations/tenders received and recommendations to the Employer.
- handling fees
- profit

Procurement of such services shall be in accordance with clause C3.1.13.

C3.8.6 Measurement and payment

A provisional sum has been provided for all investigation, sampling and testing. The Service Provider and Employer will agree on the testing requirements and the Service Provider shall obtain 3 (three) quotations. The Service Provider shall make a recommendation to the Employer for the appointment of a material investigation service provider based on the results of the quotations.

C3.9 — MATERIALS QUALITY CONTROL: CONSTRUCTION PHASE

C3.9.1 Scope

~~This section covers the requirements for the provision and quality management of a site laboratory established to carry out the necessary materials testing and construction quality of the Works.~~

C3.9.2 Standards

~~The Service Provider shall procure as required under C3.1.13 a site laboratory service as a sub-service provider (during the Works tender period) including equipment, staff and administer a site laboratory to undertake the relevant acceptance control testing in accordance with specified requirements of the Works Contract as well as the Employer's standard requirements. A provisional sum has been allowed in the Pricing Schedule for this service.~~

~~The site laboratory shall operate under the umbrella of a SANAS accredited main laboratory that shall be responsible for ensuring that all sampling and testing is carried out accurately and strictly in accordance with the relevant SANS, TMH1 and COLTO Standard Specifications test methods as well as the SANAS accreditation requirements.~~

~~The Service Provider shall be responsible for the acts, defaults or neglects of any sub-service provider, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Service Provider, his agent, servants or workmen.~~

~~The Works Contract will provide accommodation for a site laboratory.~~

C3.9.3 Duties and responsibilities

C3.9.3.1 — Establishment and operation of the site laboratory

~~Provision for the erection of a site laboratory building, together with workbenches, services, furniture etc. will be made under the Works Contract, the planning and documentation for which shall be included in the tender documentation stage.~~

~~The Service Provider shall ensure through a sub-service provider procurement process, the supply of such laboratory equipment as necessary to carry out the required testing relevant to the scope of the Works. All equipment shall conform strictly to SANAS accreditation requirements and/or the specifications as listed in the relevant test methods.~~

C3.9.3.2 — Provision of laboratory staff

~~The Service Provider/sub-service provider shall establish materials testing staff on site to carry out the required acceptance control testing. The number of testing staff, as well as their respective level of skill/experience, as required in terms of ISO 17025, shall be dictated by the scope of the Works as well as the Contractor's production programme. The staffing levels of the site laboratory shall be approved by the Employer prior to their establishment on site. Staffing levels shall be subject to constant review throughout the Works Contract to ensure that quality control testing is carried out as efficiently as possible. The Engineer shall submit monthly Equivalent Indicator Unit (EIU) returns to the Employer, which shall form the basis of the regular staffing level review.~~

~~Accommodation and subsistence for testing staff shall be provided by the sub-service provider, for which the Service Provider shall make provision for when compiling the tender document for the service.~~

C3.9.3.3 — Laboratory administration

~~The Service Provider/sub-service provider – site laboratory services, shall cover full compensation for supplying and maintaining all office equipment and incidentals required for carrying out quality assurance testing and reporting including:~~

- ~~i) Cell phones, including rental and call charges.~~
- ~~ii) All safety equipment for laboratory personnel in accordance with the OHS requirements (e.g. safety jackets, orange lights, boots, etc.).~~
- ~~iii) All equipment including fax machine, consumables, stationary etc.~~
- ~~iv) All necessary computer hardware, software, printers and modems and associated consumables.~~

~~The Service Provider remain responsible to capture of all relevant data required for reporting to the Engineer and the compilation of “As-Built” Materials Records.~~

~~C3.9.3.4 Site laboratory quality assurance~~

~~The accredited main laboratory controlling the site laboratory shall carry out such internal audits/assessments of the site laboratory as required by SANAS/ISO 17025 accreditation. Included in such monitoring shall be regular correlation testing to ensure accuracy in testing. The frequency of correlation testing is not prescribed but shall be carried out at least on a monthly basis for high frequency testing, with the number of any particular tests being sufficient in number in order to permit statistical evaluation of test results.~~

~~C3.9.3.5 Testing of materials off-site~~

~~Any testing which may be of such a low frequency as to not warrant the establishment of the relevant equipment and staff on site, or being of a specialised nature, shall be carried out in an off-site SANAS accredited commercial laboratory. Provision for the costs of this testing shall been made in the Works Contract.~~

Item	Unit
39.01 On-site laboratory testing	
(a) Sub-service Provider	Prov. Sum (PS)
(b) Handling cost i.r.o. item 39.01(a)	Percentage (%)

~~Expenditure under item 39.01(a) shall cover all costs associated with the testing of materials carried out by the Sub-Service Provider (on-site laboratory), including, but not limited to:~~

- ~~(i) Establish on site of all laboratory staff required in accordance with Clause C3.9.3.1~~
- ~~(ii) Provision of all laboratory staff required in accordance with Clause C3.9.3.2~~
- ~~(iii) Laboratory administration in accordance with Clause C3.9.3.3~~
- ~~(iv) Site laboratory quality assurance in accordance with clause C3.9.3.4~~
- ~~(v) Establishment of site laboratory equipment in accordance with clause C3.9.3.1~~

~~The % tendered under item 39.01(b) shall include full compensation associated with the planning, scheduling compilation of tender documentation, issuing of tender in electronic and/or paper format and evaluation for the procurement of the on-site laboratory service, as well as handling fees and profit.~~

PART C4: SITE INFORMATION

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C.4.1 LOCATION OF THE PROJECT

The proposed project is located on National Route 3 Section 7X and 8X between Harrismith (Warden Street interchange) and Warden (Vrede interchange) in the Free State.

N3-7X km 36.0 to km 63.0 and N3-8X km 0.0 to km 24.6 (HIGHWAY SECTION 15XA AND 15XB).

A locality plan is included in Annexure A of this document. Details of the construction history and existing pavement structure along this portion of the route are also included in Part C4.4.

C.4.2 GEOMETRIC INFORMATION

TABLE 4.2.1 Highway Section 15X

DESCRIPTION	CURRENT	ENVISAGED
Project limits	N3-7X km 36.0 to km 63.0 N3-8X km 0.0 to km 24.4 Total Length = 51.4 km	Same
Interchanges	N3-8X: Bethlehem Interchange, km 18.53 N3-8: Vrede Interchange, km 30.0	It is not envisaged that existing ramps will be affected or the overpass road on the Bethlehem IC will be realigned
Toll Plazas	N/A	No change
TRH 4 Road Category	A: 4 lane undivided carriageway highway	No change
Design speed	120 km/h (Some sections do not meet specification)	Assess feasibility of applying geometric standards for 120 km/h design speed only where permanent infrastructure is required
Level of service - highway	Refer to PD Report Dec 2021	Review as per C3.1.3
I/C capacity	Acceptable	No change to existing
Cross section	HS15X: At bridges Total Carriageway: ±19.6 m Lanes: 2 x 3,5 m + 2 x 3.4 m Painted median ± 0,8m Surfaced Shoulder: 2.5 m HS15X: N3 carriageway Total Carriageway: ±19.6 m maximum Lanes: 2 x 3,5 m + 2 x 3.4 m Painted median ± 0,8m Surfaced Shoulder: 2.5 m to 0.6 m (Varies)	Shoulders will be reconstructed and surfaced to cross section width of 19.6m, where applicable, over the project length. Local widening of the carriageway will be required for the implementation of a wire rope barrier where the left-in left-out intersections will be constructed. 6 existing bridges will be widened to accommodate the 19.6 m cross section.
Surface area	Main Carriageway (Both): Asphalt pavement: ± 812 000 m ²	Add approximately 200 000 m ² of new surfaced shoulder on existing carriageway
Structures	N3-8X: Bethlehem Interchange, km 18.53	No change
	N3-8: Vrede Interchange, km 30.0	Realignment of ramps
	B1391 Balmoral Spruit	Widen to 19.6 m
	B1392 Riet Spruit	Widen to 19.6 m
	B1393 Meul River	Widen to 19.6 m
	B1394 Leeuwbank Spruit	Widen to 19.6 m
	B1395 Warden Rail	Widen to 19.6 m
	B1396 Cornelis River	Widen to 19.6 m
	Bridge NBTN1 42nd Hill IC	New overpass bridge
	Bridge NBTN2 Balmoral IC	New overpass bridge
	Bridge NBTN3 Raal Underpass IC	New underpass bridge
	Bridge NBTN4 Eeram IC	New overpass bridge
Bridge NBTN5 Bosch IC	New overpass bridge	

	Bridge NBTN6 Agrimeul IC	New overpass bridge
	Bridge NBTN7 Burlesca IC	New overpass bridge
	Bridge NBTN8 Clear Waters IC	New overpass bridge
	Bridge Warden North N3-8X km 21	New overpass bridge

When carrying out the detailed design, the Service Provider shall take into account Annexure 1: Engineering Requirements of the Concession Contract.

C.4.3 TRAFFIC INFORMATION

The N3 is one of the most important economic routes in the country with an extremely high number of heavy vehicles. Consequently, all designs will have to take due cognisance of limiting disruptions to traffic flow to a minimum. On the N3 there shall be at least one lane available in each direction at all times. In addition, N3TC complies with an in-house Critical Dates Planner that requires all 4 lanes to be open during certain peak periods.

It is envisaged to accommodate traffic on the existing carriageway in a contra-flow scenario during construction of the surfaced shoulders, bridge widening and new bridge construction that will allow for one (1) lane per direction, as a minimum, at all times. For the construction of the left-in left out intersections with median rope barriers, it is envisaged that diamond closure configuration will be required.

Temporary traffic accommodation by means of Stop/Go control may be permissible while working on interchange ramps and cross roads.

Raising of bridge decks is not anticipated, but the design and ongoing pavement strategy must take clearances into account.

Accident records will be made available to the Service Provider. When considering the design, the Service Provider shall take accident statistics into account.

The Service Provider shall refer to the relevant N3TC Annual Traffic Report, which shall be provided. Presented below is the N3TC traffic forecast for the remainder of the Concession period. For the purposes of pavement design, N3TC uses 3,12 E80 per HV.

TABLE 4.3.1 Traffic Data. Based on actual traffic as at December 2021

Traffic Section 10 (Harrismith South I/C to Warden North I/C)				
CTO 3024 (Harrismith HSWIM)				
YEAR	TOTAL (AADT)		HV (Total) (AADTT)	
	VEHICLES	GROWTH	VEHICLES	GROWTH
2021	12,726		5,157	
2022	13,038	2.5%	5,351	3.8%
2023	13,304	2.0%	5,516	3.1%
2024	13,558	1.9%	5,673	2.8%
2025	13,892	2.5%	5,880	3.6%
2026	14,249	2.6%	6,101	3.8%
2027	14,660	2.9%	6,356	4.2%
2028	15,106	3.0%	6,632	4.3%
2029	15,567	3.1%	6,920	4.3%

Notwithstanding the above traffic data based on assumptions, the Service Provider shall use the latest traffic data available at the time of carrying out the detailed design.

C.4.4 PAVEMENT INFORMATION

RSP measurements are taken annually during August – September. The last instrument survey was undertaken in September 2021. The following 2021 information is included in Annexure C:

- Rut Depths
- Riding Quality

FWD measurements are taken annually during February - March. The 2020 and 2021 FWD data is presented graphically in Annexure C. The last FWD survey was undertaken in March 2022, the results of which will be provided to the Service Provider.

C.4.4.1 THE SITE

Highway Section 15X comprises of Route Sections 7X and 8X, which form part of the N3 Toll Road between Harrismith and Warden. The extent of these sections are as follows:

- N3-7X km 36.0 to km 63.0 (HS15XA)
- N3-8X km 0.0 to km 24.6 (HS15XB)

Highway Section 15X was constructed in 1986 consisting of a single carriageway with a camber.

During the period 2000 to 2007, various random sections of the slow lane base was reconstructed by recycling the existing base layer as an ETB and surfaced shoulders were constructed in isolated areas. A single seal together with intermittent pavement rehabilitation was applied during 2011/2012. Approximately 50% of the upper pavement layers were rehabilitated and the road surfaced with a 40 mm thick bitumen rubber asphalt overlay in 2017.

Table 4.4.1 summarises the Highway Section 15XA and B pavement.

TABLE 4.4.1

DESCRIPTION	CURRENT	ENVISAGED
TRH 4 Structural design category	Original: ES 10	ES 10
Past traffic loading	E80 / HV: 2.65 - 2.85	Review of N3TC Traffic Data
Future traffic loading	E80 / HV: 3.2 (Carriageway) E80 / HV: 2.04 (New interchanges) E80 / HV: 1.91 (Access Roads)	Review of N3TC Traffic Data
Structural design period	31 MESA (November 2029 + 3 MESA)	Review of N3TC Traffic Data
Current pavement structure	Construction 1986 <ul style="list-style-type: none"> • 40 AG overlay • 150 G1 • 150 C3 • 150 C4 • G7 Current <ul style="list-style-type: none"> • 75 to 180 AC / S1 combinations • 150 to 300 C3 / ETB or 100 BC • 150 to 300 C4 / G6 / ETB • G7 / G8 • G9 	Rehabilitation 2025 <ul style="list-style-type: none"> • 14 BR S1 plus Isolated where required • 40 to 90 AC • 310 C4 or 150 to 300 C4 / G6 / ETB

C.4.5 GEOTECHNICAL

The cut slopes shall be inspected, and in consultation with the Employer, it may be agreed that the batter of some of the slopes will be altered to facilitate better vegetation cover.

There are no known geotechnical problem areas identified on this section of the route.

Refer to the PD Bridge Reports for related geotechnical information.

C.4.6 MATERIAL SOURCES

Material sources for natural/crushed gravel for earthworks, layer works, asphalt and concrete layers will have to be identified and approved. Dependant on the quantities of each, it may be cost effective to source some, or all, materials from commercial sources.

Quarries have been identified but the source option must be augmented with commercial options. The quarries confirmed for use on the project will have to be acquired by SANRAL. The Service Provider will play a pivotal role in providing Property Reports and Land Acquisition Diagrams.

C.4.7 LAND REQUIREMENTS

TABLE 4.7

DESCRIPTION	CURRENT	ENVISAGED
Permanent land acquisition	Liaison with Free State Department and SANRAL re “land acquisition” vs “proclamation with compensation”. Property Reports and Land Acquisition for proposed overpasses/interchanges, Service and Access roads and borrow pits.	Based on discussions with the FS Department a final decision will be taken re the “method of land acquisition and declaration”.
Temporary land requirements	Liaison with Free State Department and SANRAL re “land acquisition” vs “proclamation with compensation”. Property Reports and Land Acquisition for proposed overpasses/interchanges, Service and Access roads and borrow pits.	Based on discussions with the FS Department a final decision will be taken re the “method of land acquisition and declaration”.

C.4.8 ENVIRONMENTAL REQUIREMENTS

TABLE 4.8

DESCRIPTION	CURRENT	ENVISAGED
Environmental Authorisation	Environmental concerns to be addressed and approvals obtained. This must be done in agreement with the Free State Province. The following list of environmental activities and approvals will be dealt with by the <u>N3TC IEC</u> . <ul style="list-style-type: none"> • Environmental Authorisation for the project • Water Use Licence (Under the General Authorisation procedure.) • Freshwater specialist studies • Wetland specialist studies • Legal status of private dams in the vicinity of the proposed Interchanges and Service and Access Roads • Heritage study • Ecological survey to identify sensitive fauna and flora • Environmental authorisation for use (mining of borrow areas) of borrow pits 	BA is envisaged for the project BA for borrow pit is dependent on borrow pit requirements

The Employer will appoint a third-party Service Provider for all environmental authorisations. The Service Provider shall provide all of the necessary information to the Environmental Consultant.

C.4.9 DRAINAGE

Drainage forms an integral part of the upgrade design. It is assumed that the existing sub surface drains are not fully functional in areas and will require testing and possible replacement.

The drainage design of the interchanges and the culverts under the N3 in the vicinity of the interchanges only, were assessed for capacity. Additional culverts were recommended if required.

The Access and Service Roads are mainly designed across greenfield areas. Thus, the construction of these new roads will change the drainage paths of the natural runoff. Previously unobstructed flow paths will be intercepted by the road and concentrated at the culvert outlets. To minimize the effect of the concentrated runoff, culvert spacing must be considered at regular intervals.

Some areas have been identified where the water film depth could potentially cause hydroplaning. These areas should be considered for drainage improvements.

TABLE 4.9

DESCRIPTION	CURRENT	ENVISAGED
Side drains	Existing	Review condition and level. Propose additional lining where considered appropriate due to addition of surfaced shoulders.
Median drains	N/A	N/A
Meadow drains	Existing	Concrete linings to be considered.
Sub-surface drains	Existing	Assessment shall be made to determine whether new sub-surface drains are functional and whether new subsoils are required.
Culverts	Existing	To be assessed.
River bridges	Existing	5 x river bridges to be widened shall be assessed and only improvements required by the Bridge Report shall be designed for consideration.

C.4.10 ROAD FURNITURE

The existing road furniture is generally in a good condition

TABLE 4.10

DESCRIPTION	CURRENT	ENVISAGED
Road Signs & Route marker boards	Existing	New signs shall be designed taking the left-in left-out intersections into consideration.
Gantries	N/A	N/A
Guardrails	Existing	All existing guardrails affected by the left-in left out intersections and/or interchanges will be removed / re-instated to new level and possibly position.
Roadstuds	Existing	To be replaced on new surfacing where applicable.

C.4.11 STRUCTURES

The vertical clearance on the overhead structures must be checked and the vertical clearance requirements must be maintained.

The construction of the 9 new overpass/underpass bridges require a 5.2 m clearance and in some instance a 6.0 m clearance.

