



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

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C1.1: FORM OF OFFER AND ACCEPTANCE (AGREEMENT)

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

TENDER NO: BFIA 7139/2023/RFP

FOR THE

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

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

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

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

.....

.....Rand (in words);

R(in figures)

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

For the Tenderer	Signature.....
	Name.....
	Capacity

Name and address of organization

Signature and name of witness	Signature.....
	Name.....

Date

ACCEPTANCE

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

The terms of the contract, are contained in:

Part C1: Agreements and Contract Data, (which includes this Agreement)
Part C2: Pricing Data
Part C3: Scope of Work.
Part C4: Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto as listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative (s) of both parties.

The Tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's Agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

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

Signature Date.....
Name
Capacity

For the

Employer Airports Company South Africa
Private Bag X20562
Bram Fischer International Airport
9300

Name and
signature
of witness Date.....

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender,
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such, letter, which constitutes a deviation as aforesaid become the subjects of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here,
3. Any other matter arising from the process from offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here,
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract,

- 1 Subject.....
Details.....
- 2 Subject.....
Details.....
- 3 Subject.....
Details.....
- 4 Subject.....
Details.....
- 5 Subject.....
Details.....

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

For the Tenderer:

Signature
Name
Capacity

Name and address of organisation

.....
.....
.....

Witness Signature.....
Name
Date

For the Employer:

Signature
Name
Capacity

Name and address of organisation

.....
.....
.....

Witness Signature
Name
Date

CONFIRMATION OF RECEIPT

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

the(day)

of(month)

20(year)

at(place)

For the Contractor

Signature Signature

Name Name

Capacity Capacity

Witness Signature..... Witness Signature

Name Name

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C1.2: CONTRACT DATA

C1.2.1 Conditions of Contract

It will be a condition of contract that:

The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the cidb Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.48491 of 28 April 2023.

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the cidb Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013.

C1.2.2 General Conditions of Contract

The following standardized General Conditions of Contract:

General Conditions of Contract for Construction Works (Third Edition) 2015 (GCC,2015)

GCC, 2015, as prepared by the South African Institution of Civil Engineering (SAICE), shall apply to and constitutes the General Conditions of Contract for this contract. Copies of these conditions of contract are obtainable from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685,
Tel: (011) 805 5947, Fax: (011) 805 5971, email: civilinfo@saice.org.za.

Copies of the General Conditions of Contract are available for inspection and scrutiny at the offices of the Employer and Employers Agent.

The Pro-formats bound with the General Conditions of Contract 2015, from page 96 to page 116 shall not apply to this Contract and shall be replaced with the documentation bound into this Contract Document.

C1.2.3 Special Conditions of Contract

Variations, amendments and additions to the General Conditions of Contract as Special Conditions of Contract prescribed by the Employer are set out below. Each item of the Special Conditions of Contract given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The following Special Conditions of Contract as prescribed by the Employer, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract:

1.1.1.16 *Add the following to Clause 1.1.1.16:*

"Where reference is made to the term 'Engineer' in the Project Specifications or anywhere in the contract document, the terms 'Engineer and Employer's Agent' shall have the same meaning."

2.4.3 *Add the following Clause 2.4.3*

2.4.3.1 "The originals of all Drawings and Specifications prepared by or on behalf of the Employer's Agent shall remain in his custody and references herein to delivery to the Contractor of Drawings or Specifications shall relate to true copies thereof.

2.4.3.2 The Contractor shall be entitled to receive free of charge, to the extent provided in the Contract, copies of each such Drawing and Specification and to receive, or reproduce, such additional copies as he shall reasonably require.

All additional copies, whether provided by the Employer's Agent or reproduced by the Contractor, shall be to the Contractor's account.

2.4.3.3 One copy of all documents constituting the Contract shall be kept on the Site and be available for perusal by the Employer's Agent or any person authorised by him.

2.4.3.4 The Contractor shall, in accordance with the Employer's Agent's instructions, maintain a register on the Site of all Drawings and revisions thereof in the chronological order in which they are delivered to him."

Amend the first three lines to read:

4.1.2

"Where any part of the Works, whether permanent or temporary is designed by the Contractor, he shall, notwithstanding any approval of the Employer's Agent be liable for any error or deficiency in any design, drawing or document and any loss or damage arising out of such error or deficiency."

Add the following new Clause 4.2.3:

4.2.3

4.2.3.1 "The Employer's Agent shall establish the basic reference pegs and benchmarks on the Site and give to the Contractor the particulars thereof in sufficient time to enable the Contractor to meet his approved programme.

4.2.3.2 After compliance by the Employer's Agent with the provisions of Clause 4.2.3.1, the Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

4.2.3.3 If at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Employer's Agent, shall at his own expense rectify such error to the satisfaction of the Employer's Agent, but if such error is based on incorrect data supplied in writing by the Employer's Agent or if there is any delay in providing the particulars required in terms of Clause 4.2.3.1, the Contractor shall, in respect of that delay and the Cost of such rectification, be entitled to make a claim in accordance with Clause 10.

The Contractor shall carefully protect and preserve all benchmarks, sight-rails, pegs and other things used in setting out the Works.

The checking of any setting-out or of any line or level by the Employer's Agent shall not relieve the Contractor of his responsibility for the correctness thereof."

Liability for Subcontractors

4.4.2

Add the following to Clause 4.4.2 after the last sentence:

"The Contractor shall not subcontract any part of the Contract without the prior written consent of the Employer's Agent, which consent shall not be unreasonably withheld."

Add the following new Clauses:

4.9.

4.9.2: "In order to preclude seizure by the owner of any Construction Equipment being held by the Contractor on a hire-purchase agreement for the purposes of the Contract, the Employer shall be entitled to pay any such owner the amount of any outstanding instalment or other sum owing under any hire or hire-purchase agreement and in the event of his doing so, any amount thus paid by him shall be a debt payable to the Employer by the Contractor and may be deducted by the Employer from any monies owing or that may become owing the Contractor in terms of the Contract, or be recovered at law from the Contractor by the Employer.

4.9.3: When entering into any subcontract for the execution of any part of the works, the Contractor shall incorporate in such subcontract, by reference or otherwise, the provisions of this clause in respect of Construction Equipment brought to the Site by the subcontractor."

Time to instruct commencement of the Works

Add the following to Clause 5.3.3 after the last sentence:

5.3.3

"The Contractor shall not commence working until they have an approved project specific health and safety plan in terms of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 and complied with the initial requirements thereof."

Add the following paragraph:

5.9.1

"All additional copies, whether provided by the Employer's Agent or reproduced by the Contractor, shall be to the Contractor's account."

Add the following after "the Contractor," in the third line:

5.11.4

"or by reason of any contractor executing construction work, which is not in accordance with, the Contractor's Health and Safety Plan for the Site or which poses a threat to the health and safety of persons."

Add the following new Clause:

5.13.3

"Fifty per cent (50%) of the penalty as stated in the Contract Data (5.13) shall also be applicable should the Contractor fail to achieve the interim milestone dates as stated in Clause C3.5.1(a) (Management of the Works)."

Issue of Certificate of Practical Completion

5.14.2

Replace "the Employer's Agent" in the second line with the following:

", the Contractor shall notify the Employer's Agent, who shall inspect the Works and the Employer's Agent"

Add the following at the end of this Clause:

5.14.4

"However, a Certificate of Completion will not be issued before the Contractor hands over a consolidated Health and Safety file that shall include all the specified information."

In the last sentence:

6.5.3

Delete the first word "If" and replace with "When".

In the first line of Clause 6.6.1.2.1 after the word "sums" and the fourth line of Clause 6.6.1.2.2 after the word "amount" insert "excluding VAT."

6.6.1

- Insert "VAT and" after "excluding" in the parenthesis in the third line.*
- 6.8.2
- Replace the second sentence (commencing "The valuation of such materials") with the following:*
- 6.10.2
- "The valuation of such materials shall be based on the purchase price and delivery cost reflected by the relevant invoices or receipts, exclusive of Value Added Tax and discounts to the Contractor and inclusive of any other duties payable on such material. (Value Added Tax will be added only to the nett amount certified by the Employer's Agent as payable to the Contractor in respect of each Payment Certificate, as provided for in Clause 6.10.1;"
- Variations exceeding 15 per cent
- 6.11
- Replace "15 per cent" in the heading, the marginal heading and in Clause 6.11.1.3 with "20 per cent".*
- Add the following to this sub-clause:*
- 7.2.1
- "The onus rests with the Contractor to produce work which conforms in quality and accuracy of detail to all the requirements of the specifications and drawings, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced personnel, together with all transport, instruments and equipment, to ensure adequate supervision and positive control of the works at all times."
- Add the following to this sub-clause:*
- 7.4.1
- "The Contractor shall conduct tests or have them conducted continually on a regular basis, to check the properties of natural materials and processed natural materials and of products manufactured on site, such as concrete and asphalt. Although not a requirement for the Contractor to conduct regular tests on any commercially produced products such as cement, bitumen, steel and pipes, the Contractor shall remain fully responsible for any defective material or equipment provided by him.
- Similarly, the quality of all elements of the works shall be checked on a regular basis so as to ensure compliance with the specified requirements.
- The intensity of control and of tests to be conducted by the Contractor in terms of these obligations is not specified but shall be adequate to ensure that proper control is being exercised to the satisfaction of the Employer's Agent.
- Where any natural materials or products made from natural materials are supplied, upon completion of each element of the construction works, the Contractor shall test and check such materials, products and or elements for compliance with the specified requirements and shall submit his results to the Employer's Agent for approval. Such submission shall include all his measurements and test results and shall furnish adequate proof of compliance with the specified requirements."
- Add the following new Clause:*
- 7.6.3.3
- "To stop any contractor from executing construction work, which is not in accordance with, the Contractor's health and safety plan for the Site or which poses a threat to the health and safety of persons and to implement the required health and safety measures before continuing."
- Delete and replace with the following:*
- 8.3.1.4
- "Risk arising from political riot and malicious damage, unless these risks are insurable with the South African Special Risk Insurance Association at the time of tendering and it is stipulated in the Contract Data that the Contractor is to effect insurance against these risks."

Delete and replace with the following:

8.4.1.1

"hereby indemnifies the Employer, the Employer's Agent and all consultants against any liability in respect of damage to or physical loss of the property of any person, including any employee of the Contractor, or injury to or death of any person, including any employee of the Contractor and"

8.6

Delete and replace with the following:

8.6.1 **Insurance Effected By The Employer**

8.6.1.1 Notwithstanding anything elsewhere contained in this Contract and without limiting the obligations, liabilities or responsibilities of the Contractor in anyway whatsoever (including but not limited to any requirement for the provision by the Contractor of any other insurances) the **Employer** shall effect and maintain for the duration of the construction and maintenance periods of the Contract - as appropriate in the joint names of the Employer, the Contractor and where relevant Sub-Contractors the following insurances which are subject to the terms, limits, exceptions and conditions of the Policy:

a) **Contract Works/Contractors Public Liability/ Removal Of Lateral Support Liability**

Section 1 Of The Policy – Contract Works

Contract Works Insurance for the full value of the Works to provide cover against accidental physical loss of or damage to the Works, Temporary Works and materials intended for incorporation in the Works all being the subject matter of this Contract including to the extent provided for in the policy whilst in transit or temporarily stored at any premises enroute to or from the Site (other than where this is a continuation of Marine Transit) within the territorial limits of the policy.

This insurance may specifically exclude any cost necessary to replace or rectify any of the property insured, which is in a defective condition due to defect in design, plan specification, material or workmanship.

This insurance contains the following limitations and warranties;

Open Trench Limitation

In respect of loss or damage to open trenches and pipes, conduits or cables laid therein, caused directly or indirectly by rain, inundation or flood, Insurers liability shall be limited in respect of the aggregate length of open trenches at any one time to 200 meters.

Exposed Layer Works (applicable to works involving paving, roadways, bulk earthworks and runways and taxiways)

*In respect of loss or damage to Exposed Layer Works relating to paving, roadways and runways (including taxiways) caused directly or indirectly by rain, inundation or flood, Insurers liability shall be limited in respect of the aggregate length of Exposed Layer Works at any one time to **25,000 square meters**.*

Section II of the Policy – Contractors Public Liability

Public Liability Insurance which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the

Works the subject matter of this Contract) arising from the execution of the Contract with a limit of indemnity of **R50,000,000** in respect of any one occurrence or series of occurrences consequent on or attributable to one source or original cause.

Section III of the Policy – Removal Of Lateral Support Liability

Removal Of Lateral Support Liability which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the Works the subject matter of this Contract) arising out of or in connection with shock or vibration or the removal or weakening of or interference with support to property in the vicinity of the Contract Site and arising out of or in connection with the Insured Contract (but not in respect of tunneling works) and occurring during the Period of Insurance.

The Limit of Indemnity being limited to **R20,000,000** attributable to one source or original cause.

- b. Contract Works SASRIA – Providing physical** loss of or damage to the Works, Temporary Works and materials intended for incorporation in the Works as covered by the underlying Contract Works policy as noted in (a) above due to perils as covered in terms of the SASRIA Contract Works wording as issued by SASRIA SOC.

The Contract Works SASRIA cover excludes consequential or indirect loss or damage of any kind or description whatsoever.

The SASRIA Contract Works policy is limited to **R500,000,000 (Incl VAT)** in the aggregate during the policy period of insurance.

The Contract Works SASRIA policy wording can be obtained from the SASRIA website <http://www.sasria.co.za/> which notes the covers and policy exclusions.

- c. Aviation Liability Insurance** which provides indemnity against legal liability in the event of accidental death of or injury to persons and/or loss of or damage to property (other than the Works the subject matter of this Contract) arising from the execution of the Contract with a limit of indemnity of **R500,000,000** in respect of any one occurrence or series of occurrences consequent on or to one source or original cause.

This insurance is in respect of liability relating to aircrafts.

- d. Design & Construct Professional Indemnity Insurance** which provides indemnity against legal liability to pay compensation as a result of any actual or alleged negligent act, error or omission in the performance of the Professional Duties of the insured and arising from the execution of this project. The limit of indemnity under this insurance shall be ***R25,000,000 in the aggregate during the annual policy period of insurance that ACSA effect such cover during the policy period from 1 April to 31 March during each policy period of insurance.**

****The limits of indemnity applies to all ACSA contracts as a whole and does not apply specifically to this contract. The aggregate limit could be exhausted by claims under other ACSA contracts and there is no guarantee that this insurance cover will***

provide sufficient cover to this specific contract should the aggregate limit be exhausted.

The Policy only covers the rectification of the works and excludes all consequential losses.

Professional Duties do not include:

- a) Labour and construction work which would normally be the responsibility of the building or engineering contractor.
- b) Supervision of the construction works usually undertaken by a building or engineering contractor.

8.6.1.2 **The Contractor** shall familiarise itself fully with the details of such insurance effected by the Employer. The Contractor shall comply to all the terms and conditions of the Employer arranged policies and the Contractor shall be deemed to be fully aware of all the conditions, limits, limitations, exclusions/exceptions and deductibles that are contained in the Employer arranged policies. Copies of the Employer arranged policies are obtainable on request from the Employer and if the Contractor is of the opinion that additional insurance is required, such shall be for the Contractors account.

8.6.1.3 The Employer shall pay the premium in connection with the insurances effected by the Employer. The Employer is entitled to all return premiums, dividends, discounts, or adjustments in connection with the insurances effected by the Employer.

8.6.1.4 The Contractor shall not include any premium charges for this insurance except to the extent, which he may deem necessary in his own interests to effect supplementary insurance to the insurance effected by the Employer. The Employer reserves the right to call for full information regarding insurance costs included by the Contractor.

In the event that the Contractor purchases any insurances in addition to those indicated above, the premium and taxes, duties, etc. shall be borne entirely by the contractor.

8.6.1.5 Any further clarification of the scope of cover provided by the Policies arranged by the Employer should be obtained from the Employer.

8.6.1.6 The Contractor and/or any other party who obtains indemnity under the policies effected under 8.6.1.1 shall become liable for the deductibles (first amount payable) which are applicable in respect of each and every occurrence or series of occurrences attributable to one source or cause giving rise to loss or damage or indemnifiable liability. The deductibles applicable to the policies effected under 8.6.1.1 are as follows:

a) Contract Works/Contractors Public Liability/ Removal Of Lateral Support Liability

Unless stated otherwise in the Policy Extensions the Deductibles shall be as follows which will apply in respect of each and every occurrence or series of occurrences arising out of or in connection with any one event giving rise to loss or damage:

Section 1 Of The Policy – Contract Works

In respect of all loss or damage :

- a) arising out of storm (which term shall include rain, wind, tempest or flood) subsidence, collapse, earth-quake or earth-tremor - **R250,000** each and every occurrence.
- b) arising from any other cause not listed in (a1) above - **R150,000** each and every occurrence.

Section 2 Of The Policy – Contractors Public Liability

R75,000 each and every claim in respect of Property Damage.

Section 3 Of The Policy – Removal Of Lateral Support Liability

R100,000 each and every claim.

b) Contract Works SASRIA

In respect of theft as a result of the SASRIA perils insured - **R25,000** each and every occurrence.

c) Aviation Liability Insurance;

In respect of each and every loss or damage or injury - **US\$250,000**.

d) Design & Construct Professional Indemnity Insurance

In respect of each and every occurrence – **R10,000,000**.

8.6.1.7 In the event of any occurrence which is likely to give rise to a claim under the insurance arranged by the Employer, the Contractor shall:

- a) In addition to any statutory requirement or other requirements contained in the Contract immediately notify the Employer and the Employer's Insurance Brokers by telephone, mobile phone or email giving the circumstances, nature and an estimate of the loss or damage or liability. The Contractor must also complete the Claim Advice Form (Appendix "A").

The following persons/insurers must be advised immediately on the occurrence of a claim on site or even a possibility of a claim arising due to an incident occurring on site:

Willis South Africa (Pty) Limited:

Thabo Mofolo
Tel: +27 (0)11 535 5400
M: +27 (0)83 445 6916
Thabo.mofolo@wtwco.com

Charmaine Moreira
D: +27 (0)11 082 8618
M: +27 (0)79 330 5409
Charmain.moreira@wtwco.com

Biko Meletse
D: +27 (0)11 082 8744
M: +27 (0)79 886 7920
Biko.meletse@wtwco.com

- b) Preserve damage and make it available for inspection by a representative of the Insurers.
c) Wherever possible, photographs of damage should be taken.

- d) Inform the police authorities promptly in the event of loss or damage by theft, burglary or any malicious persons(s) for the purpose of recovering any property so lost, discovering the guilty person or persons, and having him, her or them duly prosecuted.
- e) Advise the Insurers of any other insurance(s) which may cover the same loss, damage or injury, or any part thereof.
- f) Give to the Insurers every assistance to enable the Insurers to settle or resist any claim against the Insured, or institute any proceedings;
- g) On completion the Claims Advice Form, the form must be sent to the Employers Insurance Brokers for further action (the original may be emailed to the Employers Insurance Broker). (Please do not remove the Claims Advice Form out of this document. Rather photocopy the form and send the copy to the Employers Insurance Brokers).
- h) The Employer and the employers Insurance brokers / Insurers or their appointed loss adjusters shall have the right to make all and any enquiry's on the Site of the Works or elsewhere as to the cause and results of any such occurrence and the Contractor shall co-operate in carrying out such enquiry's.
- i) The Contractor, Project Managers and Consultants must allow free access to Insurers' assessors for the purpose of investigating and assessing the loss or damage.
- j) The Contractor must not proceed with the making good any off the loss without the prior authorisation of the Insurers.**
- k) The Contractor must keep separate records of the costs involved in making good any loss or damage and these records should be available at all times for inspection by Insurers. Such records should include inter alia the entire cost of labour, materials, transport and equipment.
- l) Where required by the Employer, negotiate the settlement of claims with the Insurer or their appointed loss adjusters through the Employer's Insurance Brokers and shall obtain the Employer's approval of such settlement.
- m) Once the amount of a claim is agreed by the Insurers and the Contractor, an "Agreement of Loss" form must be signed by the Contractor and if required this shall be counter signed by the Employer or the Project Managers.
- n) The proceeds of such claim will, if required by the Employer, be paid net of any Deductible applicable under the policy by the Insurers to the Employer who on receipt thereof will arrange for payment to be made in terms of the Conditions of Contract. In the event that it is agreed by the Employer that such claims payment be made directly to the Contractor, the Contractor shall arrange for the Employer to endorse the "Agreement of Loss" to this effect.

8.6.2 Insurance Effected by the Contractor.

In addition to Clause 8.6.1.1 in respect of the insurances effected by the Employer the following Insurances to be effected by the Contractor:

- 8.6.2.1 Without limiting the Contractor's obligations, responsibilities and liabilities, the Contractor and Sub-contractor shall maintain at the Contractor's and Subcontractor's expense and where applicable provide as a minimum the following insurances:
 - a) **Insurance of Construction Plant and Equipment** (including tools offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement.

The Employer shall be named as additional insured and a waiver of subrogation shall be provided to the Employer.

b) Contractor's Common Law Liability/ Worker's Compensation Insurance

The Contractor shall take out and maintain employer's liability insurance with a limit of indemnity of not less than **R20,000,000** and/or workmen's compensation insurance covering personal injury to or death of the employees of the Contractor engaged in connection with the Works to the minimum value required by applicable law.

The Contractor shall procure that its Subcontractors take out and maintain similar insurance in respect of its Subcontractor's personnel performing the Works.

In the event that a claim is made against the Employer in connection with such insurance, the Contractor shall indemnify and hold harmless the Employer against any such claim. The Employer shall be named as additional insured and a waiver of subrogation shall be provided to the Employer.

- c) **Motor Vehicle Liability Insurance** comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability indemnity with a limit of indemnity of not less than **R5 000 000** for all owned, non-owned, leased and hired vehicles.

d) Insurance For Buy-Down Cover Of Employer's Deductibles

Should the Contractor believe that the Employer effected Contract Works, Public Liability, Removal Of Support Liability, Aviation Liability and Design & Construct Professional Indemnity deductibles as noted in Clause 1.6 (a),(c) and (d) be considered to be unacceptable to the Contractor, then the Contractor must obtain Buy Down cover for these deductibles to a deductible considered by the Contractor as being acceptable in respect of the works being undertaken.

- e) Where the Contract involves manufacturing and/or fabrication of the Works or parts thereof at premises other than at the Contract Site the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the Works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such Works during manufacture or fabrication then such interest shall be noted by endorsement to the relevant Policies of Insurance.

Such insurance shall name Employer as an additional insured, and shall be primary to any insurance maintained by the Employer.

- f) **Public Liability** insurances in excess of the Employers Public Liability insurances as stated under clause 1.1(a).
- g) **Aviation Liability** insurances in excess of the Employers Aviation Liability insurances as stated under clause 1.1(c).
- h) **Contractor's Professional Indemnity Insurance** in excess of the Employers Design & Construct Professional Indemnity insurances as stated under clause 1.1(d) and if applicable to cover the deductible that applies to the Employer effected insurance.
- i) **Marine Cargo Insurance (If Applicable)**

Cover: Imports of cargo, equipment, goods, plant, machinery and materials ("**Insured Property**") to the site where the Permanent Works will be constructed.

Sum Insured: Not less than the value of the largest single cargo shipment, conveyance or the value in storage, whichever is the greater (CIF plus 10%).

Marine / Air Cargo Insurance covering the Insured Property against all risks of physical loss or damage while in transit by land, sea or air from country of origin anywhere in the world to the site where the Permanent Works will be constructed including loading, or vice versa, from the commencement of the time the insured items are loaded prior leaving the warehouse or factory for shipment to the said site.

The insured parties are the Employer, the Contractor and its Subcontractors, and all their personnel involved in the execution of any Works on the construction site.

j) **Miscellaneous Insurance**

Other insurance as is customary, desirable or necessary to comply with applicable Laws in the Country.

8.6.2.2 The insurances to be provided by the Contractor and his Sub-contractor shall be effected with Insurers and on terms approved by the Employer (which approval shall not be unreasonably withheld) and shall be maintained in force for the duration required (including any period of maintenance/defects liability period). The Contractor shall within twenty eight (28) days of commencement of the contract produce to the Employer the relevant Policy or Policies of Insurance.

8.6.2.3 In the event that the Contractor or his Sub-contractor receives any notice of cancellation or restrictive modification to the insurance provided to them they shall immediately notify the Employer in writing of such cancellation or restriction and shall advise what action the Contractor or his Sub-contractor will take to remedy such action.

If the Contractor fails to effect and keep in force the insurances referred to then the Employer may effect and keep in force any such insurances and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount paid by the Employer from any monies due or which may become due to the Contractor or recover same as a debt from the Contractor.

8.6.2.4 **Sub-Contractors.**

The Contractor shall:

- a) ensure that all potential and appointed Sub-contractors are aware of the whole contents of these Insurance Clauses, and
- b) enforce the compliance by sub contract agreement between the Contractor and Sub-Contractor and where applicable that the Sub Contractor effect similar insurance relating to the insurances required to be effected by the Contractor under Clause 2 (Contractor effected insurances).

APPENDIX A

TRACTORS CLAIMS ADVICE FORM - FOR ACSA BRAM FISCHER AIRPORT RUNWAY REFURBISHMENT PROJECT

Send to : Willis South Africa (Pty) Limited

E-Mail The Following People :

Thabo.mofolo@wtwco.com

Charmain.moreira@wtwco.com

Biko.meletse@wtwco.com

paul.jacobs@wtwco.com

Nokulunga.Masiza@airports.co.za

*

.....

.....

.....

.....

Represented by :

.....

* (Please provide name of contracting company, site address, telephone numbers and e-mail address).

RE :ACSA : BRAM FISCHER AIRPORT RUNWAY REFURB PROJECT : CAR/PL/PI : CLAIM

Date of loss :

Reported to site agent by :

Date :

Reported to Insurance Broker by :

Date :

Locality of Incident

How did the loss occur (cause) ?

Details and nature of loss or damage to Contract Works

Details of other property damaged

Names and address of witnesses

Estimated cost of repairs (Separate records of all costs must be kept) R

Person whom assessor should contact

Telephone/Mobile Numbers Of Contact Person

Email Address of Contact Person

Sub-Clause (2)

If required, the Contractor shall provide proof that he has paid all contributions required in terms of the Compensation for Occupational Injuries and Diseases Act, No 130 of 1993, and that he has complied with the provisions of the Occupational Health and Safety Act, No 85 of 1993 and, in respect of the later Act, shall when called upon to do so, enter into and execute an Agreement as provided under Section 37(2) of said Act. The Agreement shall be in the form included elsewhere in this document.

Add the following new Clause:

“Has failed to execute construction work in accordance with the Contractor’s Health and Safety Plan or without a threat to the health and safety of persons within fourteen (14) days after receiving from the Employer’s Agent written notice of the same.”

Add the following Clause:

“10.1.6 Early warning – A Party shall notify the other as soon as he is aware of any circumstance which may delay or disrupt the Works, or which may give rise to a claim for additional payment. The Contractor shall take all reasonable steps to minimise these effects.

The Contractor’s entitlement to extension of the Time for Completion or additional payment shall be limited to the time and payment which would have been due if he had given prompt notice and had taken all reasonable steps.”

Part 1: Contract Data completed by the Employer

The General Conditions of Contract make several references to the Contract Data for specific data, which together with the General and Special conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Specific Data below. Each item of data given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The Contract Data and General Conditions of Contract shall have precedence over the Drawings, Scope of Work and Standardised Specifications in the interpretation of any ambiguity or inconsistency between these documents.

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

Clause

1 GENERAL

1.1.1.13 The Defects Liability Period is **12 months**.

1.1.1.14 The time for achieving Practical Completion is **10 months**.

1.1.1.15 The Employer is the **Airports Company South Africa**, Bram Fischer International Airport, represented by the Airport Manager and/or such other person or persons duly authorised thereto by the Employer in writing

Address to: Airports Company South Africa Ltd
Private Bag X20562
Bloemfontein
9300

1.1.1.16 The Employer's Agents are iX engineers acting through a director or an official duly authorised thereto in writing.

Address to: iX engineers (Pty) Ltd
PO Box 22, Menlyn
Pretoria
0063

1.1.1.26 The Pricing Strategy is a Re-measurement Contract as defined in Subclause 1.1.1.27

3.2.3 The Employer's Agent is required to obtain the specific approval of the Employer before executing any of the following functions or duties:

1. Clause 3.3.1 Nomination of Employer's Agent's Representative
2. Clause 3.3.4 Employer's Agent's authority to delegate
3. Clause 5.8.1 Non-working times
4. Clause 6.3 Variations
5. Clause 5.11.2 Suspension of the Works
6. Clause 5.12.1 Extension of Time for Practical Completion
7. Clause 5.12.4 Acceleration instead of extension of time

5.3.1 The documentation required before commencement with Works execution are:

Health and Safety Plan (Refer to Clause 4.3)

Initial programme (Refer to Clause 5.6)

Security (Refer to Clause 6.2)

Insurance (Refer to Clause 8.6)

Cash flow projection

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

5.4.2 The access and possession of Site shall not be exclusive to the Contractor but as set out in the Site Information.

5.8.1 The non-working days are non-working nights as designated in clause A1.2.7.1 of Part C3.6.1. Refer to the working hours as detailed in the Manual of Procedures for Working Airside. (Refer to Volume 5)

The special non-working days are gazetted public holidays falling outside of the year end break and the days on which the contractor grants the majority of his permanent workforce leave around 15 December and the first Monday of the subsequent year (as defined by SAFCEC).

5.13 (i) The penalty for failing to complete the Works is **R60 000,00** per calendar day.

(ii) The penalty for failing to meet the taxiway or runway opening requirement is **R60 000,00** per occurrence and also any additional expenses as may result from the delay in opening the facility.

5.16.3 The latent defects period is **10 years**.

6.5.1.2.3 The percentage allowances to cover the relevant charges is **10%**.

6.8.2 Contract Price Adjustment

The Contract Price shall be subject to contract price adjustment in accordance with Clause 6.8 of the General Conditions of Contract.

If special materials are specified in the Contract, then the provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials.

Where applicable, in terms of the foregoing, the value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:

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

x =	0.15
a =	0.15
b =	0.35
c =	0.40
d =	0.10

"L" is Consumer Price Index for the area of Bloemfontein, Orange Free State.

"F" is the Production Price Index for Diesel oil.

The base date for the purposes of calculating Contract Price Adjustment (CPA) shall be the month prior to the tender closing date.

NOTE: The contract price adjustment factor shall be calculated to six decimal places.

6.10.1.5 The percentage advance on materials not yet built into the Permanent Works is **80%** upon proof of ownership.

Payment to the Contractor for any materials on site shall only be authorized after proof of ownership by the Contractor has been lodged with the Employer's Agent in the form of receipted invoices or other acceptable documents."

6.10.3 Notwithstanding the provision of a performance guarantee in terms of Clause 6.2.1, interim payments to the Contractors shall be subject to a retention by the Employer of an amount of **5%** of the said amounts due to the Contractor. The limit of retention money is **5%** of the Contract Price, including allowances for contingencies and Contract Price Adjustment. A guarantee in lieu of retention **is** permitted.

8.6.1.1.2 The value of Plant and materials supplied by the Employer to be included in the insurance sum is **R0,00 (Nil)**.

10.5.3 The number of ad-hoc Adjudication Board Members to be appointed is **1 (one)**.

10.7.1 Disputes are to be referred for final settlement to arbitration.

Part 2: Data provided by the Contractor

Clause 1.1.1.9:

The name of the Contractor is

Clause 1.2.1.2:

The address of the Contractor is

Physical Address:

.....

.....

Postal Address:

.....

.....

Telephone:

.....

.....

Fax:

.....

Email:

6.2.1 The security to be provided by the Contractor shall be one of the following:

TYPE OF SECURITY	CONTRACTOR'S CHOICE. INDICATE "YES" OR "NO"
Cash deposit of 10% of the Contract Sum (excluding VAT)	
Performance Guarantee of 10% of the Contract Sum (excluding VAT)	

General Conditions of Contract - Clause 6.8.3: Variation in the cost of special materials

SPECIAL MATERIALS		
Each material dealt with as a special material in terms of Clause 4.1 of the Contract Price Adjustment Schedule of the General Conditions of Contract is stated in the list below. The provisions of Subclause 6.8.3 of the General Conditions of Contract shall apply to such special materials. The rates and prices for the special materials shall be furnished by the tenderer, which rates and prices shall not include VAT but shall include all other obligatory taxes and levies.		
Special Material	Source / Supplier	Rate or Price for the base month
Bitumen Base Bitumen		/ ton *
* Indicate whether the material will be delivered in bulk or in containers. This is to be the Oil Companies Industry Rate. When called upon to do so, the tenderer shall substantiate the above rates or prices with acceptable documentary evidence.		

No Special Materials are to be submitted unless clarified with Employer's Agent (See F.2.11 & F.2.12)
Note: Fuel not to be include unless submitted as an alternative tender
When called upon to do so, the tenderer shall substantiate the above rates or prices with acceptable documentary evidence.

SIGNED ON BEHALF OF TENDERER:

AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C1.3: PERFORMANCE GUARANTEE (PRO FORMA)

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:

"Works" means:

"Site" means:

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

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

Amount in words:

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

Amount in words:

Type of Performance Guarantee: *Fixed*

"Expiry Date" means:

CONTRACT DETAILS

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

1. VARIABLE PERFORMANCE GUARANTEE

- 1.1. Where a Variable Performance Guarantee has been selected, the Guarantor's liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:
 - 1.1.1. From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum: R.....
(Amount in Words.....)
 - 1.1.2. From the day following the date of the said interim payment certificate up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, _____ whichever _____ occurs _____ first:
R.....
(Amount in Words.....)
- 1.2. The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

2. FIXED PERFORMANCE GUARANTEE

- 2.1. Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2.2. The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.
- 2.3. The Employer's Agent and/or Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion has been issued.

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

- 3.1. The Guarantor hereby acknowledges that:
 - 3.1.1. Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.1.2. Its obligation under this Performance Guarantee is restricted to the payment of money.
- 3.2. Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
 - 3.2.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has

- not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
- 3.2.2. A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;
 - 3.2.3. A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
 - 3.3. Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 3.3.1. The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
 - 3.3.2. A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
 - 3.3.3. The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
 - 3.4. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
 - 3.5. Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
 - 3.6. Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
 - 3.7. Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
 - 3.8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
 - 3.9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
 - 3.10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
 - 3.11. This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
 - 3.12. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in

terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at:

Date:

Guarantor's signatory (1):

Capacity:

Guarantor's signatory (2):

Capacity:

Witness signatory (1):

Witness signatory (2):

AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C1.4: RETENTION MONEY GUARANTEE (PRO FORMA)

ISSUED TO *[INSERT NAME OF EMPLOYER]* (hereinafter called "the Employer")

ON BEHALF OF *[INSERT NAME OF CONTRACTOR]* (hereinafter called "the Contractor")

in connection with TENDER NO: (hereinafter called "the Contract").

WHEREAS the Employer and the Contractor have agreed that the Contractor may provide a guarantee in lieu of the whole or a portion of the retention moneys provided for under the Contract;

NOW THEREFORE we, the undersigned, undertake, in accordance with the following provisions, to pay to the Employer such amounts as the Employer may, from time to time, demand from us.

1. Each demand by the Employer shall be in writing, signed by the Employer and delivered to us at *[INSERT GUARANTOR'S FULL STREET ADDRESS]* or such other address in *[INSERT NAME OF COUNTRY]* as we shall in writing notify to the Employer, and shall be accompanied by a certificate complying with Clause 2, signed by the Employer's Agent in office as such in terms of the Contract.
2. The Employer's Agent's certificate referred to in Clause 1 shall certify that:
 - (a) he is the Employer's Agent in office as such in terms of the Contract,
 - (b) the Contractor is in breach of his obligations under the Contract, and
 - (c) the amount demanded, which amount the certificate shall specify, does not exceed
 - (i) the amount of retention moneys which, but for this guarantee, would have been retained by the Employer in terms of the Contract at the date of the certificate, less the aggregate of the amounts of retention money actually retained by the Employer and the amounts previously paid by us to the Employer in terms hereof,
 - (ii) a genuine estimate of the cost to the Employer of having the breach referred to in paragraph (b) remedied less the aggregate of any amounts withheld by the Employer from payments due to the Contractor in terms of the Contract by reason of the breach referred to, and any amount of retention money actually held by the Employer save to the extent that the same had been deducted from any previous demand in terms hereof;

3. We shall within days after our receipt of a demand complying with the provisions in Clauses 1 and 2 make payment to the Employer of the amount demanded at *[INSERT EMPLOYER'S STREET ADDRESS]* or at such other address in *[INSERT EMPLOYER'S COUNTRY]* as the Employer shall in writing notify to us.
4. Subject to compliance with the provisions hereof, our liability to make the payments herein referred to shall be unconditional and shall not be affected or diminished by any disputes, claims or counterclaims between the Employer and the Contractor.
5. Our aggregate liability under this guarantee is limited to*[INSERT AMOUNT OF GUARANTEE IN WORDS]* (R..... *[INSERT AMOUNT OF GUARANTEE IN FIGURES]*).
6. This guarantee shall expire on the date on which the last of the retention moneys, which but for this guarantee would have been retained by the Employer, becomes payable to the Contractor.
7. This guarantee is not transferable and must be produced for endorsement if any part payment is made and must be returned to us against final payment of our aggregate liability or on the date of the expiry of the guarantee in terms of Clause 6, whichever is the earlier.

Signed in the presence of the subscribing witnesses:

Atfor and on behalf of

.....

on this the day of 20.....

SIGNATURE :

CAPACITY :

ADDRESS :

:

:

AS WITNESSES : 1

2

AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C1.5: ADJUDICATOR'S AGREEMENT (Pro Forma Form)

This agreement is made on the day of between:

..... [name of company/organisation]

of

..... [address] and

..... [name of company/organisation]

of

..... [address]

(the Parties) and

..... [name]

of

..... [address]

(the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated

..... and known as

.....

and these disputes or differences shall be/have been* referred to adjudication in accordance with the CIDB Adjudication Procedure [hereinafter called "the Procedure"], and the Adjudicator may be or has been requested to act.

**Delete as necessary.*

IT IS NOW AGREED as follows:

1. The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.
2. The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.
3. The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.
4. The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.
5. The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED BY: _____	SIGNED BY _____	SIGNED BY _____
Name: _____	Name: _____	Name: _____
who warrants that he/she is duly authorised to sign for and on behalf of the first Party in the presence of	who warrants that he/she is duly authorised to sign for on behalf of the second Party in the presence of	the Adjudicator in the presence of
Witness: _____	Witness: _____	Witness: _____
Name: _____	Name: _____	Name: _____
Address: _____ _____ _____ _____	Address: _____ _____ _____ _____	Address: _____ _____ _____ _____
Date: _____	Date: _____	Date: _____

Contract Data

1. The Adjudicator shall be paid at the hourly rate of R..... in respect of all time spent upon, or in connection with, the adjudication including time spent travelling.
 2. The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to:
 - (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs
 - (b) Telegrams, telex, faxes and telephone calls
 - (c) Postage and similar delivery charges
 - (d) Travelling, hotel expenses and other similar disbursements
 - (e) Room charges
 - (f) Charges for legal or technical advice obtained in accordance with the Procedure.
 3. The Adjudicator shall be paid an appointment fee of R..... This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
 4. The Adjudicator is/is not* currently registered for VAT.
- *Delete as necessary*
5. Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.
 6. All payments, other than the appointment fee (item 3) shall become due 7 days after receipt of invoice, thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.

AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C1.6: AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at

on this the day of in the year

between [hereinafter called "the Employer"] of the one

part, herein represented by

in his capacity as

and

[hereinafter called "the Mandatary"] of the other part, herein represented by

in his capacity as

WHEREAS the Employer is desirous that certain works be constructed, viz REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT and has accepted a Tender by the Mandatary for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatary have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatary with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Mandatary shall execute the work in accordance with the Contract Documents pertaining to this Contract.
2. This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Employer's Agent requiring him to commence the execution of the Works, to either
 - (a) the date of the Final Approval Certificate issued in terms of Clause 5.16.1 of the General Conditions of Contract [hereinafter referred to as "the GCC"], or
 - (b) the date of termination of the Contract in terms of Clauses 9.1, 9.2 or 9.3.
3. The Mandatary declares himself to be conversant with the following:
 - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following sections of The Act:

- (i) Section 8 : General duties of employers to their employees;
 - (ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;
 - (iii) Section 37 : Acts or omissions by employees or mandataries, and
 - (iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.
- (b) The procedures and safety rules of the Employer as pertaining to the Mandatary and to all his subcontractors.
4. In addition to the requirements of Clause 8.4 of the GCC and all relevant requirements of the Contract, the Mandatary agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment in accordance with the Act.
5. The Mandatary is responsible for the compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.
6. The Mandatary warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
7. The Mandatary undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:
- (a) The Mandatary shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatary shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatary obtains such approval and delegates any duty in terms of Section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - (b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatary to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - (c) The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act into any incident involving the Mandatary and/or his employees and/or his subcontractors.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:

WITNESS 1 2

NAME 1 2
(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATARY:

WITNESS 1 2

NAME 1 2
(IN CAPITALS)

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatary in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the Board of Directors.

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on 20.....,

Mr/Ms whose signature

appears below, has been duly authorised to sign the AGREEMENT in terms of THE OCCUPATIONAL

HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993) on behalf of

.....

SIGNED ON BEHALF OF THE COMPANY :

IN HIS/HER CAPACITY AS :

DATE :

SIGNATURE OF SIGNATORY :

WITNESS: 1. 2.

NAME (IN CAPITALS): 1. 2.



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C2: Pricing Data

C2.1 Pricing Instructions..... C2-2

C2.2 Bills of Quantity..... C2-5

AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C2.1: PRICING INSTRUCTIONS

1. Measurement and payment shall be in accordance with the relevant provisions of the COTO Standard Specifications for Road and Bridge Works for South African Road Authorities (2020 edition) as amended in the Scope of Works.
2. The units of measurement described in these Bills of Quantities are metric units. Abbreviations used in these Bills of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
ls	=	Lump sum
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1 000 kg)
W/day	=	Work day

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

Unit:	The unit of measurement for each item of work as defined in the The COTO Standard Specifications for Road and Bridge Works for South African Road Authorities (2020 edition).
Quantity:	The number of units of work for each item.
Rate:	The agreed payment per unit of measurement.
Amount:	The product of the quantity and the agreed rate for an item.
Lump sum:	An agreed amount for an item, the extent of which is described in the Bills of Quantities but the quantity of work of which is not measured in any units.
4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
5. It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.sabs.co.za, or www.iso.org for information on standards)
6. The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
7. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items
8. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.
9. The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in these Bills of Quantities.
10. Reasonable compensation will be received where no pay item appears in the Bills of Quantities in respect of work required in terms of the Contract and which is not covered in any other pay item.
11. The short descriptions of the items of payment given in these Bills of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
12. The item numbers appearing in the Bills of Quantities refer to the corresponding item numbers in the The COTO Standard Specifications for Road and Bridge Works for South African Road Authorities (2020 edition).
13. The contractor shall determine the contract skills participation goals, expressed in Rand, which shall not be less than the contract amount multiplied by a percentage factor given in Table 2 in the Standard for the applicable class of construction works. This is indicated by the percentage factor in the Final Tender Summary section. Minimum Contract Skills Development Goal (CSDG) sum = Civil Engineering CE (0.25%) x Subtotal of the tender amount



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C2.2: BILL OF QUANTITIES

C2.2.1 Schedule A: TENDER NO. BFIA 7139/2023/RFP.....C2-5

C2.2.2 Summary of Schedule of Quantities C2-28

C2.2.1 Schedule A: TENDER NO. BFIA 7139/2023/RFP

AIRPORTS COMPANY SOUTH AFRICA

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 1</u>				
	<u>BILL NO. 1</u>				
C1.2	<u>GENERAL REQUIREMENTS AND PROVISIONS</u>				
C1.2.5.1	Health and Safety Plan	Lump Sum	1		
C1.2.5.2	Implementation of health and safety plan	month	10		
PC1.2.5.3	Provision of full time Construction Safety Officer	month	10		
PC1.2.5.4	Submission of the Health and Safety File	Lump Sum	1		
PC1.2.10	Standing time (Plant and Labour)				
	(a) Asphalt milling team	hr			Rate Only
	(b) Asphalt paving team	hr			Rate Only
	(c) Runway marking team	hr			Rate Only
	(d) Earthwork team	hr			Rate Only
	(e) Electrical team	hr			Rate Only
PC1.2.11	Airside induction courses and permits	Lump Sum	1		
PC1.2.12	Provision for the CIDB B.U.I.L.D program	month	10		
	<u>SECTION NO. 1</u>				
	<u>BILL NO. 2</u>				
C1.3	<u>CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS</u>				
C1.3.1	The Contractor's general obligations				
C1.3.1.1	Fixed obligations	Lump Sum	1		
C1.3.1.2	Value-related obligations	Lump Sum	1		
C1.3.1.3	Time-related obligations	month	10		
PC1.3.1.4	Suspension Cost				
	(a) De-establishment	No	1		
	(b) Re-establishment	No	1		
	(c) Suspension period	month	3		
	(d) Engineer's cost	PC Sum	1	200 000.00	200 000.00
C1.3.2	Contract sign boards	m ²	10		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
	<u>SECTION NO. 1</u>				
	<u>BILL NO. 3</u>				
C1.4	<u>FACILITIES FOR THE ENGINEER</u>				
C1.4.1	Site accommodation				
C1.4.1.1	Offices and conference room	m ²	40		
C1.4.1.2	Laboratories	m ²			Rate Only
C1.4.1.3	Open concrete working floors and verandas	m ²			Rate Only
C1.4.1.4	Roofs over open concrete working floors and verandas	m ²			Rate Only
C1.4.1.5	Store rooms inside the laboratory	m ²			Rate Only
C1.4.1.6	Car ports	No	4		
C1.4.1.7	Ablution unit (equipped as specified)	No	5		
C1.4.1.8	Change room with a shower	No			Rate Only
C1.4.1.9	Kitchen unit (equipped as specified)	No	1		
C1.4.1.13	Rented housing paid for by the Contractor	Prov Sum	1	400 000.00	400 000.00
C1.4.1.14	Contractor's handling costs, profit and all other charges in respect of item C1.4.1.13	%	400 000.00		
C1.4.2	Items measured by area				
C1.4.2.1	Shelving as specified, complete with brackets	m ²	6		
C1.4.2.2	Work benches with a concrete slab top	m ²			Rate Only
C1.4.2.3	Work-benches with a wooden top	m ²			Rate Only
C1.4.2.4	Constant-temperature baths of concrete and/or plastered brick	m ²			Rate Only
C1.4.2.5	Concrete footings and pedestals for laboratory equipment	m ²			Rate Only
C1.4.2.6	Roller blinds, opaque type	m ²			Rate Only
C1.4.2.7	Venetian blinds	m ²	8		
C1.4.2.8	Notice boards	m ²	3		
C1.4.2.9	White boards	m ²			Rate Only
C1.4.2.10	Galvanised wire mesh fencing for store rooms	m ²			Rate Only
C1.4.2.11	Galvanised wire mesh store room gate with a padlock	m ²			Rate Only
C1.4.3	Items measured by number				
C1.4.3.1	Office swivel chair	No			Rate Only
C1.4.3.2	Office chair	No	12		
C1.4.3.3	Draughtsman's stool	No	2		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C1.4.3.4	Laboratory high chair	No			Rate Only
C1.4.3.5	Office desk with 3 drawers (at least one lockable drawer)	No	2		
C1.4.3.6	Typist desk (L-shaped)	No			Rate Only
C1.4.3.7	Drawing table	No	1		
C1.4.3.8	Conference table	No	1		
C1.4.3.9	Bookcase	No			Rate Only
C1.4.3.10	Filing cabinet	No	1		
C1.4.3.11	General purpose steel cabinet with shelves	No	2		
C1.4.3.12	Wall mounted pivot plan filing system	No			Rate Only
C1.4.3.13	220/250 volt power outlet plug point	No	4		
C1.4.3.14	400/231 volt 3-phase power outlet plug point	No			Rate Only
C1.4.3.15	Single 1500m, 58 watt fluorescent tube ceiling light	No	6		
C1.4.3.16	Single 1500mm, 22 watt LED tube ceiling light	No			Rate Only
C1.4.3.17	11 watt compact fluorescent bulb ceiling light	No			Rate Only
C1.4.3.18	7 watt LED bulb ceiling light	No			Rate Only
C1.4.3.19	Wash-hand basin	No	1		
C1.4.3.20	Laboratory basin	No			Rate Only
C1.4.3.21	Extractor fan	No			Rate Only
C1.4.3.22	Fume cupboard	No			Rate Only
C1.4.3.23	Fire extinguisher 9,0 kg, dry powder type	No	2		
C1.4.3.24	Air-conditioning unit	No	2		
C1.4.3.25	Heater	No			Rate Only
C1.4.3.26	Concrete specimen curing bath	No			Rate Only
C1.4.3.27	Waste paper basket	No			Rate Only
C1.4.3.28	UPS / Voltage stabiliser (2kVa)	No	1		
C1.4.3.29	A3 / A4 colour printer, copier, scanner	No	1		
C1.4.3.30	A4 colour printer, copier, scanner	No			Rate Only
C1.4.3.31	Rain gauge	No	1		
C1.4.3.32	Minimum/maximum atmospheric temperature gauge	No			Rate Only
C1.4.3.33	Digital thermometer	No			Rate Only
C1.4.3.34	Mobile outdoor weather station	No			Rate Only
C1.4.3.35	3,0m aluminium straight edge complete with two measuring wedges	No	1		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C1.4.3.36	Measuring wheel	No	1		
C1.4.3.37	First aid kit	No	3		
C1.4.3.38	Standpipe complete with 30m of 19mm dia. heavy duty hose pipe	No			Rate Only
PC1.4.3.39	ACSA approved lime coloured reflective safety jackets (With lettering)	No	12		
PC1.4.3.40	Rechargeable 500 000 candlelight halogen lamps	No	2		
PC1.4.3.41	Two-way hand held radio VHF/AM Dittel FSG5 complete with charger, carrying bag with strap and vehicle magnetic antenna including adapter cable	No	2		
C1.4.4	Prime cost items				
C1.4.4.1	Cell phones costs, including pro-rata rentals, for calls made in connection with contract administration	PC Sum	1	35 000.00	35 000.00
C1.4.4.2	Handling costs and profit in respect of item C1.4.4.1	%	35 000.00		
C1.4.4.5	The provision of internet connectivity and WiFi data for Engineer's site staff	PC Sum	1	8 000.00	8 000.00
C1.4.4.6	Handling costs and profit in respect of item C1.4.4.5	%	8 000.00		
C1.4.4.7	The provision of paper and ink for a combination colour printer/copier/scanner	PC Sum	1	7 500.00	7 500.00
C1.4.4.8	Handling costs and profit in respect of item C1.4.4.7	%	7 500.00		
C1.4.4.13	Provision of a 25 kVA volt three phase electricity generator if electricity from a power supply authority is not available on site	PC Sum	1	65 000.00	65 000.00
C1.4.4.14	Handling costs and profit in respect of item C1.4.4.13	%	65 000		
C1.4.5	Services at site offices, laboratories and site accommodation				
C1.4.5.1	Fixed costs	Lump Sum	1		
C1.4.5.2	Running costs	month	10		
C1.4.6	Office staff				
C1.4.6.1	Secretary / receptionist	month	10		
C1.4.6.2	Technical assistant	month	10		
C1.4.7	Site inspection transport				
C1.4.7.1	Provision of a bus, mini-bus or combi van for site inspection purposes (specify type and size of vehicle)	Per day			Rate Only
C1.4.7.2	Travel on site	km			Rate Only
C1.4.8	Site security measures for the Engineer's facilities				
C1.4.8.1	Supply and installation of all required security measures at the Engineer's site offices and laboratories	Lump Sum	1		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C1.4.8.2	Provision of security guards / watchmen and an armed response service at the Engineer's site offices and laboratories	month	10		
C1.4.8.3	Supply and installation of all required security measures at the Engineer's site accommodation	Lump Sum	1		
C1.4.8.4	Provision of security guards / watchmen and an armed response service at the Engineer's site accommodation	month	10		
C1.4.8.5	Supply and installation of an alarm system at the Engineer's rented accommodation (No. of houses stated "!)	Lump Sum	1		
C1.4.8.6	Provision of an armed response service at the Engineer's rented accommodation (No. of houses stated "!)	month	10		
<u>SECTION NO. 1</u>					
<u>BILL NO. 4</u>					
C1.5	<u>ACCOMODATION OF TRAFFIC</u>				
C1.5.1	Accommodation of pedestrian and non-motorised traffic				
C1.5.1.1	Accommodation of pedestrian and non-motorised traffic	month	10		
C1.5.2	Accommodation of vehicular traffic	month	10		
C1.5.3	Liaison with traffic authorities	month	10		
C1.5.7	Temporary traffic control facilities				
C1.5.7.1	Delineators including mounting bases and ballast:				
	(a) Single sided, reversible left or right (size indicated)	No	10		
	(b) Double sided, reversible left or right (size indicated)	No			Rate Only
C1.5.7.2	Traffic cones, minimum height 750mm	No			Rate Only
C1.5.7.3	Flagmen	Man-Shift	100		
C1.5.7.4	Traffic controllers	Man-Shift			Rate Only
C1.5.9	Traffic safety vehicle	month	10		
C1.5.11	Provision of safety equipment for visitors				
C1.5.11.1	Provision of reflective safety vests for visitors	No			Rate Only
C1.5.11.2	Provision of hard hats for visitors	No			Rate Only
PC1.5.13	Safety Barriers:				
	(a) Provide HDPE plastic mobile road safety barrier, NJ type (2.0m x 1.0m high) taped with yellow reflective tape, two strips on either side	No	30		
	(b) Placing, moving and final removal of HDPE NJ type barriers upon completion of the works	Lump Sum	1		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
	(c) Provide precast concrete temporary barrier, NJ type (2.0m x 0.8m high with 0.6m base) taped with yellow reflective tape, two strips on either side and with two amber flashing lights mounted on each barrier	No	6		
	(d) Placing, moving and final removal of concrete barriers upon completion of the apron works	Lump Sum	1		
	(e) Provide Taxiway/Runway closure barriers as per drawing complete	No	6		
	(f) Placing, moving and final removal of taxiway/runway closure barriers upon completion of the works	Lump Sum	1		
PC1.5.14	Provision of lighting on site for works areas during night work or where instructed	Lump Sum	1		
PC1.5.15	Provision of mobile flood light tower for the use by the Engineer's staff for works areas during night work or where instructed	Lump Sum	1		
PC1.5.16	Provision of escort services for all project vehicles	Lump Sum	1		
	<u>SECTION NO. 1</u>				
	<u>BILL NO. 5</u>				
C1.7	<u>LOADING AND HAULING</u>				
C1.7.1	Loading				
C1.7.1.1	Loading from stockpile using machines and some hand labour where necessary	m ³	7910		
C1.7.2	Hauling				
C1.7.2.2	Hauling material to spoil and off-loading it at a designated spoil or stockpile area: (b) Soil and gravel material	m ³ -km	20 250		
TOTAL SECTION NO. 1: Carried to Summary					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 2</u>				
	<u>BILL NO. 1</u>				
C2.1	<u>GENERAL REQUIREMENTS AND TRENCHING FOR SERVICES</u>				
C2.1.2.5	Using hand excavation to locate, expose and verify services Excavation in soft material situated within the following depth ranges below the surface level: (a) 0.0 m up to 2.0 m (b) Exceeding 2.0 m and up to 3.0 m (c) Extra over subitem B12.06(a) for excavation in hard material	m ³ m ³ m ³	50 25 10		
C2.1.7	Extra over items C2.1.6, C2.1.8 and C2.1.16 for excavating in:				
C2.1.7.1	Hard material irrespective of depth	m ³	25		
C2.1.7.2	Stabilised material irrespective of depth	m ³	10		
C2.1.8	Excavations outside the normal trench profile	m ³	10		
C2.1.9	Trench excavation using labour enhanced construction methods				
C2.1.9.1	Trenches up to 1.0 m wide (in soft material) (a) Up to 1.0 m deep (b) Over 1.0 m and up to 1.5 m deep	m ³ m ³	25 10		
C2.1.11	Backfilling of trenches				
C2.1.11.1	Backfill compacted to 93 % (100 % for sand) of MDD (areas subject to traffic loads) using material (a) From the excavated trench material (b) From other excavations on Site (c) From approved borrow areas	m ³ m ³ m ³	25 10 10		
	<u>SECTION NO. 2</u>				
	<u>BILL NO. 2</u>				
C2.4	<u>ENERGY AND OTHER SERVICES</u>				
C2.4.1	Bedding for electric power cables using material:				
C2.4.1.1	Selected from the excavated trench material	m ³	50		
C2.4.1.2	Selected from other excavations on site	m ³	30		
C2.4.1.3	Selected from approved borrow areas	m ³	25		
C2.4.1.4	Selected from sources provided by the Contractor	m ³	25		
C2.4.2	Concrete for bedding and encasement for electric power cables				
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C2.4.2.1	Concrete bedding (Class C16 / 20-20 concrete)	m ³	15		
C2.4.2.2	Concrete encasement of cables (Class C16 / 20-20 concrete)	m ³	15		
C2.4.3	Cable laying accessories (warning tape, protection slabs, markers etc.)				
C2.4.3.1	Electrical warning tape - Supply and install above all cables a continuous brightly coloured corrosion proof (PVC or PE) electrical warning tape. The tape shall have a minimum thickness of 0.8 mm and a minimum width of 150 mm. The tape shall be yellow, marked with the words "ELECTRIC CABLE / ELEKTRIESE KABEL" in red letters at least 70 mm in height. These markings shall not be more than 0.5 m apart. The warning tape shall be installed 400 mm above the cable / cable sleeve in a trench	m	150		
C2.4.3.2	Concrete slab protection (1000 mm x 300 mm x 60 mm thick - 25Mpa)	m	30		
C2.4.3.3	Cable markers (Base - 250 mm x 250 mm, Top - 150 mm x 150 mm, Height - 300 mm)	No	20		
C2.4.4	Installation of new services				
C2.4.4.1	PVC Sleeves - Supply and install sleeve pipes including short lengths jointing, sweeping bends, buses, locknuts, etc.				
	(a) 50 mm diameter HDPE Corrugated - Colour BLACK / GREEN / BLUE	m	50		
	(b) 32 mm diameter PVC Conduit	m	50		
C2.4.4.2	Cabling Medium Voltage - Supply, install and connect Cables and Earth Wires in ground and/or through sleeves/conduit and/or fixed on cable trays/ladders				
	(a) Insulated Airfield Lighting Cable XLPE (2.8/5kV) - Single Core - 6 mm ² - 7 strand tinned annealed copper conductor	m	100		
	(b) Cable Joint for above cable (C2.4.4.2(a))	No	10		
C2.4.4.3	Cabling Low Voltage - Supply, install and connect Cables and Earth Wires in ground and/or through sleeves/conduit and/or fixed on cable trays/ladders				
	(a) ADB Series Transformer Secondary Cable (600v insulation) - 2.5 mm ² (AWG 12) x 2-core - special length of 15 m with transformer connector	No	30		
	(b) ADB Series Transformer Secondary Cable (600v insulation) - 2.5 mm ² (AWG 12) x 2-core	m	150		
	(c) ADB Series Transformer Secondary Cable (600v insulation) - 2.5 mm ² (AWG 12) x 1-core	m	600		
	(d) ADB Series Transformer Secondary Cable (600v insulation) - 4.0 mm ² (AWG 10) x 1-core	m	150		
	(e) Cable Joint for 2.5 mm ² x 2-core cable above (C2.4.4.2(a & b))	No	10		
	(f) Cable Joint for 2.5 mm ² x 2-core cable above (C2.4.4.2(c))	No	10		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C2.4.4.4	(g) Cable Joint for 2.5 mm ² x 2-core cable above (C2.4.4.2(d))	No	10		
	Communication Cabling - Supply and install communication cabling on the airfield where damaged				
	(a) 400Hz x 7-core	m	50		
	(b) Joining of communication cable (C2.4.4.4(a)) - per joint	No	10		
C2.4.5	Airfield Ground Lighting (AGL) - Runway & Taxiway				
C2.4.5.1	Remove the following light fittings & equipment and safekeep it to be reinstalled afterwards. All light fittings & equipment need to be numbered on itself and on the drawing(s) to ensure that the light fittings and equipment are reinstalled in the same positions afterwards				
	(a) ADB SAFEGATE LED Elevated End Bars Light - Type EREL6GR19SF000 - Green / Red	No	16		
	(b) Transformer for above light fitting (C2.4.5.1(a))	No	16		
	(c) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6WW39S0000 - White / White	No	22		
	(d) Transformer for above light fitting (C2.4.5.1(c))	No	22		
	(e) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6YW39S0000 - Yellow / White	No	36		
	(f) Transformer for above light fitting (C2.4.5.1(e))	No	36		
	(g) ADB SAFEGATE RELIANCE Elevated Taxiway Edge Light - Type L-861T - Blue	No	55		
	(h) Transformer for above light fitting (C2.4.5.1(g))	No	55		
	(i) ADB SAFEGATE SafeLED Inset 8-inch Stop Bar Light / Holding Point Light - Type SL-IQ1-SB-I-U-W-S-R-1C	No	64		
	(j) Transformer for above light fitting (C2.4.5.1(i))	No	64		
	(k) ADB SAFEGATE LED Inset 12-inch Runway Edge Light - Type FED-2-200-C/CM	No	4		
	(l) Transformer for above light fitting (C2.4.5.1(k))	No	4		
	(m) ADB Light Base - Deep - L-867 & L-868 (only where instructed by the electrical engineer)	No	20		
	(n) ADB Light Base - Shallow - for Inset Lights (only where instructed by the electrical engineer)	No	20		
C2.4.5.2	Reinstall the following light fittings & equipment as per the numbering applied during removal				
	(a) ADB SAFEGATE LED Elevated End Bars Light - Type EREL6GR19SF000 - Green / Red	No	16		
	(b) Transformer for above light fitting (C2.4.5.1(a))	No	16		
	(c) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6WW39S0000 - White / White	No	22		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C2.4.5.4	(d) Transformer for above light fitting (C2.4.5.1(c))	No	22		
	(e) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6YW39S0000 - Yellow / White	No	36		
	(f) Transformer for above light fitting (C2.4.5.1(e))	No	36		
	(g) ADB SAFEGATE RELIANCE Elevated Taxiway Edge Light - Type L-861T - Blue	No	55		
	(h) Transformer for above light fitting (C2.4.5.1(g))	No	55		
	(i) ADB SAFEGATE SafeLED Inset 8-inch Stop Bar Light / Holding Point Light - Type SL-IQ1-SB-I-U-W-S-R-1C	No	64		
	(j) Transformer for above light fitting (C2.4.5.1(i))	No	64		
	(k) ADB SAFEGATE LED Inset 12-inch Runway Edge Light - Type FED-2-200-C/CM	No	4		
	(l) Transformer for above light fitting (C2.4.5.1(k))	No	4		
	(m) ADB Light Base - Deep - L-867 & L-868 (only where instructed by the electrical engineer) - Bases to be installed by an expert to ensure that lights will face the correct directions/angles	No	20		
	(n) ADB Light Base - Shallow - for Inset Lights (only where instructed by the electrical engineer) - Bases to be installed by an expert to ensure that lights will face the correct directions/angles	No	20		
	C2.4.5.3 Handling cost and profit in respect of subitem C2.4.5.2(m & n)	%	0.00		
	Supply and install the following new light fittings & new equipment (only where instructed by the electrical engineer)				
	(a) ADB SAFEGATE LED Elevated End Bars Light - Type EREL6GR19SF000 - Green / Red	No	8		
	(b) Transformer for above light fitting (C2.4.5.1(a))	No	8		
	(c) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6WW39S0000 - White / White	No	10		
	(d) Transformer for above light fitting (C2.4.5.1(c))	No	10		
	(e) ADB SAFEGATE LED Elevated Runway Edge Light - Type EREL6YW39S0000 - Yellow / White	No	10		
	(f) Transformer for above light fitting (C2.4.5.1(e))	No	10		
	(g) ADB SAFEGATE RELIANCE Elevated Taxiway Edge Light - Type L-861T - Blue	No	10		
	(h) Transformer for above light fitting (C2.4.5.1(g))	No	10		
	(i) ADB SAFEGATE SafeLED Inset 8-inch Stop Bar Light / Holding Point Light - Type SL-IQ1-SB-I-U-W-S-R-1C	No	15		
	(j) Transformer for above light fitting (C2.4.5.1(i))	No	15		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
	(k) ADB SAFEGATE LED Inset 12-inch Runway Edge Light - Type FED-2-200-C/CM	No	4		
	(l) Transformer for above light fitting (C2.4.5.1(k))	No	4		
	(m) ADB Light Base - Deep - L-867 (only where instructed by the electrical engineer) - Bases to be installed by an expert to ensure that lights will face the correct directions/angles	No	10		
	(n) ADB Light Base - Deep - L-868 (only where instructed by the electrical engineer) - Bases to be installed by an expert to ensure that lights will face the correct directions/angles	No	20		
	(o) ADB Light Base - Shallow - for Inset Lights (only where instructed by the electrical engineer) - Bases to be installed by an expert to ensure that lights will face the correct directions/angles	No	20		
PC2.4.5.5	Handling cost and profit in respect of subitem C2.4.5.4(m, n & o)	%			
TOTAL SECTION NO. 2: Carried to Summary					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 3</u>				
	<u>BILL NO. 1</u>				
C3.1	<u>DRAINS</u>				
C3.1.2	Clearing, shaping and disposal of accumulated sediment in existing unlined open drains				
C3.1.2.1	Using conventional methods	m ³	160		
C3.1.3	Excavation, clearing and disposal of accumulated sediment in existing lined drains and drainage systems				
C3.1.3.1	Using conventional methods (up to 1.5 m):				
	(a) Manholes and inlet and outlet structures	m ³	5		
C3.1.3.2	Using conventional methods (in excess of 1,5m):				
	(a) Manholes and inlet and outlet structures	m ³	5		
C3.1.4	Excavation and disposal of material for subsoil drainage systems:				
C3.1.4.1	Excavating in all materail situated within the following depth ranges below the surface:				
	(a) 0.0 m to 1.5 m	m ³	560		
	(b) Exceeding 1.5 m and up to 3.0 m	m ³	280		
C3.1.4.5	Extra over sub-item C3.1.4.1 for excavation through stabilised existing road layers	m ³	84		
C3.1.7	Natural permeable material in subsoil drainage systems (approved crushed stone):				
C3.1.7.2	Crushed stone obtained from commercial sources (state grade)	m ³	250		
C3.1.9	Pipes in subsoil drainage systems:				
C3.1.9.1	U-PVC pipes and fittings, normal duty, complete with couplings (160mm perforated or non-perforated as specified in Drawing No. 301695-CIV-DP-010)	m	840		
C3.1.10	Polymer film sheeting or similar approved material, for lining subsoil drainage systems:				
C3.1.11	Geotextiles (Synthetic-fibre filter fabric: Grade 2)	m ²	2 440		
C3.1.13	Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems:				
C3.1.13.4	Cleaning eyes	No	10		
C3.1.14	Caps for subsoil drain pipes:				
C3.1.14.1	Concrete caps	No	10		
C3.1.15	Repairing or replacing existing drainage systems	Item	1		
C3.1.20	Breaking into existing drainage structures and install subsoil drain pipe	No	4		
	Carried Forward				R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C3.1.21	Clearing of existing subsoil drains				
C3.1.21.1	Cleaning rod, brush and flushing	m	1 650		
C3.1.22	Test flushing of subsoil drain pipe systems	No	10		
C3.1.24	Submission of as built drawings by the Contractor	Item	1		
	<u>SECTION NO. 3</u>				
	<u>BILL NO. 2</u>				
C3.2	<u>CULVERTS</u>				
C3.2.15	Manholes and catch pits, with prefabricated elements				
C3.2.15.1	Prefabricated floors (installed at a standard depth of 1,0m):				
	(a) Prefabricated floors	No	3		
C3.2.15.2	Prefabricated roofs:				
	(a) Prefabricated roofs	No	3		
C3.2.16	Brickwork (Engineering bricks):				
C3.2.16.2	230mm thick	m ²	10		
C3.2.17	Plaster	m ²	10		
C3.2.18	Benching	m ³	1		
C3.2.19	Accessories				
C3.2.19.1	Manhole frames (450 mm x 760 mm Cast Iron frames per SABS 115 h/d product 2904 or similar approved) (Drawing No. 301695-CIV-TD-011 Rev A)	No	3		
C3.2.19.2	Inlet grids or covers (450 mm x 760 mm Cast Iron grid per SABS 115 h/d product 2904 or similar approved) (Drawing No. 301695-CIV-TD-011 Rev A)	No	3		
C3.2.23	Breaking into existing drainage structures and building in pipes or culverts (PC 700mm diameter)	No	3		
TOTAL SECTION NO. 3: Carried to Summary					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 4</u>				
	<u>BILL NO. 1</u>				
C4.3	<u>EXISTING ROAD MATERIALS</u>				
C4.3.6	Milling and removal of existing asphalt layers with an average milling depth (Contractor takes ownership)				
C4.3.6.1	Not exceeding 50mm	m ³	8 060		
C4.3.6.2	Exceeding 50mm but not exceeding 100mm	m ³	9 290		
C4.3.9	Excavating material by using conventional road construction equipment				
C4.3.9.2	Crushed stone and macadam materials	m ³	1 022		
C4.3.10	Excavating material by using labour enhanced methods of construction				
C4.3.11	Breaking down a stabilised layer by using conventional road construction equipment	m ³	1 022		
C4.3.12	Removing of existing concrete material within the following average depth ranges				
C4.3.13	Lifting of existing paving blocks (interlocking 60mm thick)				
C4.3.13.2	Using labour enhanced methods of construction	m ²	6 812		
C4.3.15	Stockpiling of road layer materials				
C4.3.15.1	Asphalt material	m ³	17 348		
C4.3.15.2	Crushed stone material	m ³	1 022		
C4.3.16	Stacking paving blocks and road edging				
C4.3.16.1	Paving blocks (interlocking 60mm thick)	No	370 217		
C4.3.18	Excavate non-compliant or excess pavement layer material to spoil in sites designated by the Contractor, material consisting of				
C4.3.18.2	Crushed stone material	m ³	2 044		
	<u>SECTION NO. 4</u>				
	<u>BILL NO. 2</u>				
C4.4	<u>COMMERCIAL MATERIALS</u>				
C4.4.2	Commercial materials identified by the Contractor from commercial, private or other non-commercial suppliers				
C4.4.2.1	Pavement layer material:				
	(c) G5A crushed rock/boulder materials	m ³	1 022		
C4.4.4	Cementitious stabilising agents				
C4.4.4.1	Cement	t	3 727.80		
C4.4.5	Bituminous stabilising agents				
C4.4.5.2	Emulsion stable grade (Anionic SS60)	t	2 444.00		
C4.4.6	Active filler for bituminous stabilisation (Cement)	t	611.00		
TOTAL SECTION NO. 4:					R
Carried to Summary					

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 5</u>				
	<u>BILL NO. 1</u>				
C5.3	<u>ROAD PAVEMENT LAYERS</u>				
C5.3.1	Commercial materials identified by the Employer from commercial, private or other non-commercial suppliers (specify the source/s)	No	1		
C5.3.2	Construction of pavement layers				
C5.3.2.1	Construction of layers using conventional construction methods:				
	(k) Upper subbase gravel layer (unstabilised) (l150mm) compacted to 97% of MDD	m ³	2 044		
C5.3.11	Riding quality measurements:				
C5.3.11.3	Using an inertial profilometer	km	75		
C5.3.12	Surface regularity payment adjustments	Item	1		
	<u>SECTION NO. 5</u>				
	<u>BILL NO. 2</u>				
C5.4	<u>STABILISATION</u>				
C5.4.7	Bituminous stabilisation of pavement layers				
C5.4.7.1	Bituminous stabilisation 300 mm of base layer	litre (ℓ)	3 491 429		
C5.4.8	Bituminous stabilisation agent :				
C5.4.8.1	60% anionic emulsion	litre (ℓ)	3 491 429		
C5.4.9	Filler for bituminous stabilisation				
C5.4.9.1	Filler for bituminous stabilisation (cement CEM II (A-L) 32,5N)	Ton	880		
C5.4.10	Provision and application of water for curing	kl	2 139		
C5.4.11	Curing by covering with the subsequent layer	m ³	30 550		
C5.4.15	Trial section for a bituminously stabilised layer (3,5m wide)	m ²	100		
	<u>SECTION NO. 5</u>				
	<u>BILL NO. 3</u>				
C5.5	<u>RECONSTRUCTION OF PAVEMENT LAYERS</u>				
C5.5.1	Compiling and implementing M&U plans for the reconstruction of an existing road pavement	No	2		
C5.5.4	Sampling of in-situ material for mix design procedure	No	9		
C5.5.8	Pre-pulverising material in the existing pavement				
C5.5.8.2	Crushed stone base (300mm deep)	m ³	61 100		
C5.5.9	Temporarily blading layer material to windrow	m ³	61 100		
C5.5.10	Roller-pass compaction of an exposed pavement layer				
	Carried Forward				R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C5.5.10.1	Smooth drum vibratory rollers	m ²	407 334		
C5.5.11	Watering the exposed pavement layer	kl	4 074		
C5.5.16	In-situ reconstruction of a pavement layer using a recycler to construct a stabilised base layer				
C5.5.16.1	Chemically stabilised base layer compacted to 100% of MDD: (a) Using non-cemented material compacted to 100% of MDD, 150mm thick (Cement stabilized C4)	m ³	1 030		
C5.5.16.2	Emulsion stabilised subbase layer compacted to 102% of MDD: (a) Using non-cemented material compacted to 102% MDD, 300 mm thick (BSM1)	m ³	61 100		
C5.5.20	Material shortfall or make-up material				
C5.5.20.3	For base layer	m ³	4 980		
TOTAL SECTION NO. 5: Carried to Summary					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 9</u>				
	<u>BILL NO. 1</u>				
C9.1	<u>ASPHALT LAYERS</u>				
C9.1.1	Asphalt mix designs				
C9.1.1.1	Stone skeletal mixes:				
	(d) Ultrathin Friction Courses (UTFC) (Bitumen Rubber binder)	Lump Sum	1		
C9.1.1.2	Sand skeletal mixes:				
	(a) Continuously graded base or surfacing (EMB; level II)	Lump Sum	1		
C9.1.2	Construction of trial sections				
C9.1.2.1	Asphalt layers (Continuously graded Asphalt with 20% reclaimed material, 45mm placed by paver)	m ²	6 000		
C9.1.2.2	Removal of trial section where so instructed by the Engineer	m ²	6 000		
C9.1.3	Application of bond coat				
C9.1.3.1	Stable "grade 30% net bitumen emulsion as specified. Applied with a calibrated distributor	litre (ℓ)	343 880		
C9.1.5.2	Rehabilitation				
	(g) Continuously graded Asphalt, 45mm placed by paver (20 % reclaimed asphalt)	t	358 460.00		
	(h) Continuously graded Asphalt Correction layer, variable thickness (max 20mm) placed by paver (20 % reclaimed asphalt)	t	2 500.00		
	(i) Certified: BRUTFC layer (15mm thickness)	t	154 800.00		
C9.1.10	Variation rates				
C9.1.10.1	Bitumen (AE2)	t	720.00		
C9.1.10.2	Aggregate	t	2 510.00		
C9.1.10.3	Active filler (Hydrated lime)	t	360.00		
C9.1.13	Coring of asphalt layers				
C9.1.13.1	100mm diameter	No	300		
C9.1.13.2	150mm diameter	No	100		
TOTAL SECTION NO. 9: Carried to Summary					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 11</u>				
	<u>BILL NO. 1</u>				
C11.7	<u>ROAD MARKINGS AND ROAD STUDS</u>				
C11.7.1	Road marking:				
C11.7.1.1	White lines broken or unbroken (300 mm and 600 mm wide water-bourne paint or similar approved)	km	5		
C11.7.1.2	Yellow lines broken or unbroken (300 mm and 600 mm wide water-borne paint or similar approved)	km	8		
C11.7.1.4	White lettering and symbols (Water-borne paint or similar approved)	m ²	5 510		
C11.7.1.5	Yellow lettering and symbols (Water-borne paint or similar approved)	m ²	344		
C11.7.1.7	Transverse lines, painted island and arrestor bed markings (Water-borne paint or similar approved - any colour)	m ²	1 360		
C11.7.2	Retro-reflective road marking:				
C11.7.2.1	White lines broken or unbroken (300 mm and 600 mm wide)	km	5		
C11.7.2.4	White lettering and symbols	m ²	350		
C11.7.5	Variations in rate of application:				
C11.7.5.1	White paint	litre (ℓ)	500		
C11.7.5.2	Yellow paint	litre (ℓ)	210		
C11.7.5.4	Retro-reflective beads	kg	270		
C11.7.7	Road studs				
C11.7.8	Setting out and premarking the lines (excluding traffic island markings, lettering and symbols)	km	17		
C11.7.9	Re-establishing the painting unit during the defects notification period and at other instances on instruction of the Engineer	No	1		
	<u>SECTION NO. 11</u>				
	<u>BILL NO. 2</u>				
C11.8	<u>LANDSCAPING AND PLANTING PLANTS</u>				
C11.8.1	Trimming:				
C11.8.1.1	Machine trimming	m ²	80		
C11.8.1.2	Hand trimming	m ²	40		
C11.8.2	Trimming using machines for trimming or shaping (alternative to subitem C11.8.1.1):				
C11.8.2.1	Bulldozer	hr	20		
C11.8.2.2	Motor Grader	hr	20		
Carried Forward					R

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
Brought Forward					R
C11.8.3	Preparing the areas for grassing:				
C11.8.3.3	Topsoiling within the road reserve where the following materials are used:				
	(a) Topsoil obtained from within the road reserve or borrow areas	m ³	12		
C11.8.4	Grassing				
C11.8.4.1	Hydroseeding:				
	(c) Hydroseeding	ha	0.1		
TOTAL SECTION NO. 11:					R
Carried to Summary					

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<u>SECTION NO. 20</u>				
	<u>BILL NO. 1</u>				
C20.1	<u>TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP</u>				
PC20.1.6	(a) Provision for testing materials and judgement of workmanship	PC Sum	1	1 900 000.00	1 900 000.00
	(i) Handling cost and profit in respect of item C20.1.6 (a)	%	1 900 000.00		
TOTAL SECTION NO. 20: Carried to Summary					R

C2.2.2 Summary of Schedule of Quantities



TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

SUMMARY OF SCHEDULE OF QUANTITIES

SECTION	DESCRIPTION	AMOUNT
SECTION NO. 1	GENERAL	R
SECTION NO. 2	SERVICES	R
SECTION NO. 3	DRAINAGE	R
SECTION NO. 4	EARTHWORKS AND PAVEMENT LAYERS MATERIALS	R
SECTION NO. 5	EARTHWORKS AND PAVEMENT LAYERS CONSTRUCTION	R
SECTION NO. 6	CONCRETE LAYERS	R
SECTION NO. 7	MAINTENANCE AND REPAIR CONCRETE LAYERS	R
SECTION NO. 8	PRETREATMENT AND REPAIR EXISTING LAYERS	R
SECTION NO. 9	ASPHALT LAYERS	R
SECTION NO. 11	ANCILLIARY ROAD WORKS	R
SECTION NO. 20	QUALITY ASSURANCE	R
TOTAL CONSTRUCTION WORKS (EXCL. VAT AND CONTINGENCIES)		R
20% CONTINGENCIES		R
TOTAL (INCL. CONTINGENCIES, EXCL. VAT)		R
15% VAT		R
SUB-TOTAL (INCL. CONTINGENCIES AND VAT)		R



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C3: SCOPE OF WORKS

C3.1 DESCRIPTION OF THE WORKS	C3-2
C3.2 ENGINEERING	C3-7
C3.3 PROCUREMENT	C3-9
C3.4 CONSTRUCTION	C3-10
C3.5 MANAGEMENT	C3-14
C3.6 PARTICULAR (PROJECT) SPECIFICATIONS: CIVIL	C3-20
C3.7 ACSA SPECIFICATIONS	C3-87

C3.1: DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer's objective is to rehabilitate runway 02/20, taxiways and aprons at Bram Fischer International Airport to comply with the relevant recommended standards and practices in ICAO Annex 14.