Table 4.11 Bridges

BRIDGE NUMBER	BRIDGE NAME	POSITION	DESIGN	CONSTRUCT
B1391	Balmoral Spruit (Widen Only)	N3-7X km 43.16	Yes	Yes
B1392	Riet Spruit (Widen Only)	N3-7X km 43.51	Yes	Yes
B1393	Meul River (Widen Only)	N3-8X km 0.1	Yes	Yes
B1394	Leeuwbank Spruit (Widen Only)	N3-8X 4.77	Yes	Yes
B1395	Warden Rail Underpass (Widen Only)	N3-8X km 10.9	Yes	Yes
B1396	Cornelis River (Widen Only)	N3-8X km 21.24	Yes	Yes
Bridge NBTN1	42nd Hill IC	N3-7X km 37.03	Yes	Yes
Bridge NBTN2	Balmoral IC	N3-7X km 42.49	Yes	Yes
Bridge NBTN3	Raal Underpass IC	N3-7X km 45.45	Yes	Yes
Bridge NBTN4	Eeram IC	N3-7X km 53.31	Yes	Yes
Bridge NBTN5	Bosch IC	N3-7X km 61.29	Yes	Yes
Bridge NBTN6	Agrimeul IC	N3-8X km 1.22	Yes	Yes
Bridge NBTN7	Burlesca IC	N3-8X km 6.07	Yes	Yes
Bridge NBTN8	Clear Waters IC	N3-8X km 11.90	Yes	Yes
Bridge NBTN9 (B1424)	Bethlehem IC (Existing)	N3-8X km 18.54	No	No
--	Warden North Overpass	N3-8X km 20.40	Yes	Yes
B727	Vrede Interchange (Existing) Redesign ramps.	N3-8 km 30.0	No	No

The as-built drawings, if available, for the bridges to be widened will be supplied to the Service Provider.

C4.12 SERVICE AND ACCESS ROADS

Tabulated below are the service and access roads that will be required to be assessed and designed during the detailed design phase. Refer to PD for road number reference.

Service/Access Road number	Approximate length
S1	2,45 km
S3	1,0 km
A1	1,45 km
A6	1,9 km
A7	0,7 km
A12	0,84 km
A15	1,8 km
A16	1,84 km
Total	11,98 km

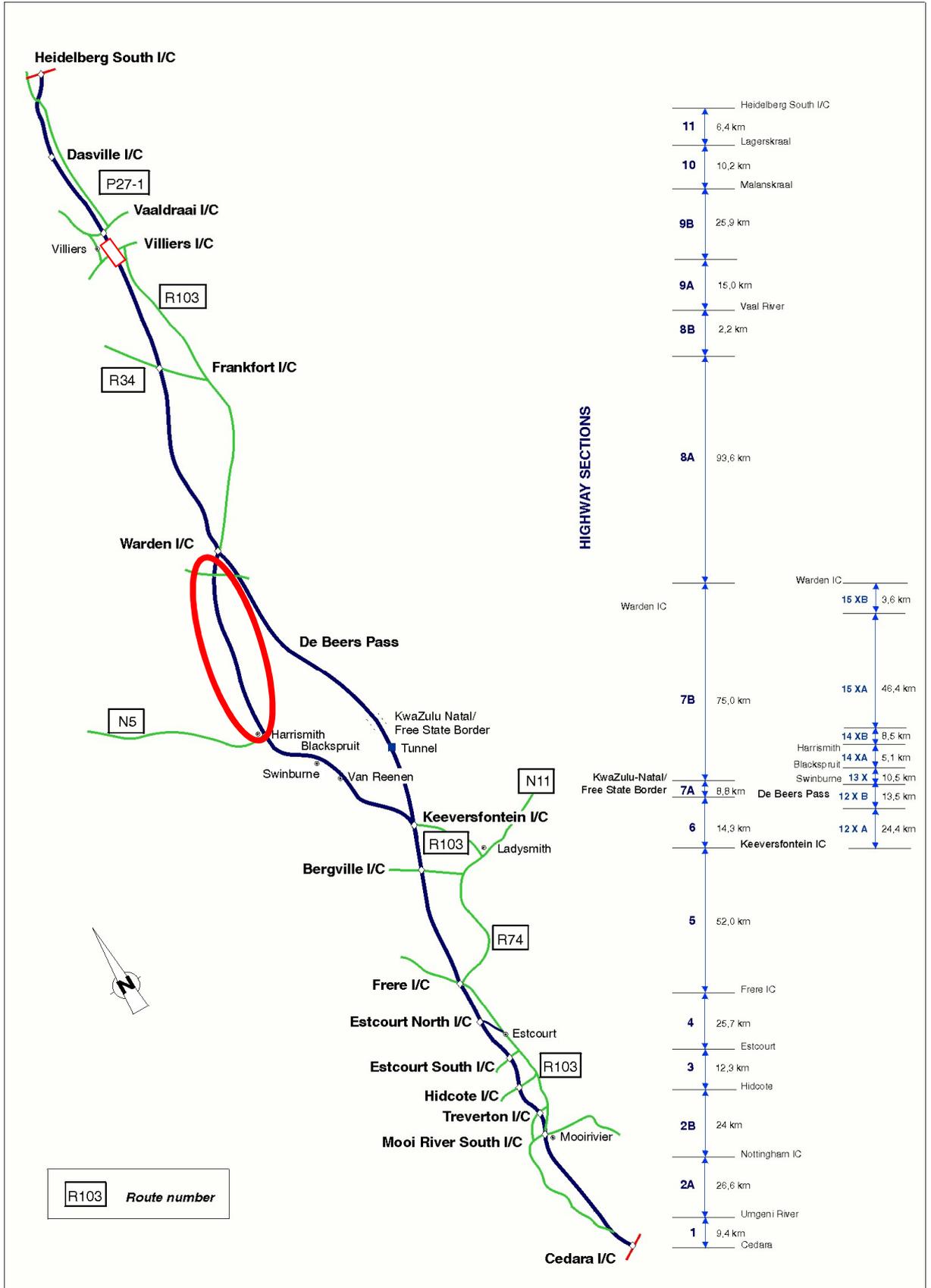
PART C5: ANNEXURES

ANNEXURES

List of contents:

- Annexure A: Locality Plan
- Annexure B: Traffic Information
- Annexure C: Pavement Information
- Annexure D: Historical Rehabilitation Information (Rehabilitation Strategy)
- Annexure E: Employer's OHS Specification for Service Providers including
Project Baseline Risk Assessment
- Annexure F: Bridge As – Built Drawings
(To be supplied once proof of payment of tender fee has been received.)
- Annexure G: 2020 Principal Bridge Inspection Data (ITIS)
(To be supplied once proof of payment of tender fee has been received.)

Annexure A: Locality Plan



N3 CONCESSION PROJECT

LOCALITY PLAN

RH/0025M/6

Annexure B: Traffic Information

Refer to C4.3 for Traffic Data

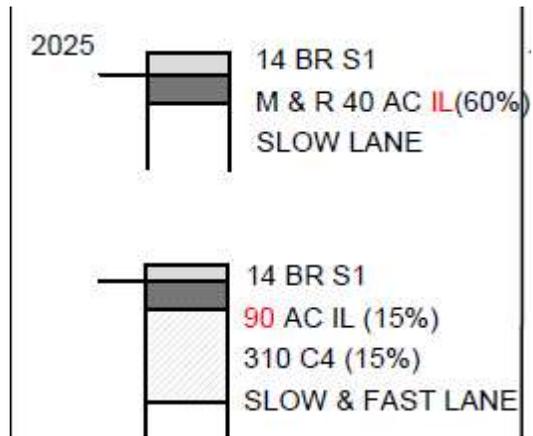
Annexure C: Pavement Information

- C1 : N3TC Rehabilitation strategy (2025 – 2029)**
- C2 : Riding Quality (IRI Graph 2021)**
- C3 : Rut Depth (Graph 2021)**
- C4 : FWD Deflection (Normalised d0) (Graph 2021)**
- C5 : FWD Deflection Trend Analysis**
- C6 : Strip Maps**

ANNEXURE C1

N3TC Rehabilitation strategy:

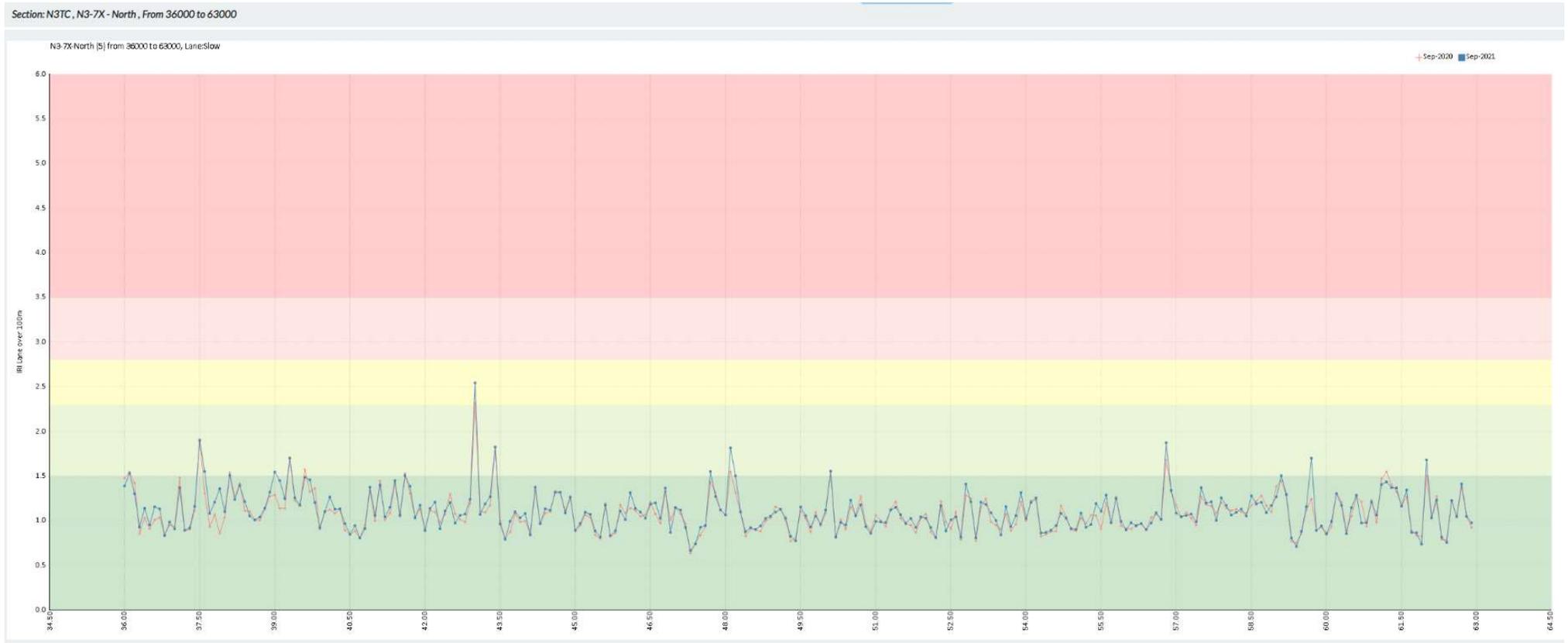
N3-15XA and B



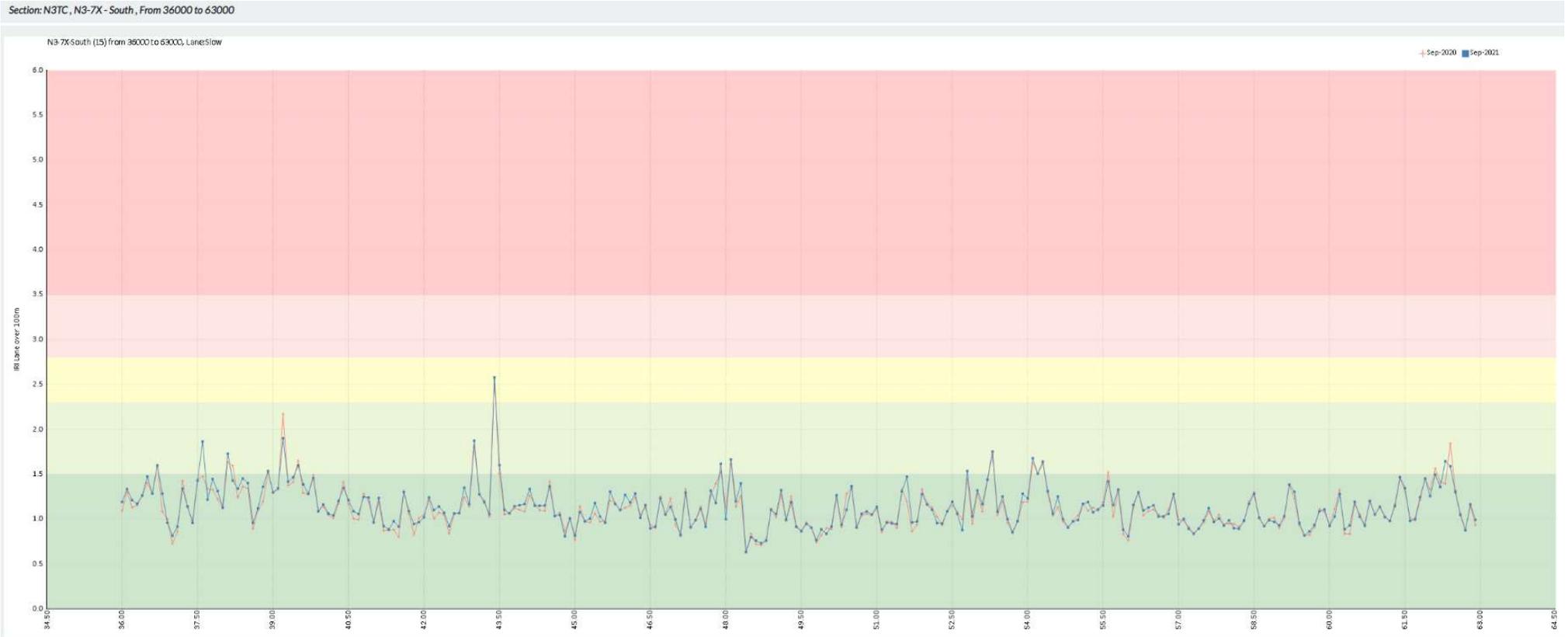
**N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
HIGHWAY SECTION 15XA and 15XB**

ANNEXURE C2: RIDING QUALITY (IRI)