One of the objectives of the project is to train any of the following (occupational qualifications, trade qualification, work integrated learners – P1 and P2 learners, professional candidates)

The Contractor shall provide opportunities to learners requiring structured workplace learning using one or a combination of any of the Skills Methods as agreed: accommodate Part/Full Occupational qualification (Method 1), Trade qualifications learners (Method 2), train Work Integrated Learners – P1 and P2 Learners (Method 3) and/or Professional Candidates (Method 4) as indicated in the cidb Standard and as agreed to by the Employer on this project (Employer to stipulate)

C3.1.2 OVERVIEW OF THE WORKS

The work to be performed under this contract comprises mainly the rehabilitation of runway 02-20, including taxiways and aprons at Bram Fischer International Airport.

The following aspects will be addressed in this project:

Main runway (02/20) including the associated taxiways and aprons

- The main runway will be re-surfaced using 45mm Continuously Graded Asphalt and 15mm Bitumen Rubber Friction Course (BRUTFC).
- Taxiway Alpha will be rehabilitated and re-surfaced using 45mm Continuously Graded Asphalt.
- Taxiway Bravo will be rehabilitated and re-surfaced using 45mm Continuously Graded Asphalt.
- Taxiway Charlie will be rehabilitated and re-surfaced using 45mm Continuously Graded Asphalt.
- Apron Bravo will be re-constructed with 80mm interlocking block paving.
- Removal and replacement of existing infrastructure, including replacement of any damaged equipment thereof.
- Reference existing paint markings and reinstatement before opening of the runway. Where instructed the position of the line markings may change.
- Re-shaping Runway End Safety Areas (RESA) to avoid any future standing water.
- Drainage improvements on the runway sides areas that may include level correction (with reinstatement of topsoil and re-vegetation/hydro seeding, excess grass removal and improvement to drain inlets.

C3.1.3 EXTENT OF THE WORKS

The description of the work contained in the Extent of Work is merely an outline of the work to be executed in terms of the contract and shall not limit the work to be carried out by the Contractor. Estimated quantities of each type of work to be carried out are listed in the Bill of

Quantities. The planned rehabilitation and construction measures are shown on the construction drawings.

The Works included in this contract will mainly consist of the works described in the sub-sections below:

(a) General

General work operations include:

- i) Compilation and submission for approval of a detailed site safety plan and work method statements, all in compliance with the Manual for Working Airside – Volume 5.
- ii) Attendance by all site staff of a safety training course and obtaining ACSA permits. This includes the necessary vehicle and equipment driving permits for any driver having to drive airside, as indicated in the Manual for Working Airside – Volume 5.
- iii) Compile and submit a quality management plan for approval by the Employer's Agent.
- iv) Compliance with local and national Occupational Health and Safety regulations (OHS Act No. 85 of 1993) and ACSA Health and Safety regulations.
- v) Full compliance with the ACSA Environmental Specifications.
- vi) Establishment on site of the camp, storage area for materials allocated for this project.
- vii) Locating, relocating (where required) and protection of all services in the work areas.
- viii) Undertaking of asphalt mix designs and trials to prove compliance with specifications.
- ix) Structured and detailed interaction with various role players at the airport to ensure timeous completion of the works for each shift. These role players include the staff of the Airport Management (AM) and the Air Traffic Control (ATC). Management of the project planning and operational procedures for working airside.
- x) Cleaning of the construction area after each work shift to the satisfaction of AM staff.

(b) Pavement rehabilitation

Work will have to be undertaken in phases taking the current traffic pattern into consideration and ensuring that the airport will still be operational during the construction period. Majority of the work will be executed during normal daylight hours. Night shift work will only be required at the intersection of the two runways, their time periods will be as follows:

- Runway 02/20 (main runway) From 20h00 to 04h00

The extent of the works can be summarised as follows:

Runway 02/20 (main runway)

As described in the overview of the work, the rehabilitation items will include:

- Milling off existing 60mm surface (stockpile for use as Reclaimed Asphalt (RA)).
- Surfacing of 45mm of asphalt layer.
- Provision of 15mm Bitumen Rubber Friction course (BRUTFC).
- Re-shaping Runway End Safety Areas (RESA) to avoid any future standing water.

Taxiway Alpha

As described in the overview of the work, the rehabilitation items will include:

- Milling off existing 30mm asphalt (stockpile for use as Reclaimed Asphalt (RA)).
- 300mm In-situ Recycling of existing base (275mm-290mm) to form Bituminous Stabilised Materials (BSM1).
- Surfacing of 45mm asphalt (with up to 20% RA).

Taxiway Bravo

As described in the overview of the work, the rehabilitation items will include:

- Milling off existing 45mm asphalt (stockpile for use as Reclaimed Asphalt (RA)).
- 300mm In-situ Recycling of remaining 45mm of asphalt and part of existing base (290mm-310mm) to form Bituminous Stabilised Materials (BSM1).
- Surfacing of 45mm asphalt (with up to 20% RA).

Taxiway Charlie

As described in the overview of the work, the rehabilitation items will include:

- Milling off existing 45mm asphalt (stockpile for use as Reclaimed Asphalt (RA)).
- 300mm In-situ Recycling of remaining 55mm of asphalt and part of existing base (140mm-290mm) to form Bituminous Stabilised Materials (BSM1).
- Surfacing of 45mm asphalt (with up to 20% RA).

Apron Bravo

As described in the overview of the work, the rehabilitation items will include:

- Remove existing 60mm segmented blocks.
- Remove and stockpile existing base (to be used as subbase).
- Remove and spoil existing Subbase layers.
- Reconstruct Subbase layer using existing base material stockpiled.
- Reconstruct 150mm C4 Base layer by chemical modification.
- Place interlocking blocks (80mm segmented blocks) with 20mm sand bedding layer.

Apron Alpha

As described in the overview of the work, the repair work will include:

- Filling up cracks with specified crack sealant

- Joint repair
- Joint seal repair

(c) Runway edge protection and drainage improvements

- Runway strips to receive localized grading and shaping where necessary (particularly at Runway intersections) to improve surface water flow and irradiate low points.
- Rehabilitation to grid inlets, including clearing of debris and silt build-up in manholes and open drains.
- New subsoil drains implemented at main runway and taxiway intersections.
- Additional stormwater grid inlets below Runway 02-20 RESA.

(d) Other ancillary Works

There are a number of ancillary works which would be required as part of this contract which can be summarised as follows:

- Regular friction and texture depth tests will be conducted on the completed surface to ensure that specifications are met in terms of ICAO annexure 14.
- Where asphalt overlay has been applied, the new level will be re-profiled to ensure ICAO compliances, as per supplied Longitudinal and Cross-section drawings.
- Application of permanent and temporary runway and taxiway markings consisting of respectively reflective white and yellow markings using water-based paint complying with ICAO recommendations.
- Control dust and other pollution according to the safety plan and work method statements.

(e) Electrical Works

- Numbering of all light fittings of End Bar Lights (Approach Lights), Runway Edge Lights, Runway Inset Lights and Stop Bar Lights pertaining to Runway 02-20 and its Taxiways. Numbering of light fittings and numbering on drawing(s) to correspond.
- Assessment of working of all light fittings and series transformers mentioned above to be verified and recorded.
- Determine Medium Voltage and Low Voltage cable routes alongside effected Runway and Taxiways.
- Determine if communication cabling is crossing the effected Runway & Taxiways.
- Disconnect and remove light fittings & series transformers and safely store for reinstallation.
- Light bases and cabling for End Bar Lights & Stop Bar Lights to be removed. Light bases to be reused for reinstallation if possible.
- Remove Medium Voltage & Low Voltage cabling from light bases. To be reinstalled again after rehabilitation of Runway and Taxiways.

- After rehabilitation of Runway and Taxiways reinstall and connect light fittings, series transformers and cabling in bases. Light fitting positions corresponding to numbering during removal.
- Replace non-functional light fittings from assessment with new light fittings.
- Install new bases, cabling & sleeves for End Bar Lights & Stop Bar Lights (where old bases can't be reused).
- A specialist installer is required to correctly line-up and angle light bases for End Bar Lights, Stop Bar Lights, Edge Lights and Inset Lights (where light bases have been disturbed and/or removed).
- The Contractor will be required to have a fulltime presence of an appropriated qualified electrical service provider on site to attend to any accidental damages to communication and electrical infrastructure and thereby mitigate the risk of a negative impact on the operations of the airport.
- Provision has been made to replace damaged sleeves only, during the replacement of impacted lighting.
- Provision has been made for repairing / replacing damaged Medium Voltage & Low Voltage cabling only.

(f) Changes to Scope of Work

It is a condition of this contract that the employer reserves the right to limit the total expenditure on the Works due to possible budget constraints. Should the tender sum exceed the budgeted amount, the scope of the works may be reduced at any time before or during the contract period to ensure that the final contract amount does not exceed the budgeted amount. Refer to Scope of Works sub-clause C1.1.3.9.

C3.1.4 LOCATION OF THE WORKS

The site of the Works is situated on the airside of Bram Fischer International Airport in Bloemfontein. The site is under the jurisdiction of the Airports Company South Africa (ACSA). Location of the site is shown on the Layout Plan (Drawing No. 301695-CIV-LA-003 Rev A). The contractor's site camp will be situated within ACSA's premises and shall be indicated at the site clarification meeting.

C3.1.5 TEMPORARY WORKS

The Contractor shall obtain written permission from the Employer's Agent before construction of any temporary works may commence. Temporary works will include the following:

- (a) Where applicable (in limited occupation areas), transverse and longitudinal ramps at the end of each shift during construction of the asphalt overlays on the runways and taxiways. The details for the construction and removal of these ramps are discussed in the project specification.
- (b) Signage and markings for the surface movement of aircraft and vehicles.
- (c) Placing and removal of barricades where required.
- (d) All facilities within the Contractor's construction camp. The design shall comply with the specifications, where provided in these documents and all statutory requirements such as the Occupational Health and Safety Act and Regulations. The area is to be reinstated upon completion.

- (e) Access roads for the construction camp and temporary material stockpile site. These roads are to be designed, constructed and maintained by the Contractor to comply with safety and environmental requirements. They must be reinstated upon completion of the Works.

C3.2: ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

The responsibilities for design and related documentation are as follows:

DESCRIPTION	RESPONSIBILITY
Detailed design for construction	Employer's Agent's Representative
Temporary works (Section C3.1.5): Items a) to b) Items c) to e) and any other temporary works required by the contractor	Employer's Agent's representative Contractor
As-built drawings: Provision of data and marked up drawings Preparation of drawings	Contractor Employer's Agent's representative

C3.2.2 EMPLOYER'S DESIGN

The extent of the Employer's design is shown on the construction drawings.

C3.2.3 CONTRACTOR'S DESIGN BRIEF

The design brief for Temporary Works is provided in Section C3.1.5.

C3.2.4 DRAWINGS

Drawings are not required for the Temporary Works and will be designed by the Contractor.

The reduced drawings that form part of the tender documents shall be used for tender purposes only. The Contractor will be issued with an A3 paper copy and PDF file of each of the drawings required for construction. The Contractor shall, at his own expense, produce all further prints required for the construction of the Works.

The Contractor shall not use the drawings for any purpose other than the execution of the works.

Only figured dimensions on the drawings shall be used, and drawings shall not be scaled. The Employer's Agent shall supply any figured dimensions which have been omitted from the drawings.

The Employer's Agent may issue additional drawings as necessary to the Contractor from time to time during the progress of the works. The Contractor shall timeously notify the Employer's Agent of the priority in which drawings and details are required.

Before a Certificate of Completion will be issued, all as-built data must be provided to the Employer's Agent on completion of the Permanent Works. The data must be provided in electronic form (as per the Employer's Agent's format) or where appropriate marked up on a set of drawings. Any information in the possession of the Contractor necessary for the Resident Engineer to complete his as-built drawings shall be supplied to the Resident Engineer on a regular basis and all information must be delivered before a Certificate of Completion will be issued.

The drawings, as listed in Volume 4, form part of the tender documents and shall be used for tender purposes only.

C3.2.5 DESIGN PROCEDURES

Asphalt mixes to be designed in co-ordination with an approved (by the Employer's Agent) specialist professional asphalt design engineer and laboratory and submitted to the Employer's Agent for approval. The design laboratory and specialist asphalt design engineer shall be paid under a Provisional Sum item provided in the Bill of Quantities.

Fundamental design principals and methods (see applicable SABITA, and other applicable institutions, manuals and guidelines) to be utilized to ensure optimal mixes in accordance with the specified performance criteria.

C3.2.6 CONSTRUCTION IN CONFINED AREAS

Working space for some of the work to be carried out under this contract is restricted. The construction method used in these confined areas largely depends on the Contractor's plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used, and that the rates and prices tendered will be deemed to include full compensation for difficulties encountered while working in confined areas.

C3.3: PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

The Works shall be executed in accordance with the requirements specified in Section T1.2, Tender Data (Clause F3.11) and submitted by the Contractor in his Returnable Schedules.

C3.3.2 SUBCONTRACTING

(a) Scope of Mandatory Subcontract Works

The Mandatory Works to be subcontracted are the Electrical Works described in Clause C3.1.3(e).

(b) Preferred Subcontractors

The subcontractors must meet the requirements as laid out in Clause F3.11 of this document.

(c) Subcontracting Procedures

The electrical works shall be subcontracted to CIDB registered contractors in accordance with the subcontracting procedures set out in the General Conditions of Contract.

(d) Attendance on Subcontractors

The Contractor shall provide any necessary facilities in order to manage the specialist electrical subcontractor to ensure that the works are carried out in accordance with:

- The programme of works, and
- The contract requirements, and
- In the Project requirements concerning access to and from the airport facilities at the beginning and end of working shifts. He shall also ensure that the subcontractor complies with the requirements of the Safety Plan, Environmental Management Plan and Operational procedure requirements.

C3.4: CONSTRUCTION

C3.4.1 WORKS SPECIFICATIONS

(e) Applicable Standard Specifications

The Standard General and Technical Specifications for Civil Works shall be the COTO - Standard Specifications for Road and Bridge Works or South African Road Authorities 2020.

The Standard Specifications forming part of this contract have been written to cover all phases of work usually encountered on road and bridge contracts and may therefore cover items of work not encountered in this Project contract.

The Contractor is responsible for ensuring that he is thoroughly familiar with all the amendments and corrections before submitting his tender.

(f) Applicable National and International Standards

The Works must comply with certain National and International Standards. These include:

- ICAO
- SANS (SABS)

Where required, compliance with these and other National and International Standards have been specified in the Standard and Project Specifications.

(g) Project Specifications

In certain clauses, the Standard Specifications allow a choice to be specified in the Particular (Project) Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a Contract. Details of such alternatives or additional requirements applicable to this Contract are contained in the Particular (Project) Specifications (C3.6 Civil Works). It also contains some additional specifications required for this Contract.

(h) Certification by Recognized Bodies

Where required, South African Bureau of Standards (SABS) must undertake the certification of items for inclusion in the Works.

C3.4.2 PLANT AND MATERIALS

(a) Plant and Materials supplied by the Employer

Nil

(b) Materials, Samples and Shop Drawings

Where required, requirements for proof of compliance with materials specifications, submission of samples of materials and finishes and requirements for shop drawings, are stated in the standard or project specifications. This will also apply to the subcontracts.

All materials used in the works shall, where such mark has been awarded for a specific type of material, bear the official mark of the SANS (SABS). Written proof shall be obtained from the Employer's Agent for any materials not bearing the official mark of the SANS.

C3.4.3 CONSTRUCTION EQUIPMENT

(a) Requirements for Equipment

Where applicable, minimum requirements for equipment are specified in the Standard (Clause A9.1.6 of COTO, Chapter 9) and Project specifications.

The Contractor shall indicate in his Milling and Paving Method Statement how he will manage an emergency where a plant item breaks down during a milling and paving operation, or any other operation being undertaken within the 50 meter restriction zone of the main runway (from

edge of both the main and secondary runways) to ensure timeous opening of the runway (during short term closures). The equipment shall as a minimum include:

- i. A low bed with winch that has sufficient capacity to remove a 30 ton roller.
- ii. Equipment (porta-pack) capable of releasing the hydraulics on a milling machine and undertaking the removal thereof from the runway.

The Contractor shall, before the start of the milling and paving operations, successfully demonstrate to the Employer's Agent how he will remove any substantial item of plant (i.e. milling machine, roller or paver) from the runway or graded strip when it is in a broken down state. This operation must be completed within 1 hour from the request for removal.

The equipment required for this operation shall always be available on the airside of Bram Fischer International Airport for use in an emergency situation during a working shift where work is being carried out under short term closures on the runway or within a distance of 50m from the runway edge. Work on the runway and in the clearance zone will not be allowed if these requirements are not complied with.

(b) Equipment Provided by the Employer

Nil

C3.4.4 EXISTING SERVICES

Specifications related to existing services are provided in the Project Specifications (Section C3.6; Clause A2.1.3)

C3.4.5 SITE ESTABLISHMENT

i. Services and Facilities Provided by the Employer

The location of and access to a proposed construction camp will be provided to the Contractor. Approval for the establishment of a construction camp must be obtained from ACSA. The Contractor is responsible for all arrangements for obtaining all necessary approvals, establishment and subsequent removal and reinstatement of his construction camp. Note that services for water and sewer will not be free of charge, and the utilization of these services will be at the expense of the Contractor.

Other contractors may in part also use the proposed area. The Contractor must at all times limit his personnel, plant, equipment and materials at the Contractor's site or the working areas as approved by the Employer's Agent. No personnel shall be accommodated on airport property. Only guards approved by the Employer and on duty may be on site at all times. The Contractor shall only use the designated gate(s) for access purposes to the airside.

The area designated by the Employer's Agent can be used for stockpiling material for use in the works and for temporary parking of plant and equipment. This location is to be confirmed by the Employer.

All regulations and local authority ordinances, as regards smoke emissions and noise abatements shall apply and compliance will be enforced as well as height restrictions and any required obstacle markers.

Also refer to the requirements of Clause 3 of the **Procedure Manual for Working Airside (Volume 5)**.

ii. Facilities Provided by the Contractor

The requirements for facilities to be provided by the Contractor for use by the Employer and his agents such as office, ablution and laboratory facilities are stated in Part C3.6, Section A1.4.7.1.

The Contractor shall make his own arrangements for the supply of electrical power, water (see Clause A1.3.3), telecommunication services, ablution facilities, sewer services, first aid facilities and other services, the payment thereof and all reinstatements required upon completion. No direct payment will be made to the Contractor for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

The Contractor will be required to erect a security fence around the construction camp and temporary parking area for plant and equipment. The cost thereof is regarded to be included in the relevant rates for establishment on site.

The storage of fuels in tanks may be kept in the Contractor's camp subject to the regulations of the Airport authorities that require a berm or wall around the installation sufficient to retain the capacity fuel of the tanks.

The Contractor shall make his own arrangements for telephone and facsimile facilities. Cellular phones will be acceptable, but the Contractor must obtain airside permits from ACSA at his own cost.

iii. Storage and Laboratory Facilities

The Contractor shall make a storage room available for use by the Employer's Agent's staff. A commercial laboratory shall undertake material testing for the Employer's Agent.

iv. Other Facilities and Services

The Contractor shall be responsible for the removal of all waste generated from the airport property and the proper disposal thereof elsewhere at his own cost.

If required by the Employer's Agent, the Contractor shall supply portable chemical toilet facilities next to the construction site for his staff as well as for the Employer's Agent's supervisory staff. These facilities must be erected and removed on a daily basis and regularly serviced to the satisfaction of the Airport Authorities and the Employer's Agent.

v. Vehicles and Equipment

The requirements (e.g. permits, etc.) for vehicles and drivers operating on the airside at Bram Fischer International Airport are specified in the Procedure Manual for Working Airside (Volume 5). The responsibility will however remain with the Contractor to ensure that all necessary requirements are met to bring any vehicles and equipment on site.

vi. Advertising Rights

Only one sign board for the Contractor and his subcontractors may be erected at the entrance to the construction camp. Also refer to Chapter 1, Part C1.3(COTO) and Item C1.3.2 of the Project Specification (C3.6).

vii. Notice Boards

A construction notice board complying with the SAICE specifications must be provided and erected at a position to be agreed with the Employer's Agent. The cost of the supply and erection of this notice board must be included in the establishment cost of the Contractor. Also refer to Chapter 1, Part C1.3 and Item C1.3.2 of the Project Specification (C3.6).

C3.4.6 SITE USAGE

Restrictions on the site usage are stated in the Procedure Manual for Working Airside (Volume 5).

C3.4.7 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS

The Contractor must satisfy himself that the dimensional accuracy, alignment, levels and setting out of existing components are compatible with the proposed Works. Where this is not the case the Employer's Agent's Representative must be notified in writing at the earliest possible time.

C3.4.8 WATER FOR CONSTRUCTION PURPOSES

The Contractor must make all arrangements for the transport, storage and distribution of water required for construction purposes and for his own use and at his own cost (allowed for in the relevant tendered rates). Alternatively, water can be purchased from ACSA at a prescribed rate. Refer to Item A1.2.3.21 for further details.

C3.4.9 SURVEY CONTROL AND SETTING OUT OF THE WORKS

The Contractor shall place beacons in concrete, marked and certified by a professional land surveyor. Beacons shall be check-levelled during construction to confirm the accuracy when instructed by the Employer's Agent. Refer to A1.2.7.2 for further details.

C3.5: MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

(a) Planning and Programming

The Contractor's programme must be based on the interim milestone dates for completion specified in Table C3.5.1 below and the Working Times defined in the **Procedure Manual for Working Airside (Volume 5)**. Penalties will be imposed if these Interim Milestone dates are not achieved. Refer to Section C1.2 (contract Data), Sub-clause 5.13.1.

Table C3.5.1: Interim Milestone Dates

Milestone Event	General Description of Work	Milestone Completion
		Indicative Only
Main Runway 02-20	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	24-Nov-23
Taxiway Alpha	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	05-Jan-24
Taxiway Charlie (Start - Km 0.600)	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	26-Jan-24
Taxiway Charlie (Km 1.460 - End)	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	16-Feb-24
Taxiway Bravo	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	29-Mar-24
Taxiway Charlie (Km 0.600 - Km 1.400)	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	19-Apr-24
Apron Bravo	Completion of all rehabilitation, surfacing, paint marking and replacing electrical elements	12-Jul-24
Drainage and ancillary work	Completion of all new drainage and maintenance of existing where necessary	23-Aug-24
Note: All indicative dates are to be used as a guide for sequencing of works. Final construction programme to be submitted by appointed contractor for approval by ACSA and engineer.		

An example of construction programme based on these phases is presented on the next page to assist the Contractor in the preparation of his Initial Programme. This programme is provided for illustrative purposes only and the Contractor must draw up his own programme that complies with all requirements of this project and which suits his own resources. Detailed specifications for the compilation and management of the construction programme are stated in Section C3.6 (Clause A1.2.7.1) and in Clause 4 of the Airside Manual (Volume 5).

(b) Sequence of the Works

The sequence of the Works will be determined by the logical order of activities as illustrated in the potential construction programme on the next page and the specified Interim Milestone dates in Table C3.5.1. It is important to note that:

- (a) The contractor shall also allow time in its programme for trial sections of the asphalt mixes, stabilised layers (BSM and cemented stabilised) and crushed stone base.
- (b) Allowance has been made in the contract for testing the skid resistance of the runway during the application BRUTFC, allowance forms part of pay item C20.1.
- (c) Some non-critical activities can be done in a different phase to those highlighted in TABLE C3.5.1 as long as that approval has been obtained from AM and subject to availability of escort from ACSA.
- (d) A minimum of seven (7) days advance notice from the contractor is required to switch between work areas.

(c) Methods and Procedures

The methods and procedures that must be complied with are contained in Volumes 2, 3, 4 and 5 of the contract documentation. These include but are not limited to:

- Methods and Procedures in the Standards Specifications (Volume 2, COTO).
- Civil Works Methods and Procedures in the Project Specifications (C3.6).
- Occupational Health and Safety Specifications (C3.7.1).
- Environmental Work Instructions (C3.7.2).
- Manual of Procedures for Working Airside (Volume 5).

(d) Quality Plans and Control

The requirements for Quality Plans and Control are stated in Section A1.2.8 of the Project Specification (C3.6).

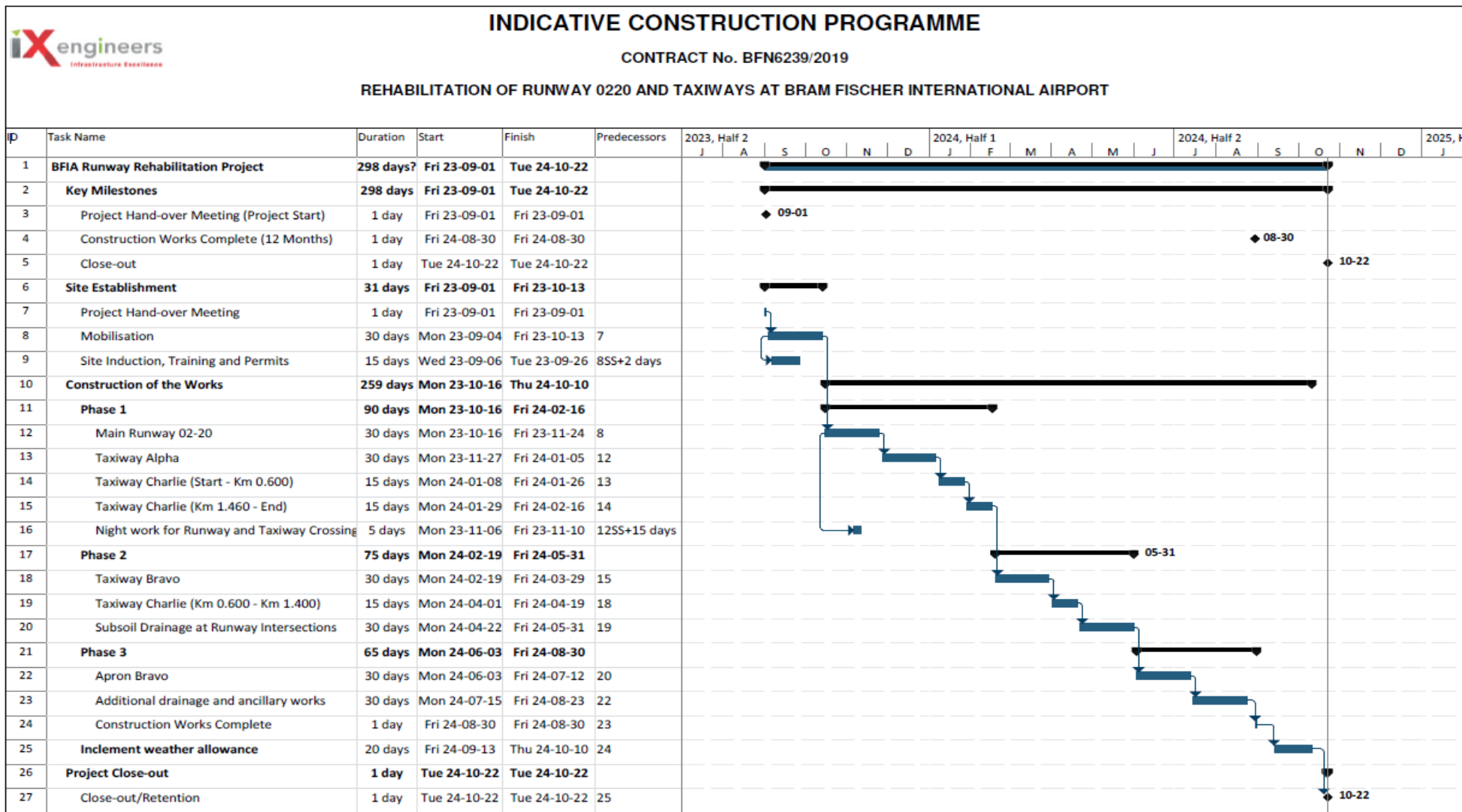


Figure C3.5.1: Indicative Construction Programme

(e) Construction Method Statement

Within 14 days of the Commencement Date the Contractor shall submit a Construction Method Statement to the Employer's Agent for approval by the Employer. Once approved, this Statement will form part of Appendix C of the Procedure Manual for Working Airside (Volume 5). No work on the airside will be allowed until the Employer has approved this Construction Method Statement.

The Method Statement shall include:

- i. All measures to be implemented to comply with the requirements of the Procedure Manual for Working Airside (Volume 5).
- ii. All measures to be implemented to comply with the requirements of the OHS Act.
- iii. A contingency plan to deal with interruptions of shifts by inclement weather, plant breakdowns or emergency closures of the work areas.
- iv. Special measures, such as availability of back-up plant, to be implemented in normal shifts to comply with the Project Specifications.
- v. Measures and equipment that will be used on site to limit the ingress of water into the excavations and to remove rainwater from the excavations.
- vi. Measures to protect services (above and below surface) during construction.
- vii. Procedures to ensure that the whole work area is safe before removing staff or handing over of the site at the end of each work shift.
- viii. A watchman to remain on site of excavations/construction with telephone contact to the contract manager in case of emergency.
- ix. The cost of complying with the ACSA approved method statement is deemed to be covered by the tendered rates for the Contractor's General Obligations.

(f) Environment

The Environmental requirements are specified in ACSA Specifications (Section C3.7.2)

(g) Accommodation of Traffic on Roads and Accesses used by the Contractor

ACSA staff and other stake holders will also use the access road to the construction site and camp. It is therefore a requirement that the Contractor coordinate with all stakeholders on a daily basis (to be recorded at the daily meeting) on the usage of the roads by the Contractor's vehicles and construction equipment.

(h) Testing, Completion, Commissioning and Correction of Defects

Procedures for testing, completion, commissioning and correction of defects will be provided to the Contractor by the Employer's Agent on site.

(i) Recording of Weather

The Contractor shall provide an electronic mobile weather station. He shall erect them according to the requirements of the weather bureau. The Contractor shall record and keep a record of the daily rainfall and maximum/minimum temperatures and supply the data to the Employer's Agent on a daily basis.

The Contractor shall also record wind speed measurements on site as agreed with the Employer's Agent's Representative. Data can also be obtained from the local weather bureau but has to be recorded on site on a daily basis.

The cost of complying with these requirements is deemed to be covered by the tendered rates for the Contractor's General Obligations.

(j) Format of Communications F

All instructions or requests need to be confirmed in writing through:

- Site instructions.
- Requests for inspections.

(k) Key Personnel

The Contractor, Employer's Agent and Employer must compile a schedule of their Key Personnel with their contact numbers and keep it updated as per requirements for the contact list in Volume 5 – Procedure Manual for Working Airside. The list must be made available to the Employer's Agent, Employer and Contractor.

(l) Management Meetings

The following formal meetings will be held at the office of the Employer's Agent's Representative between the representatives of the Employer, Employer's Agent and the Contractor:

- Daily kick-off meeting (One hour before the start of a shift).
- Weekly progress meeting (Two hours before the start of a shift).
- Monthly site meeting (Date and time to be agreed by attendees).
- Monthly technical meeting (Date and time to be agreed by attendees).

The representatives must have the necessary delegated authority in respect of aspects such as planning, change management and health and safety.

(m) Daily records

The Contractor must keep daily records of resources (people and equipment employed) and site diaries in respect of work performed on the site. A copy of the previous day's daily record must be provided to the Employer's Agent on a daily basis.

(n) Bonds and Guarantees

Original copies of the bonds and guarantees must be lodged at the office of ACSA, Bram Fischer International Airport and one copy of each must be kept on site with the Employer's Agent's representative. On release, the bond and guarantees can be collected from ACSA.

(o) Payment Certificates

The Employer's Agent's certificate will be issued only after receipt by him of a draft certificate prepared by the Contractor at his own expense in the form prescribed by the Employer's Agent. The cost of duplicating and delivering copies of the certificate to the Contractor, the Employer's Agent and the employer shall be borne by the Contractor. The Employer's Agent and the employer shall require three (3) sets of A4-sized paper copies in total.

(p) Permits

All requirements in connection with the application for and usage of permits are stated in the Airside Manual (Volume 5) and Chapter 1, C1.2 General Requirements and Provisions, A1.2.3.7 (Project Specification C3.6).

(q) Insurance Provided by the Employer

For information on the Employer Insurance, refer to Clause 35.1 Section C1.2.

C3.5.2 HEALTH AND SAFETY

(a) Health and Safety Requirements and Procedures

Health and Safety requirements and procedures are presented in Annexure B, Section C3.7.1.

(b) Barricades and lighting

Requirements for the provision and usage of barricades and lighting are stated in **Volume 5** and **Chapter 1 of the Standard Specifications**.

(c) Traffic Control

Safety requirements and procedures where the Contractor has occupation of taxiways, runways or roads are stated in **Volume 5** and **Chapter 1 of the Standard Specification**.



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C3.6: PARTICULAR (PROJECT) SPECIFICATIONS: CIVIL

General note: The Standard Specifications as well as the Particular (Project) Specifications refer to the 'Engineer' whereas the General Conditions of Contract for Construction Works, 2015, Third Edition, (GCC 2015) refer to the 'Employer's Agent'. In all cases where reference is made to the Engineer in the Standard Specifications or the Project Specifications, it shall have the same meaning as the Employer's Agent as defined in the General Conditions of Contract.

SECTION A: SPECIFICATION AMENDMENTS

SECTION A1: STANDARD AMENDMENTS ISSUED BY COTO

Notes to Tenderer:

1. The Standard Specifications for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition) prepared by the Committee of Transport Officials, (COTO), as amended, shall apply to this contract. The amendments are those issued by COTO and reproduced in Section A1, together with additional amendments as set out in Section A2 and Project specific Specification Data as set out in Section B.
2. As to February 2023, no amendments have been issued by COTO.

SECTION A2: PROJECT SPECIFICATION AMENDMENTS TO THE COTO STANDARD SPECIFICATIONS

Notes to tenderer:

1. This Section A2 contains amendments to the Standard Specification, including additional clauses, amendment to clauses or deletion of clauses and specifications, required for this particular contract. Where the Standard Specifications allow a choice to be specified in the Contract Documentation or Project Specifications, between alternative materials or methods of construction, and for additional requirements to be specified to suit a particular contract, these selections are not made in this Section A2. Details of such alternatives or additional requirements applicable to this contract are contained in.

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COTO CHAPTER 1: GENERAL

SECTION 1.1: GENERAL PREAMBLE

PART A: SPECIFICATIONS

A1.1.2 DEFINITIONS

*Add the following definitions and terms to Section A1.1.2 of the Standard Specifications:
(Also refer to the definitions provided in the Airside Manual – Volume 5):*

CARRIAGEWAY AND FREEWAY – Shall also mean the asphalt surface areas of the runways, taxiways and the concrete aprons.”

ROAD PRISM – “The road prism shall also mean the prism of the runways, taxiways and aprons.”

AIRPORT ROADS – Airport roads are defined by a network of public and non-public roads within the airport boundary providing access to the various airport buildings or areas.

AIR TRAFFIC – Means all aircraft in flight or operating on the manoeuvring areas of an aerodrome.

CONTROL TOWER – Means an air traffic control unit established to provide an air traffic control service.

INSTRUMENT LANDING SYSTEM CATEGORY I (ILS CAT I) – Means an approach and landing aid designed to identify an approach path for exact alignment and descent of an aircraft making a landing with a runway visual range of 800 m and a decision height of 60 m.

INSTRUMENT LANDING SYSTEM CATEGORY II (ILS CAT II) – Means an approach and landing aid designed to identify an approach path for exact alignment and descent of an aircraft making a landing with a runway visual range of 400 m and a decision height of 30 m.

INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO) – Means a specialised agency of the United Nations with a membership of 183 Contracting States as of August 1994.

LANDING AREA – Means that part of a movement area intended for the landing or taking off of aircraft.

THRESHOLD – The threshold is the beginning of that portion of the runway used for the take-off and landing of aircraft. The clearway is the area beyond thresholds.

PARTY, PARTIES AND THIRD PARTY – ‘Party’ and ‘Parties’ means the Client and the Consultant, and ‘Third Party’ means any other person or entity as the contract requires.”

PART C: MEASUREMENT AND PAYMENT

C1.1.3 PAYMENT

Add the following paragraph to the Clause C1.1.3.2:

“VAT shall be excluded from the rates and added as a lump sum to the total value of work measured for payment.”

Add the following subclause

C1.1.3.5 Payment for materials on the Site

In the last sentence of the 1st paragraph, delete the following:

“, or, in the case of crushed stone which has not been purchased but has been produced on the site, at 80% of a fair evaluation of such crushed material.”

Add the following new subclauses:

C1.1.3.9 Reduced payments for substandard work

Where provision for reduced payments for sub-standard work is made in the Contract Documentation, acceptance of reduce payment for substandard work may be accepted by the Engineer subject to prior approval by the Employer.

C1.1.3.10 Rates to remain unchanged when scope of work changes

Dependent on the rates and prices offered in the Pricing Schedule, the Employer intends to increase or reduce the scope of work to match the budget allowed for this project. To this end the Contractor has been provided the opportunity to price separately for unit rates of work and the establishment of major plant. The value of such increase or reduction in the scope of works shall not give cause for the Contractor to vary the offered rates and prices, which shall remain final and binding for the duration of the contract, provided that:

- (i) Notification of the change to the scope of work is given in writing within 28 days of the tender closing date.
- (ii) The value of the increase or reduction in the scope of work does not alter the tendered sum by more than 20%.

C1.1.3.11 Procurement of sub-services and omitted rates (Second tier procurement)

Second tier procurement include the procurement of any work where either the particulars of the work is not scheduled and priced, or where the process of procurement of the sub-service provider is specified elsewhere in the contract specification. It include the procurement of work where rates have been omitted or where allowance for the work is made under a Provisional sum or Prime sum item or where allowance for the work is made under a Provisional sum or Prime sum item but the particulars of the work is not scheduled, or where work is instructed under clause 13[Variations and Adjustments] or where work is to be performed by Targeted Enterprises.

The following procurement methods is to be followed as appropriate:

- a) **Where the particulars of the work is not scheduled but existing rates for similar work exist in the contract and the work can therefore be executed by the contractor or his sub-contractor at the existing contract rates.**

No separate procurement process is required. The work is to be quantified and scheduled utilising existing rates and approved through the Variation Order Authorisation process.

- b) **Where the payment calculation is based on a formula specified in the contract document, or where the payment rate is pre-determined or fixed by the client.**

No separate procurement process is required. The work is to be quantified and approved through the Variation Order authorisation process.

- c) **Where the supplier is not selected by the contractor and actual cost is reimbursable and/or no procurement process is possible.**

No separate procurement process is required. The work is invoiced by supplier on completion and approved through the Variation Order Authorisation process at the end of the contract.

- d) **Where there are omitted items as part of the existing scheduled scope of work and no existing rates for similar work exist in the contract, or where there are no existing rates for the materials to be supplied and suitable rates for material to be determined.**

A proposal for a new rate shall be submitted by the contractor and evaluated by the engineer, by comparing with either adjusted relevant rates in the contract, or by comparing with similar rates on similar contracts, or by comparing three informal quotes to substantiate the rate. The new agreed rate is approved through the Variation Order Authorisation process.

- e) **Where the particulars of the work is not scheduled and the estimated cost of the work (including VAT and excluding Contract Price Adjustment) is equal or less than R1,000,000.00 and there are no existing rates for similar work and the contractor's proposal submitted in terms of FIDIC Variation 13.1 is not accepted and the work is to be performed by a sub-contractor.**

A minimum of three quotations shall be obtained from Targeted Enterprises). The following is the minimum requirements for this process:

- Prequalification for BEE level 1 or 2 and EME or QSE (Approval to deviate must be granted by the Employer, based on market research)
- Quotation to include form of quotation, CSD registration, CIDB (where applicable),

A Variation Order shall be approved prior to execution of the work.

- f) **Where the particulars of the work is not scheduled and the estimated cost of the work is more than R1,000,000.00 (including VAT and excluding Contract Price Adjustment) and there are no existing rates for similar work and the contractor's proposal submitted in terms of FIDIC Variation 13.1 is not accepted and the work is to be performed by a sub-contractor.**

The work is to be procured through a tender process. The following is the minimum requirements for this process:

- Prequalification for BEE level 1 or 2 and EME or QSE (Approval to deviate must be granted by the Employer, based on market research)
- Tenders to close at the relevant site offices at a specific date and time
- Tender documents to include form of Offer, CSD registration, Tax compliance, CIDB (where applicable), SBD1, SBD 4, SBD 6.2, BEE certificate, Form A2.2
- Tenders to be evaluated on price and preference
- Evaluation by contractor for review by engineer

A Variation Order shall be approved prior to execution of the work.

- g) **Where the particulars of the work is identified by the contractor to be performed by subcontractors who are Targeted Enterprises to form part of the specified Contract Participation Goals for Targeted Enterprises.**

The work is to be procured as per the process specified in clause D1007.

- h) **Where the work is unforeseen, urgent and the relevant procurement method as indicated above will result in a delay to the contract and payment for a claim for extension of time and/or cost, or where the above procurement methods are not applicable or cannot fully be complied with.**

“The Employer will determine the most appropriate procurement process to be followed and approved through the Works Authorisation process.”

A1.1.2 GENERAL CONDITIONS OF CONTRACT

Add the following:

The General Conditions applicable to this Contract are the General Conditions of Contract for Construction Works, 2015, Third Edition, (GCC 2015).

Accordingly, all reference in the Standard Specifications to any other General Conditions of Contract (GCC) has to be amended. The Standard Specifications have been scrutinised and clauses which refer to another GCC, identified. These are tabulated below together with the relevant equivalent clause in the GCC 1998 Conditions of Contract. The context of the reference to the GCC is also noted.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the GCC 2015 Conditions of Contract for Construction, as amended by the Special Conditions of Contract in Section C1.2 of this Volume, shall apply and the contractor shall be responsible for interpretation of the equivalent clause.

SECTION 1.2: GENERAL REQUIREMENTS AND PROVISIONS

PART A: SPECIFICATIONS

A1.2.3 GENERAL

A1.2.3.4 Extension of time for delays caused by rainfall and delays caused by actions of airport authorities.

Delete the entire clause and replace with the following:

Change the existing heading of clause A1.2.3.4 to read as above and make the following changes to b) *Method 2 (Critical-path method with consequential delays)* which will apply to this Contract:

Add the following as a new paragraph:

“Extension of time resulting from abnormal rainfall, very cold weather or other forms of inclement weather shall be calculated according to the requirements of Method 2 (Critical-path method). The value of “n” working days per calendar month as specified in this clause shall be as given in Table A1.2.3.4/1 below. If no abnormal rainfall or other inclement weather periods occur during a specific calendar month (or months), the n-values as specified shall not be taken as accumulating over the contract period. If the “n”-days allowed for in the programme of work are not taken up by standing time due to abnormal rainfall or inclement weather conditions, they will fall away and will not be considered in extension of time claims that may arise later during the contract period.

Table A1.2.3.4/1: Average delays due to inclement weather ('n')

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
Inclement Weather Delays	10	10	9	6	3	2	1	2	3	6	7	9	68

Rain days allowed used >5mm days but has been adjusted to meet expected normal days worked per month as well as public holidays and normal December shut down as well as limited inclusion of days for <5mm.

The value 'n' is the average number of days on which it is expected that there will be inclement weather at Bram Fischer International Airport. No paving will be allowed when expected temperature is below 15°C for BRUTFC.

The Engineer's Representative will certify a shift loss due to cold weather, abnormal rain or adverse weather conditions based on the following criteria:

- (i) No work was possible during the relevant shift on any item which is on the critical path according to the latest approved construction programme, given that sufficient temporary drainage of work areas was provided, or if
- (ii) Less than 50% of the work force and plant planned for that specific shift could work.

Actual extensions of time due to inclement weather shall be agreed between the Engineer's and Contractor's representatives on the site. The agreed shifts or parts thereof shall be recorded at the bi-weekly site meetings and adjustments made to the contract period on a bi-weekly basis by extending the contract period according to the number of shifts lost less the allowance 'n'. At the end of the contract, the Engineer shall prepare a variation order to formalise the payment of the accumulated delays in excess of the allowance due to inclement weather.

Extension of time resulting from delays during shifts caused by operations of the Airport shall be allowed for in the contractor's programme. The number of working days to be allowed for in the Contractors programme is 20 days for the full contract period. The criteria listed in (i) and (ii) above will also apply to this extension of time. Losses within the 20 days delay period are deemed to be covered in the rates tendered for the items of work. **No extension of time, with associated costs, will be claimable until such time that the 20 days has lapsed.**

Time lost during shifts shall be agreed between the Engineer's and Contractor's representative on site. The agreed shifts or parts thereof shall be recorded at the bi-weekly site meetings and adjustment made to the contract period on a bi-weekly basis by extending the contract period according to the number of shifts lost less the allowance. At the end of the contract, the Engineer shall prepare a variation order to formalise the payment of the accumulated delays due to Airports operations. Losses for the first half-hour of delay are deemed to be covered in the rates tendered for items of work.

If the approved total extension of time (for delays due to inclement weather and Airport operations) extend the completion date beyond the start of the contractor's holiday in December, the holiday period shall not be considered as working days. Any remaining extension of time at this date shall be calculated from the first statutory working day in January the following year, provided that the contractor has shown in his programme that he intends to close during the traditional Christmas/New Year break."

A1.2.3.10 Notices, Signs and Advertisements

Delete the final paragraph and replace with the following:

"All signboards erected in accordance with the drawings or as approved advertisements for the Contractors establishment, shall be removed at the same time as the Contractors de-establishment. Payment Item C1.3.1 for the final instalment of 15% of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed."

A1.2.3.21 Water

Add the following to the first paragraph:

"Water for construction purposes will be made available near the site camp. The contractor will include in his rates for any connections, couplings or a standpipe and will provide a water meter to measure the water used for construction purposes. Water will be purchased from ACSA at R45 per kilolitre. The contractor shall allow in his rates for annual municipal increases. ACSA will invoice the contractor on a monthly basis for use of water. The first municipal water increase will be on 1 July 2023."

Add the following new subclause after A1.2.3.23:

"A1.2.3.24 Reference manuals, other specifications and test methods

In various chapters of this Standard Specification, reference is made to Manuals, other specifications, and test methods. If not otherwise indicated in the Contract Documentation, the latest published Manual, other specification, and test methods at time of close of tender will apply. Any changes to be implemented on a project as a result of revisions to manuals, other specifications and test methods, will be handled in terms of the Conditions of Contract.

Certain TRH and TMH documents are published as Sabita Manuals/TRH or Sabita Manuals/TMH publications. Where reference is made to the TRH or TMH document, it shall be read as referring to the latest version of the Sabita Manual/TRH publication or Sabita Manual/TMH publication, respectively."

Add the following subclause.

"A1.2.3.25 Contractor's escorts

Escorts will be provided by ACSA to lead the construction team onto site and to serve as official communications port between the construction team and Air Traffic Control or Airport Management. The construction team will not be allowed to enter or operate on the airside facilities unless being escorted by a qualified ACSA escort.

Under special circumstances, the Contractor may be allowed to nominate one or more persons (own site management staff or others) to accept the duties and responsibilities of an escort if and when required by the Employer. The following conditions will apply:

- (a) The nominated person/s (Contractor's escort) need to have passed the applicable training and examination as specified by Airport Management (including induction course, radio communications, etc.).
- (b) The Contractor's escort shall have a vehicle suitably equipped for driving airside. Equipment shall include amongst others a suitable communication device as specified by ATC required to communicate with Air traffic Control and Airport Management, signage and lights.
- (c) The Contractor's escort may only be used if Airport Management is not able to provide the required escort services if and when required by the Contractor. The Contractor needs to be provided with written approval by the Engineer before the Contractor's escort will be allowed to substitute the official airport management's escort.
- (d) The Contractor's escort shall at all times be in radio contact with Air Traffic Control and the Engineer's safety controller and physically with the construction team. He will not be allowed to leave the site until such time that he has been relieved of his duties by a replacement escort and if approved by Air Traffic Control.

The Contractor will be able to recover the cost of carrying out the duties and responsibilities of the Contractor's escort in the Bill of Quantities. The cost of lights and radio's must be included under Pay Item C1.3.1."

A1.2.7 EXECUTION OF THE WORKS

A1.2.7.1 PROGRAMME OF WORK

(c) Scheme 2

Add the following to the clause:

When drawing up his programme, the Contractor shall, inter alia, take into consideration and make allowance for:

- (i) Working times and all other constraints stated in Volume 5.
- (ii) Requirements of new Clause A1.2.7.6.
- (iii) Expected weather conditions and their effects (Clause A1.2.3.4).
- (iv) Known physical conditions or artificial obstructions.
- (v) The accommodation and safeguarding of public and air traffic.
- (vi) Dealing with, altering and installing services.
- (vii) The work to be undertaken by any sub-contractors. This work must be integrated into the programme of the main contractor.
- (viii) All other actions required in terms of this contract.
- (ix) Interim milestone dates and restrictions on the extent of work areas available at a given time (Section C3.5.1).
- (x) Airside access for “normal hours” working as follows (if required):
 - Monday – Sunday : Sunrise to Sunset (however not to commence before 06:00hrs)
 - Limited taxiway work if instructed works (1 bay closed at a time)
- (xi) Airside access for “after hours” working as follows:
 - Monday – Sunday :
 - Runway 02/20 On 20:00 hrs and Off 04:00 hrs
 - Selected areas of a taxiways close to runways will have the same working hours as the corresponding runway

The above hours of access to airside may be later due to delayed aircraft etc. In addition, the vacation times on Saturday and Sunday mornings may be extended by 1 hour and 2 hours respectively. For programming purposes, the above times should be adopted.

The following details shall be submitted together with the programme:

- (i) The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.
- (ii) The overall labour and major plant resource levels on which the programme is based.
- (iii) The detailed traffic and construction equipment accommodation proposals on which the programme is based.
- (iv) Sequence of work area closure to air traffic.

The Contractor shall base his initial programme of work on the scope of the work as described in the Scope of Works and the Bill of Quantities. This programme shall be reviewed on a regular basis by the Contractor in accordance with changing circumstances, delays and amendments to the work ordered by the Engineer as a result of further examinations made by him.

Minor revisions to the approved programme may be introduced from time to time by mutual agreement between the Contractor, and the Engineer. Should the Engineer believe that a major revision of the

programme is required, the Contractor will be notified in writing and a revised programme shall be submitted within two weeks of receipt of such a notification.

It should be noted that it is in the Contractor's interest to provide a comprehensive programme giving as much information as possible about the times allowed for the various activities as well as resources or other limitations affecting the programme, since the approved programme may be used to evaluate any claims in terms of the General Conditions of Contract for extensions of time.

Monthly Meeting Programme:

The Contractor shall submit to the Engineer, before each monthly site meeting (or whenever instructed) copies of the following:

- (i) The Contract programme with progress charts and programme graphs updated to reflect the actual progress to date.
- (ii) A summary of progress on site over the week preceding the site meeting. The report shall be in the form of a detailed narrative to the Contract programme.
- (iii) Details of activities running late, indicating what steps have been or will be taken to ensure that the work is completed within the specified time.
- (iv) A report on all labour, plant and materials on site.
- (v) An Incident and or Accident Report that is fully detailed.

Weekly Meeting (Fortnightly Rolling) Programme)

This programme will be presented at the weekly meetings and will show the work programmed over the next fortnight. It will be updated weekly. This programme will show the activities planned for each shift in a specific area, and will be subject to correlation with flight-schedules by the Airport Manager. The programme will show actual, projected and previous work.

Add the following subclause:

(e) Safety and Contingency Plan

Within 14 days of award of the contract the Contractor shall draw up and submit a detailed Construction Method Statement addressing i.e. safety and contingency plan to ACSA for approval. Once approved, the Construction Method Statement will form part of the Procedure Manual for Working Airside (Volume 5). The method statement shall include:

- (i) All measures to be implemented to comply with the requirements of the OHS Act (C3.7.1), Environmental requirements (C3.7.2) and the Procedure Manual for Working Airside (Volume 5).
- (ii) A contingency plan to deal with shifts interrupted by inclement weather, construction equipment breakdowns or emergency closures of the work areas.
- (iii) Special measures, such as back-up plant, to be implemented in normal shifts to comply with the specifications.

No work on the airside will be allowed until the Employer has approved the contractor's Construction Methodology Statement.

The cost of complying with the ACSA approved method statement is deemed to be covered by the tendered rates for the contractor's general obligations.

The scope of work requires the temporary closure of certain facilities on the airside. The closure of any facilities and the period of such closures shall be arranged with the air and surface traffic control authorities. Minimum notification periods are included in Volume 5.

A1.2.7.2 Setting out of the Works and the protection of beacons

Add the following to this clause:

“In order to comply with Clause A1.2.7.2 of the Specification the Contractor shall contract or employ a professional land surveyor and supporting team who will check the reference and level beacons. Agreement shall be reached with the Engineer on the values of the beacons to be used. It is the Contractor’s responsibility to maintain and protect all reference beacons.”

“There are a limited number of official reference and level beacons on the airport. Where necessary the Contractor shall place additional reference beacons on all sides of the work areas for accurate setting out and levelling purposes. These beacons shall be placed in concrete, marked and certified by a professional land surveyor. Beacons shall be check-levelled during construction to confirm the accuracy when instructed by the Engineer.”

“All existing paint markings shall be referenced prior to any milling or paving activities for setting out after the completion of the overlay. The contractor shall provide a survey of the existing markings to the Engineer who shall then review and amend as necessary before providing the final marking drawings. Setting out of the final paint marking positions must be done as specified on these supplied drawings. These shall be checked and agreed with the Resident Engineer in writing before final application.”

Add the following new clauses:

A1.2.7.6 Project criteria and requirements at operational airports

Note the special Safety Regulations in Volume 5 will strictly apply to this Contract. In the case of conflict with the following clauses Volume 5 will supersede this section.

Where work has to be executed on or in the vicinity of an operational airport, such work shall be subject to various special conditions and regulations as listed below in order to guarantee and safeguard the operation of the airport at all times.

The following criteria should be borne in mind when the programme is compiled

(a) Airport management and air traffic control responsibilities

The Airport Manager (AM) and the Air Traffic Controller (ATC) are ultimately responsible for the safe and efficient operation of the airport.

The AM or designated representative will in his official capacity have authority to give the Contractor verbal or written orders on matters concerning the operation, security or safety of the airport and the Contractor shall, after having informed the Engineer of the orders, carry out the instructions as if issued by the Engineer.

The ATC is responsible for the safe movement of all aircraft traffic, both in the air and whilst on the ground. The ATC shall at all times have absolute authority regarding the movement of any construction personnel, vehicles or equipment, where such movement takes place within the obstruction free areas of existing facilities, or may affect the safe movement of the air traffic, and his instructions shall be implicitly obeyed. The ATC’s decision regarding the acceptability and programming of the Contractor’s activities within the above-mentioned areas shall be taken into account and may result in reprogramming of work, where considered necessary.

All liaison with the AM or ATC shall be arranged through the Engineer and the Contractors Traffic Safety Officer.

(b) Radio communication on the airport

Refer to Clause 14 of Procedure Manual for Working Airside Volume 5.

Two handsets must be provided to the Engineer for this purpose and must be handed over in a working condition to the Employer at the completion of the Contract. The Contractor’s traffic safety officer and the Construction Manager shall complete a radio operator’s basic course at ACSA before commencement of the works. The Contractor shall be responsible for any maintenance costs, damages

or loss of these sets. Payment Item C1.2 shall be deemed to include all costs of the Contractor in this regard (including training of relevant personnel).

(c) Airport security

Refer to Clause 16 of Procedure Manual for Working Airside Volume 5.

(d) Movement on the airport

Refer to Clause 17 of Procedure Manual for Working Airside Volume 5.

The crossing of any operational facility on the airport will require special control as ordered by the ATC or the airport manager and will be limited to pre-determined points as indicated on the drawings or instructed by the Engineer. The required controls may include any of the following:

- (i) Unrestricted crossings used by the Contractor should be linked with a pre-warnings system that notifies the Contractor that the facility will be required for airport use within a certain period after notification.
- (ii) Flagmen at crossing points, allowing movements across the facility whenever aircraft traffic permits.
- (iii) Radio controlled crossing points, where movements across the facility may only take place after receiving clearance from the ATC.

(e) Additional requirements regarding construction activities

- (i) Identification numbers

All construction vehicles and self-propelled equipment to be utilised within the airport security area shall be fitted with a boldly displayed identification number (minimum dimension 600 mm, line thickness 75 mm) on a white background on either side of the vehicle or equipment. A record of all identification numbers and related vehicles shall be available at all times for perusal by the authorities or the Engineer. The cost for providing and using these identification numbers must be included under Pay Item C1.3.1.

- (ii) Crossing points

The surface of existing facilities at crossing points shall be absolutely clean whenever aircraft uses them. This will require the full-time presence of a cleaning team at such crossings to remove all debris, stones or other material from the surfaces. The Contractor shall be responsible for any damage to aircraft or other equipment as a result of failure to comply with this requirement.

- (iii) Barricades, lights and markings

The Contractor shall provide, erect, maintain, move and finally remove temporary barriers, fences and markings all as prescribed by the airport authorities or as shown on the drawings. The work shall include the placing of temporary barriers where runways or taxiways have been closed as well as lights at these points to facilitate night-time interpretation of the situation. It may also include the painting of markings and the final removal thereof.

- (iv) Dust and pollution

The Contractor shall control dust in all working areas, at borrow pits and on haul roads to the satisfaction of the airport authorities. No pollution from machines, batching plants, mixers, workshops or other sources (such as the breaking up of existing work) will be tolerated. Fires may only be lit after the Contractor has obtained written permission from the airport authorities who will also supervise the fires.

The Contractor shall keep the entire site of the works, including his own camp site, in a neat and clean condition to the satisfaction of the airport authorities.

(v) Windrow of material

During the improvements of the side strips for both runways, materials will be temporarily windrowed outside the work areas. No windrows shall be allowed within 37.5 m of the runway edge of both runways of any threshold. Windrow heights shall also be managed to ensure that they do not exceed ACSA maximum obstacle height requirements.

(f) Traffic safety officer

Refer to Clause 9.8 of Volume 5.

A traffic safety officer shall be appointed by the Contractor. This person shall be a senior member of the site management team who has been duly authorised to perform his duties on his own initiative and to exercise control over others. He must also complete a communications training course successfully at the Airport Control Centre after which a license will be issued to him. He shall be on site full-time during the execution of the works and general site safety shall at all times be his first priority. The traffic safety officer shall liaise directly with the Engineer, airport control and air traffic control regarding matters related to safety.

In addition to the tasks specified in the Airside Manual the traffic safety officer will also be required to perform the following duties and this list shall not be deemed to be complete:

- (1) Responsible for keeping the traffic requirements up to specification 24 hours a day, 7 days a week.
- (2) Inspect and report to the Engineer on the state of all required signs and marks (and all traffic accommodation facilities) as often as the Engineer may require but, in any event not less than twice a day.
- (3) Responsible for exercising control over the safe movement of personnel vehicles and plant on site according to the instructions of air traffic control.
- (4) Attend to the training and performance of flagmen and all other personnel involved in the control of traffic.
- (5) Responsible for compliance with prescribed measures at aircraft crossings.
- (6) Responsible for compliance to air traffic controller's instructions.
- (7) Responsible for daily final inspection of work areas prior to re-opening thereof.

(g) Provision of Permits

The Contractor shall note that it is a condition of the contract that he applies for and obtains the required permits for all persons, equipment and vehicles to be utilized during the construction of the planned works. Refer to Clause 17.2 of the Airside Manual (Volume 5).

The onus shall be on the tenderer to verify these costs prior to completing his tender, but the following are typical costs which could apply:

Vehicles Permits	
<i>Duration</i>	<i>Cost</i>
Permanent	R 1149.38
Add on charge	R 5114.86
Temporary (1 Day)	R 41.29
Temporary (2-3 Days)	R 113.84
Temporary (1-3 Months)	R 287.09
Temporary (4-6 Months)	R 567.14
Penalty	

Lost Permit	R2130.00
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Personal Permits	
<i>Duration</i>	<i>Cost</i>
Ad Hoc (1-5 Days)	R 47.71
Permanent	R 229.68
AVOP	R 478.00
Damaged card re-print	
1 st Lost card	R 137.81
2 nd Lost card	R 271.99
Courses	
AVOP Course	R410.00
Airside Induction	R410.00

A1.2.8 WORKMANSHIP

A1.2.8.1 Process quality control

Add the following new subclauses:

“The Contractor shall submit a proposed Quality Management Plan in accordance with ISO 9002 for this contract (Form C9). Confirmation of the Quality Management Plan shall be submitted to the Engineer, for his approval within two weeks of the commencement date and prior to the commencement of construction activities. Once accepted by the Engineer the Contractor shall not deviate from it unless written notification of proposed changes have similarly been submitted and approved. The system shall record the lines and levels of responsibility and indicate the method and frequency by which testing procedures will be conducted.

The Contractor shall also appoint a Quality Manager who shall ensure that the Contractor’s staff comply with the requirements of the Quality Management Plan.

Payment for work done will not be made until the results of the Contractor’s process control testing have been submitted and the Engineer has approved the work. The Engineer shall conduct such tests as he may deem necessary to verify the process control test results and shall retain all rights as determined in the General Conditions of Contract related to bad workmanship or unacceptable materials. This shall also be applicable to accepted alternative (mix) designs and related specifications.”

Insert the following new subclauses:

(a) “External testing house

An external testing house will be appointed by the Engineer to undertake verification quality control testing of construction materials and workmanship by means of laboratory testing at an external testing facility to confirm results of the Independent Site Laboratory on a selected sampling basis. All sampling and testing by the external testing house will be done on the instruction of the Engineer. Materials will be sampled on site or at commercial supply sources or at the contractor’s asphalt or concrete plant and will be tested the following day. Results will be reported to the Engineer for interpretation and possible action. The external testing house will invoice the Contractor (nominated subcontractor) for the cost of material sampling and testing and for reporting the test results to the Engineer. This cost will be reimbursed under the provisional sum item on approval of the Engineer.

The Contractor will be required to accommodate and support the sampling procedures of the external testing house during the course of the contract. Representatives of the Engineer and the testing house will be allowed to inspect any stockpile, storage facility or processing activity for the purpose of quality control.

(b) External testing house used as independent site laboratory

The contract will utilize an external testing house as an independent site laboratory. Testing shall be undertaken by a combined external testing house laboratory facility for process control (where the process control testing can be utilised as acceptance control), acceptance control and correlation testing subject to the following requirements laid down by the Employer:

- (i) The Contractor accepts the test results of the combined laboratory. Should there be any doubts with regard to certain test results, this will be settled by an independent laboratory mutually agreed upon. The cost in such cases will be to the account of the party at fault.
- (ii) The contractor accepts that the Engineer will be in charge of the combined laboratory.
- (iii) The external testing house must supply a suitable qualified material technician (with at least 10 years asphalt paving quality control experience). The material technician will be responsible for paving quality control (that includes but not limited to temperature control of asphalt, recording

of compaction effort, recording of stoppage and prevention of cold joints, inspection of the surface prior to tacking). This material technician must be approved by the Engineer before commencement of any works.

- (iv) The Contractor must install suitable infrared sensors on the paver to record the material temperature on a continuous basis and these results must be available to the external laboratory and Engineer.
- (iii) The Contractor accepts the costs reduction factor as described below.

The total cost of the independent external commercial (combined) laboratory for the 10 month contract period has been estimated at an amount R1 900 000.00, which is included in Pay Item **PC20.1.6 (a) Provision for testing materials and judgement of workmanship**. The Contractor's contribution to the combined laboratory shall be a minimum of 30% of the amount claimable by the external testing house. This amount shall either be deducted from the Pay Item or the Contractor can, with the Engineers approval, provide a combination of deducted amount, transport, additional staff or other means equating to the 70% value."

C1.2 GENERAL REQUIREMENTS AND PROVISIONS

PART C: MEASUREMENT AND PAYMENT

Item		Unit
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C1.2.5 Safety

Add the following pay subitems:

“C1.2.5.3	Provision for a full time Construction Safety Officer.....	Month
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The tendered sum shall include for the cost of a SACPCMP accredited construction safety officer on a full-time basis, his overheads, transport and all others items necessary for the proper carrying out of his duties.

C1.2.5.4	Submission of the Health and Safety File	Lump Sum
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This amount will be paid only once the Contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction. This must be done prior to the issue of a Certificate of Completion."

Add the following pay item:

PC1.2.10 Standing time (Plant and Labour)

- | | | |
|-------------------------------|--|-----------|
| (a) Asphalt Milling team..... | | hour (hr) |
| (b) Asphalt paving team | | hour (hr) |
| (c) Runway Marking team..... | | hour (hr) |
| (d) Earthwork team..... | | hour (hr) |
| (e) Electrical team..... | | hour (hr) |

Where unforeseen delays attributable to the airport authorities occur and the contractor suffers lost day or night-shift time over and above the allowance made in Clause A1.2.3.4 the following shall be applicable: **Note that no extension of time, with associated costs, will be claimable until such time that the 20 days to be allowed for in the contractor's program of work for unscheduled interruptions or delays as result of airport operations, has lapsed.** Losses within the 20 days delay period are deemed to be covered in the rates tendered for the items of work.

- i. The Contractor will be compensated with paid extensions of time to the contract for the durations lost.
- ii. Payment will be made only at the pro rata rate tendered for time related item C1.3.1.3, Such extensions of time will be recorded in bi-weekly meetings.
- iii. Item C1.2.10 is for direct plant and labour costs. Rates under this item shall include for any additional direct plant, operator and labour costs incurred by the Contractor during delays over and above the allowance clause A1.2.3.4. All supervision costs will be deemed to be part of the Contractor's General Obligations and no additional payment will be paid under this item for foremen or managers.
- iv. The unit of measurement is each hour or portion thereof of a particular operation that is delayed in excess of 30 minutes for each night shift. Losses for the first half-hour of delay are deemed to be covered in the rates tendered for items of work. The measurement will be taken from the time an instruction is received from the ATC to terminate the operation to the time the operation is commenced again or stopped for a shift.
- v. The tendered rate shall include full compensation for all losses incurred by the Contractor.

Rates provided in item C1.2.10 shall be used to calculate claims for excepted risks (clause 8.3.2 of GCC 3rd Edition 2015) as proven additional costs. The tendered rate shall include full compensation for all losses incurred by the contractor.

Add the following pay item:

PC1.2.11 Airside induction courses and permits.....Lump Sum

The tendered lump sum shall represent full compensation for all costs incurred for the attendance of the safety induction course for all the Contractors personnel and for all costs associated with the provision of all necessary permits as required by ACSA for the completion of the project.

No additional payment except that tendered in this item will be granted for permits, airside courses, radio license courses or for any vehicle license courses or permits associated with the due completion of this project and includes for any costs incurred for these during the maintenance period.

Payment of the lump sum tendered will be made in two instalments:

- (1) The first instalment, 70% of the lump sum, will be made in the first payment certificate after the Contractor has made a substantial start with construction in accordance with the approved programme.
- (2) The second instalment, 30% of the lump sum, will be paid when the value of the work reaches one half of the tendered amount, excluding contingencies and price adjustments."

Add the following pay item:

PC1.2.12 Provision for CIDB B.U.I.L.D. ProgramMonth

Tendered rate should be for full compensation for all costs to be incurred for complying to the requirements and specifications of the CIDB B.U.I.L.D. programme. In this project, only the standard for Developing Skills through Infrastructure Contracts will be applicable, wherein the Contractor will be provided with a minimum contract skills development goal (0.25% of the construction value for CE works) that the Contractor should meet by the

end of the contract. This amount will be allocated for skills development to be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities, linked to work associated with a contract culminating in or leading to:

(a) A part or full occupational qualification registered on the national qualification framework,

(b) A trade qualification leading to a listed trade,

(c) A national diploma registered on the National Qualification Framework and /or,

(d) Registration in a professional category by one of the professional bodies.

Payment will be made monthly subject to proof of full compliance to the requirements and specifications that needs to be provided in a monthly progress report.

SECTION 1.3: CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS

PART A: SPECIFICATIONS

A1.3.3 GENERAL

A1.3.3.1 Construction camps

Add the following to the first paragraph:

"The site for the contractor's office and stores as well as the engineer's office and laboratory will be within ACSA's premises (Landside) and is indicated in the Site Layout Plan Drawing (Volume 4). The contractor shall provide 24-hr security at the camp site as well as a dedicated smoking area under roof as required in terms of legislation. The cost of this will be deemed to be included in item C1.3.1."

Add the following new subclause:

"A1.3.3.5 Contractor's ablution facilities

The Contractor shall provide sufficient portable chemical latrine units at the work sites as required by legislation i.e. 1:30 employees and catering for males and females. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the Engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the Contractor's time-related obligations.

C1.3 CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS

PART C: MEASUREMENT AND PAYMENT

Item	Unit
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C1.3.1 The Contractor's general obligations

Add the following pay subitems:

"PC1.3.1.4	Suspension Cost	
a)	De-establishment	Number
b)	Re-establishment	Number
c)	Suspension period	month
d)	Engineer's cost	prime cost sum (PC) sum

Under the heading "Item C1.3.1.3", delete the 2nd paragraph and replace with the following:

"The contract rate shall include full compensation for that part of the Contractor's general obligations which are mainly a function of construction time. The contract rate shall be deemed to include, leasing costs, hire costs or cost of ownership per month for Contractor's Equipment. The contract rate will be paid monthly, pro rata for parts of a month, from the Commencement Date in terms of the Contract Documentation until the end of the Mobilisation Period for item C1.3.1.3(a). For item C1.3.1.3(b) the contract rate will be paid monthly, pro rata for parts of a month, from the end of Mobilisation Period until the end of the original Contract Period specified for completion of the Works."

Add the following new paragraphs:

"Item C1.3.1.4

The rates tendered under subitem C1.3.1.4 shall represent full compensation for all Costs for Suspension of Work and all Costs during Suspension of Works period, and no other Costs (including other monthly costs) shall be payable.

Payment of subitems C1.3.1.4(a) and C1.3.1.4(b) shall be made for the number of de-establishments and re-establishments of all Personnel and Goods (Contractor's Equipment, Materials, Plant and Temporary Works) as instructed by the Engineer. Payment of subitems C1.3.1.4(a) and C1.3.1.4(b) shall not apply during the Mobilisation Period.

Payment of subitem C1.3.1.4(c) shall be made monthly, pro rata for parts of a month, from the date on which the Contractor has suspended progress of all of the Works in terms of Conditions of Contract clause 8.8 and commenced with de-establishment of the site, until permission or instruction to proceed in terms of Conditions of Contract clause 8.12 is given. Payment of subitem C1.3.1.4(c) shall not apply during the Mobilisation Period.

The Prime Cost Sum in subitem C1.3.1.4(d) is provided to cover the cost of the Engineer during the period of suspension of the works. The amounts certified by the Employer shall be made to the Engineer, within 30 days of it being certified by the Employer."

"Item	Unit
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C1.3.1 Contractor's general obligations.....

Insert the following paragraph after the fourth paragraph:

"Should the combined total tendered for subitems (a), (b), and (c) exceed 15% of the tender sum, the tenderer shall state his reasons in writing for tendering in this manner.