N3-7X Northbound km 36.0 to km 63.0 - Lane IRI over 100m

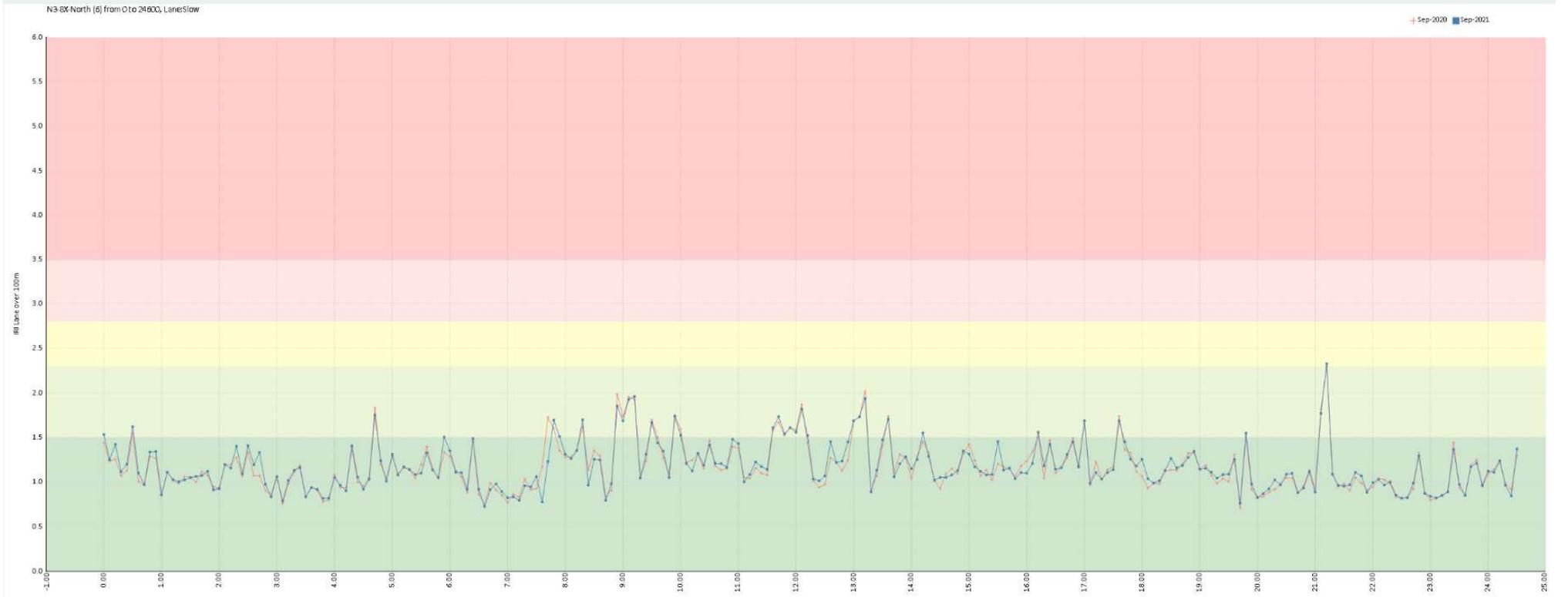


N3-7X Southbound km 36.0 to km 63.0 - Lane IRI over 100m

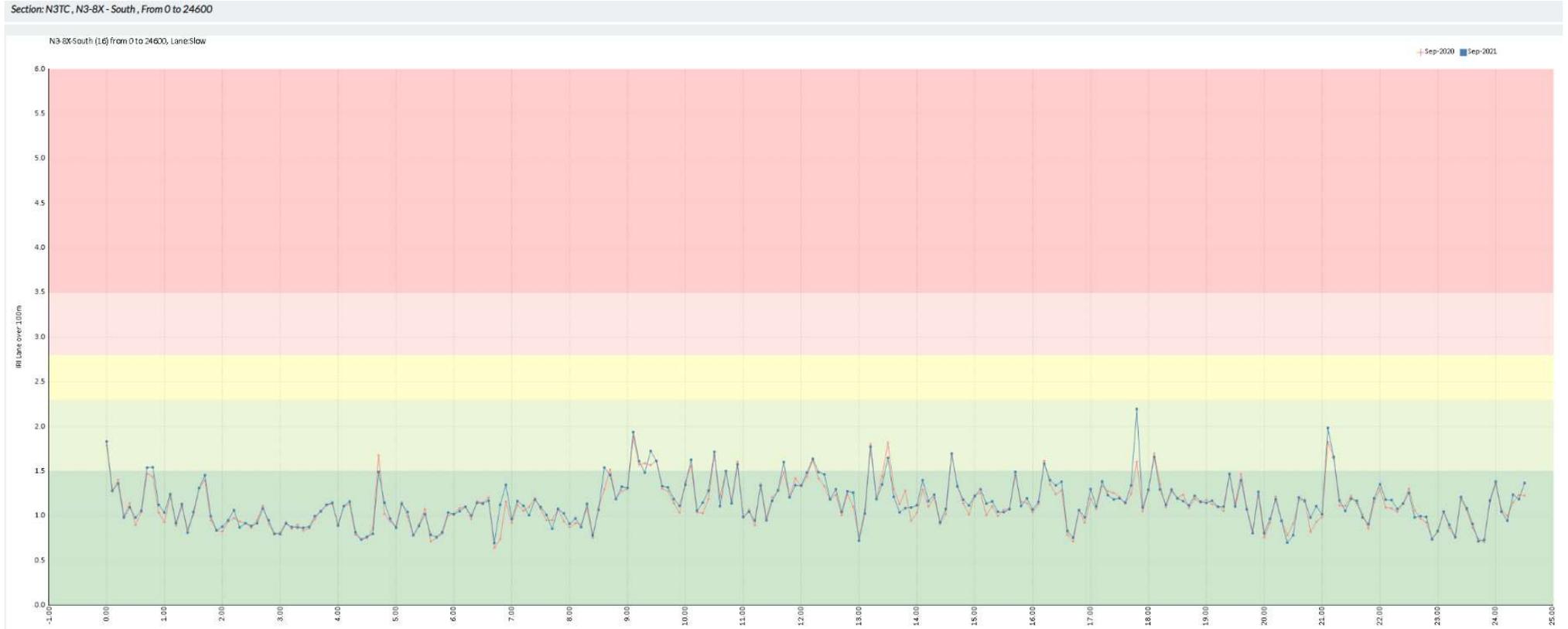


N3-8X Northbound km 0.0 to km 24.6 - Lane IRI over 100m

Section: N3TC, N3-8X - North, From 0 to 24600

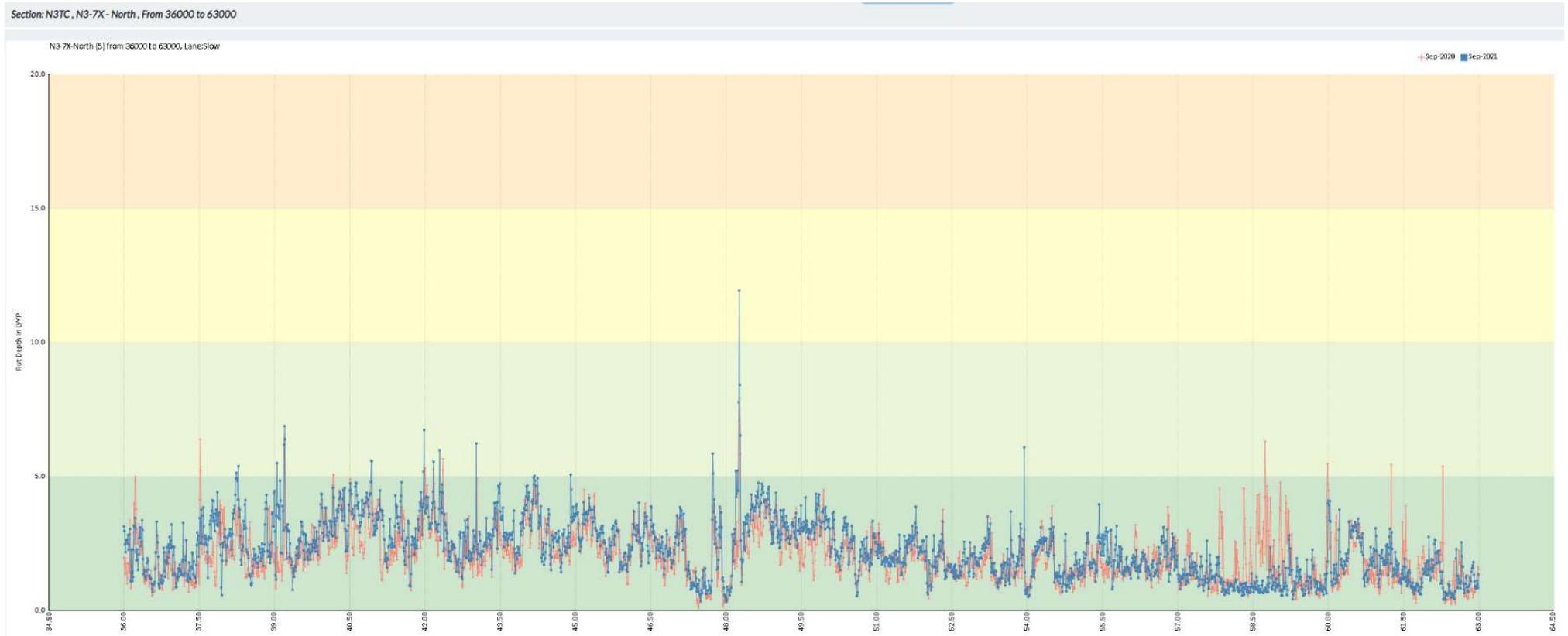


N3-8X Southbound km 0.0 to km 24.6 - Lane IRI over 100m



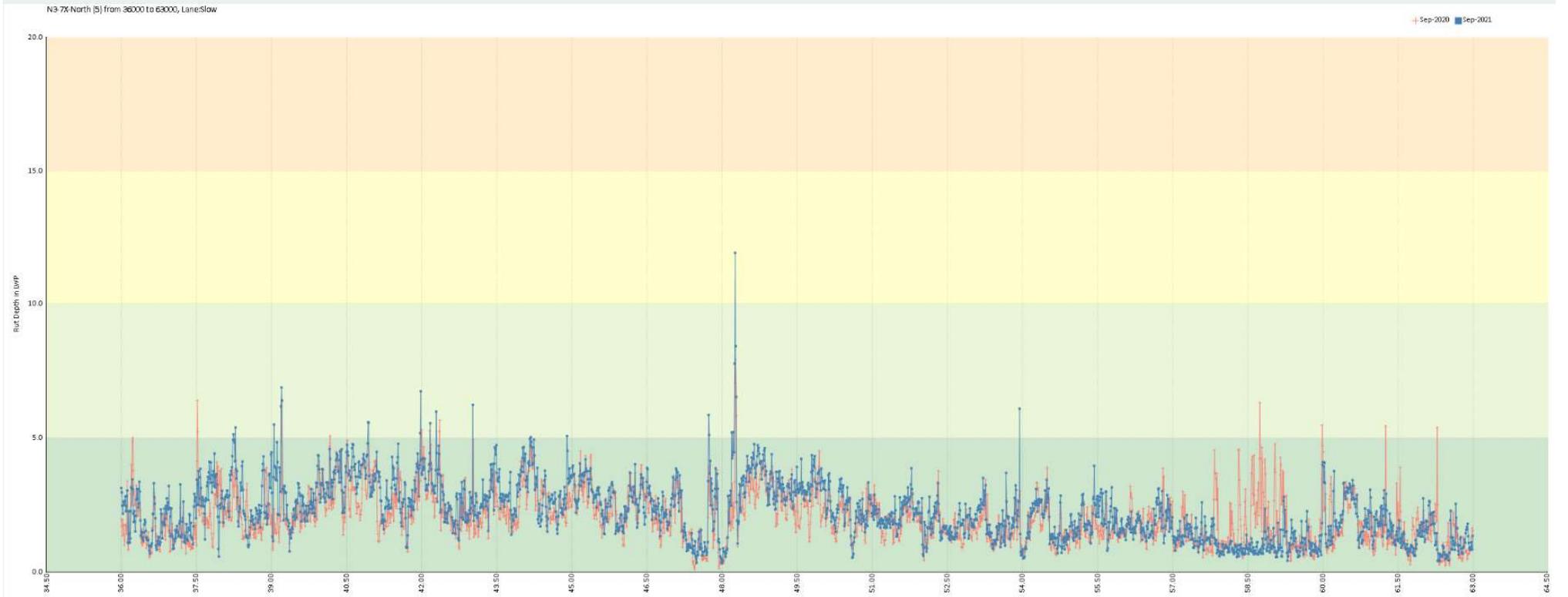
ANNEXURE C3: RUT DEPTH

N3-7X Northbound km 36.0 to km 63.0 - LWP Mean Rut Depth

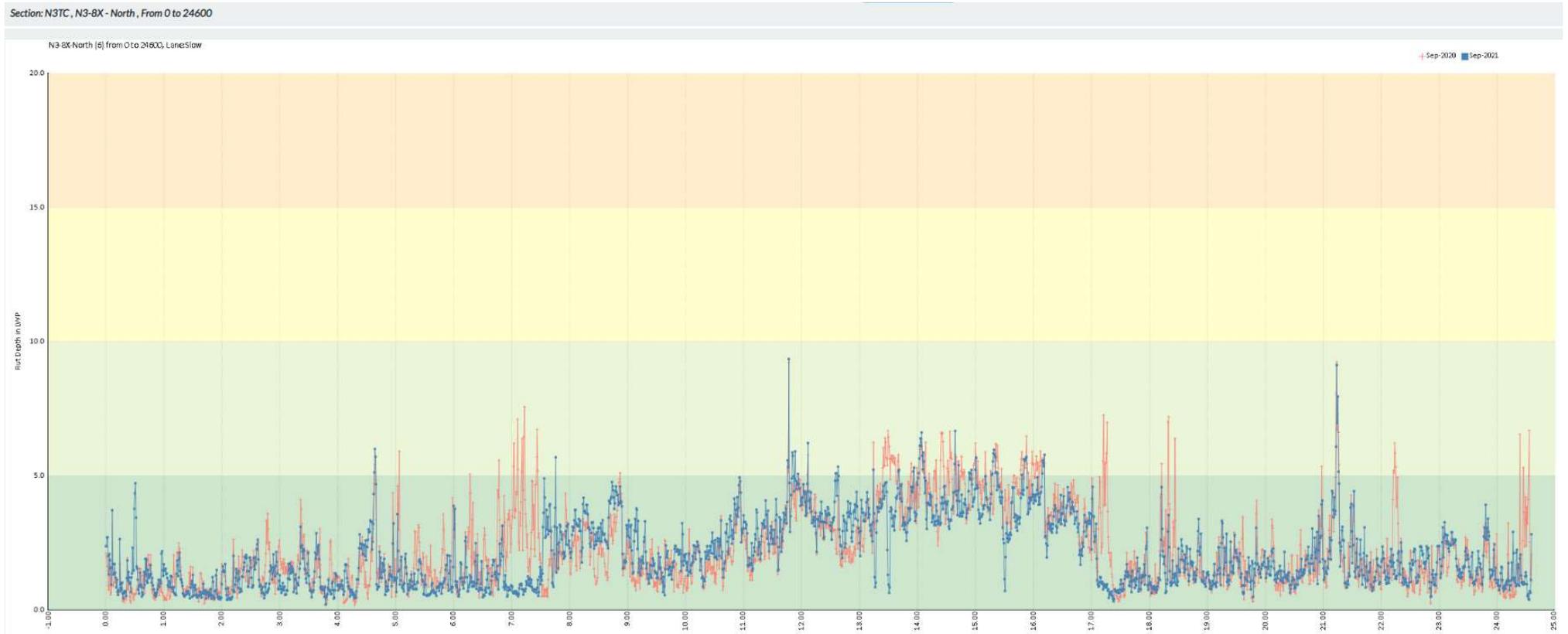


N3-7X Southbound km 36.0 to km 63.0 - LWP Mean Rut Depth

Section: N3TC, N3-7X - South, From 36000 to 63000

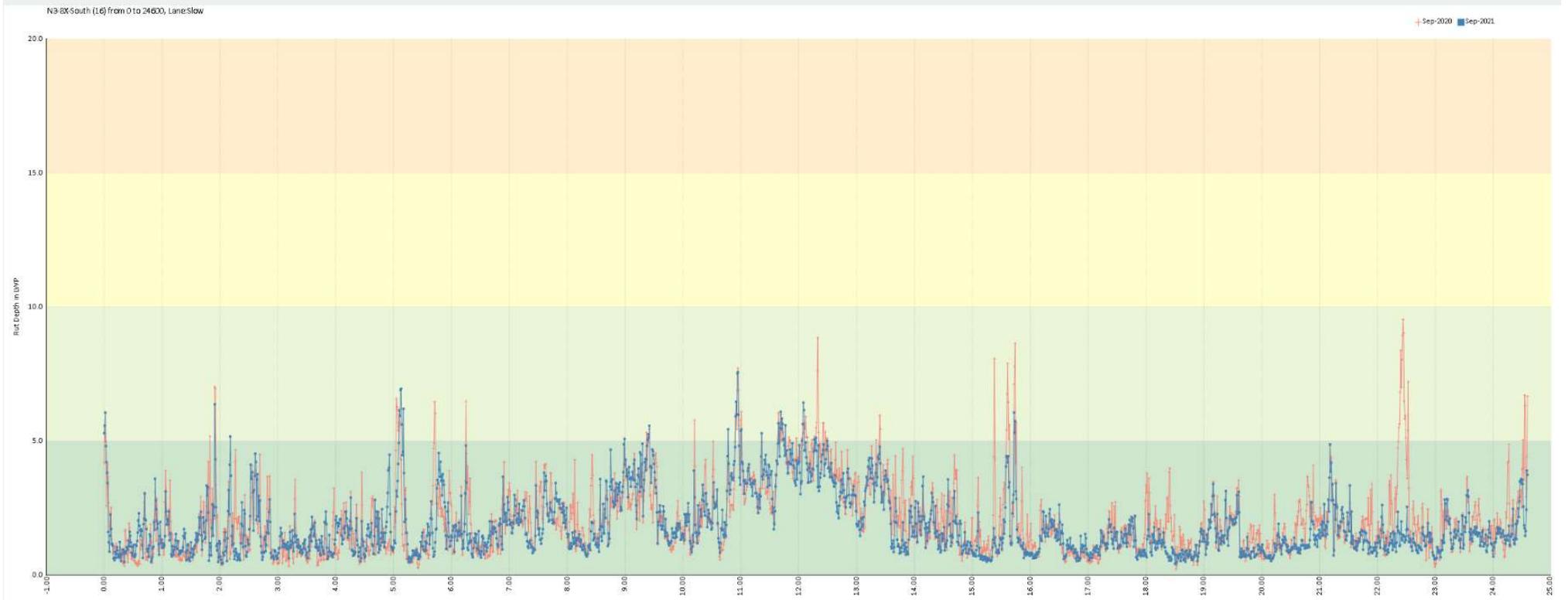


N3-8X Northbound km 0.0 to km 24.6 - LWP Mean Rut Depth



N3-8X Southbound km 0.0 to km 24.6 - LWP Mean Rut Depth

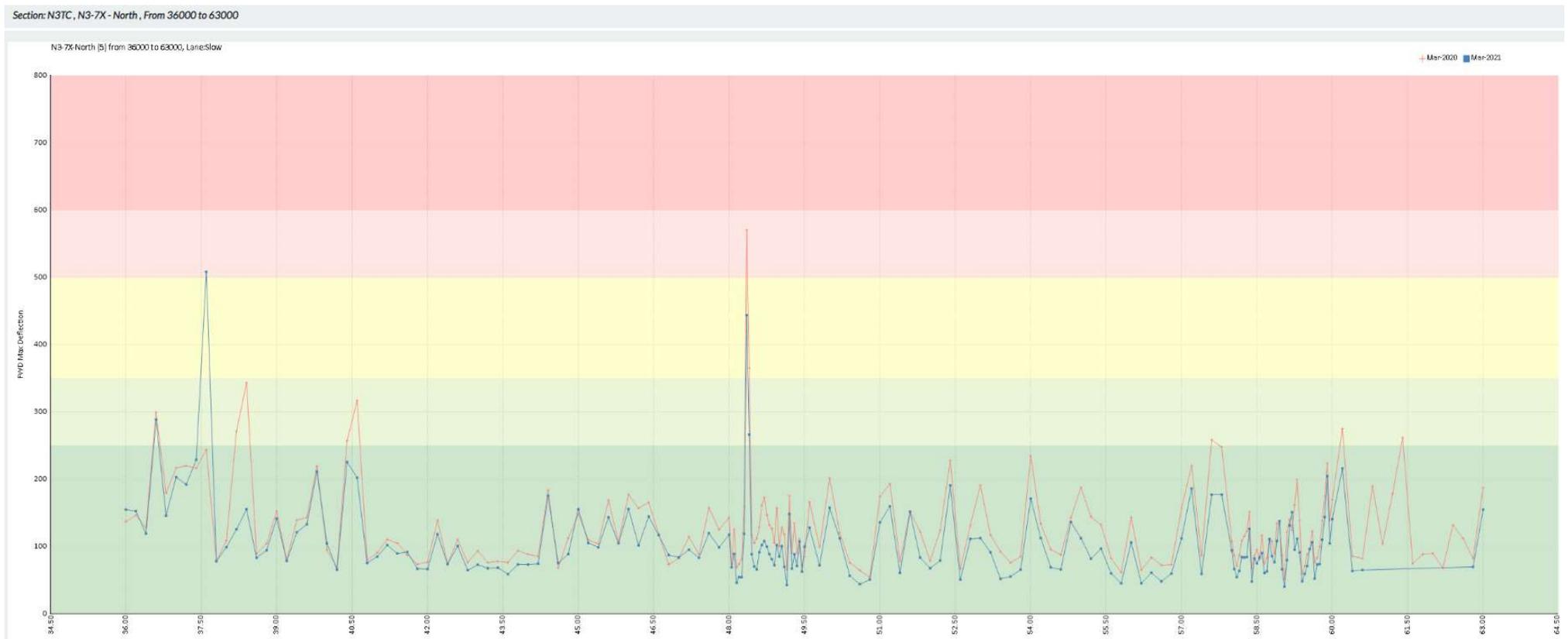
Section: N3TC, N3-8X - South, From 0 to 24600