If the tenderer should require additional compensation for his obligations under section C1.3 (over and above the total tendered for item C1.3.1 by including such additional compensation in the tendered rates and/or lump sum of items in the schedule of quantities, these items and the value of such additional compensation shall also be indicated in writing in a letter."

Add the following:

"The tendered rate per month for Item C1.3.1.3(c) represents full compensation for that part of the contractor's general obligations, which are mainly a function of construction time. The tendered sum will be paid monthly, pro rata for parts of a month, from the Commencement Date until the end of the period for completion of the works, plus any extension thereof as provided in the general conditions of contract, provided that".

Add the following at the end of this pay item:

"The amount payable to the contractor for time related costs arising from extensions of time granted by the employer, where the contractor is fairly entitled to such compensation in terms of the General Conditions of Contract, shall be calculated as follows:

- (i) Account shall be taken of all time related items scheduled in C1.3 Part C: Item C1.3.1
- (ii) All pay items for which the unit of measurement is "month" shall be deemed to be based on a 23-day working month."

Add the following to this pay item:

"The rate will include for the cost of all Escort requirements as specified in A1.3."

SECTION 1.4: FACILITIES FOR THE ENGINEER

PART A: SPECIFICATIONS

A1.4.7 EXECUTION OF THE WORKS

A1.4.7.1 Offices and laboratories

a) General

Add the following:

"The Resident Engineer's offices shall, amongst other things, have one room at least 6 x 3.5 meters to serve as a conference room. All offices and laboratories shall be supplied with approved burglar proofing."

c) Laboratories

Add the following:

"For the purposes of this Contract, commercial laboratory testing shall be used for acceptance control purposes."

A1.4.7.3 Services

The following subclause shall be added to clause A1.4.7.3 of the Specifications:

(c) First Aid

The Contractor shall provide a first aid kit at the site offices. No separate payment will be made and the Contractor shall allow for this in his tendered rates for accommodation for supervisory staff."

C1.4 FACILITIES FOR THE ENGINEER

PART C: MEASUREMENT AND PAYMENT

Item	Unit
C1.4.3 Additional	
<i>Add the following pay subitems:</i>	
"PC1.4.3.39 ACSA approved lime coloured reflective safety jackets (With lettering).....	Number (No)
PC1.4.3.40 Rechargeable 500 000 candlelight halogen lamps.....	Number (No)
PC1.4.3.41 Two-way hand held radio VHF/AM Dittel FSG5 complete with charger, carrying bag with strap and vehicle magnetic antenna including adapter cable.....	Number (No)"

SECTION 1.5: ACCOMMODATION OF TRAFFIC

PART A: SPECIFICATIONS

A1.5.3 GENERAL

A1.5.3.2 General Requirements

Add the following to clause A1.5.3.2:

"This Contract is divided into limited occupation areas in order to allow for the airport to be fully operational during construction. All occupation areas will be over a short duration (e.g. for night shift works). The Contractor shall inform and obtain approval from ATNS and AM prior to closing any runway/taxiway for construction. The requirements of Volume 5 and Clause A1.2.7.6 shall be fully adhered to by the Contractor. The Contractor is also to note that escort services are to be provided by the contractor for vehicles entering the restricted area to areas where work is taking place (see Clause A1.2.3.24).

Details of the envisaged Phasing of the work are contained in Volume 4 (Book of Drawings) 301695-CIV-PP-012 as well as C3.5 of this document. If the Contractor wishes to deviate from these details in any way, the Contractor shall request approval for such deviation and if approved shall keep the Airport Manager (AM) and the Engineer fully informed of changes."

Add the following new sub-clauses:

A1.5.3.15 Night work

All plant used on site shall be equipped with suitable lights including flashing amber lights to enable the work to be properly performed and controlled at night. Night work will only commence if, according to the Engineer, the Contractor provides all equipment, personnel and stand-by reserves to execute the work at night as if in normal daytime hours.

Payment shall be made under item C1.5.7 for provision of the lighting for the whole working site in work areas as specified above.

The Contractor shall provide for artificial lighting to ensure the proper execution of the work in terms of the contract. The artificial lighting shall be subject to the Engineer's approval and shall consist of at least the following:

- (i) At least 3 floodlight towers per work area shall be provided when works are performed during the night shift. A work area is defined as an area of radius 15 m in which night work is being done. The Contractor shall provide adequate lighting at night as specified for every work area. The light in a work area shall be a minimum of 75 lux.
- (ii) The power systems shall comply with the Occupational Health and Safety Act No 6 of 1993 as amended, and the Standard Regulation for Wiring of Premises of the South African Institute of Electrical Engineers.

No additional payment will be made to the Contractor over and above payment for the Contractor's general obligations for providing and maintaining all extra personnel and equipment for executing night work.

Upon request by the Engineer or his representative, the Contractor shall make available a mobile flood light tower for use by the Engineer's staff. Payment for this request shall be made under item C1.5.15.

PART C: MEASUREMENT AND PAYMENT

Add the following payment items:

"The Contractor's obligation under this Section C1.5 shall not be measured or paid for directly (except as hereinafter provided for) and compensation for the work involved to comply with these obligations shall be deemed to be covered by the rates and amounts tendered for the various items of work included under this contract.

Add the following pay items:

"Item	Unit
PC1.5.13 Safety Barriers:	
(a) Provide HDPE plastic mobile road safety barrier, NJ type (2 m x 1 m high) taped with yellow reflective tape, two strips on either side.....	Number (No)
(b) Placing, moving and final removal of HDPE NJ type barriers upon completion of the works	Lump Sum
(c) Provide precast concrete temporary barrier, NJ type (2 m x 0.8 m high with 0.6m base) taped with yellow reflective tape, two strips on either side and with two amber flashing lights mounted on each barrier.....	Number (No)
(d) Placing, moving and final removal of concrete barriers upon completion of the apron works	Lump Sum
(e) Provide Taxiway/Runway closure barriers as per drawing no: DWG 301695-CIV-PP-012.....	Number (No)
(f) Placing, moving and final removal of taxiway/runway closure barriers upon completion of the works	Lump Sum

The Contractor shall be responsible for maintaining the barriers (including ballast of plastic barriers) and lights. Placing and removal of barriers will be measured once only for payment for each barrier. No additional payment will be made for the intermediate moving and placing of barriers during the contract.

Payment of the lump sums tendered will be made in three instalments.

- (1) The first instalment, 30% of the lump sum, will be made after the contractor has made the initial provision and first placement with the first facility closure
- (2) The second instalment, 40% of the lump sum, will be paid when the value of the work reaches one half of the tendered amount, excluding contingencies and price adjustments.
- (3) The third and final instalment, 30% of the lump sum, will be paid when the barriers are no longer needed and have final been removed off-site."

"Item	Unit
PC1.5.14 Provision of lighting on site for works areas during night work or where instructed.....	Lump Sum

The tendered sum shall include compensation for providing and maintaining lighting as specified and shall include for all units, required for all the operations being done during the same working period.

Payment shall be made monthly, pro rata to the contract time elapsed but shall not finally exceed the tendered sum, except when extension of time for completion is granted in terms of the general conditions

of contract, when additional payment will be made pro rata to the initial contract period of the main portion of the works.

Payment for the moving and operation of the lighting equipment and other incidentals necessary for lighting the site shall be included in the tendered rates.”

“Item	Unit
PC1.5.15 Provision of mobile flood light tower for the use by the Engineer’s staff for works areas during night work or where instructed.....	Lump Sum

The tendered sum shall include compensation for providing and maintaining a mobile flood light tower lighting as specified and shall include for all units, required for all the operations being done during the same working period.

Payment shall be made monthly, pro rata to the contract time elapsed but shall not finally exceed the tendered sum, except when extension of time for completion is granted in terms of the general conditions of contract, when additional payment will be made pro rata to the initial contract period of the main portion of the works.

Payment for the moving and operation of the lighting equipment and other incidentals necessary for lighting the site shall be included in the tendered rates.”

“Item	Unit
PC1.5.16 Provision of escort services for all project vehicles.....	Lump Sum

Payment of the lump sum tendered will be made for the escort services required by ACSA to be provided by the Contractor. The tendered lump sum shall include full compensation for training requirements and Airside Vehicle Operators Permit (AVOP) compliance, providing all transport, safety equipment not otherwise specifically covered, labour and ancillaries required to perform an escort service for all construction vehicles from the security gate to the area where work is taking place.

Payment of the lump sum tendered will be made in three instalments.

- (1) The first instalment, 50% of the lump sum, will be made in the first payment certificate after the contractor has made a substantial start with construction in accordance with the approved programme.
- (2) The second instalment, 35% of the lump sum, will be paid when the value of the work reaches one half of the tendered amount, excluding contingencies and price adjustments
- (3) The third and final instalment, 15% of the lump sum, will be paid when the work has been completed and certificate of practical completion has been issued.

The tendered sum shall include full compensation for training requirements and AVOP compliance, providing all transport, safety equipment not otherwise specifically covered, labour and ancillaries required to perform an escort service for all construction vehicles from the security gate to the area where work is taking place.

SECTION 1.6: CLEARING AND GRUBBING

PART A: SPECIFICATIONS

A1.6.7 EXECUTION OF THE WORKS

A1.6.7.6 Conservation of topsoil

Add the following paragraph to the clause:

“During the improvements of the shoulder areas strips for the runway, materials will be temporarily windrowed outside the work areas. No windrows shall be allowed within 37.5 m of the runway edge within 150m of any threshold. Windrow heights shall also be managed to ensure that they do not exceed ACSA maximum obstacle height requirements.”

SECTION 1.7: LOADING AND HAULING

PART A: SPECIFICATIONS

A1.7.1 SCOPE

Add the following to Clause A1.7.1:

“No overhaul will be paid to the Contractor for transporting any materials whatsoever, whether obtained from commercial sources, designated borrow areas or any other source of material supplied by the Contractor and for the removal of spoil material from the airport premises.”

“The designated stockpile and spoil areas (temporary) will be provided by the AM within the boundaries of Bram Fischer International Airport.”

A1.7.3.2 Haul and construction access roads

Add the following paragraph to the clause:

“The usage and selection of haulage roads on the employer’s (ACSA) premises and on the site will be coordinated on a daily basis between the Contractor, the Engineer’s Representative and the Employer’s representative.”

COTO CHAPTER 2: SERVICES

SECTION 2.1: GENERAL REQUIREMENTS AND TRENCHING FOR SERVICES

PART A: SPECIFICATIONS

A2.1.3 GENERAL

Add the following to the clause:

“The owners of services affected under this Contract are all under the control of the Airports Company South Africa whose representative must be contacted regarding the location of all services in the construction area. Inspections shall be undertaken by means of the authority’s service detectors and such inspections shall be attended by the Contractor and the Engineer’s Representative. No payment shall be made to the Contractor for attending these inspections.

The following existing surface and subsurface services are not known and exact locations should be determined with service detection and inspection.

Service	Approximate Location
Runway centre lights	Lights and cables run across the runway
Main electrical supplies	Main supply cables, crossing below the runways
Medium voltage cable routes	Alongside runways
Communication cable routes	Crossing below runway surface

Protection and/or relocation of certain services will be required. The Engineer will issue instructions after location and exposure of these services. No large compaction equipment will be allowed to work within 10 m of any ground mounted frangible light fixtures or any other navigational equipment without approval by the Engineer. The contractor shall allow for a 1,5 ton sit-on roller or similar compaction equipment approved by the Engineer to work within 10 m of the navigational equipment. No additional payment will be made for work close to the equipment as specified above.”

“The Contractor shall also be liable for any loss or consequential loss suffered by the owner of a service which is damaged by the contractor’s operations, e.g. loss of the ILS or Runway lighting due to a power failure.”

“This work is planned to be executed in close proximity of approach, edge lights and runway closure crosses and must be executed without interfering with the operation of these lights. The contractor shall ensure that the position of the cables are known to himself and his personnel and shall take all reasonable care to avoid damage to the cables, lights or transformers. Protective covers and markers shall be used as required to protect the lights from being damaged or covered by products (e.g. bituminous) whilst the work is carried out. No additional payment will be made to protect the lights.

Should existing services be damaged, the contractor shall give adequate notice to all concerned and leave enough time after completing a particular work shift to allow for the reinstatement of the cables before opening the runway to air traffic.

Where applicable, existing edge lighting and electrical systems for the runway and taxiways need to be kept operational during the course of the project. A number of these lights will need to be raised to match the new level of the surfacing. Payment for this work will be covered under pay item C2.4.5.”

COTO CHAPTER 4: EARTHWORKS AND PAVEMENT LAYERS: MATERIALS

SECTION 4.4: COMMERCIAL MATERIALS

PART A: SPECIFICATIONS

A4.3.5 MATERIALS

Add the following after the heading:

All reclaimed asphalt used for this project shall comply with the specifications detailed in the Technical Recommendations for Highways 21:2017, *“Use of reclaimed asphalt in the production of asphalt.”*

A4.4.7 EXECUTION OF THE WORKS

A4.4.7.1 Selection (design) of the stabilising agent content

c) Cementitious stabilising agent for chemical stabilisation

Step 2: Determine the Initial Consumption of Stabiliser (ICS) of the material.

Add the following after the 1st paragraph:

“The ICS shall be determined for more than one stabilizer agent and the stabilizer agent to be utilised in Step 3 shall be selected by the Engineer based on the ICS results.”

COTO CHAPTER 5: EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION

SECTION 5.1: ROADBED

PART A: SPECIFICATIONS

A5.1.7 EXECUTION OF THE WORKS

A5.1.7.3 Normal roadbed treatment

Add the following new subclause:

“(j) Improvement of the runway strips

Electrical conduits and any other instrumentations shall be identified and where required protected against possible damage by the contractor. The contractor shall take cognisance of Clause A2.1.3 when working within the runway strips.”

This section also covers the construction of the shoulder drainage improvements on the main runway and works to taxiways at Bram Fischer International Airport.”

SECTION 5.3: PAVEMENT LAYERS

PART A: SPECIFICATIONS

A5.3.5 MATERIALS

A5.3.5.2 Pavement layer thickness and compaction requirements

c) Crushed stone pavement layer compaction requirements (G1 to G4A and G5A materials)

Change the 2nd sentence to read:

“The density of the compacted crushed stone base layers shall be tested at depths of 50 mm, 100 mm and 150 mm to determine the compaction gradient throughout the layer. The density measured for each depth shall conform to the minimum compaction densities for crushed stone pavement layers as per Table A5.3.5-2.”

A5.3.8 WORKMANSHIP

A5.3.8.4 Construction tolerances for pavement layers

Add the following as a new sub-clause:

“f) Surface texture

The maximum volumetric texture depth (measured as described in SANS 3001-BT11) of the base, shall be as specified in Table A5.3.8-7, for the different seal types to be placed on the base.

Table A5.3.8-7: Maximum texture of base

Surfacing type	Max texture depth of the base
Single seal with 10 mm aggregate	0,8
Single seal with 10 mm aggregate (with cover spray)	1,0
Single seal with 14 mm aggregate	0,8
Single seal with 14 mm aggregate (with cover spray)	1,5
Single seal with 14 mm aggregate (with Bitumen rubber)	1,2
Double seal with 10 mm aggregate and sand	1,0
Double seal with 14 mm aggregate and sand	1,5
Cape Seal with 10 mm aggregate and one layer of slurry	1,5
Cape Seal with 14 mm aggregate and one layer of slurry	2,0
Cape Seal with 20 mm aggregate and two layers of slurry	2,5
Double seal with 14 mm aggregate and a layer of 7 mm aggregate	1,5
Double seal with 14 mm aggregate and a layer of 5 mm aggregate	1,5
Double seal with 20 mm aggregate and a layer of 10 mm aggregate	2,0
Double seal with 20 mm aggregate and a layer of 7 mm aggregate	2,0
Double seal with 20 mm aggregate and two layers of 7 mm aggregate	1,5
Other surfacing type (as indicated in the Contact Documentation)	As specified in the Contract Documentation”

A5.3.8.5 Surface regularity

Add the following to the 1st paragraph:

“The surface regularity shall be assessed on the final prepared layer after all excess fines have been swept off the surface.”

c) By using a profiler

*In the paragraph following Table A3.5.8--6, delete the following: "for payment items ***
_____", and replace with the following: "for payment items as specified in the Contract
Documentation".*

SECTION 5.4: STABILIZATION

PART A: SPECIFICATIONS

A5.4.1 SCOPE

Add the following as a 3rd paragraph:

“The use of recyclers for cold in situ recycling purposes is also covered in this section, which includes cement, lime and emulsion of base layers consisting of gravel material as described in Clauses A4.4.7.1(c) and A4.4.7.1(d) in Chapter 4 of COTO”

COTO CHAPTER 9: ASPHALT LAYERS

SECTION 9.1: ASPHALT LAYERS

PART A: SPECIFICATIONS

A9.1.3 GENERAL

A9.1.3.4 Weather limitations

Add the following paragraph:

“Should rain or cold weather threaten, all exposed areas shall immediately be reinstated with asphalt and milling operations shall cease.”

A9.1.6.6 Binder distributors

- (i) Tack coat

Add the following paragraph:

“The equipment shall comply with clause A1.2.6. Tack coat shall be applied to all transverse and longitudinal joints in the asphalt surfacing (except BRUTFC) by hand utilizing a paint brush.”

Add the following:

“The special proved modified tack product for the BRUTFC shall not be stored for longer than 2 days after production at the emulsion plant or alternatively, in accordance with the suppliers shelf-life specification. Full batch production and site usage details to be provided to the Engineer on a weekly basis”

A9.1.5 MATERIALS

A9.1.5.2 Bituminous binders for asphalt mixes

Reference is drawn to the SANS BITUMEN SPECIFICATIONS of the project specifications with regards to SANS Bitumen Specifications that shall apply to this contract

- (i) Conventional binders as specified in SANS 4001-BT1

Add the following:

“The binders shall comply with SANS 4001-BT1 Latest Amendment. The Contractor shall submit the following to the Engineer for each batch of bitumen used on site:

- A copy of the SANS quality certificate, indicating the batch number and grade.
- A sample of the (base) bitumen.
- The source of the bitumen.

The Engineer will require the Contractor to submit samples of the bitumen to an approved accredited laboratory at random intervals to check compliance with the SANS 4001 criteria. The cost of these additional tests will be reimbursed through a prime cost item.

A9.1.6 CONSTRUCTION EQUIPMENT

A9.1.6.1 General

Add the following:

“The paving of the asphalt surfacing shall be controlled by the use of wires or similar approved methods to achieve the specified levels and thickness.

Averaging beams (levelling beams) are to be used for the asphalt surfacing. They shall be at least 9 m long and shall be assembled from rigid sections having multiple spring-load feet.”

“The contractor shall use a self-tacking paver with levelling beams (9m minimum) and automatic screed control on both sides for the construction of the BRUTFC layer. Regular mat test tack application rate testing needs to be done on daily basis (3 per day minimum) to ensure tack spray accuracy and consistency”

Also add the following:

“(i) Self tacking paver

The BRUTFC shall be laid by an approved paver with the following features:

- Built-in variable width spray bar for the tack application:
- Variable width, heated screed plate:
- Insulated tack coat storage tank and distribution pipe system:
- A visible tack spraying apparatus which is located in a position which can be easily accessed or checked by the Engineer’s personal to evaluate the uniformity of the tack application
- Integrated electronic controls to maintain the required tack coat application rate, width and thickness”

A9.6.6 Rollers

Replace the next sentence in the first paragraph with the following:

“Approved tandem-axled steel-wheel rollers with a minimum roller width of 1,5 m and a minimum length of 2,0 m must be used for initial rolling. The roller drum must be smooth without any indentations or marks that may lead to pick-up of the asphalt carpet. A 25-ton pneumatic roller must be used for the final rolling and finishing of asphalt surfacing. The use of the pneumatic roller shall be assessed in the trial section.”

Add the following

“Rollers for the BRUTFC to be steel wheel rollers with at least two pass (both directions) or as requested by the engineer for adequate compaction”

A9.1.7 EXECUTION OF THE WORKS

A9.1.7.4. Transporting the mixture

Add the following:

“Segregated mixes will under no circumstances be accepted by the Engineer. Effective steps must be taken by the Contractor to prevent segregation. Trucks with segregated asphalt mixes will be rejected by the Engineer.”

“Special precautions shall be taken by the Contractor to ensure that the temperature of the total mass of asphalt does not decrease by more than 15°C from point of dispatch to the point where it is to be

A9.1.7.6 Placing the asphalt

Add the following to subclause (a):

“The following paving restrictions will strictly apply:

- No paver stops will be allowed for reversing supply trucks.
- Continuous paving operation is a requirement. Paver speed to be regulated to prevent supply related stops. Paving operations may only start if sufficient asphalt supply trucks are available to ensure a continuous paving operation.
- Levelling skid-beams (9 m length at least with free wire between ends) or wire guide system to be used on both sides – no joint matchers except if agreed or instructed by the Engineer.
- Automatic auger feed control, which can keep the asphalt mount in-front of the screed constant, are required.
- No pneumatic rolling as breakdown rolling on the final surfacing layer.
- Handwork shall not be allowed.
- No fat spots or loose stones.
- No water ponding.

In the case of non-appliance herewith the Engineer’s personnel will stop the paving operations and sections done in non-compliance can be rejected after assessment by the Engineer.”

Add the following new subclause

“(f) Paving of BRUTFC

Hand work will not be allowed when paving the BRUTFC. All paving strips shall be planned to eliminate the need for handwork. Where a strip is too narrow to pave by means of a paver, the previously paved BRUTFC shall be milled out to create a strip which can be paved. No additional payment will be made for milling out the BRUTFC or the additional BRUTFC required.

A tack application trial section (with approved tack product) of at least 300m in length, applied in an approved off-site location (to be arranged by the contractor) will be required for approval by the Engineer prior to any BRUTFC placement

Rolling of the mat is to be done with smooth wheel rollers and a method statement needs to be submitted to the engineer beforehand.

Paving of the BRUTFC will only be allowed if the pavement temperature is above 15°C except if the contractor provided an alternative method statement for lower temperate and if approved by the engineer.

Add the following to this clause:

“a) Asphalt Surfacing

All joints not paved with tandem pavers will be considered to be cold joints with reference to joint treatment preparation. All asphalt joints (excluding BRUTFC joints) shall be cut back by an approved roller wheel or milling machine (minimum 70 mm in 2 x roller wheel cuts on surfacing layer) in a straight line to the satisfaction of the Engineer.

The lateral distance between joints of two (2) successive asphalt layers shall not be less than 200 mm.

Where the difference in level between the new work and the existing road surface exceeds 25 mm, joints shall be treated as follows:

Transverse steps at the end of a day’s work on operational runways and taxiways shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification. Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

All costs involved in the provision and removal of these temporary ramps shall be deemed to have been included in the rates tendered for the relevant asphalt pay item.

b) Longitudinal Joints

Longitudinal joints (except for BRUTFC) shall be cut back as specified in a) above.

No saw-cutting will be allowed on newly placed asphalt. All wearing course transverse joints to be cut and treated similar to the specifications for longitudinal joints.

Whenever the paver stops for more than 5 minutes on thinner wearing course layers and/or the uncompacted material already laid cools down to below compaction temperature (110°C for wearing course), a joint shall be constructed as specified and all cooled uncompacted materials removed from the pavement.”

A9.1.7.7 Compaction

Add the following:

“An appropriate rolling temperature range will be determined by the Contractor and will be submitted to the Engineer for verification during the trial sections. This range will be applied as specification during the contract.”

“Compaction of the BRUTFC must commence (first roller pass) before the temperature of the mixes reduce to below 140°C. If the uncompacted BRUTFC mix reach a temperature of less than 140°C, the mix shall be rejected and the contractor shall remove the mix”

“The sequence of rollers used in compaction is at the discretion of the Contractor (except as specified for pneumatic rolling) provided the completed layers shall have minimum and maximum density as specified in table A9.1.7.7/1 below as described in TMH1, method C4 (Rice's density).

Table A9.1.7.7/1: Minimum and Maximum Compaction Density Specifications

Layer	Min Density	Max Density
Wearing courses and thin base repairs (40mm to 60mm thick)	93% MTRD	97% MTRD
BTB mixes (60mm to 120 mm thick)	93% MTRD	97% MTRD
Heavy duty A-P1 modified surfacing (70mm to 90mm)	92% MTRD	96% MTRD
BRASO (45mm to 60mm)	93% MTRD	97% MTRD
BRUTFC (20mm target)	72% MTRD	79% MTRD

In addition hereto the compaction immediately adjacent to joints and across the joints shall be done to ensure densities of not less than 1% of those specified (above) in the rest of the layers (including all hot and cold joints). Joint densities measured across the joint shall not have densities of less than 2% of the minimum specified layer density. A combination of asphalt cores and Marvel permeability testing will be used to access and approve joint densities before covering thereof with consecutive layers.

A9.1.8 WORKMANSHIP

A9.1.8.1 Dimensional tolerances – new construction

(d) Cross-section

Replace the entire clause as follows:

“When tested with a 3 m straight edge laid in any direction on the runway (excluding areas on the crown of the runway), the surface shall not deviate from the bottom of the straight-edge by more than 3 mm for the runway.

A9.1.8.4 Surface regularity

a) Measured using inertial laser profilometers

In the 6th paragraph add the following prior to “The applicable Full Payment Bracket ...”:

“For the Asphalt Base the values in Payment Bracket 6 in Table A9.1.8-3 shall be applied as the payment adjustment factors for the Asphalt Base on the contract or section, and for the Asphalt Surfacing”.

In the 6th paragraph add the following after “...assessment of the base as per Clause A5.3.8.5c) of Chapter 5 for granular bases”:

“, and this clause A9.1.8.4a) for Asphalt bases.”

In the 7th paragraph, delete: “under 1”.

Add the following after the 8th paragraph:

“Where the asphalt surfacing is placed on a surface, other than a granular or asphalt base, constructed by the Contractor through mill and replace or patching, the surface regularity of the replaced or patched surface shall be measured before the surfacing is placed. Should the IRI values per 100m section so determined be better than the IRI values of the original surfacing for the particular 100m section, the measured values shall be used for the $IRI_{b Ave}$ in the above calculation. Should the IRI values per 100m section so determined be worse than the IRI values of the original surfacing for the particular 100m section, the IRI values of the original surfacing shall be used for the $IRI_{b Ave}$ in the above calculation.”

In the 9th paragraph, delete : “surfacing”.

For Table A9.1.8-3, delete “surfacing” in the heading and add the following additional Payment Bracket to Table A9.1.8-3

Table A9.1.8-3: PAYMENT BRACKET

"Target IRI_{100m Ave} (m/km)	Payment Bracket 9
< 0.80	1.050
0.81 to 0.90	1.050
0.91 to 1.00	1.050
1.01 to 1.10	1.050
1.11 to 1.20	1.050
1.21 to 1.30	1.050
1.31 to 1.40	1.050
1.41 to 1.50	1.050
1.51 to 1.60	1.050
1.61 to 1.70	1.025
1.71 to 1.80	1.010
1.81 to 1.90	1.000
1.91 to 2.00	0,990
2.01 to 2.10	0,975
2.11 to 2.20	0,955
2.21 to 2.30	0,930
2.31 to 2.40	0,900
2.41 to 2.50	0.865
>2.51	Reject"

A9.1.8.7 Voids

Add the following to this clause:

(a) Air-void tolerance

Replace the content with the following:

"The actual air voids may not deviate by more than 1 percentage point from the air voids in the approved working asphalt mixes, based on a Marshall compaction of the approved working mix.

The actual air voids may not deviate by more than 2 percentage point from the air voids in the approved working BRUTFC, based on a Marshall compaction of the approved working mix."

A9.1.8.8 Sampling

(a) Coring of completed layers

Add the following at the end of the first paragraph:

"No laying of asphalt surfacing shall be permitted unless a suitable core cutting machine is available on site at all times when asphalt paving is taking place. Cores shall be taken as directed by the Engineer. Cores may only be drilled when the layer temperature is less than 20°C. Core holes must immediately after coring be filled with hot asphalt and compacted. Cores shall be taken within 48 hours of paving. The density test results on the cores will be submitted to the Engineer 24 hours after coring."

Add the following new sub-clauses:

(d) Quality Control

The Contractor will be required to submit his detailed Quality Assurance Plan (system) to the Engineer for approval. Once approved, the Contractor shall not deviate from the system.

(e) Riding quality

"For the UTFC overlaid areas, the surface regularity, in addition to the specified requirements, shall be determined with a high speed profilometer (HSP), capable of producing a class 1 vertical measurement and class 3 longitudinal sampling distance as defined in ASTM standard E950-94, with a valid validation certificate. Record the longitudinal profile in both wheel tracks, 1,7 m apart for each paved lane. Then, from the data, determine the average IRI for the left and right wheel track for each 100 m section for each lane paved in one width (the values indicated in Table A9.1.8.8/1 may be relaxed by the Engineer on the portion of the width that does not get an infill. This will be determined and communicated once the existing IRI's have been determined). The first and last 50m of the runway will not be assessed for riding quality.

The IRI shall be judges in terms of the payment adjustment factors in Table A9.1.8.8/1.

TABLE A9.1.8.8/1: RIDING QUALITY FOR UTFC OVERLAY PAYMENT ADJUSTMENT FACTOR

Riding quality	Payment adjustment factor
100 m IRI values (mm / m)	UTFC and BRASO overlay on existing surface
< 1,20	1,0
1,21 – 1,30	1,0
1,31 – 1,40	1,0
1,41 – 1,50	0,98
1,51 – 1,60	0,97
1,61 – 1,70	0,96
1,71 – 1,80	0,94
1,81 – 1,90	0,92
1,91 – 2,0	0,90
> 2,0	Not acceptable

Sections that are found to be unacceptable in terms of regularity shall either be replaced or remedial measures implemented that will provide the required riding quality. A method statement describing these measures shall be approved by the employer before implementation. Skimming of the areas with a milling machine shall not be allowed. Corrective work shall be done at the contractor's expense. After completion of the corrective work the specific 100 m section shall be re-evaluated as described above.

Any adjustment to the payment of asphalt surfacing shall be done by multiplying the payment adjustment factor derived as above with the full payment of the relevant asphalt pay item plus tack coat and other payable incidentals. The payment adjustment factor shall apply to the full layer width paved in one operation for that specific 100 m section.

Riding quality tests using the HSP shall be paid for under pay item **C20.1.6**.

Any acceptance of asphalt quality control will not be deemed to include for this clause until such testing has been complete and finalised with the Engineer. Acceptance at partial payment, based on obtained riding quality between 1,4 and 2,0, is at the discretion of the Engineer (based on adherence to all applicable COTO workmanship specifications). In areas where the Engineer can certify adherence to the criteria, in the absence of available IRI test results, he may do so with permission of both the Employer and Contractor.

The rolling straight edge test in the Standard Specifications will not be applicable except on the transverse construction / stop joints of all paved sections. The maximum irregularity measure with the wheels of the standard apparatus removed (only outer wheels at 3m spacing in place) shall be + or - 3mm. Joints that do not satisfy these criteria shall be milled and reconstructed over a minimum "10m in length" section."

The Contractor shall arrange for the IRI testing of all sections by a Laboratory approved by the Engineer, before the end of the Contract or when instructed within 21 days of such instruction. Costs for such testing of all relevant sections shall be deemed to be included in the rates of these wearing course layers; additional IRI testing as instructed by the Engineer shall be paid under **C20.1.6**, unless otherwise indicated by the Engineer.

The contractor is to supply surveyed levels of each layer (including the milled interface and the original surface) to the engineer at a frequency of at least five positions along the width of the paved layer and at 20m interval. These co-ordinated positions shall then be used for all subsequent surveyed layers. "

(f) Special tests

(i) Recovery of binder for further testing

Extraction of bitumen and its recovery from samples taken from the asphalt layers shall be carried out in accordance with ASTM D1856/79 (Abson).

(ii) n-Heptane-xylene Equivalent (Spot Test) (AASHTO – T102)

If the Engineer considers that bitumen or asphalt has been overheated he may order that the bitumen or the bitumen recovered from the asphalt be subjected to the spot test.

Recovery of binder for use in the spot test shall be carried out as described in (d) (i) above.

Any sample showing an n-Heptane-xylene equivalent in excess of 36 or if the bitumen contains a proportion of bitumen prepared from cracked stock, in excess of the manufacturers test result on the new stock, shall be considered to have been overheated and shall be rejected.

(iii) The following additional test shall be carried out on asphalt samples taken from the paver hopper:

- Penetration of recovered binder @ 25°C (Method ASTM D5)

Should the penetration of the recovered binder be less than 24 at 25°C, the asphalt layer shall be deemed to be unsatisfactory and shall be condemned by the Engineer. The Engineer on site shall decide the frequency of testing.

(g) As-Built

The Contractor shall keep accurate records and submit the following information to the Engineer on a daily basis:

- I. Where every truckload of asphalt is laid (load, position, lane, time and date).
- II. The truck number from which control samples have been taken. All samples taken from trucks shall be numbered.
- III. The temperature of the asphalt in the truck both at the mixing plant and at the paving equipment.
- IV. Process control results

These shall be summarised on a spreadsheet/database and mapped for as-built purposes and supplied to the engineer on a daily basis."

(h) Friction Compliance Testing and Reporting

The Contractor shall do trial sections and mix fine-tuning of the BRUTFC surfacing mix in conjunction with the Engineer, in order to test compliance of the mix with ACSA's criteria. If the 80th percentile values do not exceed 1.2mm texture depth (sand patch method) and 0.74 friction GN (Griptester, 65km/h, 1 mm waterfilm measure in 100m average intervals) then further adjustments to the asphalt mix design or placement methodology will be required. The UTFC mix shall also comply with the 0.66 friction requirement at 95km/h.

The first 3 days work of the UTFC placement shall be tested by both Griptester and texture depth and reported within 24hrs of section completion. These sections shall be planned to be undertaken on the outer 7m edges (paving strip) of the runway but only after successful completion of a trial section placed elsewhere."

C9.1 ASPHALT LAYERS

PART C: MEASUREMENT AND PAYMENT

Item	Unit
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Add in the following new subclause:

C9.1.5.2 Rehabilitation

(i) Certified: BRUTFC (15mm thickness)

Add the following new subclause:

“(i) Bitumen rubber modified Ultra Thin Friction Course (BRUTFC)”

The properties of the UTFC surfacing layer shall conform to the grading and quality requirements as Table C9.1.5.2(i).

Table C9.1.5.2(i) Bitumen rubber modified Ultra Thin Friction Course requirements

Volumetric requirements:	
Binder content	5.3% - 5.8%
Target Marshall (2 x 50)VIMs (Open Graded Asphalt, TRH 20 method)	14% - 17%
Film thickness (µm)	12 µm – 17 µm
Aggregate requirements	
Aggregate crushing value	< 20%
Polishing Stone Value	> 45
Flakiness Index	< 15%
Grading requirements	
Sieve size (mm)	Percentage passing by mass
13,2	100
9,5	90 - 100
4,75	18 - 24
2,36	14 - 18
0,600	10 - 16
0,075	3.5 – 4.5
Gap between aggregate passing 4,75mm and 2,36 mm sieves	≤3
Mix and Layer Performance and Durability Criteria	

Texture Depth (field test)	>1.3
Cantabro Loss (dry on Marshall briquettes)	<12
Tack modification / base bitumen	50/70 bitumen with SBR, softening point $\geq 57^{\circ}\text{C}$ (65% nett binder) and nominal rate of application 0,8 l/m ²
LCS Interconnected Voids (field test)	>17
Skid resistance	0.74 friction GN (Griptester, 65km/h, 1 mm waterfilm measure in 100m average intervals

The Contractor must provide details of his proposed mix designs and designated supplier to the Engineer within 14 days after award of the Contract.

Final completed test results and proposed mix designs shall be submitted to the Engineer within 3 weeks of award of contract or within 2 weeks of commencement.

The texture depth, LCS and friction shall be assessed on the successful trial sections and the final approval mix design will then be stipulated."

COTO CHAPTER 11: ANCILLARY ROAD WORKS

SECTION 11.7: ROAD MARKINGS AND ROAD STUDS

PART A: SPECIFICATIONS

A11.7.3 GENERAL

Add the following to A11.7.3 GENERAL:

“Where the runway or taxiway is to be re-opened to traffic after shifts, the Contractor will be required to apply all necessary paint markings at completion of each such shift within a designated area. The paint shall be non-reflectorised and applied strictly in accordance with the manufacturer’s instructions. The paint shall be normal road marking paint complying with SABS 731. Solvent-based paints will be used for temporary paint markings and water-based paint for all permanent paint markings. At the start of the project, the Contractor will supply samples of the paint he intends to use and apply trial sections to the satisfaction of the Engineer which will also include environmental risk mitigation measures to be implemented and maintained as well as waste management.”

A11.7.5 MATERIALS

A11.7.5.2 Materials

a) Marking materials

(iii) Thermoplastic road marking material

In the 4th paragraph, delete “mcd/m².lux” and replace with “mcd/m²/lux”

SECTION 11.8: LANDSCAPING AND PLANTING PLANTS

PART A: SPECIFICATIONS

A11.8.7 EXECUTION OF THE WORKS

A11.8.5 MATERIALS

A11.8.5.2 Materials

d) Grass seeds

Add the following grass seed mixture:

Latin Name	English Name	kg/ha
Eragrostis tef	Teff	2,0
Digitaria eriantha	Finger grass	5,0
Chloris guyana	Rhodes grass	4,0
Cenchrus ciliaris	Blue Buffalo grass	4,0
Cynodon dactylon	Couch grass	7,0
Aristida congesta	Three lawn grass	2,5
Melinis repens	Natal red top	2,5
Panicum coloratum	White Buffalo grass	2,5
Andropogum eucomus	Snowflake grass	2,5
Imperata cylindrica	Cottonwool grass	2,5
	Others to be added	0,5
Total		35,0

A11.8.7.1 Landscaping the areas

(a) Shaping

Replace the term “road reserve” with “runway end safety areas and runway strips”

A11.8.7.3 Grassing

(c) Hydroseeding

Add the following:

During seeding, the seed mixture shall be regularly mixed by hand in order to prevent the separation of smaller and larger seeds in the mixture. After seeding, the soil surface shall be lightly raked parallel to the contours in order to cover the seed. During raking, care shall be taken to prevent the redistribution

or removal of seed from any area. Seeding to comply with supplier's guidelines and all additional costs are deemed to be included in tendered rates. This includes shade netting at areas close to runway thresholds."