ANNEXURE C4: FWD DEFLECTION (NORMALISED D0)

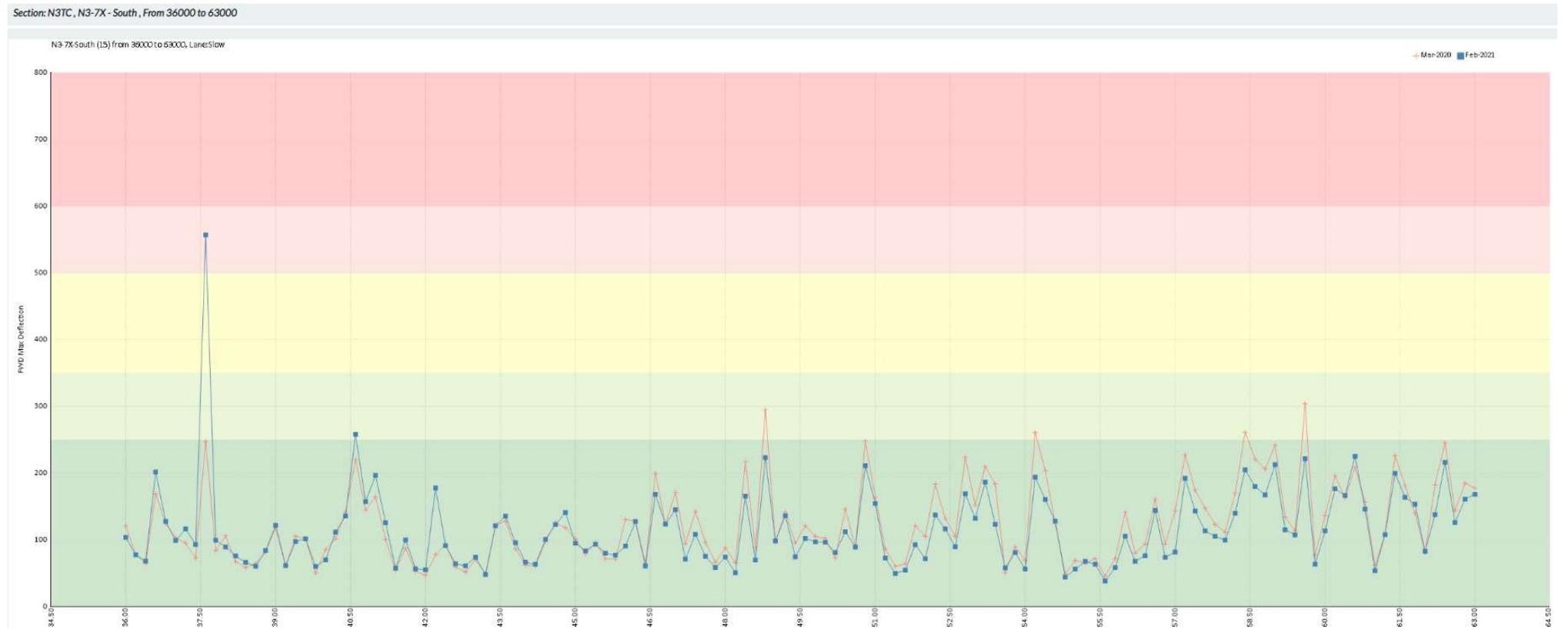
N3-7X Northbound km 36.0 to km 63.0 - FWD Normalized D0

Slow Lane



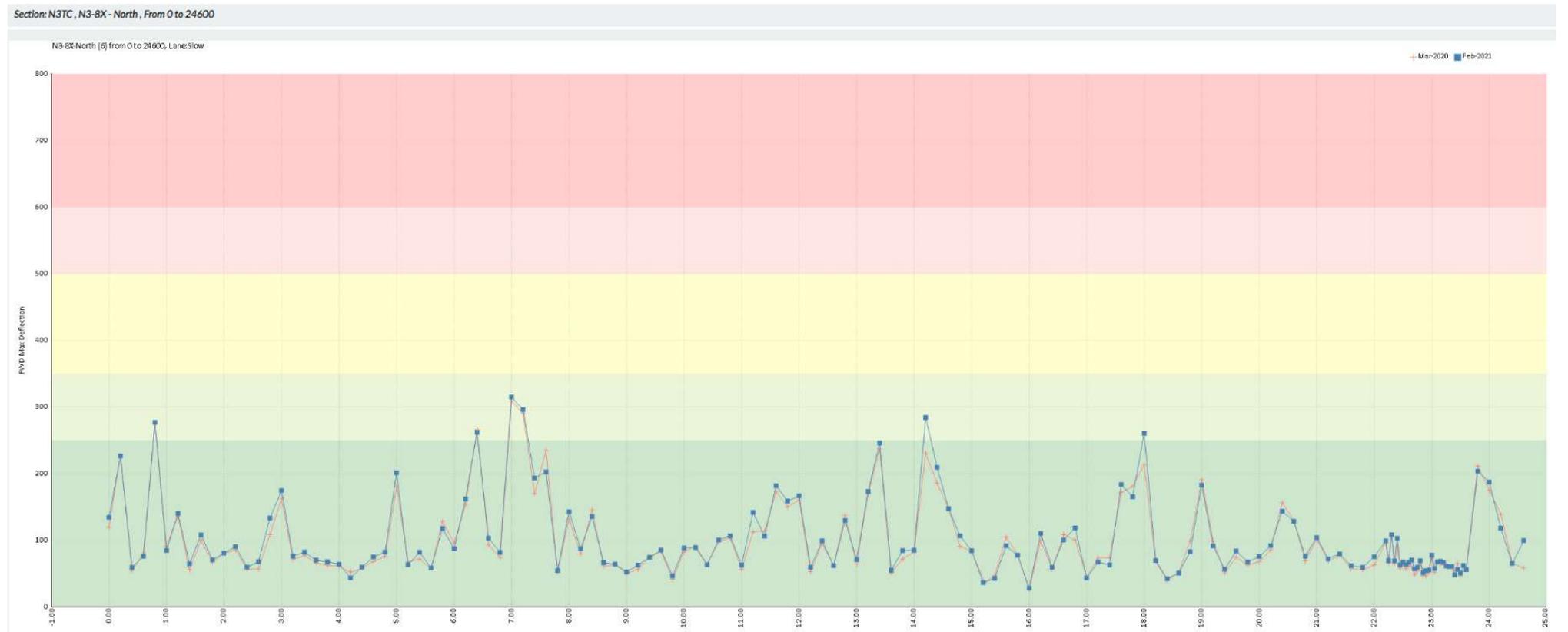
N3-7X Southbound km 36.0 to km 63.0- FWD Normalized D0

Slow Lane



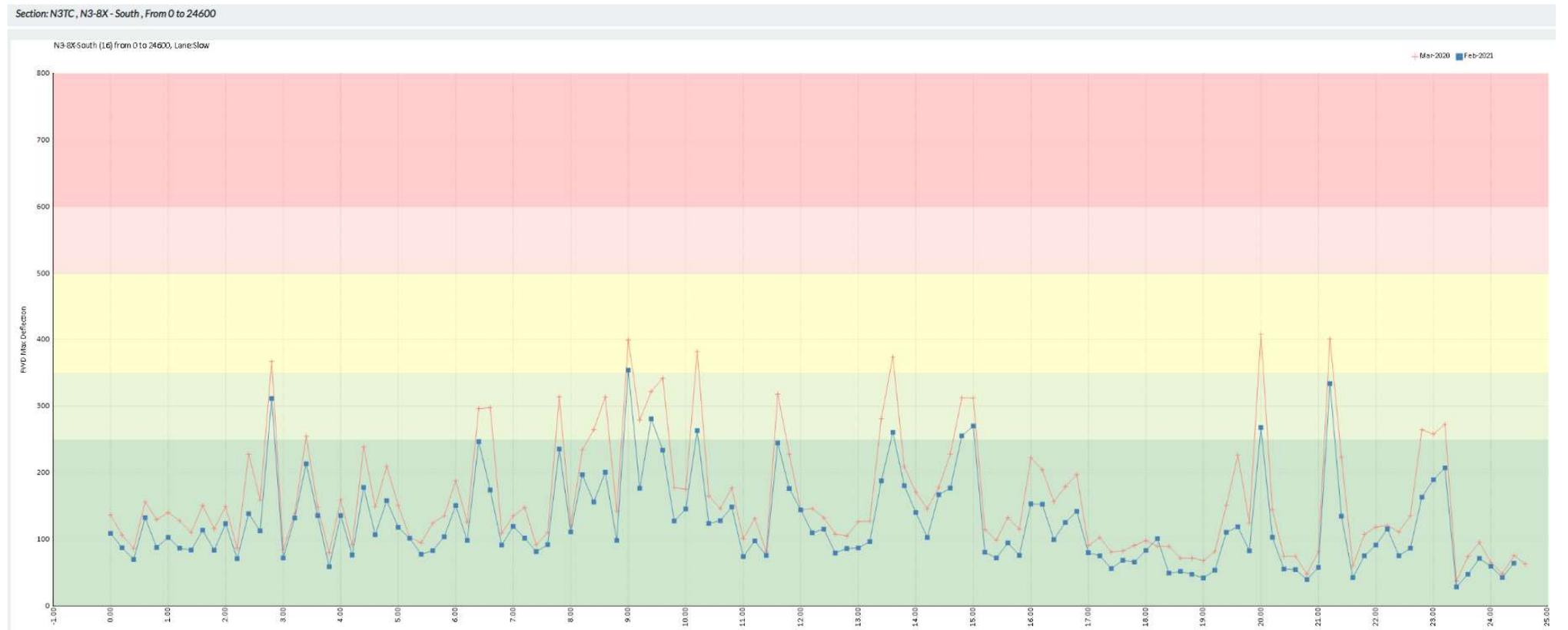
N3-8X Northbound km 0.0 to km 24.6 - FWD Normalized D0

Slow Lane



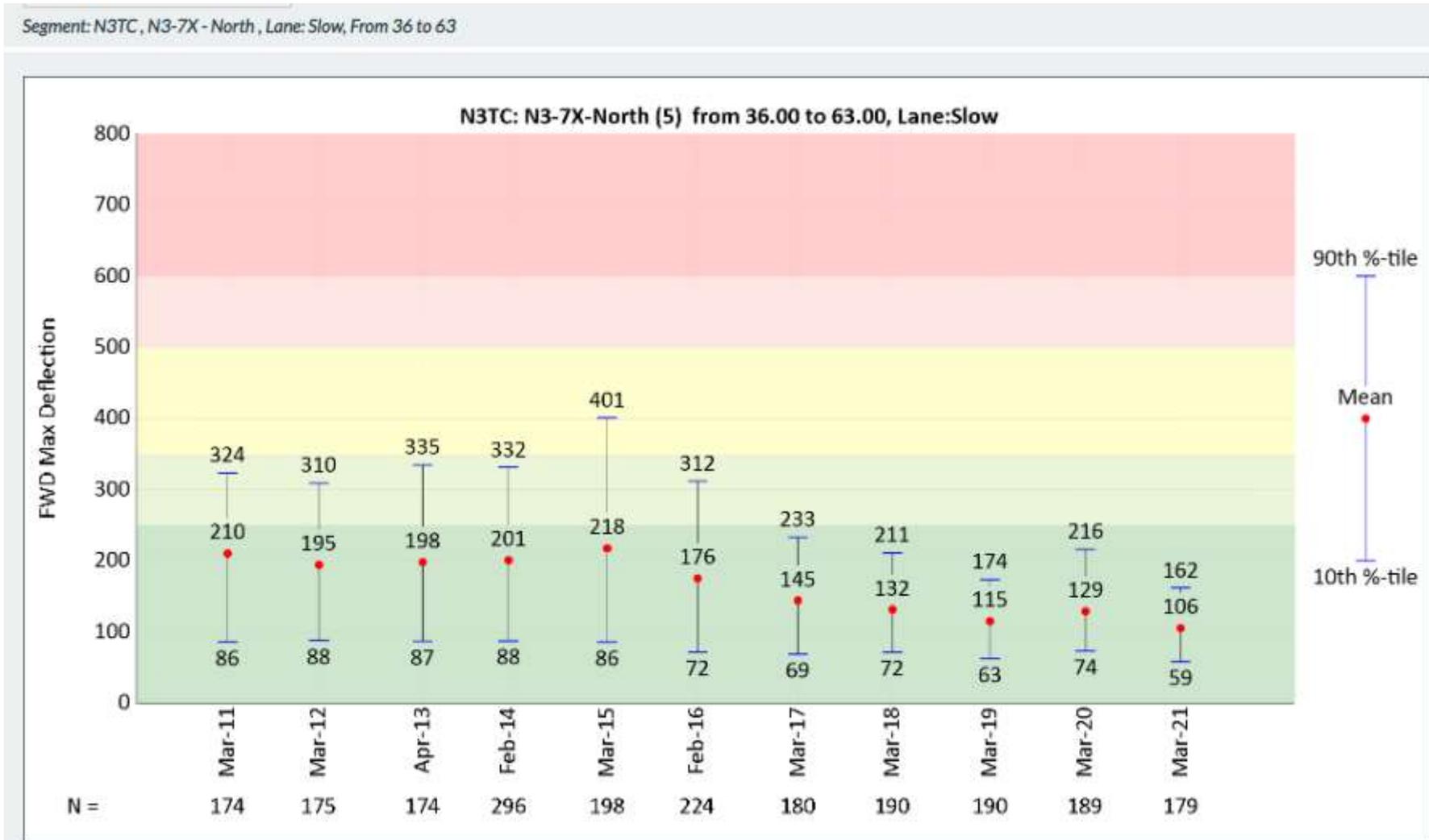
N3-8X Southbound km 0.0 to km 24.6 - FWD Normalized D0

Slow Lane



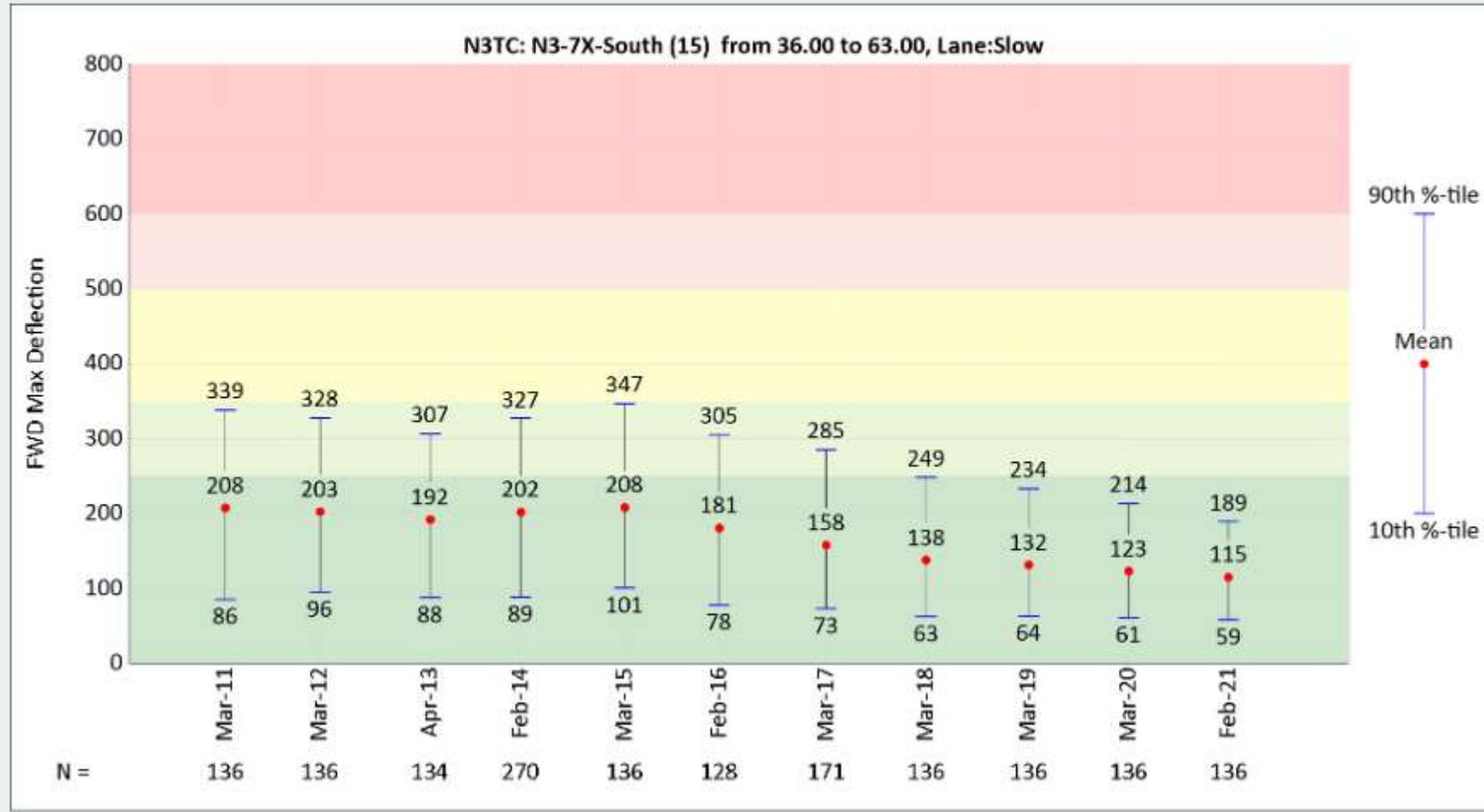
ANNEXURE C5: FWD DEFLECTION TREND ANALYSIS

N3-7X Northbound km 36.0 to km 63.0



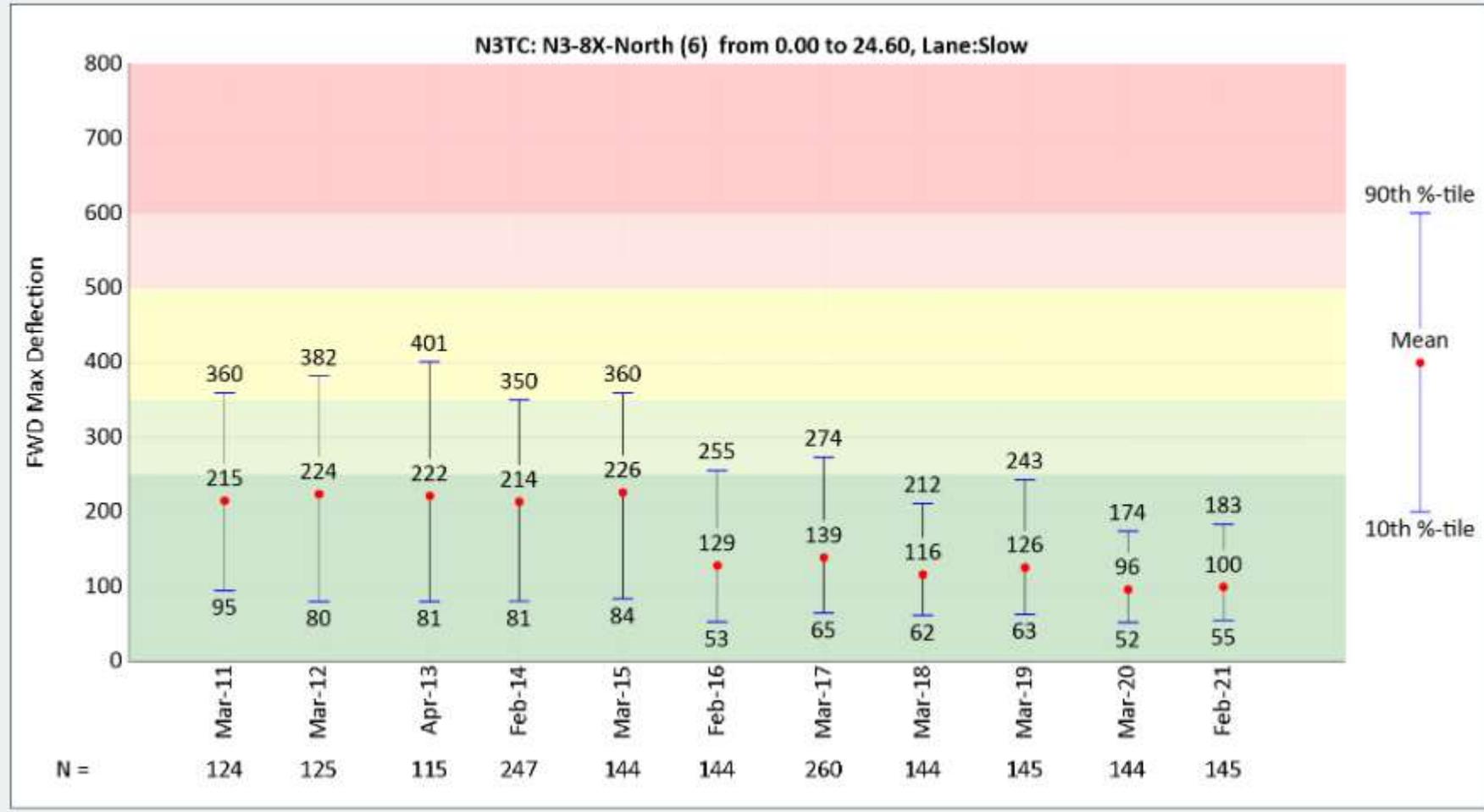
N3-7X Southbound km 36.0 to km 63.0

Segment: N3TC, N3-7X - South, Lane: Slow, From 36 to 63



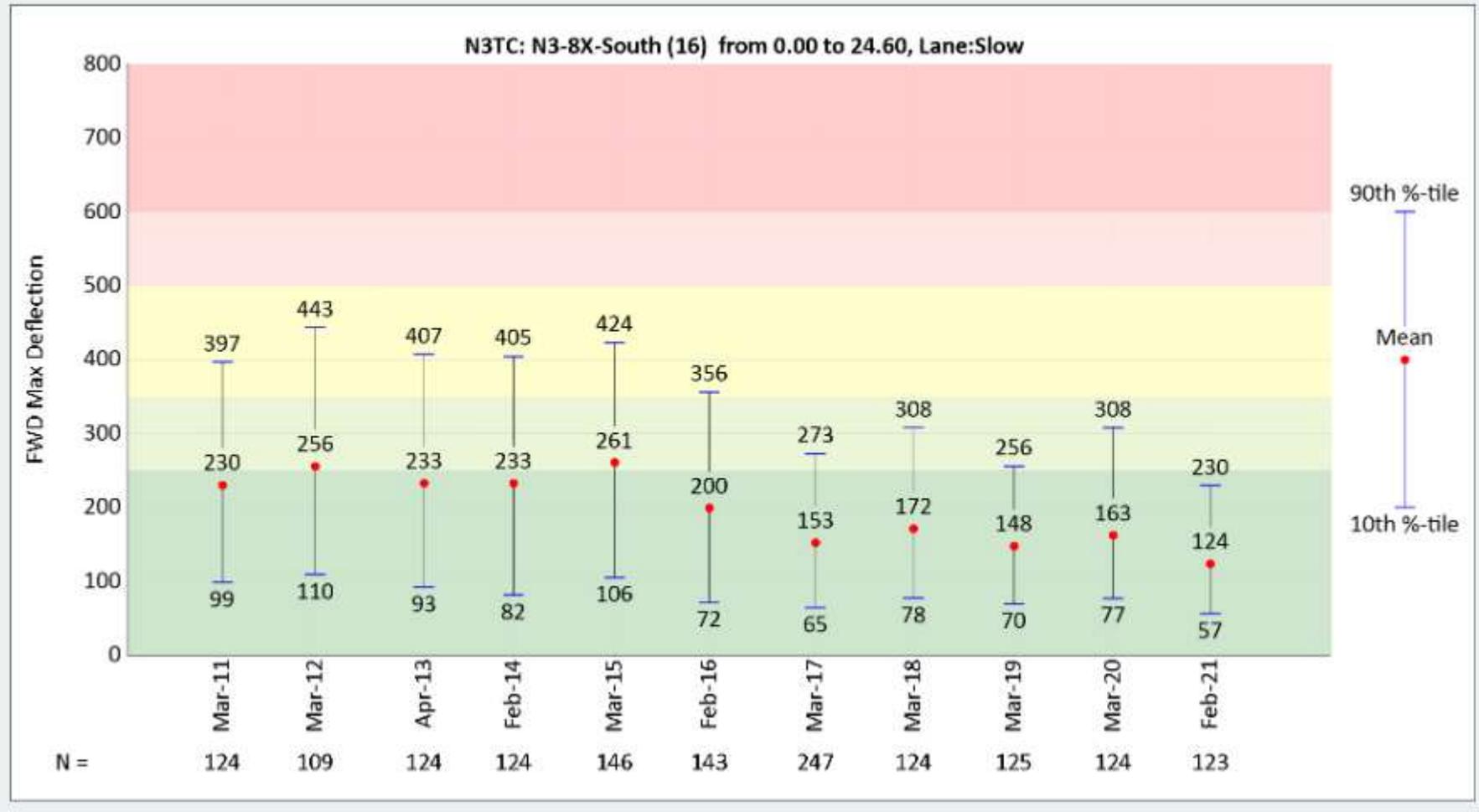
N3-8X Northbound km 0.0 to km 24.6

Segment: N3TC, N3-8X - North, Lane: Slow, From 0 to 24.6



N3-8X Southbound km 0.0 to km 24.6

Segment: N3TC, N3-8X - South, Lane: Slow, From 0 to 24.6

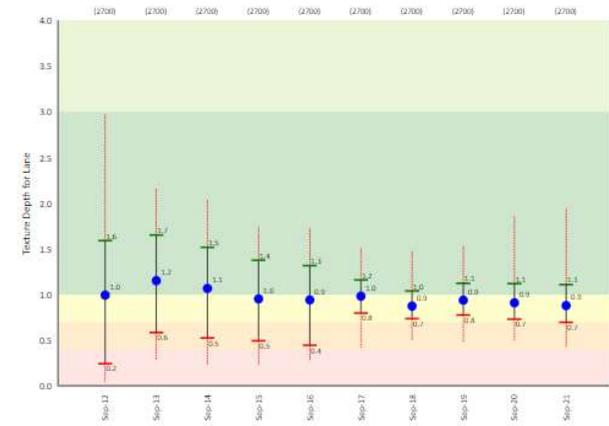
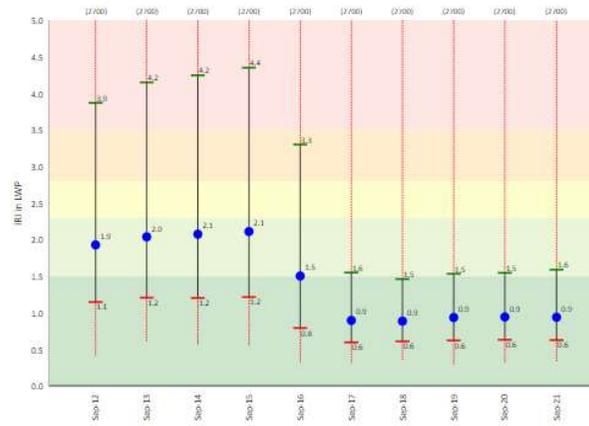
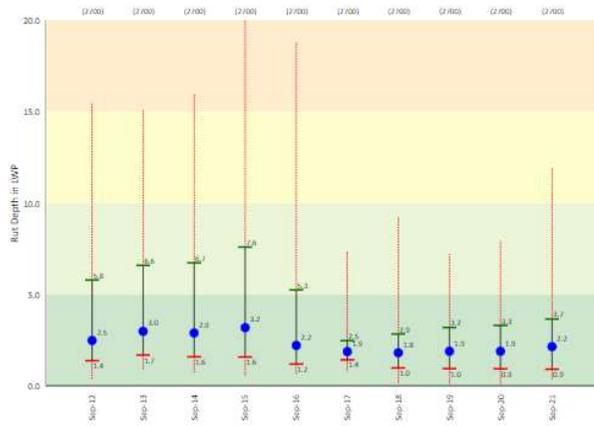


ANNEXURE C6: STRIP MAPS

N3-7X Northbound km 36.0 to km 63.0

Section: N3TC, N3-7X- North, From 36000 to 63000

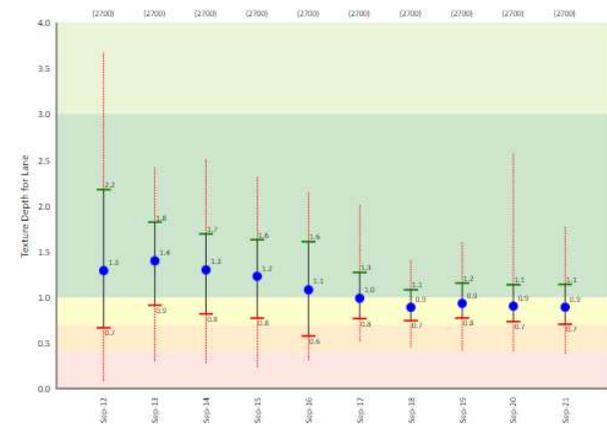
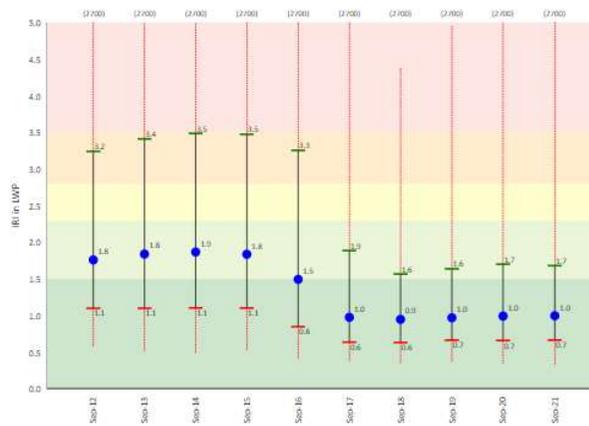
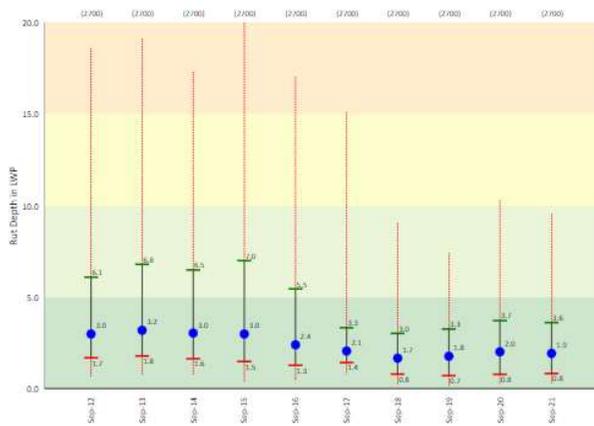
Surfacing	70mm BRAC				70mm BRAC				70mm BRAC				100mm BRAC							
Base	300mm FTB				300mm FTB				300mm FTB				300mm C3							
Subbase	160mm G6				160mm G6				160mm G6				150mm C4							
FWD YMax	155		119		288		146		202		229		508		78					
IRI in LWP	1.93	2.72	2.37	1.51	1.34	1.11	2.10	1.74	1.04	1.09	1.18	2.06	1.18	1.14	1.49	3.06	1.90	1.08	1.55	2.40
Rut Depth in LWP	3.0	2.9	3.2	3.1	1.9	1.3	2.9	1.4	2.4	2.8	1.7	2.0	2.1	2.1	2.8	3.8	2.8	4.1	3.8	3.3
Texture Depth for Lane	1.0	1.0	1.0	1.2	1.2	1.0	1.1	1.2	1.4	1.3	1.1	1.3	1.2	1.3	1.0	0.9	1.1	1.2	1.0	0.9



N3-7X Southbound km 36.0 to km 63.0

Section: N3TC, N3-7X - South, From 36000 to 63000

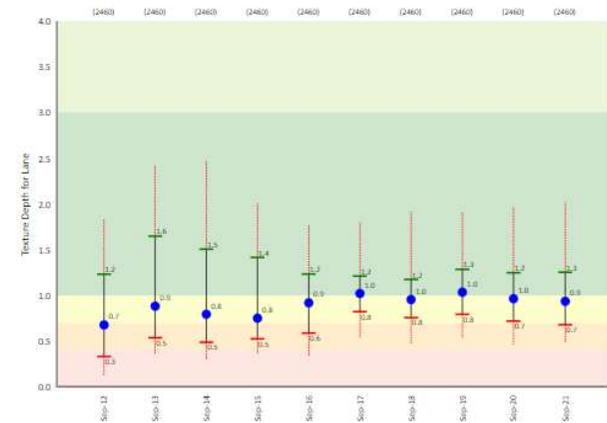
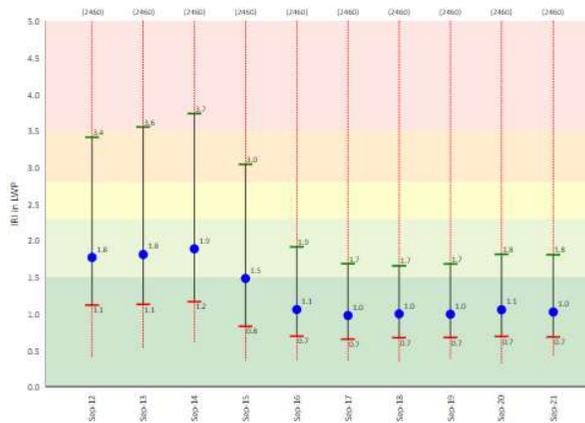
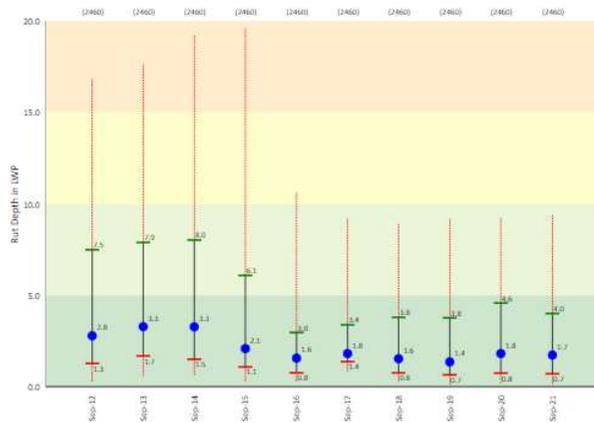
Surfacing	100mm BRAC				70mm BRAC						100mm BRAC				100mm BRAC					
Base	300mm C3				300mm FTB						120mm G1				300mm C3					
Subbase	130mm C4				170mm C4						300mm C4				150mm C4					
FWD YMax	101		68		202		128		115		93		557		99					
IRI in LWP	1.23	2.26	2.05	2.01	1.71	2.09	1.97	3.60	2.24	1.53	1.04	1.21	2.67	1.56	1.23	2.63	2.29	1.77	2.01	1.89
Rut Depth in LWP	2.6	3.4	2.1	5.0	3.3	4.0	4.1	4.9	3.6	3.5	1.8	1.9	2.1	1.6	2.5	3.1	3.9	4.8	3.6	4.8
Texture Depth for Lane	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.0	1.3	1.3	1.4	1.3	1.1	1.2	0.9	0.8	0.8	0.9	0.8	1.1
	36,200		36,400		36,600		36,800		37,000		37,200		37,400		37,600		37,800		38,000	