A11.8.7.4 Maintaining the grass cover.

(a) Watering, weeding, mowing and replanting.

Add the following to the second paragraph:

"The Contractor shall remain off newly grassed areas or areas that have been prepared for grassing. Any damages caused by the Contractor to newly grassed areas or areas that have been prepared for grassing shall be repaired to the satisfaction of the Engineer, at the Contractor's own expense."

(c) Maintenance period

Add the following before the first paragraph:

"In this subclause all reference to the maintenance period in respect of grass shall mutatis mutandis also apply to the maintenance of the shade netting required to protect the grass sods or newly planted hydroseed against the damage caused by jet blast. The maintenance period is also one (1) year and comprises the repair and securing of the netting as and when required by the Engineer. The Contractor may be required to remove the netting before the maintenance period has expired."

COTO CHAPTER 12: GEOTECHNICAL APPLICATIONS

SECTION 12.11: GEOSYNTHETICS

PART A: SPECIFICATIONS

A12.11.5 MATERIALS

Add the following sub-clause:

“A12.11.5.4 Grade Classification

The Grade classification for Geosynthetics is specified in the Contract Documentation.”

TABLE A12-11.5-1 Grade Classification of Geosynthetics

Property	GRADE				
	1A	1B	1C	2	3
Penetration load (CBR) (minimum), N Test Method: SANS 12236: 2013	9000	4400	3000	2400	1500
Puncture resistance (maximum), mm Test Method: SANS 13433: 2013	9	16	18	26	32
Water percolation (minimum), l/m²/s Test Method: SANS 11058: 2013	20	20	40	50	100
Test strength (minimum) kN/m Test Method: SANS 1525: 2013	50	25	Not applicable		

COTO CHAPTER 20: QUALITY ASSURANCE

SECTION 20.1: TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP

PART A: SPECIFICATION

Replace all references to “TMH5” in this section with: “SABITA Manual 37 / TMH5 (latest edition).”

A20.1.2 DEFINITIONS

Independent site laboratory

In the definition of “Independent site laboratory”, add the following:

“Independent Site laboratory in COTO is equivalent to the combined laboratory in the Employer documentation.”

A20.1.3 TESTING METHODS

A20.1.3.2 Standard Methods

Add the following to the last paragraph:

“Replace all references to “TMH5” in this section with: “SABITA Manual 37 / TMH5 (latest edition).”

A20.1.4 PUBLISHED TEST METHODS

A20.1.4.8 Testing of asphalt

Add the following new paragraph:

“Sabita Manual 39: Laboratory Testing Protocols for Binders and Asphalt, shall be implemented together with the asphalt tests listed.”

Delete reference to: “Sabita Manual 35 for Design and Use of Asphalt in Road Pavements: Determining the Richness Modulus of EME asphalt mixes.”

and replace with “Sabita Manual 33 for Design Procedure for High Modulus Asphalt (EME): Determining the Richness Modulus of EME asphalt mixes.”

A20.1.7 ACCEPTANCE CONTROL BY STATISTICAL JUDGEMENT PRINCIPLES

A20.1.7.2 Taking samples

a) Stratified random sampling

Add the following new paragraph:

“Where the SARDS Laboratory module is used, the sampling locations must be as per the software. The Engineer may specify additional sampling locations.”

b) Minimum samples per lot

Add the following new paragraph:

“Where the SARDS Laboratory module is used, the number of samples per lot must be as per the software, as a minimum. The Engineer may specify additional numbers of samples. The Number of samples must be sufficient to meet the requirements of TMH5.”

C20.1 TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP

PART C: MEASUREMENT AND PAYMENT

Item	Unit
<i>Add the following new pay item:</i>	
PC20.1.6 (a) Provision for testing materials and judgement of workmanship	Prime cost (PC) sum
(i) Handling cost and profit in respect of item C20.1.6.1	Percentage (%)

“The contractor shall pay the appointed site laboratory monthly for the amount as certified by the Engineer.

The independent site lab shall be responsible for all acceptance control testing and additional tests as requested by the Engineer.

The Contractor's contribution to the combined laboratory shall be a minimum of 30% of the amount claimable by the laboratory.

The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost item. The percentage shall cover all the Contractors' sourcing, handling, profit, and payment of the service provider in providing the services. The Contractor shall forfeit his mark-up when the service provider is not paid in time.”

SECTION B: SPECIFIC DATA

Notes to tenderer:

1. In certain clauses, the Standard Specifications allow a choice to be specified in the Contract Documentation or Project Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this Section B: Specification Data.
2. The number of each clause and each payment item in this part of the project specifications follows the numbering format of the COTO standard specifications. Where, however, a clause has been amended under Section A2, the clause number is prefixed with a "P" in this Section.

TABLE A1.1-7: GENERAL

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA									
1			GENERAL										
	A1.1		GENERAL PREAMBLE										
		PA1.1.2	DEFINITIONS										
			Conditions of Contract	The General Conditions of Contract for Construction Works, 2015, Third Edition, (GCC 2015)., shall apply									
			Site/ Site of Works	The limit of construction is provided in Part C4: Project Information and also shown on the Layout Plans									
	A1.2		GENERAL REQUIREMENTS AND PROVISIONS										
		A1.2.3	GENERAL										
			A1.2.3.4 Extension of time for delays caused by rainfall										
			c) Method 3 (Critical path method without consequential delays)	Method 3 (Critical path method without consequential delays) is specified. The value of "N" is 17. In calculations of payment for approved extensions of time granted for delays caused by rainfall, payment will be made utilising the applicable payment items for which the unit of measurement is "month" but excluding payment items with negative rates and non-applicable payment items such as pay item C1.3.1.4.									
			A1.2.3.9 Monthly reports	Other information to be included in monthly progress reports are as follows: Information as required in terms of Conditions of Contract									
			A1.2.3.10 Notices, signs and advertisements	Details of the contract sign board is provided in Drawing No: 301695-CIV-RS-013									
			A1.2.3.12 Ownership of assets and disposal of non-usable assets	<div>The Non-usable assets to be disposed by the Contractor is listed in the following disposal plan:</div> <div>Disposal plan<table><tr><th>Asset description</th><th>Estimated quantity</th><th>Disposal requirement</th></tr><tr><td>60mm segmented blocks</td><td rowspan="4">To be determined during construction</td><td rowspan="4">Arrange with BFIA maintenance personnel</td></tr><tr><td>Replaced electrical lights</td></tr><tr><td></td></tr><tr><td></td></tr></table></div>	Asset description	Estimated quantity	Disposal requirement	60mm segmented blocks	To be determined during construction	Arrange with BFIA maintenance personnel	Replaced electrical lights		
Asset description	Estimated quantity	Disposal requirement											
60mm segmented blocks	To be determined during construction	Arrange with BFIA maintenance personnel											
Replaced electrical lights													
		A1.2.7	EXECUTION OF THE WORKS										
			PA1.2.7.1 Programme of work										
			a) General	A Scheme 2 programme shall apply									

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			b) Scheme 2	The programme shall be drawn up or be compatible with MS Project
	A1.3		CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS	
		A1.3.3	GENERAL	
			A1.3.3.1 Construction camps	ACSA-owned land is available for the use of the contractor for his construction camps, offices, stores, workshops and/or testing facilities.
	A1.4		FACILITIES FOR THE ENGINEER	
		A1.4.3	GENERAL	Site facilities to be provided by Contractor as specified and agreed with the Engineer
		A1.4.7	EXECUTION OF THE WORKS	
			A1.4.7.1 Offices and laboratories	The site shall be fenced with a 2,4m high security fence with a razor-cut wire being used as strands or with a brick wall. Refer to Pay item C1.4.8.1
			a) General	The site laboratory shall be supplied with three-phase electricity
			b) Offices	As specified and agreed with the Engineer
			c) Laboratories	As specified and agreed with the Engineer
			f) Ablution unit	As specified and agreed with Engineer
			A1.4.7.3 Services	
			b) Water, electricity and gas	An on-site generator shall supply electricity when power from a recognized power-supply authority is not available to the Engineer's offices, laboratories and housing
			A1.4.7.5 Office staff	None to be provided
	A1.7		LOADING AND HAULING	
		A1.7.7	EXECUTION OF WORKS	The Contractor must provide the Engineer with the certified carrying capacity of each vehicle before any construction materials can be transported

TABLE A2.1-2: SERVICES

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
2			SERVICES	
	A2.1		GENERAL REQUIREMENTS AND TRENCHING FOR SERVICES	
		A2.1.1	SCOPE	
			A2.1.1.2 Location, identification, protection and relocation of existing services	Location, identification, protection and relocation of existing services will be done on site with the assistance of ACSA maintenance personnel. CAD survey drawings will be supplied to the appointed contractor.
		A2.1.3	GENERAL	
			A2.1.3.2 Location, identification, protection and relocation of existing services	
			a) Existing as-built records	Incorporated in construction drawings
			A2.1.7.6 Ownership, removal and disposal of existing service materials	ACSA remains the owner of removed services unless this ownership is deferred. Contractor shall then become the owner of specific recovered service materials and shall be responsible for the disposal of the materials and for providing the Engineer with a full record of the disposal of the materials for control purposes
	A2.2		DRY SERVICES	
		A2.2.1	SCOPE	Service ducts to be installed for existing and/or new services at all taxiway/ runway/ road crossings forming part of project, exact location of existing to be determined on site by appointed contractor.
			A2.2.1.1 General note	In certain SANS documents referred to in this Section the term "specified in the scope of work" is used. For the purposes of this specification the term shall be deemed to mean "specified in the Contract Documentation"
		A2.2.5	MATERIALS	Ducts/ sleeves to be uPVC pipes and/or precast concrete pipes as shown on drawings or instructed by the Engineer
			A2.2.5.1 Ducts and sleeves	
			b) High Density Polyethylene (HDPE) ducts	
			(i) HDPE ducts installed by trenching	Corrugated HDPE cable ducts complying with the requirements of SANS IEC 61386-24: 2005 for sleeves to be laid in trenches

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			ii) HDPE ducts installed by drilling	HDPE pipes for drilling shall be manufactured from PE63 – PN4 and shall comply with the requirements of SANS 427
			g) End caps or plugs	Tapered wooden plugs to be used with approval of Engineer where end plugs or caps are not available for specific duct types
			h) Draw wires and marker tapes	Draw wires to be 2,5mm galvanized steel wire

TABLE A3.1-2: DRAINAGE

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
3			DRAINAGE	
	A3.1		DRAINS	
		A3.1.5	MATERIALS	
			A3.1.5.2 Subsoil Drainage Materials a) Pipes	The pipes shall be uPVC, 160mm ID, perforated or unperforated as per Dwg No: 301695-CIV-DP-010
		A3.1.7	EXECUTION OF THE WORKS	
			A3.1.7.5 Manholes, outlet structures and cleaning eyes	Refer to SANRAL Typical Detail for Subsurface Drainage, Dwg. No.'s TD-D-SD-1001 to 1003/V1 and project specific subsurface drainage layout and detail Dwg No. 301695-CIV-DP-010
	A3.2		CULVERTS	
		A3.2.7	EXECUTION OF THE WORKS	
			A3.2.7.4 Unsuitable founding conditions	Where the in-situ material is found to be unsuitable, it shall be removed to a depth as instructed by the engineer and then replaced with an approved selected material compacted to at least 93% Max. Dry Density (MDD) in layers not exceeding 150mm thickness

TABLE A4.1-4: EARTHWORKS AND PAVEMENT LAYERS: MATERIALS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
4			EARTHWORKS AND PAVEMENT LAYERS: MATERIALS	
	A4.1		BORROW MATERIALS	
		A4.1.3	GENERAL	
			A4.1.3.1 Employer identified borrow pits and quarries	No borrow pits identified by Employer
		A4.1.7	EXECUTION OF WORKS	
			A4.1.7.3 Stockpiles	Part time Stock-pile Controller required: Senior General Foreman with min. 10 years' experience in borrow pit and quarry operations
	A4.2		CUT MATERIALS	
		A4.2.7	EXECUTION OF WORKS	
			A4.2.7.1 Excavation operations	
			a) Control at the cuttings, designated excavations and box cuts	Part time Materials Manager required: Senior General Foreman with min. 10 years' experience in earthworks operations
			i) Excavation of material in box cuts	Refer to Typical Cross Sections, Dwg No: 301695-CIV-TX-004
	A4.3		EXISTING ROAD MATERIALS	
		A4.3.7	EXECUTION OF THE WORKS	
			A4.3.7.4 Milling	Engineer to instruct remedial measures for loose local areas
	A4.4		COMMERCIAL MATERIALS	
		A4.4.5	MATERIALS	
			A4.4.5.1 Earthworks and pavement layer materials	Material must be stockpiled separately with clear signage indicating for use

TABLE A5.1-3: EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
5			EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION	
	A5.1		ROADBED	
		A5.1.3	GENERAL	
			A5.1.3.1 Roadbed material Investigation	Refer to Scope of Work description
		A5.1.5	MATERIALS	
			A5.1.5.2 Topsoil	To be obtained from construction site/ work areas and/or borrow pits or commercial sources, if required
		A5.1.7	EXECUTION OF WORKS	
			A5.1.7.1 Clearing and grubbing	Material obtained from clearing and grubbing to be removed from site
			A5.1.7.2 Removal and conservation of topsoil from roadbed	Topsoil shall be removed to either windrows alongside the construction area or to stockpile. Where ordered by the engineer, any topsoil that shall be required for the topsoiling, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities
			A5.1.7.3 Normal roadbed treatment	
			b) Removal of unsuitable roadbed material	To be spoiled in approved areas of borrow pits
			c) Percentage of Max Dry density (MDD)	All roadbed materials shall be scarified to a depth of at least 150mm and compacted to 93% of MDD
			g) Inactive clay and normal clay	Should such materials be encountered, it must be removed as per Standard Specifications
			h) Active Clay	Should such materials be encountered, it must be removed as per Standard Specifications
			<i>(ii) Alternative 2 – Roadbed construction by removal of active clay</i>	Active clay shall be removed to the bottom of the clay layer, or to a min. depth of 750mm below NGL. The removed material shall be replaced with compliant material (G7) and be compacted to 93% of MDD.
			i) Construction of a pioneer layer	As specified and instructed by the Engineer
	A5.3		ROAD PAVEMENT LAYERS	
		A5.3.3	GENERAL	
			A5.3.3.4 Compaction of pavement layer material	Refer to pavement specifications on Typical Cross Sections, Dwg No: 301695-CIV-TX-004
			A5.3.3.7 Joints between pavement layers	Joints in lower layers to be located as specified in the COTO standard specifications

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			b) Longitudinal joints	Saw cut depth to be determined based on layer thicknesses, or as instructed by the Engineer
			A5.3.3.8 Pavement Layer Drainage	No subsoil drainage specified in pavement layers
		A5.3.5	MATERIALS	
			A5.3.5.2 Pavement Layer thickness and compaction requirements	
			a) Pavement layer thickness requirements	Refer to Typical Cross Sections, Dwg 301695-CIV-TX-004
			c) Crushed stone pavement layer compaction requirements (G1 to G4A and G5A material)	Compacted to 88% of Apparent Density

TABLE A6.2: CONCRETE LAYERS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
6			CONCRETE LAYERS	
	A6.2		SEGMENTAL BLOCK PAVING LAYERS	
		A6.2.5	MATERIALS	
			A6.2.5.1 Paving blocks	The paving blocks shall be precast, of class 25 MPa, type S-A and thickness 80mm for Apron Bravo.
			A6.2.5.4 Concrete beams, kerbs and channelling	Prefabricated kerbing and channelling shall comply with the requirements of Section A3.3 / B3.3 of Chapter 3.
		A6.2.7	EXECUTION OF THE WORKS	
			A6.2.7.1 Preparing the underlying layers.	See detail and material specifications on Typical Cross Sections, Dwg. No.'s 301695-CIV-TX-004-01.
			A6.2.7.4 Laying of the blocks.	The laying pattern and dimensions is indicated on the following Drawings: Layout Plans: Dwg. No.'s301695-CIV-LA-003 and the Typical Cross Sections, Dwg No 301695-CIV-TX-004-01. Interlocking paving blocks to be laid in a herringbone pattern.

TABLE A7.1: MAINTENANCE AND REPAIR OF CONCRETE LAYERS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
7			CONCRETE LAYERS	
	A7.1		REPLACEMENT OF EXISTING JOINT SEALANT	
		A7.1.5	MATERIALS	
			A7.1.5.1 SEALANT	Works under this section account for removal of existing seal and backing material, reaming of existing joint and replacement of joint sealant for distressed jointing at Apron Alpha.

TABLE A8.1: PRETREATMENT AND REPAIR OF EXISTING LAYERS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
8			PRETREATMENT AND REPAIR OF EXISTING LAYERS	
	A8.1		PRIME COAT	
		A8.1.3	GENERAL	
			A8.1.3.1 Weather limitations	The limiting moisture contents for treated layers before priming shall be less than 50% of OMC.
		A8.1.5	MATERIALS	
			PA8.1.5.1 Bituminous material	The priming material shall be one of the following as specified in Part C: Measurement and Payment: MC-30 cut-back bitumen <u>or</u> Inverted bitumen emulsion.
		A8.1.7	EXECUTION OF THE WORKS	
			A8.1.7.5 Opening to traffic	A blinding layer is not specified on the drawings, but will be directed by the Engineer where required.

TABLE A9.1: ASPHALT LAYERS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
9			ASPHALT LAYERS	
	A9.1		ASPHALT LAYERS	
		A9.1.2	DEFINITIONS	
			Asphalt mix types	<p><u>Asphalt at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> Sand skeletal mix; Continuously graded; NMPS 10mm; PG64H-16 (EMB); Design Level II; minimum 45mm thickness.</p> <p><u>UTFC surface:</u> Ultrathin Friction Courses (UTFC) (BR); minimum 15mm thickness</p>
			Aggregate	Refer to Standard Specifications.
		A9.1.3	GENERAL	
			A9.1.3.1 Nominal mix proportions and application rates	<u>Asphalt wearing course at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> PG64H-16 (EMB).
			Table A9.1.3-2: Nominal Mix Proportions of Sand Skeletal Mixes for Tender Purposes	Reclaimed asphalt will be used. Mixed proportions will be 20% (Binder replacement)
			Table A9.1.3-2 *Note 2:	Reclaimed asphalt will be used.
		A9.1.4	DESIGN BY THE CONTRACTOR	
			A9.1.4.1 Mix Designs	<p><u>Asphalt at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> Sand skeletal mix; Continuously graded; NMPS 10mm; PG64H-16 (EMB); Design Level II; minimum 45mm thickness.</p> <p><u>UTFC surface:</u> Ultrathin Friction Courses (UTFC) (BR); minimum 15mm thickness</p>
			A9.1.4.2 Mix design requirements	<p><u>Asphalt at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> Sand skeletal mix; Continuously graded; NMPS 10mm; PG64H-16 (EMB); Design Level II; minimum 45mm thickness.</p> <p><u>UTFC surface:</u> Ultrathin Friction Courses (UTFC) (BR); minimum 15mm thickness</p>
		A9.1.5	MATERIALS	
			A9.1.5.2 Bituminous binders for asphalt mixes	<u>Asphalt at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> PG64H-16 (EMB); 20% RA binder replacement

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
				<u>UTFC surface:</u> Ultrathin Friction Courses (UTFC) (BR)
			A9.1.5.5 Fillers	Filler shall be hydrated lime.
			A9.1.5.8 Mix properties	<u>Asphalt at Runway 0220, Alpha Taxiway, Taxiway Bravo and Charlie:</u> PG64H-16 (EMB) <u>UTFC surface:</u> Ultrathin Friction Courses (UTFC) (BR)
		A9.1.7	EXECUTION OF THE WORKS	
			A9.1.7.8 Applying rolled-in chippings	Rolled-in chippings will not be used.
		A9.1.8	WORKMANSHIP	
			A9.1.8.8 Sampling	
			b) Coring of completed layers	The Contractor shall provide suitable coring machines capable of cutting 100mm or 150mm diameter cores from the completed asphalt layers.

TABLE A11.7-8: ANCILLARY ROAD WORKS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA																																							
11			ANCILLARY ROAD WORKS																																								
	A11.7		ROAD MARKINGS AND ROAD STUDS																																								
		A11.7.5	MATERIALS																																								
			PA11.7.5.2 Materials																																								
			a) Marking materials																																								
			(ii) Retro-reflective road marking	Water-orne road marking paint to be used, to be approved by ACSA.																																							
			(iii) Thermoplastic road marking material	Thermoplastic road marking paint to be applied at end of defects liability period, to be approved by ACSA.																																							
	A11.8		LANDSCAPING AND PLANTING PLANTS																																								
		A11.8.5	MATERIALS																																								
			A11.8.5.2 Materials																																								
			d) Grass seeds	<div>The grass seed mixture shall be as follows (final mixture to be supplied and approved by ACSA):<table><thead><tr><th>Latin Name</th><th>English Name</th><th>kg/ha</th></tr></thead><tbody><tr><td>Eragrostis tef</td><td>Teff</td><td>2,0</td></tr><tr><td>Digitaria eriantha</td><td>Finger grass</td><td>5,0</td></tr><tr><td>Chloris guyana</td><td>Rhodes grass</td><td>4,0</td></tr><tr><td>Cenchrus ciliaris</td><td>Blue Buffalo grass</td><td>4,0</td></tr><tr><td>Cynodon dactylon</td><td>Couch grass</td><td>7,0</td></tr><tr><td>Aristada congesta</td><td>Three lawn grass</td><td>2,5</td></tr><tr><td>Melinis repens</td><td>Natal red top</td><td>2,5</td></tr><tr><td>Panicum coloratum</td><td>White Buffalo grass</td><td>2,5</td></tr><tr><td>Andropogum eucomus</td><td>Snowflake grass</td><td>2,5</td></tr><tr><td>Imperata cylindrica</td><td>Cottonwool grass</td><td>2,5</td></tr><tr><td></td><td>Others to be added</td><td>0,5</td></tr><tr><td colspan="2">Total</td><td>35,0</td></tr></tbody></table></div>	Latin Name	English Name	kg/ha	Eragrostis tef	Teff	2,0	Digitaria eriantha	Finger grass	5,0	Chloris guyana	Rhodes grass	4,0	Cenchrus ciliaris	Blue Buffalo grass	4,0	Cynodon dactylon	Couch grass	7,0	Aristada congesta	Three lawn grass	2,5	Melinis repens	Natal red top	2,5	Panicum coloratum	White Buffalo grass	2,5	Andropogum eucomus	Snowflake grass	2,5	Imperata cylindrica	Cottonwool grass	2,5		Others to be added	0,5	Total		35,0
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	Others to be added	0,5																																									
Total		35,0																																									

TABLE A12.11: GEOTECHNICAL APPLICATIONS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA																																			
12			GEOTECHNICAL APPLICATIONS																																				
		A12.11.3	GENERAL	Refer to Standard Specifications.																																			
		A12.11.5	MATERIALS																																				
			A12.11.5.1 General	Geotextiles (non-woven) specified for the following applications: 1. Subsoil Drains																																			
			PA12.11.5.4 Grade Classification	<p>Table A12.11.5-1 shall be used for determining the grade of the geosynthetics:</p> <p>TABLE A12.11.5-1: Grade Classification of Geosynthetics</p> <table><tr><th rowspan="2">Property</th><th colspan="5">GRADE</th></tr><tr><th>1A</th><th>1B</th><th>1C</th><th>2</th><th>3</th></tr><tr><td>Penetration load (CBR) (minimum), N Test Method: SANS 12236: 2013</td><td>9000</td><td>4400</td><td>3000</td><td>2400</td><td>1500</td></tr><tr><td>Puncture resistance (maximum), mm Test Method: SANS 13433: 2013</td><td>9</td><td>16</td><td>18</td><td>26</td><td>32</td></tr><tr><td>Water percolation (minimum), l/m²/s Test Method: SANS 11058: 2013</td><td>20</td><td>20</td><td>40</td><td>50</td><td>100</td></tr><tr><td>Tensile strength (minimum) kN/m Test Method: SANS 1525: 2013</td><td>50</td><td>25</td><td colspan="3">Not applicable</td></tr></table>	Property	GRADE					1A	1B	1C	2	3	Penetration load (CBR) (minimum), N Test Method: SANS 12236: 2013	9000	4400	3000	2400	1500	Puncture resistance (maximum), mm Test Method: SANS 13433: 2013	9	16	18	26	32	Water percolation (minimum), l/m²/s Test Method: SANS 11058: 2013	20	20	40	50	100	Tensile strength (minimum) kN/m Test Method: SANS 1525: 2013	50	25	Not applicable		
Property	GRADE																																						
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TABLE A20.1: QUALITY ASSURANCE

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
20			QUALITY ASSURANCE	
	A20.1		TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP	
		A20.1.3	TESTING METHODS	
			A20.1.3.3 The Costs of Testing	
			a) Material and workmanship for quality control	Testing will be undertaken by an independent commercial laboratory as indicated under A20.1.3.3 a)(i)3.



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C3.7: ACSA SPECIFICATIONS

The Specifications herein are Specifications prepared by the employer applicable to this contract. Three Specifications are included:

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C3.7.1: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

- 1. ACSA OHS Specifications**
- 2. Project Specific Health and Safety Specifications**

C3.7.2: ENVIRONMENTAL WORK INSTRUCTIONS

- 1. ACSA Environmental Specifications Overview**
- 2. Environmental Particular Specifications**

C3.7.3: REQUIREMENTS OF GOVERNMENT'S PROGRAMME FOR BROAD-BASED BLACK

- 1. Scope**
- 2. Definitions**
- 3. Contract Participation**

C3.7.1: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

This part of the Specifications contains comprehensive occupational health and safety specifications.

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SECTION 1: ACSA SPECIFICATION

- 1. Introduction**
- 2. Standard Occupational Health and Safety Specification**
- 3. Requirements at Tender Stage**
- 4. Notification of Commencement of Construction Work**
- 5. Guidelines for the Development of a Health & Safety Plan**
- 6. Appointment of Safety Personnel**
- 7. Project / Site Specific Requirements**
- 8. Health and Safety File**
- 9. Risk Assessment**
- 10. Arrangements for Monitoring and Review**
- 11. Measurement and Payment**

SECTION 2: PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATIONS

- 1. Specific Project Information**
- 2. Further Requirements**

PART 1: ACSA OHS SPECIFICATIONS

1. INTRODUCTION

1.1 Purpose of the Occupational Health and Safety Specification

The purpose of the OHSS is to assist Contractors to achieve compliance with the Occupational Health and Safety law, in order to reduce incidents and injuries. The OHSS will be implemented during the construction of this project or any construction activity that the Employer has control over.

The OHSS is a performance specification to ensure that the Employer and any bodies that enter into formal agreements with the Employer viz. Agents, Consultants and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the OHSS such as hazard identification and risk assessment action plan or any other form of communication from the Employer shall be construed as an acceptance by the Employer of any obligation that absolves the Contractor from achieving the required level of performance and compliance with legal requirements. Further, there is no acceptance of liability by the Employer which may result from the Contractor failing to comply with the OHSS, i.e. the Contractor remains responsible for achieving the required performance levels.

1.2 Implementation of the Occupational Health and Safety Specification

This OHSS forms an integral part of the Contract, and Contractors are required to make it an integral part of their Contracts with Sub-Contractors and Suppliers. It will be disseminated by the Employer to persons responsible for and inspection of the design of the infrastructure works, who will ensure that it is included in the Tender Document(s) issued to prospective Contractors. The prospective Contractors shall incorporate the requirements of the OHSS in their submission of tenders to the Employer as well as provide health and safety plans for evaluation.

This specification must be read in conjunction with the OHS Act No 85 of 1993 (as amended), the Regulations as published in Government Gazette No 7721 of 18 July 2003 as well as the General Safety Regulations published in Government notice No. R 1031 of 30 May 1986, as amended.

The OHS Act Agreement in this document (Returnable Schedules) must be fully completed by the Contractor.

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1 Scope

This OHSS covers the requirements for eliminating and mitigating incidents and injuries in all Employer controlled projects.

The scope also addresses legal compliance, hazard identification and risk control, promoting a health and safety culture amongst those working on ACSA projects and those affected by the activities taking place in and around them.

2.2 Interpretations

2.2.1 Application

The OHSS contains clauses that are applicable to building / construction and that impose pro-active controls associated with activities that impact on human health and safety as they relate to plant and machinery.

Compliance to the requirements of the OHSA, Construction Regulations and General Safety Regulations is in addition to the requirements of the OHSS and is part of the Contractor's responsibility. The Employer will through the Agents, as appointed, monitor that the Contractor complies with the requirements of the OHSA and will not prescribe to the Contractor how such compliance is achieved.

Definitions

The definitions used will be those set out in the Regulation Gazette No 7721 of 18 July 2003 with the following addition:

ACSA: Airports Company South Africa

Hazard Identification and Risk Assessment and Risk Control:

Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

Health and Safety Management Plan:

Means a documented plan which addresses the OHSS requirements hazards identified and include safe working procedures to mitigate, reduce or control the hazards identified.

Induction Training:

Means once off introductory training on general health and safety issues as well as project specific matters given to all employees before commencement of work or other visitors to the site.

Risk:

Means the probability or likelihood that a hazard can result in injury or damage.

Site:

Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor, and approved for such use by the Engineer.

The Act:

Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (Act NO. 85 of 1993) and Regulations promulgated there under.

Contractor:

The Contractor terminology used in these specifications shall be deemed to cover Principle Contractor, Contractors and Sub-Contractors.

3. REQUIREMENTS AT TENDER STAGE

The Contractor shall make available the following with his completed tender:

A Health and Safety Plan as described in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and this specification and will be subject to approval by the Employer. This will include a Hazard Identification and Risk Assessment appropriate to the project, expansion of Annexure D, and a declaration to the effect that he has the competence, completion of Occupational Health and Safety Questionnaire, and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014.

Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor is not able to carry out the work under the contract safely in accordance with the Construction Regulations and may result in the tender being disqualified.

4. NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

Due to the estimated project cost the Clients Health and Safety Agent will apply for a construction works permit. No construction or related work such as site establishment or delivery of any equipment or material may commence before the construction works permit has been received and the Engineer approved the start of the works.

The Contractor will have **10 days** after the Acceptance of Tender, to submit the required Documentation for the Department of Labour. This includes:

- Safety Plan with Baseline Risk Assessment
- Approved SHEQ BOQ- (priced)
- Signed mandatory agreement (Sec 37,2 & 5.1(k))
- Site organogram
- Valid proof of letter of good standing
- Profile of appointed Construction Manager in terms of CR 8(1)
- Profile of appointed Health and safety Officer in terms of CR 8(5)
- Profile of appointed Health and Safety Manager in terms of CR 8

A copy of the construction works permit must be conspicuously displayed at the main entrance to the site as well as be kept on the health and safety files, and be available for inspection by inspectors, Employer, Engineer, employees and other duly authorised persons on site.

5. GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

5.1 Background

In terms of the Construction Regulations [Regulation 5 (1) (b)] of the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Contractor, appointed by the Client in terms of Regulation 5 (1) (k), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 7 (1)(a) as well as the Client's Occupational Health & Safety Specification. In terms of Regulation 5 (1)(l), the Client and the Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

5.2 Framework for an Occupational Health and Safety Plan

5.2.1 Introduction

The Contractor has to demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Contractor is required to submit, the following documentation for perusal and verification by the Client:

- Management Structure including an organogram – Tender Stage
- Quality Plan – Tender Stage
- Human Resources Plan – Tender Stage
- Registered Workplace Skills Plan
- “Letter of good standing” from the Compensation Commissioner or licensed compensation insurer – Tender Stage
- Proof of induction and other training of employees
- Example copies of minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports

5.2.2 Contents of an Occupational Health and Safety Plan

The Occupational Health and Safety Plan shall include the following:

5.2.2.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

5.2.2.2 Statement Regarding the Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety objectives for the project and arrangements for monitoring and review of Occupational Health and Safety performance
- Arrangements for regular liaison between parties on site
- Consultation with the workforce
- The exchange of design information between the Client, Engineer, supervisors and subcontractors on site
- Handling design changes during the project
- Selection and control of subcontractors
- The exchange of Occupational Health and Safety information between all subcontractors
- Security
- Site induction and on site training
- Facilities and first-aid
- The reporting and investigation of accidents and incidents
- The production and approval of risk assessments and method statements
- Site Occupational Health and Safety rules
- Fire and emergency procedures
- Reporting to the Client i.e. results of Occupational Health and Safety inspections.
- Incident investigations and committee meetings
- Reporting of incidents to the Department of Labour and Compensation Commissioner where appropriate

6. APPOINTMENT OF SAFETY PERSONNEL

6.1 Construction Supervisor

In terms of Section 16 of the Act, the Chief Executive Officer of the Contractor may delegate, in writing, part or all of his powers to a suitable person on the site.

The Contractor shall appoint a full-time Construction Manager, in writing, in terms of Section 8.(1) of the Construction Regulations with the duty of supervising the performance of the construction work as well as ensuring occupational health and safety compliance.

He may also have to appoint one or more competent employees to assist the construction manager where justified by the scope and complexity of the works as well as an Alternate Construction Manager when applicable.

6.2 Construction safety officer

In terms of Section 8(5) of the Construction Regulations the Contractor shall appoint in writing a full-time Construction Safety Officer which is duly accredited by SACPCMP. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision will be made in the Bill of Quantities to cover the cost of a dedicated construction safety officer appointed after award of the contract.

6.3 Health and safety representatives

In terms of Sections 17 and 18 of the Act (OHSA 1993) the Contractor shall appoint, in writing, a health and safety representative whenever he has more than 20 employees in his employ on the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 50 employees which will include the employees of subcontractors

The function of the health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, but at least on a weekly basis to participate in consultations with inspectors and to attend meetings of the health and safety committee.

6.4 Health and safety committee

In terms of Sections 17,18 and 19 of the Act (OHSA 1993) the Contractor (as employer), shall establish one or more health and safety committee(s) where there are two or more health and safety representatives at a workplace. The persons selected by the employees and appointed by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor's representative and any Department of Labour inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of meetings, recommendations and reports made by the committee.

6.5 Competent persons

In accordance with the Construction Regulations the Contractor shall appoint, in writing, competent persons responsible for supervising construction work for the following work situations that may be expected on the site of the works, as applicable to the project.

- Risk assessment (Regulation 9);
- Fall protection (Regulation 10);
- Excavation work (Regulation 13);
- Demolition work (Regulation 14);
- Suspended platform operations (Regulation 17);
- Material Hoists (Regulation 19);
- Bulk mixing plant operations (Regulation 208);
- Explosive actuated fastening device (Regulation 21)
- Construction vehicle and mobile plant (Regulation 23);
- Use of temporary storage of flammable liquids on construction site (Regulation 25);
- Water environments (Regulation 26);
- Housekeeping on construction sites (Regulation 27)
- Stacking and storage on construction sites (Regulation 28);
- Fire precautions on construction sites (Regulation 29); and
- Construction employees' facilities (Regulation 308).

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with all requirements of the Construction Regulations.

7. PROJECT / SITE SPECIFIC REQUIREMENTS

A list of activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor is given in Annexure D. This list is not to be considered as inclusive and other items must be added as required.

In addition, the following health risks should be taken into account. It may become necessary to include others according to the requirements of the project.

Health risks

- Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, inclement weather etc.
- Exposure to noise
- Exposure to vibration
- Protection against dehydration and heat exhaustion
- Protection from wet & cold conditions
- Exposure to hazardous substances and chemicals used on site.

Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following key elements:

- List of key competent personnel
- Details of emergency services
- Actions or steps to be taken in the event of the specific types of emergencies
- Information on hazardous material/situations.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents/accidents, etc. The Principal Contractor shall advise the Client, Agent, Engineer and all relevant authorities forthwith, of any emergencies, together with a record of action taken. This shall be confirmed in writing as soon as possible after the incident. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, Construction Manager, Safety Officer etc) must be maintained and available to site personnel. These procedures shall form part of the Health and Safety Plan.

First Aid Boxes and First Aid Equipment

The Principal Contractor and all Contractors shall appoint in writing First Aider(s). If not already accredited, the appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. The Principal Contractor shall provide an on-site First Aid Station with first aid facilities, including first aid boxes containing, at least, the requirements of the Annexure to Section 3 of the General Safety Regulations. All Contractors with 5 or more employees shall supply their own first aid box. Contractors with 10 or more employees shall have a trained and certified First Aider on site at all times.

Personal Protective Equipment (PPE) and Clothing

The Principal Contractor shall ensure that all employees are issued with and shall wear hard hats, protective footwear and overalls as well as any other necessary PPE as set out in Section 2.3 of the General Safety Regulations. Contractors are encouraged to provide reflective vests for all their employees. The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. This shall include necessary safety gear for visitors. The Principal Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- Lost or stolen
- Worn out or damaged
- Issued to temporary employees.

The above procedure applies to Contractors and their Sub-contractors, as they are all Employers in their own right.

Occupational Health and Safety Signage

The Contractor shall provide adequate on-site OHS signage. This should include but is not limited to: 'no unauthorised entry', 'report to site office', 'site office', 'beware of overhead work', 'hard hat area'. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, and other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations as amended.

8. HEALTH AND SAFETY FILE

The Contractor shall in terms of Construction Regulation 7(1)(b) maintain a Health and Safety File on site at all times. The Health and Safety File is a file or other permanent record containing information on aspects of the construction project - which will be necessary to ensure the health and safety of any person who may be affected by the construction work.