N3-8X Northbound km 0.0 to km 24.6

Section: N3TC, N3-8X - North, From 0 to 24600

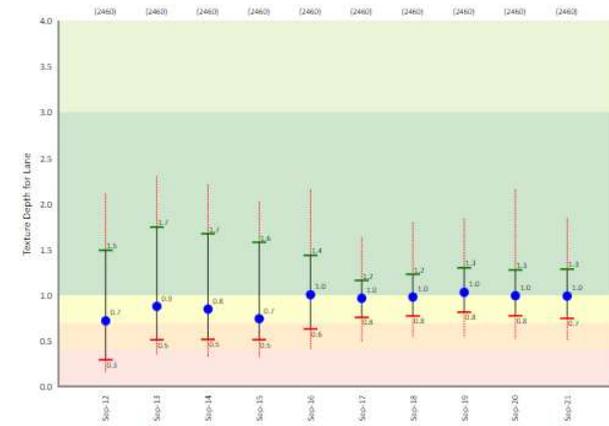
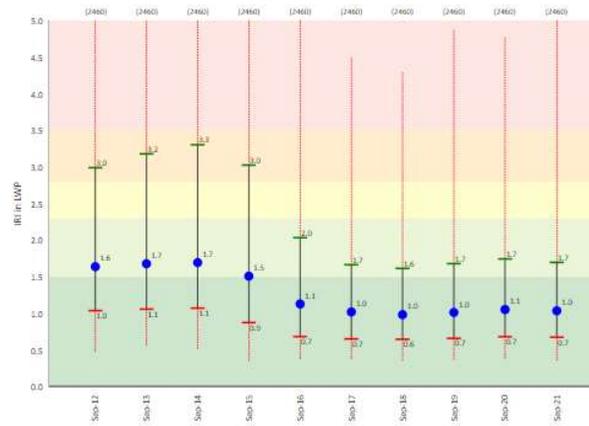
Surfacing	100mm BRAC																			
Base	300mm C3					300mm C3					300mm C3					145mm ETB				
Subbase	150mm C4					150mm C4					150mm C4					300mm C4				
FWD YMax	217		59			76		277			135		65			108		71		
IRI in LWP	2.61	1.94	3.80	1.49	1.85	2.14	1.71	1.24	1.94	2.17	1.15	1.71	1.48	1.10	1.33	2.04	1.28	1.36	2.11	1.05
Rut Depth in LWP	2.7	1.9	1.2	1.5	2.5	4.4	1.5	1.7	0.9	2.1	1.6	1.2	1.9	1.0	1.0	1.0	0.7	0.7	1.1	1.3
Texture Depth for Lane	0.9	0.9	1.0	0.6	0.6	0.9	1.0	1.0	0.9	1.0	0.9	1.2	1.1	1.1	1.1	1.0	1.1	1.0	0.8	0.9



N3-8X Southbound km 0.0 to km 24.6

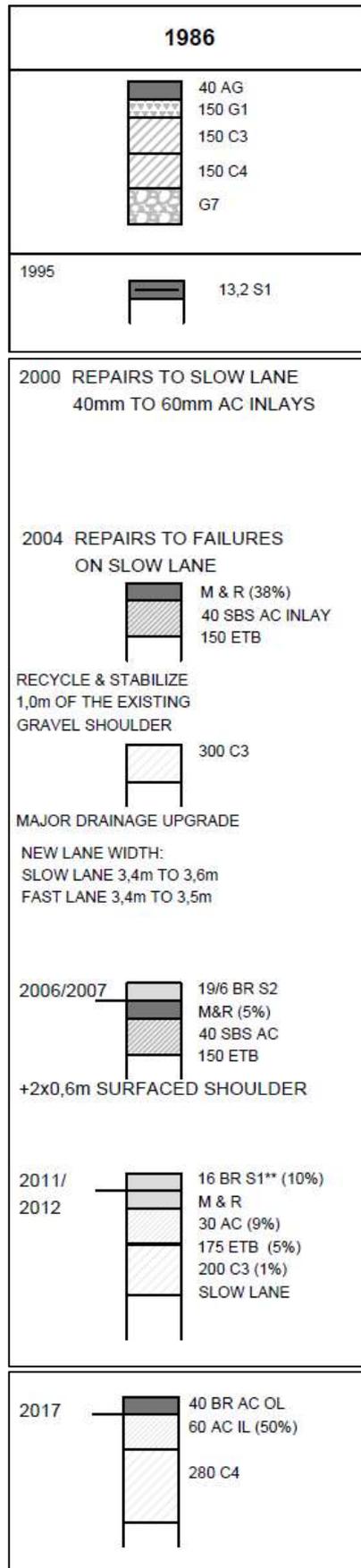
Section: N3TC, N3-8X - South, From 0 to 24600

Surfacing	100mm BRAC					100mm BRAC					105mm BRAC					100mm BRAC				
Base	300mm C3					300mm C3					150mm G1					145mm ETB				
Subbase	150mm C4					150mm C4					300mm C4					300mm C4				
FWD YMax	107		70			133			88		102			84		114			84	
IRI in LWP	2.64	2.34	1.97	1.36	1.30	1.38	1.45	2.31	2.09	1.34	1.29	1.73	1.13	1.41	0.98	1.15	1.56	2.39	1.10	1.16
Rut Depth in LWP	5.6	1.8	1.1	1.0	1.5	1.6	2.1	2.2	2.9	2.1	2.4	2.1	1.3	1.5	1.2	1.3	2.2	3.3	2.6	4.5
Texture Depth for Lane	1.0	0.8	0.8	1.0	1.1	1.0	1.0	1.2	1.1	1.3	1.3	1.0	1.2	1.2	1.0	1.4	1.0	1.2	1.0	1.0



Annexure D: Historical Rehabilitation Information (Strategy Summary)

N3-7X km 36.0 to km 63.0 and N3-8X km 0.0 to km 24.6 (HS 15XA and B)



Annexure E: Employer's OHS Specification for Service Providers including Project Baseline Risk Assessment

N3 TOLL CONCESSION (RF) PTY LTD

CONTRACT No.: N3TC/ CU-2022-101 (CS)

**REHABILITATION AND UPGRADE OF THE N3 TOLL ROAD:
N3-7X km 36.0 TO km 63.0 AND N3-8X km 0.0 TO km 24.6
HIGHWAY SECTION 15XA and B**

**OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS FOR
SERVICE PROVIDER**

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1. NOTE TO CONSULTING ENGINEERS

- a) The Occupational Health and Safety Act, Act 85 of 1993 and its Regulations together with SANS Codes set out minimum standards with regards to Occupational Health and Safety. The N3 Toll Concession (RF) PTY LTD (N3TC), has adopted this Occupational Health and Safety Specifications with these minimum standards in mind and in certain stages the requirements of N3TC exceeds the minimum legal requirements to follow best practices and to ensure a healthy and safe workplace for all.
- b) N3TC in no way assumes the Consultants legal liabilities and responsibilities. The Consultant is and remains accountable for the quality and execution of his health and safety programme for his employees. This Health and Safety Specification reflects minimum legal and N3TC requirements and should not be construed as all encompassing.
- c) It is very important for the Consultant to note that when the Consultant carry out any type of construction work, as per the definition, the Consultant will be regarded as a Contractor, as per the definition, and must then comply with the requirements of the Construction Regulations and in particular Section 7.
- d) It is realized that the Consultant may have its own Health and Safety Management system and safe work practices. The intention of this Health and Safety Specification is not to change the Consultants Health and Safety management system, but for the Consultant to use its current Health and Safety management system to draw up a project specific Health and Safety plan according to these specifications as well as to legally comply with the Construction Regulations, GNR.84 of 2014.
- e) It is the responsibility of the Consultant to make themselves conversant and comply with the requirements and conditions contained in the various legislation pertaining to their profession and scope of works at all times.
- f) This document is not exhaustive of all duties imposed by the Occupational Health and Safety Act, Act 85 of 1993 and its Regulations, governing the duties and obligations of a Consultant / Designer performing duties in terms of an agreement with the client N3TC. These duties are fully described in the Occupational Health and Safety Act, Act 85 of 1993 and its Regulations and it is the duty of every Consultant / Designer to acquaint themselves therewith before commencing work.
- g) Words used herein in the singular shall be deemed to include the plural and male shall include female and vice versa, unless the context otherwise requires.

2. PURPOSE

This document is compiled to ensure that the Professional Consultant are aware of the Occupational Health and Safety requirements when working on a N3TC contract, as well as to make them aware of their legal liabilities and responsibilities as per the Occupational Health & Safety Act, Act 85 of 1993, and its Regulations.

3. DEFINITIONS AND ABBREVIATIONS

Assessment – An opinion or a judgment about someone or something that has been thought about very carefully.

At-risk behaviour – Conduct that unnecessarily increases the likelihood of an injury or incident.

Audit – A systematic and documented review of the effectiveness of implementation of processes, programmes and procedures, based on general process criteria.

Baseline risk assessment: This is the initial assessment of risk in a workplace. It is a broad assessment and includes all activities taking place on site, but does not include risk control measures or safeguards.

CIDB – Construction Industry Development Board

Client – Any organization or person for whom construction work is performed. For the purpose of this document, the client is the N3 Toll Concession (RF) PTY Ltd.

Communicate – The process of two way dialogue which is understood by both parties.

Competence – A combination of attributes such as knowledge, training, experience and qualifications to assure successful performance.

Competent Person – Means a person who has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No. 67 of 2000), those qualifications

and that training must be regarded as the required qualifications and training; and is familiar with the Act and with the applicable regulations made under the Act.

Consequence – Outcome or impact of an event.

Continual Improvement – A recurring process of enhancing performance to achieve consistent improvements in overall performance.

Contractor – An employer as defined in section 1 of the OHS Act, who performs construction work

Construction Work – According to the Construction Regulations, any work in connection with:

- The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work.

Corrective Action – An action taken to eliminate the cause of a detected non-conformity or other undesirable situation.

Construction Regulations (CR) – Construction Regulations, GNR. 84 of 2014

Contractor – An employer who performs construction work.

Critical equipment – A piece of equipment or a structure whose failure to perform to design specification, has the potential to result in a major accident event.

Design – in relation to any structure, includes drawings, calculations, design details and specifications.

Designer – a) competent person who:

- Prepares a design
- Checks and approves a design
- Arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
- Designs temporary work, including its components

b) an architect or engineer contributing to, or having overall responsibility for a design

c) a building services engineer designing details for fixed plant

d) a surveyor specifying articles or drawing up specifications;

e) a contractor carrying out design work as part of a design and building project; or

f) an interior designer, shop fitter or landscape architect

DMR – Driven Machinery Regulations, GNR. 295 of 26 February 1988

Documents – Structured units of recorded information and its supporting medium (paper or electronic). Most records are documents, but not all documents are records. A document becomes a record when it is part of a business transaction, is kept as evidence of that transaction and is managed within a record-keeping system.

EIR – Electrical Installation Regulations, GNR. 242 of 6 March 2009

Emergency – An abnormal occurrence that pose a threat to the safety or health of employees, customers, or local communities, or which can cause damage to assets or the environment.

Employee – An individual who is employed by or works for an Employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

Employer – Any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerates him, but excludes a labour broker as defined in section 1(1) of the Labour Relations Act, 1956 (Act No. 28 of 1956). For the purpose of this document, the employer is the N3 Toll Concession (RF) PTY LTD.

EMR – Electrical Machinery Regulations, GNR. 250 of 25 March 2011

Environment – The surroundings or conditions in which a person, animal or plant lives or operates, including air, water, land, natural resources and habitats.

Excavation work – The making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping

GAR – General Administrative Regulations, GNR. 929 of 25 June 2003

GMR – General Machinery Regulations, GNR. 1521 of 5 August 1988

GSR – General Safety Regulations, GNR. 1031 of 30 May 1986

Harm – A significant and or long lasting adverse effect on people, the environment or the community.

Hazard – A source, situation or act with a potential for harm in terms of human injury or ill health.

Health and Safety File – Means a file, or other record in permanent form, containing the information in writing as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(b).

Health and Safety Plan – Means a project specific documented plan in accordance with the client's health and safety specifications, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(a).

Health and Safety Specification – Means a project specific document prepared by the client pertaining to all health and safety requirements related to construction work, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 5(1)(b).

HSE – Health, Safety and Environment. Commonly used in the format HSE.

Incident – Work-related events (including accidents which give rise to injury, ill health, fatality or emergencies) that have resulted in, or has the potential to result in adverse consequences to people, the environment, property, reputation or a combination of these.

Likelihood – A description of probability or frequency, in relation to the chance that something will occur.

Lost Time Injury (LTI) – When a person is injured during the execution of his/her duties and as a result of the injury is unable to perform his/her regular duties for one full shift or more on the day following the day on which the injury has incurred, whether a scheduled work day or not(weekend).

Management System – Management processes and documentation that collectively provide a systematic framework for ensuring that tasks are performed safely, correctly, consistently and effectively to achieve a specified outcome and to drive continual improvement in performance.

Mandatory – An agent, contractor or sub-contractor for work, but without derogating from his status in his own right as an employer or a user.

MSDS – Material Safety Data Sheet

Near Hit / Near Miss – Any occurrence or situation which had the potential for adverse consequences to people, the environment, property, reputation or a combination of these.

Non-conformance – Any deviation from work standards, practices, procedures, regulations that could either directly or indirectly lead to injury or illness, property damage, damage to the environment or a combination of these.

OHS Act – Occupational Health & Safety Act, 85 of 1993

Policy – Statement by an organization of its intentions and principles in relation to its overall performance which provides a framework for action and for the setting of its objectives and targets.

PPE – Personal Protective Equipment

Preventive Action – An action implemented to eliminate the cause of a potential non-conformity or other undesirable potential situation.

Principal Contractor – An employer appointed by the client to perform construction work and who is in overall control and management of a part of or the whole construction site.

Procedure – A specific documented way to carry out an activity or a process.

Records – Recorded information, in any form that is kept as evidence. Records include monitoring results, evidence of training, audits, inspections and calibration reports.

Risk Assessment – A process of evaluating the risk(s) arising from hazards taking into account the adequacy of any existing controls and deciding whether or not the risk(s) is acceptable.

Risk Management – The ongoing treatment of risks through the application of management policies, processes, procedures and risk control measures.

Risk – A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

Root Cause – The cause of the incident that, when rectified, will prevent the recurrence of not just incidents with those exact circumstances, but others with similar causes.

SACPCMP – South African Council for Project and Construction Management Professions

SANRAL - South African National Roads Agency SOC Limited

Supplier – A person or company that supplies material or equipment to a contractor on a construction site, but does not physically carry out construction work on the construction site.

The Act – The Occupational Health and Safety Act No. 85 of 1993

The Site – The area where work is carried out for N3TC as defined on the front page of this document.

WAH – Acronym for Working at Heights

4. HEALTH AND SAFETY POLICY

Consultants are expected to have their own written Health and Safety Policy. The policy should declare their attitude and approach to the health, safety and welfare of their employees and others. Provision must be made to review the policy regularly and the CEO or Managing Director must sign and date the policy to indicate his commitment to ensuring the health and safety of his employees.

5. ROLES & RESPONSIBILITIES

Every Consultant is considered to be an employer in his own right and shall comply with all legal requirements pertaining to an employer, which include the responsibility to provide as far as reasonably practicable a safe and healthy working environment for his employees, as per Section 8 of the OHS Act.

In conjunction with Section 8 of the OHS Act, all employees on the project are responsible for their own safety as well as the safety of persons who may be affected by their acts, as per Section 14 of the OHS Act. It is the responsibility of each employee to ensure that he acts in a safe manner before, during and after work is carried out.

The consultant shall ensure that where required by the OHS Act and Regulations, competent employees are appointed in writing. These appointments must be project / contract specific and specific to the tasks that will be performed. Every appointment must display the duties of the person appointed and training certificates from a registered training provider must be attached to such appointment (where applicable).

6. HSE TRAINING AND COMPETENCE

Where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2000 (Act No. 67 of 2000), those qualifications and training must be regarded as the required qualifications and training and employees must have attended courses of the aforementioned nature to be considered competent in the task.

All employees that forms part of the construction work must be trained and competent. Employees formally appointed to perform a certain duty must be in possession of a training certificate, received from a registered training provider. All consultant employees must as a minimum have received site specific safety induction training as well as task specific risk assessment training from the Principal Contractor.

Training Needs – There shall be a system in place to determine the training requirements of each individual, based on the tasks that the employee will perform as well as to ensure the health and safety of fellow employees and the public. Special attention should be given to employees who are new hires, new to the task or have combined responsibilities.

Basic Safe Work Training (Induction Training) – Every Consultant shall ensure that his employees are inducted into his own company Health and Safety System and must ensure that his employees receive site specific safety induction and task specific risk assessment training from the Principal Contractor. The Consultant must have evidence that his employees have been trained on the relevant procedures prior to and during the project duration.

Formal Training – All qualifications for which there are SAQA registered training courses, must be regarded as the minimum required qualifications and training. To be deemed “competent” an employee must have received training at a registered training provider, the training course must be registered and if there is an assessment, the employee must have been found competent after the assessment. A person cannot be deemed competent after awareness training only.

The Consultant shall ensure that his employees, have received appropriate training for the type of work that will be performed, e.g. Working at Heights, Risk Assessment training etc.

Records – Record of all training shall be kept by the Consultant and shall be readily available. Records shall make provision for refresher training where applicable. Where an employee is legally appointed with certain duties and responsibilities a copy of the training certificate must be attached to the appointment.

7. NOTIFICATION OF CONSTRUCTION WORK

Construction Regulation, 2014 Section 4 requires that the provincial director of the Department of Labour is notified at least 7 days prior to the execution of excavation work, elevated work where there is a risk of falling (working at heights), demolition work or work where explosives are used. Therefore, if the Consultant needs to e.g. dig test pits, or do a bridge inspection and the risk of falling exists, the Consultant needs to notify the provincial director in writing on a form similar to Annexure 2 in the Construction Regulations

8. DUTIES

The Consultant is the Designer of the structures to be build. As a Designer, the Consultant need to comply and adhere to the requirements of Section 6 of the Construction Regulations. The Consultant needs to take health and safety into consideration when designing the structure as well as for future maintenance on the structure.