The Contractor shall appoint a suitably qualified person to prepare the Health and Safety File and to keep it up to date for the duration of the contract. The Health and Safety file shall include at least the following information:

- All Documents as required by the Act and Regulations
- All reports of inspections and audits
- All non-conformity reports
- All working drawings, calculations and design where applicable
- Detailed list of sub-contractors with contact details
- List of all hazardous materials used and stored on site with Material Safety Data Sheets
- All Hazard Identification and Risk Assessments carried out for the project.
- All Health and Safety Plans for the project.
- All safe working procedures and method statements
- Minutes of all relevant meetings
- Incident records, including investigations and results
- Record of all appointments under the Regulations

Annexure B is a list of the records to be kept on site.

The Health & Safety File shall be handed over to the Client on completion of the contract. It must contain all the documentation as set out above, or as instructed, as well as any handed to the Principle Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

9. RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

Risk is a measure of the likelihood that the harm from a particular hazard will be realised, taking into account the possible severity of the harm. Harm to people includes death, injury (permanent or temporary), physical or mental health or any combination thereof. Risk management in health and safety includes the identification of hazards, assessing risks, taking action to eliminate or reduce the risk, monitoring the effectiveness and performing regular reviews of the entire process. The Contractor shall compile method statements to address or handle the following:

- Hazards particulars to the contract
- Identify what could go wrong and how
- Identify the likelihood of this happening
- Identify the persons or asset at risk
- Identify the extent of possible harm
- Eliminating or reducing this risk
- A monitoring plan
- A review plan

Contractors must ensure that all subcontractors conduct risk assessments for their scope of work as well. All risk assessments shall be updated and re-evaluated with any extra works or with any change to the scope of the works.

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, Health and Safety Agent, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

10. ARRANGEMENTS FOR MONITORING AND REVIEW

The Client and/or Agent will conduct a Monthly, or at greater frequency, Audit to audit compliance with Construction Regulation 5 (1) (o) to ensure that the Contractor has implemented and is maintaining the agreed and approved OH&S Plan. Annexure C will be used as format when conducting the audit.

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Contractor must accompany the Client on all audits and inspections and may conduct his own audit/inspection at the same time. Each party will, however, take responsibility for the results of his own audit/inspection results.

11. MEASUREMENT AND PAYMENT

In tendering rates for these items the Contractor shall ensure that the sum of the amounts of the four items shall be based upon as well as be expressed as a percentage (i.e. 1%) of the Work Value of the Tender (Total: Schedule A).

"Item Description	Unit
C1.2.5.1 Health and safety plan.....	Lump Sum

The full amount will be paid in one instalment only once:-

- (a) The construction works permit has been issued by the Department of Labour .
- (b) The Contractor has made the required initial Appointments of Employees and Sub-Contractors.
- (c) The Client has approved the Contractor's Health and Safety Plan.
- (d) The Contractor has set up his Health and Safety File."

"Item	Unit
C1.2.5.2 Implementation of health and safety plan.....	Month

The tendered rate shall represent full compensation for that part of the contractors general obligations in terms of the Occupational Health and Safety Act and the Construction Regulations which are mainly a function of time. The sum will be paid per month only after payment for Item C1.2.5.1 has been made. This item shall also cover all updates of the files, plans and reports associated with the Occupational Health and Safety Act and the Construction Regulations."

Add the following pay items:

C1.2.5.3 Provision of full time Construction Safety Officer.....	Month
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The tendered sum shall include for the cost of a SACPCMP accredited construction safety officer on a full time basis, his overheads, transport and all others items necessary for the proper carrying out of his duties. ."

C1.2.5.4 Submission of the Health and Safety File.....	Lump Sum
---	-----------------

This amount will be paid only once the Contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction. This must be done prior to the issue of a Certificate of Completion."

PART 2: PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATIONS

Occupational Health and Safety Specification

In terms of Construction Regulations 2014

Client

ACSA

Description of Project Works

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS

Project Location

BRAM FISCHER INTERNATIONAL AIRPORT

Date

April 2023

HEALTH & SAFETY SPECIFICATIONS

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INTRODUCTION

In terms of the Construction Regulation 5(1) b the client, is required to compile a Health & Safety specification for any intended project and provide such specification to any prospective contractor and designers. The contractor, on appointment shall submit a Health & Safety plan which shall address the requirements of this specification.

Client:	ACSA
Project Brief:	General rehabilitation of the Bram Fischer International Airport: <ul style="list-style-type: none">- The main runway 02/20 (including RESA and drainage issues)- Alpha taxiway- Selected sections of Taxiway Bravo and Taxiway Charlie- Aprons (rehabilitation of Bravo Apron and repairs to the Alpha Apron)
Project Location:	<p>Bram Fischer International Airport is right next to the N8 North-East of the Bloemfontein CBD.</p> 

This specification objective is to ensure that the contractor(s) entering into a contract with ACSA achieve an acceptable level of OH&S performance. This document forms an integral part of Project Information and the contract. Principle and other contractors should make it part of any contract that they may have with their contractors and /or suppliers.

Compliance with this document does not absolve the client from complying with minimum legal requirements and the client remains responsible for the health & safety of his employees and those of his mandatories. ACSA reserves the right to audit, monitor and where necessary regulate the site work activities of any principal contractor or appointed subcontractor as per Construction Regulation 5(1) (o) and section 5 of this document.

1. SCOPE AND DESCRIPTION OF PROJECT

Project Description: Rehabilitation of Runway 0220 and Taxiways at Bram Fischer International Airport	
Boundaries	The site is located within the airport precinct, on the current airfield.
Existing Services	Existing airfield services located on the existing runway will be affected. This includes, but not limited to, electrical, electronics and IT cabling and equipment.
Roads and Traffic Systems	Roads on the airfield consist of minor service roads along the perimeter fence and roads leading to airfield equipment. These are used by maintenance personnel.
Night Work	A confirmation that works will need to be done at night due to work constraints. Should this be implemented a second site management must be implemented for the duration of night works that consists of personnel with the same qualifications and competencies of the Working day team. The Safety officer must be registered with the SACPCMP, an Alternate Construction manager along with a team of competent supervisors.
Access Point and Routes	The designated access point for plant and personnel will be indicated to the contractor. The Contractor will provide 24-hour security at this Gate. The security staff at this Gate (point of entry) will be in radio contact with Fire & Rescue at all times to enable the provision of escort services. Fire & Rescue will provide staff at strategic points to observe the progress of vehicles along the access routes and to redirect vehicles where necessary.

2. DEFINITIONS

The definitions as listed in the OHS Act and Construction Regulations 84 of 7 February 2014 shall apply. Therefore, all references to the old Construction Regulations will change to the new Construction Regulations.

Client: means any person for whom construction work is being performed.

Principal Contractor: means an employer appointed by the client to perform construction work

Contractor: means an employer who performs construction work;

Construction work: means 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;

Construction Work Permit means a document issued in terms of regulation 3;

Competent person: means a person who,

- a) 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
- b) is familiar with the Act and with the applicable regulations made under the Act;

Designer: means

- (a) competent person who
 - i.) prepares a design;
 - ii.) checks and approves a design; or

- iii.) arranges for any person at work under his or her control to prepare a design
 - iv.) including an employee of that person where he/she is the employer or
 - v.) 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;

Fall prevention equipment: means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guardrails, screens, barricades, anchorages or similar equipment;

Fall arrest equipment: means equipment used to arrest a person in a fall, including personal equipment such as body harness, lanyards, deceleration devices, lifelines or similar equipment.

Hazard: means a source of or exposure to danger

Hazard identification: means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

Risk assessment: means the process contemplated in paragraph 10 of the specifications.

Excavation work: means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

Ergonomics: means the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimize human well-being and overall system performance;

3. CONSTRUCTION WORK PERMIT

(Construction Regulation 3)

A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work on projects that will –

1. exceed 365 days and will involve more than 3600 person days of construction work; or
2. the tender value limit is grade 7, 8 or 9 of the Construction Industry Development Board (CIDB) grading.

Grade 7 = R60 000 000

Grade 8 = R 200 000 000

Grade 9 = No limit

A client may appoint a Construction Health and Safety Agent or Construction Health and Safety Manager to apply for this permit from the Provincial Director and construction work may not commence until the permit has been issued by the Provincial Director.

A copy of this permit will be required to be kept in the principal contractor's safety file, and the site specific number issued by the Provincial Director must be displayed at the site entrance.

A client may appoint a Construction Health and Safety Agent, or Construction Health and Safety Manager based on the scope and risk profile of construction work to represent him/her on matters of health and safety. Provided that, where the question arises as to whether a Construction Health Safety Agent or a Construction Health and Safety Manager is necessary, the decision of an inspector is decisive

The following minimum documentation will be required during the permit application process:

- *Principal Contractor's Health and Safety Plan CR 5(1)(m)*
- *Baseline Risk Assessment CR 5(1)(a)*
- *Appointed Principal Contractor's Letter for Good Standing as per CR 5(1)(j)*
- *Issue Register signed by Designer CR 5 (1)(c)*
- *Issue Register signed by Principal Contractor*
- *Declaration signed by Designer CR 5(1)(d) and CV*
- *Principal Contractor made adequate provision for the cost of health and safety measures (Bill of Quantities) CR 5(1)(g)*
- *Proof of Principal Contractor's competency and resources to carry out the construction work safely CR 5(1)(h)*
- *Appointment Letter for Construction Manager, CV, Certificates and List of projects*
- *Appointment Letter of Safety Officer & Safety Officer's Registration for SACPCMP*
- *Principal Contractor's Appointment Letter CR 5(1)(k), Company Profile and CIDB grading*

After approval of the Construction Work Permit any changes made to the appointed persons on the annexure 1 must be submitted to Department of Labour for approval before the appointed persons are allowed to commence with their tasks.

PLEASE NOTE THAT THE CONSTRUCTION MANAGER (8(1)) NAMED ON THE CONSTRUCTION WORK PERMIT MUST BE THE SAME PERSON THAT ACTS AS THE CONSTRUCTION MANAGER ON SITE. IF THIS WILL NOT BE THE CASE FOR SOME REASON THEN THE SAFETY AGENT MUST BE NOTIFIED OF THE CHANGE BY THE PRINCIPAL CONTRACTOR AT LEAST 7 DAYS BEFORE THE CHANGE IS MADE SO THAT THE SAFETY AGENT CAN AMEND THE CONSTRUCTION WORK PERMIT APPLICATION AND ADVISE THE DEPARTMENT OF EMPLOYMENT AND LABOUR ACCORDINGLY.

4. DUTIES OF THE PRINCIPAL CONTRACTOR AND CONTRACTOR

(Construction Regulation 7)

The Principal Contractor must:

- (a) Provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the client's documented health and safety specifications. The plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the Principal Contractor as work progresses;
- (b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and this specification, which must be made available on request to an inspector, the client, the client's agent or Contractor; and
- (c) On appointing any other Contractor, in order to ensure compliance with the provisions of the Act—
 - i.) Provide contractors who are tendering to perform construction work for the Principal Contractor, with the relevant sections of the health and safety specifications pertaining to the construction work which has to be performed;
 - ii.) Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
 - iii.) Ensure that no contractor is appointed to perform construction work unless the Principal Contractor is reasonably satisfied that the contractor that he/she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
 - iv.) Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
 - v.) Appoint each contractor in writing for the part of the project on the construction site;
 - vi.) Take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site;

- vii.) Ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the Contractor and Principal Contractor, but at least once every 30 days;
- viii.) Stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the Principal Contractor's health and safety plan or which poses a threat to the health and safety of persons;
- ix.) Where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely; and
- x.) Discuss and negotiate with the contractor the contents of the health and safety plan and must thereafter finally approve that plan for implementation;
- (d) Ensure that a copy of his or her health and safety plan, as well as the contractor's health and safety plan is available on request to an employee, an Inspector, a Contractor, the Client or the Client's Agent;
- (e) Hand over a consolidated health and safety file to the client upon completion of the construction work and must, in addition to the documentation include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
- (f) In addition to the documentation required in the health and safety file, include and make available a comprehensive and updated list of all the Contractors on site accountable to the Principal Contractor, the agreements between the parties and the type of work being done; and
- (g) Ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

The Principal Contractor must take reasonable steps to ensure co-operation between all contractors appointed by the Principal Contractor to enable each of those contractors to comply with this specification.

No contractor may allow or permit any employee or visitor to enter the site, unless that employee or visitor has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry and must ensure all have the necessary personal protective equipment.

The Contractor must prior to performing any construction work:

- (a) Provide and demonstrate to the Principal Contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification. The aforementioned plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;
- (b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and this specification, and which must be made available on request to an Inspector, the Client, the Client's Agent or the Principal Contractor;
- (c) Before appointing another contractor to perform construction work, be reasonably satisfied that the contractor that he/she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- (d) Co-operate with the Principal Contractor as far as is necessary ensuring all comply with the provisions of the Act; and
- (e) As far as is reasonably practicable, promptly provide the contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

Where the contractor appoints another contractor to perform construction work, the duties determined in **section 5** of this document applies to the contractor as if he/she were the Principal Contractor.

A Contractor must at all times keep records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.

A Contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

5. MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

(Construction Regulation 8)

The Principal Contractor must in writing appoint one full-time competent person as the Construction Manager with the duty of managing all the construction work on a single site, including the duty of ensuring Occupational Health and Safety compliance, and in the absence of the Construction Manager an alternate must be appointed by the Principal Contractor.

The Principal Contractor must upon having considered the size of the project, in writing appoint one or more assistant Construction Managers for different sections thereof: Provided that the designation of any such person does not relieve the Construction Manager of any personal accountability for failing in his or her management duties in terms of this regulation.

No Construction Manager appointed under paragraph 6 above may manage any construction work on or in any construction site other than the site in respect of which he/she has been appointed.

A Contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site.

No Contractor may appoint a Construction Health and Safety Officer to assist in the control of health and safety related aspects on the site unless he/she is reasonably satisfied that the construction health and safety officer that he/she intends to appoint has necessary competencies and resources to assist the Principal Contractor.

Please note that, by legislation, the safety officer must be professionally registered with the SACPCMP. Proof of registration with the SACPCMP must be provided.

The requirement for this site is that a full time Safety Officer be appointed by the Principal Contractor.

A Construction Manager must in writing appoint Construction Supervisors responsible for construction activities and ensuring Occupational Health and Safety compliance on the construction site.

A Contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the Construction Supervisor contemplated in **paragraph 6** above, and every such employee has, to the extent clearly defined by the Principal Contractor in the letter of appointment, the same duties as the Construction Supervisor: Provided that the designation of any such employee does not relieve the Construction Supervisor of any personal accountability for failing in his or her supervisory duties in terms of this section in the specification.

No Construction Supervisor appointed under paragraph 6 above may supervise any construction work on or in any construction site other than the site in respect of which he/she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed Construction Supervisor may supervise more than one site.

6. REGISTRATION WITH THE WORKMEN'S COMPENSATION OR LICENSED INSURER

The Principal Contractor(s) must ensure that ACSA is provided with a valid letter of good standing, including a registration number with the Compensation for Occupational Injury and Diseases Fund or an alternative scheme approved in writing by the Commissioner to the COID Fund, at least 10 days prior commencement of construction work. It must remain the Principal Contractor's responsibility to furnish ACSA with a valid letter of good standing or keep a copy available for perusal by a Client, Client Representatives or any other person authorised thereto.

7. MANDATORY AGREEMENT

A duly signed mandatory form also referred to as 'OHS Act section 37.2' must be obtained from ACSA Safety Department. It must be completed thoroughly, initialed on all pages, signed accordingly and returned to ACSA by the Principal Contractor at least 10 days prior to commencement of construction work. The Principal Contractor must ensure that all its contractors have completed a similar document and a proof of such signed documents is submitted to ACSA for reference purposes.

8. ASSIGNED PERSON IN TERMS OF OCCUPATIONAL HEALTH & SAFETY ACT OF 1993 & APPLICABLE REGULATIONS

A written letter of appointment must be forwarded to ACSA duly signed by responsible persons at least 3 days prior commencement of construction work for the following duties: **(Further appointments could become necessary as the project progresses and as per the requirements of OHS Act 85/1993)**

- (a) Person assigned duties in terms of the 16.2 appointees of the Act
- (b) Construction Manager CR8(1)
- (c) Assistant Construction Manager CR8(2) - *where applicable*
- (d) Full-time Construction Safety Officer CR8(5)**
- (e) Construction Supervisor CR8(7))
- (f) Assistant Construction Supervisor CR8(8) - *where applicable*
- (g) Risk Assessor CR9(1)
- (h) Fall Protection Developer/Planner CR10(1) - *where applicable*
- (i) Temporary Works Designer CR11(1) - *where applicable*
- (j) Temporary Works Supervisor CR11(2) - *where applicable*
- (k) Excavation Supervisor CR13(1)(a) - *where applicable*
- (l) Demolition Work Supervisor and Controller CR14(1) - *where applicable*
- (m) Scaffolding Supervisor CR16(1) - *where applicable*
- (n) Scaffolding Team leader CR16(1) - *where applicable*
- (o) Scaffolding Inspector CR16(1) - *where applicable*
- (p) Scaffolding Erector CR16(1) - *where applicable*
- (q) Suspended Platforms Supervisor CR17(1) - *where applicable*
- (r) Rope Access Supervisor CR18(1)(a) - *where applicable*
- (s) Rope Access Fall Protection Plan Developed (R18(2)(b) - *where applicable*
- (t) Material Hoist Inspector CR19(8)(a) - *where applicable*
- (u) Bulk Mixing Plant Supervisor CR20(1) - *where applicable*
- (v) Explosive Actuated Fastening Device Operator CR21(2)(b) - *where applicable*
- (w) Explosive Actuated Fastening Device Controller CR21(2)(g)(i) - *where applicable*
- (x) Construction Vehicles and Mobile Plant Operator CR23(1)(d)(i) - *where applicable*
- (y) Temporary Electrical Installations Controller CR24(c) - *where applicable*
- (z) Portable Electrical Equipment Supervisor CR24(d) - *where applicable*
- (aa) Fire Equipment Inspector CR29(h) - *where applicable*
- (bb) First Aider GSR3(4)
- (cc) Stacking Supervisor (CR28(a)) (GSR2(a))
- (dd) Competent Person in Confined Space Entry GSR5(1) - *where applicable*
- (ee) Gas Cutting/Welding Supervisor (GSR9(a) - *where applicable*
- (ff) Ladder Supervisor and Inspector (GSR13(a) - *where applicable*
- (gg) Lifting Machine Inspector (DMR18(7) - *where applicable*
- (hh) Lifting Tackle Inspector (DMR18(10) (e) - *where applicable*
- (ii) Lifting Machine Supervisor (DMR18(11) - *where applicable*
- (jj) Supervisor of Machinery (GMR1) - *where applicable*
- (kk) Safety Representatives (OHS Act Sec.17 - *where applicable*
- (ll) Hazardous Chemical Substances Controller/Coordinator HCSR10 - *where applicable*
- (mm) Incident Investigator (GAR9(2))
- (nn) Blasting Supervisor (Supervision of Explosives Workplace ER12) - *where applicable*

9. HEALTH AND SAFETY DOCUMENTATION

The Principal Contractor must provide and demonstrate to ACSA a suitable, sufficiently documented and coherent site specific health and safety plan, based on ACSA's documented health and safety specifications. The health and safety plan must include but not limited to the following during tendering process, before commencement of construction work and during construction:

Principal Contractor's Health & Safety Policy

The Principal Contractor must provide a health & safety policy signed by the Chief Executive Officer (CEO) which outlines Principal Contractor's commitment towards health and safety

Health and Safety Organogram

The Principal Contractor must provide a health & safety organogram which outlines related appointments in terms of the OHS Act and applicable Regulations. Contact numbers should also be provided for easy reference.

10. RISK ASSESSMENT FOR CONSTRUCTION WORK

(Construction Regulation 9)

Every Contractor performing Construction work shall, before the commencement of any construction work and during such work, have a Risk Assessment performed by a competent person, appointed in writing, and the Risk Assessment shall form part of the OH&S Plan.

Each activity must define individual tasks associated with that identified activity. These and all associated hazards must be identified and listed in the risk assessment. This ensures that critical tasks and associated hazards are not missed.

The Risk Assessment must include:

- The identification of the risks and hazards to which persons may be exposed to
- The analysis and evaluation of the risks and hazards identified
- A documented plan and applicable safe work procedures (SWP) to mitigate, reduce or control the risks and hazards that have been identified
- A monitoring plan and
- A review plan

A Contractor must ensure that:

- As far as is reasonably practicable ergonomic related hazards are analysed, evaluated and addressed.
- All employees under his/her control are informed, instructed and trained by a competent person regarding any hazards
- A Principal Contractor must ensure all Contractors are informed regarding any hazard as stipulated in the risk assessment before any work commences.
- Consult with health and safety committee on monitoring and review risk assessment on site.
- Ensure a copy of risk assessments is available for inspection.
- Review relevant risk assessments where changes are affected to the design or construction that result in a change to the risk profile or when an incident occurred.

N.B. A risk assessment will be performed for all unplanned work and submitted to ACSA for approval prior to work commencing.

11. ADMINISTRATIVE CONTROLS AND THE OCCUPATIONAL HEALTH & SAFETY FILE

(Construction Regulation 7)

The Occupational Health and Safety File

The Principal Contractor will keep an Occupational Health and Safety File on site containing the following documents (where applicable) as a minimum:

- Accident/Incident Register. (Annexure 1 of the General Admin Regulations)
- Health and safety Representatives Inspections Register.
- Construction Vehicles & Mobile Plant Inspection.
- Daily Inspection of Vehicles.
- Plant and other Equipment by the Operator/Driver/User.
- Demolition Inspection Register.
- Electrical Installations, Equipment & Appliances. (including Portable Electrical Tools)
- Excavations Inspection.
- Explosive Powered Tool Inspection/Maintenance/Issue/Returns Register. (incl. cartridges & nails)
- Fall Protection Inspection Register.
- First Aid Box Contents.
- Fire Equipment Inspection & Maintenance.
- False work Inspections.
- Hazardous Chemical Substances Record.
- Ladder Inspections.
- Lifting Equipment Register.
- Machinery Safety Inspection Register. (incl. machine guards, lock-outs etc.)
- Scaffolding Inspections.
- Stacking & Storage Inspection.
- Inspection of Structures.
- Inspection of Pressure Equipment.
- Welding Equipment Inspections.
- All other applicable records.
- An equipment inventory register, detailing all major items of equipment such as Construction Vehicles and Mobile Plant etc.

If any work is to be performed on Airside, the contractor must provide ACSA with an Airside Safety Plan.

On completion of the project or on completion of the contractors work each contractor must surrender the completed OHS file to the Principal Contractor for consolidation into one "Master File". **A Principal Contractor must** hand over a consolidated health and safety file to ACSA upon completion of the construction work and must, in addition to the documentation referred to in **paragraph 5** of this document include a record of all drawings, designs, materials used and other similar information concerning the completed structure. (These records will then be archived by ACSA for future reference purposes)

12. HEALTH AND SAFETY REPRESENTATIVES

The Principal Contractor must ensure that Health and Safety Representative(s) is/are elected and delegated in writing and necessary training has been provided by a competent person where there are more than 20 employees at the work place. A proof of training certificate must be provided to ACSA.

Health and Safety Representatives must conduct monthly inspections by completing a checklist developed by the Principal Contractor. Safety defects noted must be recorded and reported to the supervisor for remedial action. Health and Safety Representative Inspection findings must be made available to ACSA for reference for audits purposes.

Health and Safety Representatives and their reports must form part of the safety committee which must meet on a monthly basis.

The Principal Contractor must hold health and safety committee meetings on site. Minutes of such meetings and action taken by management must be kept on file and made available to ACSA for reference purposes. Members of the committee must receive proper training and a proof of such training must be made available.

The Committee must consider, at least, the Following Agenda:

- Opening & Welcome
- Present/ Apologies/ Absent
- Minutes of previous Meeting
- Matters Arising from the previous Minutes
- OH&S Reps Reports
- Incident Reports & Investigations
- Incident /Injury Statistics
- Other Matters
- Endorsement of Registers and other statutory documents by a representative of the Principal Contractor
- Close/Next Meeting

The Principal Contractor must ensure that ACSA Safety Department is invited to such meetings. These meetings do not substitute for Principal Contractor's Site meetings.

13. HEALTH & SAFETY TRAINING

Environmental Health and Safety Induction

The Principal Contractor must conduct an induction training session prior commencement of construction work. An attendance register must be kept in the Principal Contractor's health and safety file.

For any construction work to be conducted on the Airside, Airside Induction training (AIT) must be attended by all persons entering who are to enter Airside and a course fee determined by ACSA must be paid by the Principal Contractor. A security permit to access airside must be issued on production of proof of attendance.

Induction Conducted by the Principal Contractor and Competent Person

A manual /copy of such training must be provided to ACSA for reference purposes. As determined by the risk assessment. The Principal Contractor must ensure that all employees under his/her control are trained by a competent person and a proof of such training is kept on file for reference.

Toolbox Talks

The Principal Contractor must ensure that employees attend a formal Toolbox Talk to be held at least once a week. Toolbox Talks must cover a wide variety of topics related to health and safety. An attendance register must be completed by employees who attended such talks. The register must indicate the topic covered presenter, date and signatures of employees attended. Records for Toolbox Talks must be kept in a health and safety file and be made available to ACSA for perusal.

First Aid Training

The Principal Contractor must appoint competent First Aider(s) in writing where more than 10 employees are employed. A letter of appointment must be kept on file for reference made available to ACSA Safety. Duly designated First Aider(s) must have attended training at an accredited institution prior commencement of construction work and a proof of certificate be submitted to ACSA for reference.

The Principal Contractor must ensure that the first aid box(s) is/are controlled by qualified First Aider(s) and kept fully stocked with necessary first aid contents related to the hazards and risks identified. A first aid box(s) must be accessible and location of such box(s) is clearly displayed on site.

14. FIRE PREVENTION AND PROTECTION

The Principal Contractor must ensure that adequate fire equipment is provided in strategic places (that is, where there is a mobile distribution board, flammable liquids, pressure equipment, confined spaces, hot work). The Principal Contractor must ensure that such equipment is inspected by a competent person on a monthly basis and such inspections are recorded on a register. The Principal Contractor must ensure that all fire equipment is serviceable and person(s) have been properly trained on how to use the equipment. A proof of such training must be provided prior commencement of construction work.

15. FIRE PRECAUTIONS ON CONSTRUCTION SITES

(Construction Regulation 29)

The Principal Contractor must ensure that:

- (a) all appropriate measures are taken to avoid the risk of fire;
- (b) sufficient and suitable storage is provided for flammable liquids, solids and gases;
- (c) smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;
- (d) in confined spaces and other places in which flammable gases, vapours or dust can cause danger—
 - (i) only suitably protected electrical installations and equipment, including portable lights, are used;
 - (ii) there are no flames or similar means of ignition;
 - (iii) there are conspicuous notices prohibiting smoking;
- (iv) oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
- (v) adequate ventilation is provided;
- (e) combustible materials do not accumulate on the construction site;
- (f) welding, flame cutting and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;
- (g) suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;
- (h) the fire equipment contemplated in paragraph (g) is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof;
- (i) a sufficient number of workers are trained in the use of fire- extinguishing equipment;
- (j) where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;
- (k) the means of escape is kept clear at all times;
- (l) there is an effective evacuation plan providing for all—
 - (i) persons to be evacuated speedily without panic;
 - (ii) persons to be accounted for; and
 - (iii) plant and processes to be shut down; and
- (m) a siren is installed and sounded in the event of a fire.

16. EMERGENCY PREPAREDNESS

The Principal Contractor must provide ACSA with an emergency plan and procedure which will include, but not limited to emergencies such as fire, bomb threat, civil unrest, medical treatment, environmental incidents, accidents to employees and other persons other than their employees.

Emergency procedure must be communicated to employees and a proof of such training must be kept on file for reference. A list of emergency contact numbers must be conspicuously displayed on site for ease reference. An evacuation plan must be displayed in strategic places.

In case of medical and/or fire emergency contact ACSA Fire & Rescue Services:

(021) 937 1211 or 1249

The Principal Contractor must provide ACSA Safety with a full record of any incidents which may occur on site.

17. INCIDENTS/ACCIDENTS REPORTING AND INVESTIGATION

The Principal Contractor must ensure that all incidents/accidents (this includes near miss, first aid cases and section 24 cases) are reported by employees immediately to the Construction Manager for further investigation and remedial action. The Principal Contractor must ensure that all OHS Act section 24 incidents/accidents are reported to the Department of Labour immediately and preliminary investigation is conducted by a competent person within seven days. If construction work will be finished within 3 days after occurrence, an investigation must be conducted before such construction work is completed. Proof of such investigation must be submitted to ACSA immediately or within 24 hours after investigation.

18. PERSONAL PROTECTIVE CLOTHING/EQUIPMENT

The Principal Contractor must ensure that personal protective equipment or clothing needs analysis is conducted and incorporated into the risk assessment. Records must be provided by the Principal Contractor prior to the commencement of construction work. The Principal Contractor must ensure that SABS approved personal protective equipment or clothing is provided to personnel. The Principal Contractor must ensure that no personnel are allowed to work on site without necessary personal protective equipment or clothing. The Principal Contractor must ensure that PPE or Clothing is kept in good working order and clearly stipulate procedures to be followed when PPE or Clothing is lost or stolen, worn or damaged. ACSA will remove any person from the construction site who is working without necessary personal protective equipment and/or clothing. Worn or tattered personal protective clothing will not be permitted on airport premises

19. FALL PROTECTION (WORKING IN ELEVATED POSITIONS)

(Construction Regulation 10)

A pre-emptive Risk Assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as "Work in Elevated Positions".

As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he/she is working at ground level and whilst working in this position be wearing and using a full body harness that will be worn to prevent the person falling from the platform, ladder or other device utilised.

This safety harness will be, as far as is possible, secured to a point away from the edge over which the person might fall and the double lanyard must be of such a length that the person will not be able to move over the edge. In addition, any platform, slab, deck or surface forming an edge over which a person may fall must be fitted with guard rails at two different heights as prescribed in SABS 085' Code of Practice for the Design, Erection, Use and Inspection of Access Scaffolding.

Workers working in elevated positions must be trained to do this safely and without risk. Proof of training must be maintained on the contractors site safety file. Medical certificates of fitness for all employees working in elevated positions must be available on site. This must be issued by an Occupational Health Practitioner.

Where work on roofs are carried out, the Risk Assessment must take into account the possibility of persons falling through fragile material, skylights, soffits and openings in the roof, steel support work trusses and purlins so designed as to support the roof structure.

The Risk Assessments shall place specific emphasis on the placing and handling of roofing materials such as Inverted Box Rib Sheeting (IBR sheeting) or similar materials, (including contingency safety measures), which when exposed to windy conditions represents a serious safety hazard.

20. FALL PROTECTION PLAN

(Construction Regulation 10)

A Contractor must

- a) designate a competent person to be responsible for the preparation of a fall protection plan;
- b) ensure that the fall protection plan contemplated above is implemented, amended where and when necessary and maintained as required; and
- c) take steps to ensure continued adherence to the fall protection plan.

The Fall Protection Plan must include

- a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
- b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
- c) a programme for the training of employees working from a fall risk position and the records thereof;
- d) the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and

- e) a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

A Contractor must ensure that:

- a) **The Construction Manager** appointed under **Construction Regulation 8(1)** is in possession of the most recently updated version of the fall protection plan.
- b) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
- c) no person is required to work in a fall risk position, unless such work is performed safely as contemplated in above;
- d) fall prevention and fall arrest equipment are
 - (i) approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and
 - (ii) securely attached to a structure or plant, and the structure or plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who could fall; and
- e) fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

Where roof work is being performed on a construction site, the Contractor must ensure that, in addition to the requirements set out above, it is indicated in the fall protection plan that:

- (a) the roof work has been properly planned;
- (b) the roof erectors are competent to carry out the work;
- (c) no employee is permitted to work on roofs during inclement weather conditions or if any conditions are hazardous to the health and safety of the employee;
- (d) all covers to openings and fragile material are of sufficient strength to withstand any imposed loads;
- (e) suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
- (f) suitable and sufficient guard-rails, barriers and toe-boards or other similar means of protection prevent, as far as is reasonably practicable, the fall of any person, material or equipment.

21. PRINCIPAL CONTRACTOR / CONTRACTOR - COMPETENCY ASSESSMENT

(Construction Regulation 7)

The Principal Contractor must be reasonably satisfied that the sub-contractors he intends to appoint also have the necessary competencies and resources to safely conduct the work they will be appointed for. This must be established at tender stage and before appointments are made.

In order to ensure this, the Principal Contractor must demonstrate to the Client that it has a necessary competencies and resources in place to perform the works safely

22. ROPE ACCESS

(Construction Regulation 18)

(1) A contractor must –

- a) Appoint a competent person in writing as a rope access supervisor with the duty of supervising all rope access work on site, including the duty of ensuring occupational, health and safety compliance in relation to rope access work: Provided that the appointment does not relieve the construction manager of any personal accountability for failing in his management duties in terms of the Construction Regulation 2014;
- b) Ensure that all rope access work on the construction site is carried out under the supervision of a competent person; and
- c) Ensure that all rope access operators are competent and licensed to carry out their work.

(2) No contractor may use or allow the use of rope access work unless –

- a) the design, selection and use of the equipment and anchors comply with the safety standards incorporated for this purpose into the Construction Regulations under Section 44 of the OHS Act.
- b) he or she is in possession of a site-specific fall protection plan developed by a competent person applicable to the specific work and environment prior to the commencement of work, including records of maintenance and inspections of all equipment used for the work.

(3) A contractor must ensure that adequate measures are in place to allow rescue procedures to commence immediately in the event of a fall incident taking place.

23. STRUCTURES

(Construction Regulation 11)

The Contractor will ensure that in terms of Construction Regulation 11 the following is adhered to:

- That the structure on/in which works are to be performed has been inspected by a certified structural engineer declaring the structure to be safe for construction/demolition/renovations work processes.
- Steps are taken to ensure that no structure becomes unstable or poses a threat of collapse due to demolition and construction work being performed on it, or in the vicinity of it.
- No structure is overloaded to the extent where it becomes unsafe; if uncertainty arises then the structural engineer is to be consulted.
- He/she has received from the designer the following information:
- Information on known or anticipated hazards relating to the construction/demolition work and the relevant information required for the safe execution of the construction/demolition work.
- A geo-scientific report (where applicable).
- The loading the structure is designed to bear.
- The methods and sequence of the construction/demolition process.
- All drawings pertaining to the design are on site and available for inspection.

The structural engineer shall carry out inspections at appropriate and sufficient intervals of the construction work involving the design of the relevant structure to ensure compliance with the design and record the results of these inspections in writing.

24. TEMPORARY WORK

(Construction Regulation 12)

Temporary work must be carried out under the supervision of a competent person designated in writing. Temporary works structures must be so designed, erected, supported, braced and maintained such that it will be able to support any vertical or lateral loads that may be applied.

No load is to be imposed onto the structure that the structure is not designed to carry.

Temporary works must be erected in accordance with the structural design drawings for that temporary works and, if there is any uncertainty, the designer must be consulted before proceeding with the erection/use of the temporary works.

All design drawings pertaining to the temporary works must be kept available on site.

All equipment used in the erection of temporary works must be checked by a competent person before use. The foundation or base upon which temporary works is erected must be able to bear the weight and keep the structure stable.

Employees erecting temporary works must be trained in the safe work procedures for the erection, moving and dismantling of temporary works.

Safe access/egress (and emergency escape) must be provided for workers.

A competent person must inspect temporary works structures that have been erected before, during and after pouring of concrete or the placing of any other load and thereafter daily until the temporary works is stripped. The results of all inspections must be recorded in a register kept on site.

The temporary works must be left in place until the concrete has reached sufficient strength to bear its own weight plus any additional weight that may be imposed upon it and not until the designated competent person has authorised its stripping in writing.

Any damaged temporary works must be repaired/rectified immediately Deck panels must be secured against displacement.

The contractor must ensure that no employee is exposed, or required to work on slippery and dangerous surfaces. Person's health must be protected when use is made of solvents, oils or other similar substances.

Ensuring that the OEL (Occupational Exposure Limit) for any substances that they may be exposed to does not exceed the legal limits and that the necessary PPE is used.

25. EXCAVATIONS

(Construction Regulation 13)

The Principal Contractor must ensure excavation work is conducted under supervision of a competent person who has been appointed in writing. A letter of appointment must be provided to ACSA Safety prior commencement of work. A risk assessment outlining safe work procedures to be adhered to if excavation is more than 1.0m deep must be provided to ACSA prior commencement of work. The Principal Contractor must ensure that no person works in an excavation which is not adequately braced or shored.²

The Principal Contractor must ensure that every excavation including bracing and shoring are inspected daily prior each shift starts and such records are kept on site for reference.

The Principal Contractor must ensure that all precautionary measure as stipulated for confined spaces as stated in the General Safety Regulation of OHS Act 85/1993 are complied with when entering any excavation. The Principal Contractor must ensure that warning signs are conspicuously displayed where excavation work involves the use of explosives and a method statement developed by a competent person is provided to ACSA prior commencement.

The Principal Contractor must ensure that safe and convenient means of access is provided to every excavation when required. Such access must not be further than 6m from the point where any worker within the excavation is working.

The Principal Contractor must communicate, train and enforce safe work procedures pertaining to excavation work to his/her employees.

26. DEMOLITION WORK

(Construction Regulation 13)

The Principal Contractor must ensure that a detailed structural engineering survey is conducted by a competent person and a method statement on the procedure to be followed is provided to ACSA Safety. The Principal Contractor must ensure that demolition work is conducted under the supervision of a competent person appointed in writing.

The Principal Contractor must ensure that safety precautionary measures stipulated in Asbestos Regulations is adhered to if demolition work involves asbestos material and that asbestos work is conducted under the supervision of a registered Asbestos Principal Contractor.

27. SCAFFOLDING

(Construction Regulation 16)

Access Scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085/1 entitled, "The Design, Erection, and Use & Inspection of Access Scaffolding.

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly.

Scaffolding may only be erected, altered or dismantled by a person who has the appropriate training and experience in this type of work or under the supervision of such a person.