When the Consultant carry out any type of construction work, as per the definition, the Consultant will be regarded as a Contractor, as per the definition, and must then comply with the requirements of the Construction Regulations and in particular Section 7.

9. DESIGNING FOR HEALTH, SAFETY AND THE ENVIRONMENT

Designing for safety is a process aimed at minimizing injury, death, property damage or destruction and harm to the environment, by utilizing an approach to identify and eliminate or control hazardous areas. The Consultant / Designer must implement a process that ensures safety is incorporated in the design process, which includes temporary works as contemplated in the Construction Regulations, 2014 Section 12.

The Consultant must communicate the anticipated risks and hazards resulting from the design to the Client and the Client Construction Health and Safety Agent who will ensure that such anticipated risks and hazards reflects in the tender documentation for Contractors.

10. MANAGEMENT AND SUPERVISION

“The Employer will be responsible for appointing an Occupational Health, Safety and Construction Regulations Compliance Management Specialist. This OHS Specialist will act as the Employer’s Agent in this regard.

The Service Provider shall arrange, formally and in writing, for the Works Contractor to provide documentary evidence of compliance with all the requirements of the said Act. The Service Provider shall also carry out regular site audits to ensure compliance thereto. Provision for payment for all OHS obligations during the construction phase has been included in the Pricing Schedule.”

11. RISK MANAGEMENT

When the Consultant carry out any type of construction work, Section 9 of the Construction Regulations must be adhered to. A formal risk-based approach must be followed to ensure hazard control measures are implemented to an acceptable reasonable practical level. The Consultant and his employees shall be responsible to ensure all hazards pertaining to his scope of activity are proactively identified, the risks assessed and appropriately eliminated or minimized and managed on an ongoing basis. Risk assessments shall also identify possible and potential environmental, health and hygiene issues pertaining to each hazard with potential exposures and limits.

a) Hazard Identification and Risk Assessment (Construction Regulation 9)

i. Development of Risk Assessments

The Consultant shall, before carrying out any type of construction work and during such work, conduct a risk assessment by a competent person, appointed in writing. The baseline risk assessment as provided by the client may be used to draw up an in-depth task specific risk assessment that can be used on site. Please note that the risk assessment must be site specific.

The risk assessment shall include, as far as is reasonably practicable, at least:

- The task and task step
- the identification of the risks and hazards to which persons may be exposed to during the task or task step;
- the analysis and evaluation of the risks and hazards identified, inclusive of a residual risk rating methodology. The method to be used is not prescribed;
- 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;
- a monitoring plan;
- a review plan, inclusive of dates to be adhered to; and
- ergonomic related risks are to be analysed, evaluated and addressed as part of the process.

b) Risk Assessment Monitoring

The Consultant shall ensure that a monitoring plan for all risk assessments are in place. Risk assessments must be monitored to ensure effectiveness and employee understanding. The monitoring of risk assessments shall be formal and records thereof shall be available for audit purposes.

c) Review of Risk Assessment

The Consultant shall review the hazard identification, risk assessments and standard safe working procedures prior to any construction related work activity and shall ensure that the risk assessment is site specific.

Activities carried out without conducting a risk assessment or found to be non-compliant with the risk assessment, will be stopped until such time a risk assessment is compiled and work is carried out according to the risk assessment.

Risk assessments must be fully communicated to all relevant personnel and must be considered when establishing training, awareness and competency requirements.

Baseline Risk Assessment

Based on the baseline risk assessment as per 20.1 below, N3TC has developed this health and safety specification which shall act as a set of OHS rules that shall be applied to regulate the OHS aspects of the Consultants construction work to be carried out. The baseline risk assessment must be used by the Consultant to develop task specific risk assessments before any construction related work commences.

The Baseline Risk Assessment will not identify risks or control measures; this must be identified by Consultant when preparing the Issue Based Risk Assessments. The Baseline Risk Assessment will highlight all work for which the Consultant must prepare safe work procedures and or work method statements.

Continuous Risk Assessment

The Consultant shall continuously assess the risks of the activities that are carried out. Risk assessments must be in writing, site specific and must be reviewed continuously to ensure it is current and it address all the relevant hazards and risks associated with the specific activity at the specific site.

The Risk assessment must be discussed with the whole work crew before the activity starts and the work crew must acknowledge in writing having discussed the risk assessment and that they understand it. This acknowledgement must be on site and must be available to the client for audit purposes.

12. LEGAL COMPLIANCE AND DOCUMENT CONTROL

The Consultant is required to implement systems and procedures to ensure legal compliance through:

- Identification of all relevant HSE legislation, standards and codes applicable to its operations.
- Have available copies of all relevant HSE legislation, standards and codes for reference purposes.
- Update legislation, standards and codes with any changes
- Communicate to all employees any changes that may affect their accountabilities and conformances
- Incorporate any legal requirements into their HSE management system and designs.
- Monitor and review their HSE management system for effectiveness.

The Consultant shall, as a minimum, comply with:

- The Occupational Health and Safety Act and Regulations (Act 85 of 1993), an up-to-date copy of which shall be available on site at all times.
- The Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993), an up-to-date copy of which shall be available on site at all times.
- Where work is being carried out on a "mine", the Consultant shall comply with the Mines Health and Safety Act and Regulations (Act 29 of 1960) and any other OHS requirements that the mine may specify. An up-to-date copy of the Mines Health and Safety Act and Regulations shall be available on site at all times.

Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 24: Electrical Installations and Machinery on Construction Sites) the Consultant shall be conversant with and shall comply with these regulations.

Legal Appointments

All legal appointments of the Consultant regarding the Health and Safety of his employees who are to carry out construction work on the project are addressed and governed by the OHS Act and applicable Regulations.

- i. Overall Supervision and Responsibility for OHS

The client will appoint the Consultant who shall be the managing agent of the client on the project once construction works start. A Mandatory agreement as per Section 37.2 of the OHS Act, shall be signed between the client and the Consultant.

It is a requirement that the Consultant, when he appoints sub service providers, includes a Mandatory agreement in his agreement with such sub service providers

ii. Specific Supervision Responsibilities for OHS

The Consultant shall appoint designated competent employees and/or other competent persons as required by the OHS Act and Regulations, as well as this specification. Appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information shall be communicated to and agreed with the appointees. Where applicable, the training certificate must be attached to the appointment. Notice of appointments shall be submitted to the Employer. All changes shall also be communicated to the Employer.

Below is a list of possible appointments for the project, which is not an all-inclusive list, but for reference purposes only:

Appointment	Legal Reference
Assistant to CEO	OHS Act 16(2)
Construction Health & Safety Agent	CR 6
Risk Assessor	CR 9(1)
Fall Protection Plan Developer	CR 10(1)(a)
Structure Inspector	CR 11(2)(a)
Temporary Works Designer	CR 12(1)
Excavation Supervisor	CR 13(1)(a)
Incident investigator	GAR 9(2)
Ladder inspector	GSR 13(a)
First Aider GSR	GSR 3(4)

13. OPERATIONAL INTEGRITY

The operational integrity of plant, equipment, structures and protective systems must be monitored and assured on an ongoing basis throughout the project cycle. Hazards must be identified, assessed and as far as reasonably practicable, eliminated or the risks treated to as low as reasonably practicable (ALARP).

Plant & Equipment Integrity

13.1.1 Construction Plant & Equipment

The Consultant shall maintain all his items of plant and equipment necessary to perform the required construction work in a safe condition.

The client reserves the right to inspect items of plant and equipment brought to site and used on site by the consultant. Should it be found that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the consultant will be advised of such observation / inspection, and the Consultant shall be required to repair, make safe or remove such item from operation and replace it with a safe and adequate substitute.

The Consultant shall ensure that all plant, equipment, and power tools that he brings onto and use on site for construction work purposes are:

- Appropriate for the type of work to be performed
- Placed on a register and inspected by a competent person or the authorized operator before use, daily or monthly dependent on Legislation and project requirements.
- Record inspection findings on a register that must be kept on site.

- The inspection register shall reflect the serial number of the plant, equipment or power tool.
- Maintained and used in accordance with the manufacturers recommendations
- Have adequate machine guarding fitted to all exposed rotating or moving parts, as reasonably practicable, that have the potential to cause harm
- All electrical power supply units are protected with operational earth leakage devices.
- Any defective, damaged or sub-standard equipment must be marked as unsafe for use and removed from operation as soon as possible

13.1.2 Standards and Registers

For construction work purposes, the Consultant is expected to:

- Set up an initial set of registers as per the requirements of the OHS Act and Regulations.
- Complete the registers for each piece of plant, tool and equipment brought on and used on site by the Consultant or his employees.
- Maintain a complete, continuous and comprehensive inspection and service history in these registers or checklists
- Ensure daily, weekly, monthly inspections are done and recorded for all plant, tools & equipment by a competent person as required by the OHS Act and Regulations.

14. OCCUPATION HEALTH AND HYGIENE

Medical Fitness for Duty

All Consultant employees that carry out construction work activities, shall undergo medical examinations and be certified fit for duty by an Occupational Health Practitioner before they are allowed to work on site.

The medical certificate must be in the form of Annexure 3 of the Construction Regulations and stipulate the possible exposures the employee might be exposed to during the execution of the construction work.

It is recommended and in the best interest of the Consultant to implement pre-employment as well as exit medical surveillance, especially with regards to Section 8 of the Noise Induced Hearing Loss Regulation.

First Aid

According to GSR 3(4), where more than 10 employees are employed at a workplace/worksites, the Consultant shall ensure that there is at least one trained first aider for every group of 50 employees at the workplace/site. First Aid boxes must be provided where more than 5 employees are employed and must be readily available and accessible for the treatment of injured persons at the workplace.

To ensure immediate treatment of an injured person, it is recommended that all work crews have at least one trained first aider, with a fully stocked first aid box, irrespective of the number of people in the work crew. This is especially important when Consultants work at great distances from the nearest emergency facility or town. These persons shall be appointed in writing as the first aiders with their certificates attached as proof of competency.

The minimum contents of the first aid box shall be as per the supplied list in the General Safety Regulations.

All treatments done must be recorded on a register and kept with the first aid box. A trained and appointed first aider must be responsible for the first aid box and its content. Used content must be replenished as soon as possible.

In order to ensure prompt response at the emergency facility it is recommended that the W.CI 2 forms be partially completed with the employers' details, for medical treatment cases.

Workers Compensation Registration

The Consultant shall ensure that his employees are covered for any occupational injuries and illnesses in terms of the Occupational Injuries and Diseases Act 130 of 1993, which cover shall remain in place and up to date for the duration of the project.

Hygiene Facilities

The Consultant shall ensure compliance to Section 30 of the Construction Regulations with regards to facilities on the construction site as well as where accommodation is provided to employees on remote sites. The Consultant shall ensure that the facilities are kept clean at all times, either through a service provider or self-employed persons.

15. WASTE MANAGEMENT

The Consultant shall comply with all applicable and relevant Waste management legislation, as well as municipal bylaws applicable to waste management.

It is recommended that the Consultant have a waste management plan which must be implemented on the construction site and which will have the objective to ensure that waste is managed according to the Waste Management Hierarchy:

- Reduce what you can. If you cannot reduce then,
- Re-use what you can. If you cannot re-use then,
- Recycle what you can. What you cannot recycle,
- Convert into energy sources. If it cannot be converted to an energy source,
- Dispose of in a landfill – this is only to be done as a last resort and disposed without endangering human health and without using processes or methods which could harm the environment.

16. HAZARDOUS SUBSTANCE MANAGEMENT

The Consultant shall ensure that hazardous substances brought onto site are easily identifiable and stored according to the requirements of the General Safety Regulations, GNR. 1031 of 1986, Section 4.

Where flammable liquids are being used or stored, this must be done in a manner which would not cause a fire or explosion hazard.

The Consultant shall have Material Safety Data Sheets (MSDS) readily available for flammable, hazardous and toxic chemical substances and materials brought onto site and shall ensure that his employees are trained in these MSDS's.

Flammable, hazardous or toxic chemical substances may not be stored in empty food or drink containers. Empty flammable, hazardous and toxic containers must be disposed of in a safe manner, which will prevent further use of such a container.

Asbestos

A survey of the construction site must be done during site establishment, to locate any asbestos. Should asbestos be located, the conditions of the Asbestos Regulations, GNR. 155 of 2002 must be followed and complied with.

17. OPERATIONAL PROCEDURES

Each construction activity shall be assessed by the Consultant 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 Consultant:

- to be conversant with all relevant Regulations;
- to comply with their provisions;
- to include them in his OH&S plan where relevant

18. HSE NON-COMPLIANCE

The Client has a legal duty in terms of Construction Regulation 5(1)(q) to stop any unsafe work on the construction site. Any unsafe construction related activity that the Consultant performs will be stopped until such time as the Consultant has rectified the non-compliance or unsafe act/condition.

The Consultant as managing agent for the Client has a legal duty according to the Construction Regulation 5(1)(q) to stop a contractor from executing any activity which poses a threat to the health and safety of persons. Depending on the seriousness of the non-compliance only the specific activity may be stopped until the non-compliance is rectified or the whole operation may be stopped.

It is also the duty of every employee to take reasonable care of his own health and safety and of other persons who may be affected by his acts as per OHS Act, Section 14(a). Keeping this in mind, it is required of the Consultant to ensure his employees has the right to remove themselves from any unsafe situation or work activity, without any negative consequence to them until such time as the Consultant has made the unsafe situation or activity as safe as practicable possible.

Contracting Philosophy

Any site-specific hazards and safety management expectations will be made known to the Consultant prior to the work commencing on site. Legal OHS requirements contained in the OHS Act and Regulations as well as SANS Codes are the minimum requirements the Consultant must apply during this contract with regards to Occupational Health and Safety. The Consultant shall apply, implement and enforce the minimum OHS Act & Regulations and SANS Codes requirements.

Indemnity by Consultant

The Consultant shall indemnify the Employer against and from all damages, losses and expenses (including legal fees and expenses) resulting from:

- (a) the loss of output and delay caused by the slowing down or partial or total stoppage of work caused by:
 - i. Unsafe acts caused by all or any of the Consultants employees;
 - ii. Unsafe conditions which resulted from the failure to carry out any legal obligation by all or any of the Consultants employees;
- (b) any unlawful, riotous or disorderly conduct by or amongst the Consultants employees.

Consultant Conduct

Guidelines to the most important rules that shall be implemented and maintained by the Consultant:

- Complete compliance to the OHS Act and Regulations
- Hazard identification and Risk Assessments for all construction related activities
- DSTI talk before construction work commences
- Safe access and egress to and from work areas.
- Compulsory use of lifelines, Safety Harnesses and Fall Arrestors (Lanyards to be attached at all times) when working in elevated positions
- Good housekeeping
- Securing of tools, equipment and material at heights
- Wearing of appropriate personal protective equipment as identified in the risk assessment

Personal Conduct

No person shall act in a manner that endangers or is likely to endanger, the safety of any other person, or cause harm to any other person.

An employee who observes any dangerous situation, shall as soon as possible inform the person who is responsible for that section of the site.

Any employee who becomes aware of any person disregarding any safety rules, shall remind that person of the rules. If he persists in disregarding the rules, the matter must be reported to his supervisor.

No person shall damage, alter, remove, render ineffective or interfere with anything that has been provided for the protection of the site, or for the health and safety of persons.

No person shall interfere with or use firefighting equipment without authority and training.

No person in a state of intoxication or condition that render him incapable of controlling himself shall enter or be allowed to enter the site.

No alcohol or illegal drugs shall be taken onto the site.

All safety and warning signs shall be obeyed.

Always be alert of construction vehicles as well as traffic. Never turn your back to oncoming traffic or construction vehicles / mobile plant, always have a line of sight.

Sub Service Providers

The Consultant shall establish, maintain and ensure that all his Sub Service Providers establish and maintain HSE standards and systems as necessary and to comply with the Legal requirements as well as these HSE specifications.

Public Health and Safety

The Consultant 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. During the construction phase of the project, this can be done through the Principal Contractors HSE Officer.

This includes:

- Non- employees entering the site for whatever reason
- The surrounding community
- Passers-by to the site

19. INCIDENT MANAGEMENT

The Consultant shall ensure that a culture exists within his company that promotes the recognition, response, reporting and investigation of incidents, including near misses (near hits). The Consultant must implement a procedure for reporting and investigating accidents, incidents and near misses as prescribed in the General Administrative Regulation, Section 8. The Consultant should have a clear objective and target to obtain zero injuries for the duration of the project and such an objective must be communicated to all employees.

Appropriate corrective actions must be implemented and the applicable learnings must be shared within the Consultants business to prevent a recurrence of the incident or to prevent the minor incidents from becoming serious incidents in future.

Incidents and Accidents

The Consultant shall investigate all accidents/incidents where employees were injured to the extent that he had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation shall be entered into an accident/incident register, which must be updated with each accident/incident.

The Consultant shall notify the relevant N3TC Project Manager and or N3TC OHS Specialist of any incident / accident within the Consultants area of responsibility in writing as soon as possible.

Although the accident / incident is reported to the client, the Consultant has a responsibility and is required by law to report any Section 24 accidents and incidents to the Department of Labour. Any road traffic accident must be reported to the relevant authorities.

It is essential that the Consultant demonstrate that corrective and preventative action has been taken to prevent a similar incident in future and that it is communicated to all affected employees. A copy of the investigation, corrective and preventative action taken as well as the attendance register of the employees who attended the discussion of the incident and the action implemented to prevent a similar incident, must be forwarded to the N3TC Project Manager and or the N3TC OHS Specialist.

In addition to medical treatment cases it is recommended that Near Miss incidents and First Aid cases are also investigated to establish root causes and implement preventative measures.

20. PROJECT SPECIFIC CONSTRUCTION REQUIREMENTS

Baseline Risk Assessment

The following is a list of risks identified which forms the Baseline Risk Assessment for the project prepared by the Client in terms of Construction Regulation 5(1)(a):

Risks in connection with: Refer to Project Baseline Risk Assessment.

- Working in elevated positions (e.g. Bridge Inspections)
- Working over water environments (e.g. Bridge Inspections)
- Excavation – locating existing underground services, digging test pits
- Manual handling – setting up surveying equipment
- Ergonomic risks
- High & Low voltage power lines – overhead & underground
- Work in close proximity to railway lines
- Uneven ground surfaces
- Personal safety & security risks
- Traffic Control (Ensure Correct Signage at Correct Distances)
- Working from ladders
- Exposure to noise
- Working in close proximity to traffic
- Working with hot materials
- Radio Active equipment
- Hazardous Chemical Substances
- Flammable Materials
- Driving to and from site
- Biological risks e.g. bees, snakes, spiders, etc.
- Environmental risks
 - Bad weather conditions,
 - rain,
 - lightning,
 - wind,
 - poor visibility
 - heat exposure – dehydration
 - cold environments

During the construction phase of the project, the employees of the Consultant must be inducted and trained on the risk assessments and Safe Operating Procedures of the Principal Contractor before entering the site and record of such induction / training must be kept on file, e.g.

- Work in close proximity of Mobile Plant (e.g. Bomag Roller, Pneumatic roller, etc)
- Falling Objects
- Suspended Loads
- Crane Operations
- Asphaltting

Site Attendance Register

All site visitors shall report to security / reception upon arrival at site. All visitors need to sign an attendance register when visiting the site. Visitors include all persons which are not permanently working on the site, but excludes temporary site workers. Visitors must undergo site induction training before they are allowed on site to make them aware of the site dangers. During the construction stage of the project, the HSE Officer of the Principal Contractor should conduct the site induction with visitors before they are allowed on the construction site.

Personal Protective Equipment

Comply with General Safety Regulations, Section 2

The Consultant shall identify the hazards in the workplace and remove them or, where impracticable, take steps to protect employees 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. The hierarchy of hazard elimination must be followed before the option of personal protective equipment is considered. The following hierarchy of controls must be followed:

- Elimination
- Passive Controls
 - o Substitution – Using a cherry picker or man-lift instead of a ladder.
 - o Engineering Controls – Installing barrier railings; Installing stairs instead of using vertical ladders.
- Active Controls
 - o Administrative policies and procedures
 - o Personal protective equipment

Where it is not possible to create an absolutely safe and healthy workplace the Consultant 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 Consultant 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 the use/wear of 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 the employee.

The Consultant 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 site. Any person found not wearing a reflective jacket on site must 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 ineffective must immediately be replaced by the Consultant.

Site Security

Certain areas where work must be carried out, is recognized unsafe areas and certain other areas may from time to time become unsafe, due to 3rd party actions. The Consultant must as far as reasonably possible anticipate unsafe areas and must ensure that his site staff is safe from 3rd party actions, which include but is not limited to:

- Unrests,
- Violent Demonstrations,
- Theft,
- Injury from 3rd parties at all times.

The Consultant must, when work is to be carried out in the above mentioned areas, make provision for security services to accompany site staff during the execution of their work, as the Consultant is responsible for the Health, Safety and Security of his own staff. The provision for security services must form part of the Consultants tender.

Working in Elevated Positions

Comply with Construction Regulation, Section 10

The Consultant shall ensure that a fall protection plan, developed by a competent person who is designated as the Fall Protection Plan Developer, is available on site and understood by all employees who will be working in elevated positions.

All employees working in elevated positions shall protect themselves from falls by wearing a full body harness and the lanyard shall be attached as far as possible above the head of the employee to a life line or other approved and tested anchor point.

In addition to obvious elevated work activities, work activities which include:

- Working on the edge of an excavation where there is a risk of falling into the excavation;
- Work on the edge of a vertical drop where there is a risk of falling;

- Work on top of trucks and tanks;

Shall be considered work in elevated positions and Section 10 of the Construction Regulations must be adhered to at all times. The hierarchy of controls must be implemented when such activities are carried out. As a minimum the employee must wear PPE, which shall include a full body harness attached to a restraint.

Only suitable ladders that have been inspected and has been certified "safe for use" may be used for elevated work. The top two rungs on the ladder may not be used for elevation, as this will render the ladder unstable. A second person should hold the ladder stable whenever working from it.

Excavations

Comply with Construction Regulations, Section 13

The Consultant shall ensure that all excavations are carried out under the supervision of a competent person who has been appointed in writing as Excavation Supervisor.

The Consultant must evaluate the stability of the ground before excavation work begins as well as during excavation work.

Excavations must be barricaded to prevent unauthorized access.

Material removed from excavations, as well as heavy machinery and construction vehicles, must not be closer than 1 meter of the edge of the excavation, to prevent additional loads on the excavation edge, which could cause cave-ins, to prevent construction vehicles from falling into the excavation and to prevent the accumulation of carbon monoxide gas inside the excavation.

People working in the excavation must be adequately protected from cave-ins, by means of protection systems such as shoring and bracing and must have a safe means of access into the excavation and egress from the excavation.

Construction Vehicles

Comply with Construction Regulation, Section 23, National Road Traffic Act, 1996

Construction vehicle operators must have received training to operate the class of construction vehicle or mobile plant and must be in possession of an operator's card as proof of competency. Construction vehicle operators must be authorised in writing and have a medical certificate of fitness issued by an occupational health practitioner to operate the construction vehicle and/or mobile plant.

Electrical Equipment

Comply with Construction Regulations, Section 24

The Consultant shall take adequate steps to ascertain the presence of and guard against danger to workers from electrical cables or apparatus which is under, over or on the site.

The exact location of underground electric power cables must be determined before any excavators are used for excavation purposes.

The location of overhead electrical cables must be assessed when working with equipment that has booms that can extend. Injury may be possible from touching the electrical cables with the equipment boom, or from arching when the equipment boom comes too close to the electrical cable.

Electrical machinery and extension cords must be in a serviceable condition and must be inspected before use on the construction site by the authorised operator and the inspection checklist must be kept on the construction site.

Temporary Storage of Flammable Liquids

Comply with Construction Regulation, Section 25 and General Safety Regulations, Section 4

The Consultant must ensure storage areas of flammable liquids are well ventilated and “No Smoking” signs are placed at the entrances and ventilation ducts of the storage areas. Firefighting equipment must be available in suitable positions around the storage areas.

The Consultant must ensure that good housekeeping is practiced in and around the flammable storage areas.

Water Environments

Comply with Construction Regulation, Section 26

The Consultant must ensure that a lifejacket forms part of the employees PPE and is worn when the employee is exposed to the risk of drowning, by falling into water.

The risk assessment must make provision for the rescuing of persons in danger of drowning and for preventing employees from falling into the water.

When working over water environments, Section 10 of the Construction Regulations – Fall Protection will also apply.

Manual Handling / Ergonomic Risks

The Consultant must ensure that the health of his employees are not affected through the handling of heavy equipment and safe lifting techniques are applied by his employees. Manual handling and ergonomic risks must be included in the risk assessments of the Consultant and employees must be aware of it and trained in it.

Traffic Control

When the Consultant carries out construction related activities on site, during the design stage of the project, sufficient and adequate traffic control must be implemented. Traffic control signage must be displayed and employees must be aware of approaching traffic, facing oncoming traffic at all times.

Radioactive Equipment

The Consultant, when working with radioactive equipment, must ensure that all appropriate safety measures are implemented, employees are made aware of the dangers of the equipment and the equipment is used according to the manufacturer’s instructions.

Intoxicating Liquor and Drugs

Comply with General Safety Regulations, Section 2A

The site limit for intoxication is set to zero to complement a vision of zero tolerance

Any person found to be intoxicated, or consuming intoxicating liquor or illegal drugs, must not be allowed onto the premises and/or must be removed from the premises.

The Consultant has the right to test any person entering the premises for intoxicating liquor or illegal drugs and may refuse entrance on the basis of the outcome of the test.

The Consultant shall ensure that employees taking prescription medicine informs the Consultant of such and shall ensure that the side effect of such medicine does not constitute a hazard to the employee himself or people working in close proximity to the employee.

Project Baseline Risk Assessment

Employer's Risk Assessment and Designer's Risk Management Action

(1) Ref	(2) Activity/Process/Material/Element	(3) Hazard ¹	(4) Stage of Work	(5) Risk Assessment: Severity / Likelihood / Risk	(6) Designer Risk Control Measures ² : Design action taken, record of decision process including option considered, design constraints.
A General					
A1	Working on roads open to the public. In vicinity of high speed traffic and restricted working space	Injury / Fatality	Construction	Major / Likely / Extreme. Traffic safety officer to be appointed. Effective traffic management to be provided at all times. Detailed specifications and drawings to be provided to ensure legal compliance.	The N3 dual carriageway is a highly trafficked route and construction will be done under traffic. Access is via interchanges. There are toll plazas. Traffic Management to be put in place in accordance with the SA Road Traffic signs manual and according to the specifications and drawings. In planning traffic management, consultations must be made beforehand with relevant Local Authorities and Incident Management Team. The site management team to ensure that staff and persons visiting site are made aware of safe working procedures w.r.t. live traffic and that appropriate risk assessments are undertaken. Refer to Section 1500.
A2	Abnormal loads traversing the site.	Conflicts with construction equipment and damage to temporary traffic accommodation signs	Construction	Significant / Likely / Substantial. Abnormal loads on the N3 are a regular occurrence. Contractor to be made aware of abnormal loads and to make provision for accommodating through work area	Contractor is made aware of the possibility of abnormal loads. N3TC route control centre to assist with pre-warning. Abnormal load permit office to be made aware of construction activities and lane restrictions. Good relationships with RTI to be maintained.
A3	Field access and domestic entrances	Access to be maintained	Use (as workplace)	Insignificant / Unlikely / Substantial. Know access is access to the toll plaza buildings	Take cognisance of accommodation works drawings for accommodating accesses
A4	Temporary access roads and temporary diversions	Fatality Risk of traffic accidents to the public and construction worker	Construction	Significant / Likely / Substantial.	Traffic Management including the design of temporary diverted roads, shall be put in place in accordance with the Traffic Signs Manual. In planning traffic management, consultations must be made beforehand with relevant Local Authorities, Gardaí and residents.

(1) Ref	(2) Activity/Process/Material/Element	(3) Hazard ¹	(4) Stage of Work	(5) Risk Assessment: Severity / Likelihood / Risk	(6) Designer Risk Control Measures ² : Design action taken, record of decision process including option considered, design constraints.
					Appropriate Signage to be put in place for temporary diversions. Contractor should put in place Public lighting on temporary diverted roads where required and maintain public lighting on existing roads.
A5	Pedestrian activity during construction. Along the existing N3 there are locations where those on site must take particular care to watch for pedestrian. Cognisance to be taken of operations activities in the toll plaza area.	Pedestrians are more likely to be found in the toll plaza area and N3-9 km 75 – km 77.	Construction	Significant / Likely / Substantial. Construction activities to take cognisance of operations within the toll plaza area. High pedestrian activity at N3-9 between km 75 and km 77.	Construction Traffic and public Traffic Management designer should be alert to pedestrian movement at all times. Temporary work fencing and warning signs to isolate pedestrians from site vehicles and works where appropriate.
A6	Noise and dust related activities	Injury and nuisance	Use (as workplace)	Significant / Likely / Substantial. Noise dust and vibration related to construction activities, e.g. excavation, milling, compaction	Contractor to provide relevant PPE to workers. Where necessary, apply dust suppressant
A7	Work involving rock blasting/deep excavation/earthworks transportation to accommodate new road alignments	Injury / Accident	Construction	Significant / Likely / Substantial. Excavation is related to removal of pavement layers and sub soil drain excavation. Step off after milling to be managed	Milled areas to be kept closed to traffic until corrected. Temporary ramps to be provided is necessary. Excavations to be protected and closed to traffic
A8	Work involving handling of heavy prefabricated unit at structures including bridges, culvert, gantries signs and other structures	Fatality	Construction	Significant / Likely / Substantial. Culvert units to be handles with due care as per manufacturers specification.	Adequate safety harnesses to be provided. Storage of units on site to be demarcated
A9	Conflict with existing live services	Striking existing services	Construction	Significant / Likely / Substantial. Underground services exist within the site. All known services are to be identified and included in Section 1200.	Before commencing works on site, the Contractor should review the existing services information provided with the Tender Document and consult with service providers to recheck location of older service and review newly installed services. Contractor to prove and expose services by hand excavation where required.
A10	Working adjacent to or over waterways	Damage to structure or possible fall event	Construction	Significant / Likely / Substantial. Work on bridge decks include structural widening, milling asphalt, replacing asphalt and replacing bridge joints.	Adequate protection vehicles/public/workers during widening operations required. Contractor to ensure that load limit of bridge is not exceeded. Compaction to be restricted to minimum

(1) Ref	(2) Activity/Process/Material/Element	(3) Hazard ¹	(4) Stage of Work	(5) Risk Assessment: Severity / Likelihood / Risk	(6) Designer Risk Control Measures ² : Design action taken, record of decision process including option considered, design constraints.
				Dead load is not being altered significantly. Road over feature open to public exists. Refer to EMP for risk of water contamination.	required without excessive use of high amplitude vibration. Special precaution to be taken where working on bridges over features open to public
A11	Working adjacent to ongoing routine maintenance activities	Conflict with other contractors.	Construction / Maintenance	Significant / Likely / Substantial. There will be ongoing routine road maintenance in progress during construction. Contractor to be made aware of external activities and be given sufficient warning of RRM activities	The Contract contains the details of the ongoing RRM activities and the contact details for the N3TC RRM Manager.
A12	Driving and operating construction vehicles and construction equipment.	Accident / Injury / Fatality	Construction / Maintenance	Significant / Likely / Substantial. Ensure that the Contractor complies with OHS Act and Regulations relating to the operation of all construction vehicles and equipment. All notifications, permits where applicable and mandatory appointments to be in place before construction commences.	OHS Act and Construction Regulations apply. Refer to Section E.
Works Activities					
B1	Access to site	Conflicts with traffic	Construction	Moderate / Likely / Substantial. Construction vehicles enter and depart work areas into the normal traffic flow. Toll plaza access roads to remain open.	Site access and compound layouts to be properly planned by Contractor, giving consideration to a non-exhaustive list of items such as set-down areas for materials, internal and external site traffic management, one-way systems and turning circles, fencing and security. Training to be provided to all plant and vehicle operators relating to conduct on the site and when entering and exiting the site.
B2	Construction projectiles striking workmen or public	Projectile strike causing injury.	Construction / Maintenance	Significant / Likely / Substantial During milling and sweeping activities, there is a likelihood of solid particles becoming projectiles with a risk of striking a person.	Contractor to carry out risk assessment and mitigate strike risks.

(1) Ref	(2) Activity/Process/Material/Element	(3) Hazard¹	(4) Stage of Work	(5) Risk Assessment: Severity / Likelihood / Risk	(6) Designer Risk Control Measures²: Design action taken, record of decision process including option considered, design constraints.
B3	Handling and placing hot products. Bituminous road surfacing material	Burns and major injuries from hot works	Construction	Significant / Likely / Substantial. The works include the production, transport and placing of bituminous products that are heated to high temperatures. e.g. Asphalt	Contractor to provide workers with protective gear and safety equipment where appropriate when within the close proximity of the works. Visitors to be made aware of danger of close proximity to materials at high temperature.
B4	Handling of bituminous products and other hazardous petrochemicals.	Exposure to hazardous material	Construction	Significant / Likely / Substantial Bitumen and petrochemicals are classified as a hazardous material. The works include the production, transport and placing of bituminous products.	Contractor to take cognisance of guidelines relating to the handling bituminous materials and petrochemicals.
B5	Road level tie-ins	Unsafe step alignment tie-ins.	Construction	Significant / Likely / Substantial. During the overlay operations, the new road level will be higher than the adjacent shoulder.	During the overlay operations, the new road level will be higher than the adjacent shoulder. The works provides for the construction of a new shoulder. Where the step-off during construction exceeds 75mm, provisional arrangements for safety to be made.
B6	Contact with biological hazards associated with vermin or snakes	Infection of workers	Construction	Significant / Likely / Substantial	Tool box talks to include avoidance of all rodents and snakes and immediate notification of supervisor if bitten.
B7	Site offices and Laboratory	Hygiene, exposure to electricity, fire and hazardous materials.	Construction	Significant / Likely / Substantial. Planning of offices and laboratory to provide for safety and bylaw compliance.	Contractor to plan and provide all necessary safety certification, safe storage areas and safety equipment. Laboratory ventilation to take cognisance of hazardous methods and products used in testing. All equipment to be calibrated and certified.
B8	Facilities on site for workmen	Hygiene, exposure and dehydration.	Construction	Significant / Likely / Substantial. The site is remote from normal services. Adequate provision to be made for latrines and protection from elements.	Contractor to provide at each work area. <ul style="list-style-type: none"> • mobile latrines. • Shaded rest facilities. • Potable water.
B9	Weather (Rain)	Delays, cost, slope stability, access, damage to existing layer works, flooding	Construction	Low / Likely / Consider	Monitor weather forecasts

(1) Ref	(2) Activity/Process/Material/Element	(3) Hazard¹	(4) Stage of Work	(5) Risk Assessment: Severity / Likelihood / Risk	(6) Designer Risk Control Measures²: Design action taken, record of decision process including option considered, design constraints.
B10	Working at height	Injuries from fall	Construction	Significant / Likely /Extreme This applies to all works carried out at elevated positions.	Contractor to develop industry standard fall protection plan if applicable
B11	Working near water bodies	Injuries/drowning from falling in water	Construction	Significant / Likely /Extreme This applies to all works carried out adjacent or over water bodies.	Contractor to develop toolbox talk and to have safety equipment available on site for recovery and resuscitation.

Annexure F: Bridge As-Built Drawings

To be supplied once proof of payment of tender fee has been received.

Annexure G: 2020 Principal Bridge Inspection Data (ITIS)

To be supplied once proof of payment of tender fee has been received.