Specific attention must be given to the appointment of Scaffolding Inspectors and Scaffolding Erectors who shall not be the same person. The continuous inspection of scaffolding structures must be recorded on the applicable Scaffold register.

Tagging/Signs reflecting the status of the scaffold must always be used and fixed to the structure at all times. (Safe to use / Scaffold not Safe).

On completion of the erection, the Supplier will inspect the structure and will ensure it is in sound working order and complies with all statutory regulations. The Supplier will then issue a Handover Certificate, Drawings, design and specifications shall be signed by a registered professional engineer.

An inspection of the completed scaffold shall also be inspected by the registered professional engineer for approval prior to use. Should any additional load i.e. a hoist or advertising banners be added to the scaffold at a later stage, the professional engineer must approve the modification.

28. SUSPENDED PLATFORMS

(Construction Regulation 17)

The Contractor to design, erect, use and maintain suspended platforms in accordance with the requirements of Construction Regulation 17.

29. EXPLOSIVE ACTUATED FASTENING DEVICES

(Construction Regulation 21)

Every Explosive Powered Tools (EPT) must be:

- Provided with a guard around the muzzle to confine flying fragments or particles
- A firing mechanism that will prevent the EPT from firing unless it is pushed against the surface and at a right angle (where the EPT is fitted with an intermediate piston between the charge and the nail this requirement is waived)
- The Contractor or user must ensure that:

- Only the correct type of cartridge is used (product specific)
- The EPT is cleaned and inspected daily before use by an appointed competent person who maintains a register with the findings of his inspection and the details of cleaning, service and repairs
- The safety devices are in good working order before the EPT is used
- When the EPT is not being used, it is to be stored in an unloaded condition together with the cartridges in a safe/secure place inaccessible to unauthorised persons
- A warning notice is displayed at the point where the EPT is in use
- The issue and return of cartridges must be controlled by maintaining the issue/returns register signed by both issuer and user and empty cartridge cases must be returned with unspent cartridges.
- Users/operators of the EPT have received the necessary training and have been authorised as being competent to use/operate the EPT
- Users/operators must wear the prescribed PPE whilst using/operating the tool

30. CRANES

(Construction Regulation 22)

A Crane permit must be obtained from ACSA and submitted before erection of crane.

A contractor must, in addition to compliance with the Driven Machinery Regulations, 1988 ensure that where tower cranes are used—

- a. they are designed and erected under the supervision of a competent person;
- b. a relevant risk assessment and method statement are developed and applied;
- c. the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification;
- d. the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
- e. the tower crane operators are competent to carry out the work safely; and
- f. the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3.

31. LIFTING EQUIPMENT, TACKLE, MATERIAL HOIST AND CRANES

The Principal Contractor must ensure that all lifting equipment and tackle are inspected before use and a monthly register is completed by a competent person. Proof of such inspections must be recorded and kept on file for reference. The Principal Contractor must ensure that a safe working load is conspicuously displayed on lifting equipment and tackle and service certificate is provided prior commencement of work. The Principal Contractor must ensure operators are properly trained on how to operate the above-mentioned equipment and a proof of competency is provided prior commencement of work.

The Principal Contractor must provide information on procedures to be followed in the case of:

- a. Malfunctioning of equipment; and
- b. Discovery of a suspected defect in the equipment

The Principal Contractor must ensure that safety measures stipulated in Driven Machinery Regulation and Construction Regulation regarding above equipment are adhered to at all times.

32. CONSTRUCTION VEHICLES & MOBILE PLANT

(Construction Regulation 13)

Construction Vehicles and Mobile Plant may be inspected by ACSA prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHS Act and Regulations.

Construction Vehicles and Mobile Plant (CV & MP) to be:

- of acceptable design and construction

- maintained in good working order
- used in accordance with their design and intention for which they were designed
- Operated/driven by trained, licensed competent and authorised operators/drivers. No unauthorised persons to be allowed to drive or operate CV & MP
- Operators and drivers of CV & MP must be in possession of a valid medical certificate declaring the operator/driver physically and psychologically fit to operate or drive CV & MP.
- fitted with adequate signalling devices to make movement safe including reversing
- excavations and other openings must be provided with sufficient barriers to prevent CV & MP from falling into same
- Provided with roll-over protection, appropriate seat fitted which shall be used during CV & MP operations.
- inspected daily before start-up by the driver/operator/user and the findings recorded in a register/log book
- CV & MP to be fitted with two head and two taillights whilst operating under poor visibility conditions, in addition they shall be equipped with 'hazard warning' lights, which must be used whenever the CV & MP is on site.
- No loose tools, material etc. is allowed in the driver/operators compartment/cabin nor in the compartment in which any other persons are transported
- CV & MP used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported
- Operators to be issued with Personal Protective Equipment as required and identified by the Risk Assessments
- Only licensed and road worthy vehicles will be allowed on the public roads

No person may ride on a CV & MP except in a safe place provided by the manufacturer for this purpose.

The construction site must be organized to facilitate the movement of CV & MP so that pedestrians and other vehicles are not endangered. Traffic routes are to be suitable, sufficient in number and adequately demarcated CV & MP left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights reflectors or barricades to prevent moving traffic entering the contact with the parked CV & MP.

In addition, CV & MP left unattended after hours must be parked with all buckets, booms etc. fully lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.

Workers employed adjacent to, or on public roads must wear reflective safety vests.
All CV & MP inspection records must be kept in the OH&S File.

33. ELECTRICAL INSTALLATIONS AND MACHINERY ON CONSTRUCTION SITES (Construction Regulation 24)

The Principal Contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that—

- a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
- b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
- c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;

- d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
- e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

The Principal Contractor must ensure that prior notice is given to ACSA Electrical Department of any work involving electrical installation. A lock-out certificate must be issued to the relevant Principal Contractor. The Principal Contractor must ensure that a lock-out procedure is adhered to by his/her employees whenever required. The Principal Contractor must ensure that safety measures stipulated in the Electrical Installation Regulations, Machinery Regulations, General Machinery Regulations and Construction Regulations are adhered to at all times.

34. USE AND TEMPORARY STORAGE OF FLAMMABLE LIQUIDS ON CONSTRUCTION SITES (Construction Regulation 25)

The Principal Contractor to ensure that:

- No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present.
- No flammable substance is used or applied e.g. in spray painting, unless in a room or cabinet or other enclosure specially designed and constructed for that purpose, unless due to imposed controls that the ventilation provided is sufficient to ensure that the Lower Explosive Limit and Lower Fire Limit are not exceeded. Furthermore, that the risk assessments are reviewed to ensure that all the related hazards have been addressed and that adequate P.P.E. is provided.
- The workplace is effectively ventilated. Where this cannot be achieved:
- Employees must wear suitable respiratory equipment
- No smoking or other sources of ignition is allowed into the area
- The area is conspicuously demarcated as "flammable materials"
- Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container approved by the local Fire Department, cage or room that is kept locked with access control measures in place and sufficient firefighting equipment installed and fire prevention methods practised e.g. proper housekeeping
- Flammables stored in a permanent flammables store are stored so that no fire or explosion is caused i.e.: stored in a locked well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as "Flammable Store -No Smoking or Naked Lights"
- Adequate and suitable firefighting equipment installed around the flammables store and marked with the prescribed signs
- All electrical switches and fittings to be of a flameproof design, or where necessary, intrinsically safe.
- Any work done with tools in a flammables store or work areas to be of a non-sparking nature
- No Class A combustibles such as paper, cardboard, wood, plastic, straw etc. to be stored together with Flammables
- The flammable store to be designed and constructed so that in the event of spillage of liquids in the store, it will contain the full quantity + 10% of the amount liquid stored.
- Where the use of Bulk Storage facilities is contemplated, the contractor must ensure compliance to the local Authority bylaws.
- A sign indicating the capacity of the store to be displayed on the door
- Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas
- Metal containers to be bonded to earth whilst decanting to prevent build-up of static electricity

- Welding and other flammable gases to be stored and segregated as to type of gas and empty and full cylinders
- All permanently installed storage facilities to comply with SANS 10089.

35. HOUSEKEEPING AND GENERAL SAFEGUARDING ON CONSTRUCTION SITES

(Construction Regulation 27)

The Principal Contractor must ensure that suitable housekeeping is continuously implemented on each construction site, including—

- a. the proper storage of materials and equipment;
- b. the removal of scrap, waste and debris at appropriate intervals;
- c. ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
- d. ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
- e. ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
- f. ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

The Principal Contractor must ensure that safety precautionary measures stipulated in Environmental Regulations for Workplaces and Construction Regulations and Construction Environmental Specification are adhered to at all times.

36. STACKING AND STORAGE ON CONSTRUCTION SITES

(Construction Regulation 28)

The Principal Contractor must ensure contractor must ensure that:

- a. a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
- b. adequate storage areas are provided;
- c. there are demarcated storage areas; and
- d. storage areas are kept neat and under control a competent person is appointed in writing with a duty of supervising all stacking and storage on a construction work or site. A proof of such appointment must be provided prior commencement of construction work. The Principal Contractor must ensure that stacking is conducted under supervision and good housekeeping is maintained at all times.

37. CONSTRUCTION EMPLOYEES' FACILITIES

(Construction Regulation 30)

A Contractor must provide at or within reasonable access of every construction site, the following clean, hygienic and maintained facilities:

- a. Shower facilities after consultation with the employees or employees' representatives, or at least one shower facility for every 15 persons;
- b. at least one sanitary facility for each sex and for every 30 workers;
- c. changing facilities for each sex; and
- d. sheltered eating areas.

A Contractor must provide reasonable and suitable living accommodation for the workers at construction sites who are far removed from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

38. LADDERS

The Principal Contractor must ensure that all ladders are numbered, inspected before use and monthly inspections are recorded in a register. The Principal Contractor must ensure that a competent person who carries the above inspections is appointed in writing.

39. PRESSURE EQUIPMENT

The Principal Contractor must ensure that pressure equipment is identified, numbered and entered in a register. Furthermore, he/she must ensure that inspections are carried out and certificates of testing are available and kept on file as per the Regulations.

40. EMPLOYEES EXPOSED TO EXCESSIVE NOISE

The Principal Contractor must ensure that all employees exposed to excessive noise, equal or above 85 dB(A), have undergone a baseline audiometric test prior commencement of construction work and SABS approved ear protection is provided and worn at all times.

41. PUBLIC SAFETY AND SECURITY

The Principal Contractor must ensure that notices and signs are conspicuously displayed at the entrance and along the perimeter fence indicating "No Unauthorized Entry", "Visitors to report to office", "helmet and safety shoes" etc.

Health and safety signage must be well maintained throughout the project. This must entail cleaning, inspection and replacement of missing or damaged signage.

Furthermore, the Principal Contractor must ensure that:

- a) Nets, canopies, fans etc. are provided to protect the public passing or entering the site
- b) A security guard is provided where necessary and provided with a way of communication and an access control measures or register is in place
- c) All visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site.

42. NIGHT WORK

The Principal Contractor must ensure that necessary arrangements have been made with ACSA before conducting any night work and that there is adequate lighting for any work to be conducted and failure to do so will result in work being stopped.

43. HOT WORK

The Principal Contractor must ensure that ACSA Fire & Rescue Department is notified of any hot work to be conducted during construction work. A hot work permit accompanied with a gas free certificate must be issued to the relevant Principal Contractor by ACSA Fire & Rescue Department when satisfied that the area is safe and that the Principal Contractor understands the procedure. The Principal Contractor must ensure that a hot work procedure is adhered to at all time by his/her employees.

44. HIRED PLANT AND MACHINERY

The Principal Contractor must ensure that any hired plant and/or machinery brought to site is inspected by a competent person before use and records confirming that it is safe for use are provided prior usage of such equipment. Such plant or machinery complies at all times with the requirements of the Occupational Health & Safety Act.

The Principal Contractor must ensure that hired operators receive induction prior commencement of work and that said hired operators have proof of competency.

The Principal Contractor must provide information on procedures to be followed in the case of:

- (a) Malfunctioning of equipment; and
- (b) Discovery of a suspected defect in the equipment

45. ROAD CONSTRUCTION WORK

The Principal Contractor must ensure that construction work conducted on the public road all necessary caution signage, cones, flag man etc. are provided as stipulated in the Road Traffic Ordinance is adhered to. The caution signage to be conspicuously displayed to warn the drivers of any construction work ahead must be provided at least at 75 m away from the cones; flag man; actual construction work etc.

46. EDGE PROTECTION AND PENETRATION

The Principal Contractor must ensure that all exposed edges and floor openings are guarded and demarcated at all times until permanent protection has been erected. Guardrails used for edge protection must be 500mm and 900mm apart (double railing) above the platform/ floor surface.

The Principal Contractors fall protection plan must include the procedure to be followed regarding the management of edge protection and penetration.

47. BATCH PLANTS

Should a batch plant be used, it must conform to the requirements as set out on Construction Regulation (February 2014) of OHS Act 85/93. These must include but not limited to appointment of a competent person to operate and supervise batch plant operations.

48. CONFINED SPACE ENTRY

The Principal Contractor must ensure that all necessary health and safety provisions prescribed in the General Safety Regulations are complied with when entering confined spaces.

49. LIQUOR, DRUGS, DANGEROUS WEAPONS, FIREARMS

The Principal Contractor must ensure that no person is allowed on site that appears to be under the influence of intoxicating liquor or drugs.

The Principal Contractor must encourage his/her workforce to disclose the medication that poses a health and safety threat towards his/her fellow employees. No person must be allowed to enter the site and work if the side effects of such medication do constitute a threat to the health or safety of the person concerned or others at such workplace.

No dangerous weapons or firearms allowed on the construction site.

50. INTERNAL/EXTERNAL AUDITS

The Principal Contractor must conduct monthly safety, health and environment audits and such records must be kept on site. The Principal Contractor must ensure that corrective measures are taken to ensure compliance.

ACSA must conduct monthly audits and defects noted must be reported to the relevant Principal Contractor for remedial action. Inspections must be conducted by ACSA and non-conformances noted must be recorded and provided to the relevant Principal Contractor for remedial action. ACSA must stop any Principal Contractor from executing any construction work which is not in accordance with the health and safety plan.

The Principal Contractor must ensure that all necessary documents stipulated in this document are kept on the health and safety file and made available when requested.

51. PROJECT CLOSE OUT

The Health and Safety files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project in the form of a consolidated safety file. The following list is an example of what should be included but is not exhaustive. The Safety Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are responded to. Documentation would include all health and safety related records from the start of the project. All records to be in hard copy or electronic format and submitted to the Safety Agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Consolidated Health and Safety close out file requirements include:

- Health and safety specification (most recent version)
- Principal Contractor's health and safety plan/s
- Site safety organograms
- Legal appointments
- Notification to Department of Labour of commencement of work / Construction Work Permit
- Workman's Compensation Letters of Good Standing for the project
- Full safety files for all contractors as well as their close out reports
- List of all contractors who worked on site
- Letters of safety plan approval of contractors by the Principal Contractor
- Mandatory agreements (section 37.2 agreements)
- Incident and accident records / Occupational Disease records
- Contractor Nonconformance records
- Safety agent's audit reports
- Safety Officer reports
- Method Statements
- Risk assessments
- Safe work procedures
- Medical surveillance certificates of fitness. Medical records are to be kept according to the Occupational Health and Safety Act, as amended.
- All temporary works drawings (suspended beams/scaffolds, etc.)
- Copies of test results, policies, and procedures for environmental monitoring (silica, noise, dusts, etc.)
- Detailed registers of all material used
- Copies of all Checklists completed

The consolidated Health and Safety Files for the Project are to be handed over by the Principal Contractor to the Client upon Project Completion in either hard copy or electronic format.

52. PENALTIES

Penalties will be imposed by ACSA on Principal Contractors who are found to be infringing these specifications, legislation and safety plans.

The Principal Contractor will be advised in writing of the nature of the infringement and the amount therefor. The Principal Contractor must determine how to recover the fine from the relevant employee and/or sub-contractor. The Principal Contractor must also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and must advise ACSA accordingly. The Principal Contractor is also advised that the imposition of penalties does not replace any legal proceedings.

Penalties will be between R200 and R20 000, depending upon the severity of the infringement. The decision on how much to impose will be made by the ACSA SHE Representative and will be final. In addition to the penalties, the Principal Contractor must be required to make good any damage caused as a result of the infringement at his/her own expense.

The preliminary list below outlines typical infringements against which ACSA may raise penalties; however, this list must not be construed as final:

- Failure to keep a copy of OHSACT on site.
- Failure to maintain an up-to-date letter of good standing with the Compensation Commissioner / FEM.
- Working on site without attending Safety Induction Training.
- Failure to conduct Safety Induction for personnel and visitors on site.
- Failure to issue and wear Personal Protective Clothing and Equipment.
- Failure to fully stock first aid box in accordance to the risks identified.
- Failure to disclose or report first aid cases and /or minor/major/fatalities as prescribed by the OHSACT.
- Failure to adhere to written safe work procedure as stipulated in the Hazard Identification and Risk Assessment and safety plan.
- Failure to maintain records and registers as per the OHS Act of 1993 and its regulations.
- Failure to conduct audits and inspections as required by legislation.
- Keeping un-serviced fire equipment on site.
- Failure to make use of ablution facilities.
- Failure to remove personnel on site who appears to be under the influence of intoxicating liquor or drugs.
- Failure to close out previously raised non-conformances.
- Failure to make and update legislative appointments.
- Failure to adhere to the OHS Act of 1993 and its regulations.

Risk Calculations

Likelihood (Exposure)	Likelihood (Exposure)		Severity		
			Minor	Medium	Major
Extremely unlikely	Once in 10 Years	1	2	3	5
Unlikely	Year	2	4	6	10
Likely	Monthly Exposure	3	6	9	15
Very Likely	Weekly exposure	4	8	12	20
Certain	Daily Exposure	5	10	15	25
Priority of action (P1 = Top priority)		Insignificant – Low Priority P3	Important - Within days P2	Prohibition Immediate P1	

Minor	Risk acceptable: Residual risk If possible, risk reduction should be further considered, particularly severity. There are no imminent dangers. Frequent review shall be in place especially changes in procedures, materials or environment.
Medium	High priority remedial action Proceed with extreme caution with PI present at all times. Implement additional (secondary) controls immediately. Review within 30 days. Emergency control measures shall be in place.
Major	Operation not Permissible Stop operation & review controls. If necessary abort experimentation.

	Safety	Health	Business	Environment
Minor	First Aid Case	Reversible injury to Bodily Functions with less than 3 days recovery	<100,000	loss of containment but was contained on the premises
Medium	Medical treatment case and LTI	Mild exposure, Reversible injury to Bodily Functions with less than 30 days recovery	>100,000 but <500,000	Minor Environmental pollution. No rehabilitation required
Major	Fatality/ fatalities	Acute Poisoning, Failure of Major Bodily Functions	>1,000,000	Major Pollution requires reporting and will require rehabilitation

BASELINE RISK ASSESSMENT

Rehabilitation of Runway 0220 and Taxiways at Bram Fischer International Airport

No	Activity	Hazard/aspect	Risk/impact	LL	SV	TT	Required Control Measure	LL	SV	TT	Action required
1.1	General	Exposure to Airport ambient noise or noisy equipment being used.	Noise induced hearing loss <u>Occupational exposure limit:</u> 85 dBA over an 8-hour period	3	3	9	<p><u>Substitution:</u> The contractor to ensure where possible employees do not enter area's with high levels of noise.</p> <p><u>Admin:</u> The contractor to provide awareness training on the risk of noise induced hearing loss to employees, Records to be available in safety file on site. The contractor to issue and train employees on the use and maintenance of PPE</p> <p><u>PPE:</u> Workers shall wear appropriate hearing protection where the potential exposure of noise cannot be reduced below the OEL.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

1.2	General	Foreign object debris (FOD's) Poor Notams/ATNS communications Poor construction supervision	Aircraft accidents can lead to serious property damage and injuries to people	3	4	12	<p><u>Substitution:</u> Clearing of the site and inspection before actual commissioning after each work shift or the runways will be prioritised and essential performance monitoring items.</p> <p>The work areas on airside which will require to be closed off will require the assistance of Fire and Rescue. During night shifts the delivery of materials, especially from an overloading perspective shall be monitored and avoided to prevent as far as possible FOD on any surfaced area resulting from trucks losing construction material during haulage.</p> <p><u>Admin:</u> All works on the runways and taxi areas will require liaison with ATNS which will be channelled through the Fire and Rescue's Head of Department or duly authorised escorts. All work, especially night work, required close co-operation between ACSA, ATNS and the Contractor.</p> <p>The Contractor will include the Special Risk Compliance Register and Construction Procedural Manual as part of the Site Safety File to the client and OHS Practitioner for approval before any work shall commence.</p>	2	4	8	A Special Risk Compliance and Mitigation procedure must be provided by the Contractor before any construction can commence with a complete Potential Risk register.
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2	Manual handling of material	Awkward posture, force, repetition, static work, contact stress, and Vibration.	Musculoskeletal disorders (MSD) & Repetitive Strain Injuries (RSI)	3	1	3	<p><u>Elimination:</u> If an object or material appears to be awkward in shape or too heavy, it may require additional help to be handled safely</p> <p>When possible workers should rotate between repetitive job tasks</p> <p><u>Admin:</u> Contractor to ensure they implement a site specific Ergonomics plan, including but not limited to, health surveillance program, training, surveys & risk assessment, risk assessor to be trained by an accredited training services provider (SAQA: 244523).</p>	2	1	2	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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3	Poor Housekeeping standards	<p><u>Slip, trip, and fall hazards:</u></p> <p>One of the most common types of hazards created by poor housekeeping is slip, trip, and fall hazards. When objects, materials, tools, and equipment are not properly stored, workers are bound to trip over them. Slippery conditions are created when water, moisture, oils, grease, etc.</p> <p>Fire as a result of oily rags left in an area where hot work is performed, or due to the accumulation of combustible dust. Un-cleared waste could become fuel for the spread of fire. Littered job equipment, tools and materials could pose the risk of trip and fall. Poor housekeeping could conceal hazards which would normally be visible to</p>	Potential Fires, Physical injuries to employees, occupational illness and electrical shock	3	2	6	<p><u>Substitution:</u> Contractor to ensure regular site inspections are performed and housekeeping issues are identified and addressed pro actively. Material/plant/equipment not in use should be removed from the site as soon as possible.</p> <p><u>Admin</u> Contractor to ensure they provide housekeeping training to employees Train them on why and how to stack materials properly. Why they must clean up messes. Why it is necessary to remove, repair, and/or report housekeeping hazards. Why they should never jeopardize someone else's health and safety by obstructing the access to exits, electrical panels, or fire extinguishers. Why they should avoid stringing cords, hoses or lines across walkways.</p>	2	2	4	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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4.1	Working outdoors	<p>Exposure to adverse weather conditions</p> <p>Expected max temperatures January - April 30-40 °C September - December - April 30-40 °C</p>	<p>Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes.</p>	2	3	6	<p>Substitution: Contractor to ensure employees are provided with access to adequate supply of potable water. exhaustion: contact the local emergency services, inform the the supervisor and provide first aid. Limit time in the heat and/or increase recovery time spent in a cool area. Reduce the metabolic (physically difficult) demands of the job. Use tools intended to minimize manual strain. Increase the number of workers per task. Train supervisors and workers about heat stress. Use a buddy system where workers observe each other for signs of heat-related illnesses. Provide adequate amounts of cool, potable water near the work area and encourage workers to drink often. Water should be potable, <15°C (59°F), and made accessible near the work area. Estimate how much water will be needed and decide who will get and check on water supplies. Provide individual drinking cups for each worker. Use a heat alert program whenever the weather service forecasts a heat wave. For moderate activities in the heat that last less than 2 hours, drink 1</p>	2	3	6	<p>Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.</p>
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							<p>cup of water every 15–20 minutes.</p> <p><u>Admin:</u> The contractor to ensure they provide training to workers so they understand what heat stress is, how it affects their health and safety, and how it can be prevented.</p>				
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4.2	Working outdoors	<p>Exposure to Poisonous or toxic flora and fauna including insects, spiders, snakes and poisonous or toxic plants</p>	<p>Any delay in treatment following a venomous snake bite could result in serious injury or, in the worst-case scenario, death.</p> <p>If a worker has an allergic reaction to a snake bite or insect venom such as bees, they could suffer from anaphylactic shock.</p> <p><u>Major types of venom that can be encountered:</u> Cytotoxins: Cause swelling and tissue damage wherever you've been bitten. Haemorrhagins: Disrupt the blood vessels. Anti-clotting agents: Prevent the blood from clotting. Neurotoxins: Cause paralysis or other damage to the nervous system. Myotoxins: Break down muscles.</p>	3	3	9	<p><u>Substitution:</u> It is recommended that the contractor include provision of a trained snake handler with the required equipment to safely relocate snakes from work area's It is recommended that the contractor make arrangements with a qualified bee catcher to relocate potential nests if encountered.</p> <p><u>Admin:</u> Contractor to ensure employees receive awareness training Always be careful where you put your hands and feet. Don't reach into unknown spaces and holes, or underneath objects without first being sure a snake isn't hiding underneath. Don't lie down or sit down in areas where there might be snakes. If you come across a snake, slowly back away from it and avoid touching it. Workers should not attempt to capture, handle or keep venomous snakes,</p> <p><u>PPE:</u> Provision and training, wearing leather safety boots when walking through or working in areas with dense vegetation.</p>	2	3	6	<p>Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.</p>
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4.3	Working outdoors	Lightning Strikes	Lightning is a major cause of storm related deaths. A lightning strike can result in a cardiac arrest (heart stopping) at the time of the injury, although some victims may appear to have a delayed death a few days later if they are resuscitated but have suffered irreversible brain damage.	3	3	9	<p><u>Substitution:</u> The contractor to ensure the site team has access to a lightning detector " a device that detects lightning produced by thunderstorms.", it is recommended to stop out doors work when lighting is observed within a range of 40km of the work location.</p> <p><u>Training:</u> The contractor to ensure workers are to be provided with awareness training and instruction on the risk associated with lightning strikes. This must include steps to be taken in the event of being outdoors during a thunder storm. These steps normally include, but are not limited to the following: immediately seek the shelter of a building or an enclosed vehicle; never shelter under trees; don't touch any metal objects; and if caught in the open, crouch down with your feet together – do not lie down.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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5	Working outdoors	Exposure to UV Radiation	<p>Sunburn is a sign of short-term overexposure, while premature aging and skin cancer are side effects of prolonged UV exposure. UV exposure increases the risk of potentially blinding eye diseases, if eye protection is not used. Overexposure to UV radiation can lead to serious health issues, including cancer.</p>	3	3	9	<p><u>Elimination:</u> Activities carried out in the sun must be assessed to determine whether: The task can be carried out indoors or in the shade; or if this is not practicable, direct exposure to the sun can be minimised.</p> <p><u>Substiation:</u> Arrangements should also be established to ensure the consistent use of sun screen by all personnel exposed to UV radiation.</p> <p><u>Admin:</u> Personnel who are required to work in the sun must be given information to increase their awareness of the importance of using the protective measures provided.</p> <p><u>PPE:</u> Outdoor workers must be provided with equipment to protect them from UV radiation, such as broad-brim hats, sunglasses, clothing with the appropriate UPF (UV Protection factor), etc. This should also apply to Personal Protective Equipment (PPE) and must include items such as UVR-rated hard hats, etc. The use of long-sleeved shirts and long pants should be promoted and clothes provided to personnel should be light and loose, so as to</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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							allow 'breathing' and reducing the potential for thermal stress.				
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6.1	Working with Asphalt	Exposure to Asphalt	<p><u>Exposure & potential health impacts:</u></p> <p>Eyes Heated material can cause thermal burns. Vapors may cause irritation.</p> <p>Skin Heated material can cause thermal burns. Material may cause slight irritation on prolonged or repeated contact.</p> <p>Inhalation May cause respiratory tract irritation. Vapors containing hydrogen sulfide may accumulate during storage or transport.</p> <p><u>Occupational exposure limits</u> Asphalt - TWA: 0.5 mg/m³ 8 hour(s). Form: Fume Hydrogen Sulfide - STEL: 21 mg/m³ 15 minute(s).</p>	3	3	9	<p><u>Substitution:</u> Contractor to ensure <u>hygiene measures</u> are enforced, Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.</p> <p><u>Admin:</u> Contractor to ensure all all personnel involved with paving equipment and asphalt handling are issued with appropriate PPE such as long pants, overall's with sleeves, Safety Boots & Safety gloves, Issue registered to be kept as proof in safety file on site. Contractor to ensure all all personnel involved with paving equipment and asphalt handling receive training on Asphalt risk exposure and the correct use & maintenance of PPE. Contractor to ensure a competent first aider is appointed & available on site for this activity & are trained in the specific risks & first aid measures (See Asphalt MSDS for ref). (Legal appointment & trained by an accredited training provider to be available on site safety file (SAQA ID: 119567), US 9823, 116509 & 116511</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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							<p><u>PPE:</u> Contractor to ensure correct PPE is worn on site through aduate supervision,use of protective eye wear is good industrial practice, Thermal resistant clothing will be required when handling hot products. Wear clothing and footwear that cannot be penetrated by chemicals or oil. Wash thoroughly after handling, Wear gloves that cannot be penetrated by chemicals or oil.</p>				
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6.2	Working with Asphalt	Fire/explosion	<p>Chemical may be combustible at high temperature Flashpoint Open cup: >230°C (>446°F) If hydrogen sulfide is present, the flammable limits can be from 4.3 to 45.5% by volume and its presence may promote the formation of pyrophoric iron compounds.</p> <p>Potential combustion products - hydrogen sulfide & oxides of carbon and sulfur. (When heated above 54°C / 130F). Hydrogen Sulfide (H₂S), sulfur oxides (SO₂, SO₃ etc.), carbon oxides (CO, CO₂) (carbon monoxide, carbon dioxide).</p>	3	4	12	<p><u>Substitution:</u> Contractor to ensure material is stored & handled in line with supplier guidelines. Contractor to ensure proper <u>handling of product</u>, Asphalt products should not be overheated during handling and storage. Recommended storage and plant mixing temperatures are grade specific. Contractor to ensure proper <u>Storage</u> of product, Keep container tightly closed. Keep container in a cool, well-ventilated area. Outside or detached storage is preferred. Empty containers may contain harmful, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Keep away from heat, sparks and flame. Keep away from sources of ignition.</p> <p><u>Admin:</u> Contractor to ensure employees are trained in basic fire fighting (SAQA US:12484) by an accredited training services provider, legal appointment & proof of competency to be available on site safety file. <u>Fire-fighting procedures</u></p>	2	4	8	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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							<p>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.</p> <p>In case of fire, use water fog, foam, dry chemicals, or carbon dioxide, Do not use water jet.</p> <p><u>PPE</u></p> <p>Fire-fighters should wear appropriate protective equipment.</p>				
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6.3	Working with Asphalt	Potential spillages	Adverse effects on local fauna & flora.	3	3	9	<p><u>Substitution:</u> The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.</p> <p>Avoid contact of spilled material with soil and prevent runoff entering surface waterways. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. Move containers from spill area. Dispose of via a licensed waste disposal contractor.</p> <p>It is recommended that the contractor have a general use chemical spill kit on site.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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7.1	Working with Cement & concrete products	Exposure to cement & concrete products	<p><u>Exposure & potential health impacts:</u> Irritating to eyes. Irritating to respiratory system. Irritating to skin.</p> <p>Dust acts as a skin and respiratory irritant. Dust and wet cement cause serious eye irritation. Long term exposure may lead to contact dermatitis</p> <p><u>Occupational exposure limits:</u> TWA OEL RL 5mg/m3 respirable dust, 10mg/m3 total inhalable dust.</p>	3	2	6	<p><u>Substitution:</u> It is recommended that the contractor include provision of a trained snake handler with the required equipment to safely relocate snakes from work area's It is recommended that the contractor make arrangements with a qualified bee catcher to relocate potential nests if encountered.</p> <p><u>Admin:</u> Contractor to ensure all all personnel involved with cement equipment and cement handling are issued with appropriate PPE such as long pants, overall's with sleeves, Safety Boots & Safety gloves, Issue registered to be kept as proof in safety file on site. Contractor to ensure all all personnel involved with cement equipment and cement handling receive training on cement risk exposure and the correct use & maintenance of PPE. Contractor to ensure a competent first aider is appointed & available on site for this activity & are trained in the specific risks & first aid measures (See Asphalt MSDS for ref). (Legal appointment & trained by an accredited training provider to be available on site safety file (SAQA ID: 119567), US 9823, 116509 & 116511</p> <p><u>PPE:</u></p>	2	2	4	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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							Provision and training, Wear gloves and long sleeves & FFP2 disposable respirators.				
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7.2	Working with Cement & concrete products	Spillage of products	<p>Non toxic in small quantities. Large quantities in water will lead to high pH values, up to 12.5. Aquatic life will be endangered.</p> <p>The cement will harden, possibly forming a crust. It may dissolve slowly in acid conditions</p> <p>During handling aerated cement has liquid properties which disperse after settlement.</p>	3	3	9	<p>Substitution: The contractor ensure the team Sweep up any spills to prevent dust becoming airborne Disposal to be done using Suitable Material such as Paper or plastic bags. Silos, bins ect.</p> <p>Admin: Contractor to ensure employees are trained in Handling / Storage of cement based products, proof of training to be kept in the safety file and should as a minimum include training material & attendance registers.</p> <p>PPE: Dust mask, safety glasses or goggles, gloves</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
8	<p><u>Electrical works</u></p> <p>Re installation of the light-bases (pots)</p>	Electricity	Contact with 'live' electrical components causing electrical shock, burns or electrocution	3	2	6	<p>Substitution: Only qualified and competent persons to work on electrical equipment. All work on electrical equipment only to be carried out following isolation. The contractor to ensure they are competent to undertake the isolations. The contractor to ensure no electrical work is undertaken without the airport electrical standby available. NB</p> <p>Admin: Electrical legal appointments & proof of competency to be</p>	2	2	4	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

							<p>available on site safety file at all times.</p> <p>Isolation Permits to be taken out prior to any work commencing.</p> <p>Under NO circumstances mustre installation of light bases be carried out on 'live' equipment.</p>				
8.1	<u>Earthworks</u> Excavation of trenches	Impact with plant and underground services.	Property damage / Electrical shock	3	3	9	<p><u>Substitution:</u></p> <p>At all stages of the excavation, a competent person must supervise the work and the workers given clear instructions on working safely in the excavation. If plant is being used above the trench then no operatives should be in the trench when the machine is in use.</p> <p>Should no way leave be available the area must be scanned for underground services & permit to excavate issued before work commences.</p> <p>Hand digging only in the vicinity of underground services. Electric cables adjacent to excavation,</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

							<p>should be isolated by an Electrician issuing permit to isolate. Area of dig shall be secured by a fence of a minimum 1m in height with reflective components as per legal requirements.</p> <p><u>Admin:</u> A written inspection record by a competent person should be kept of the excavation.</p>				
8.2	<u>Earthworks</u> Excavation of trenches	Crushing	<p>It is noted that trench are expected to reach 600mm in depth in line with the current scope of work with a maximum of 1x1 m.</p> <p>Employees crushed inside trenches can be severely injured.</p>	3	3	9	<p><u>Substitution:</u> The contractor to ensure trenches do not exceed 1m in depth, should this change be required a professional engineer must be consulted on the requirement of battering or shoring of trenches.</p> <p>Stop blocks should be placed behind wheels of vehicles tipping into excavation.</p> <p>Do not store materials, waste materials or plant adjacent to excavation.(A minimum of 1m clearance is expected to be enforced.</p>	2	3	6	<p>Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.</p>

8.3	<u>Earthworks</u> Excavation of trenches	Security of excavation	Unauthorized person might be subject to injury, should they enter the excavation area without being familiar with the risks associated.	3	3	9	<u>Substitution:</u> Area must have a minimum of 1M high demarcation (High reflective material required) especially for nightshift, erected at a safe distance away from the excavation Restricting access to authorised staff and contractors staff only. Plant and access equipment must also be secured when not in use. SABS Compliant warning signage for open excavations to be displayed as required.	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
8.4	<u>Earthworks</u> Excavation of trenches	Foreign object debris (FOD's)	Poorly managed debree can contribute to aircraft accidents, resulting in property damage and serious injuries.	3	4	12	<u>Substitution:</u> The contractor to ensure that material stockpiles heights are restricted to a minimum of 2m in height and are covered where possible. Dust suppression controls are recommended such as the use of water for spraying ect. The contractor to ensure good housekeeping practices exist on the site and material is cleaned up on a regular basis. The contractor to ensure wind condition monitoring is ongoing & dust conditions are monitored throughout the activity. <u>Admin:</u>	2	4	8	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

							Inspection records for housekeeping to be signed off and kept on the site safety file.				
9.1	Employees working Night Shift	Working night shift interferes with a worker's circadian rhythms. They regulate body functions like temperature, metabolism, digestion, blood pressure, sleeping, waking, and adrenaline secretion. These rhythms make up our body's internal clock and coordinate with themselves to allow for high activity during the day and low activity at night.	Disrupting one's circadian rhythms can lead to a variety of health problems, including heart disease, stomach disorders, and circadian dysrhythmia. Disrupting circadian rhythms also can also lead to psychological problems for night shift workers. These include: Sleep loss/fatigue Lowered performance Poor concentration	4	3	12	<p><u>Substitution:</u> The contractor ensure employees take medical assessment tests to determine if they can work at night before allowing them to do so.</p> <p>The contractor to make sure they have adequate staffing, limit employee exposure to hazards, and diligently monitor employees for the signs and symptoms of night-shift related effects. They include things like irritability, depression, and lack of concentration.</p> <p><u>Admin:</u> Contractor to ensure employees are trained about the dangers of working night shift.</p>	2	3	6	Contractor to provide an "Safety Management Plan for Night time Work". Contractor to provide an "Emergency Preparedness and Response (EPR)".

			Added stress More headaches Lack of motivation				Contractor to ensure they implement work schedules set up to allow enough sleep.				
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9.2	Employees working Night Shift	Reduced visibility Bright work lights produce glare. Drowsy drivers, workers less alert and more likely to be tired. Workers less visible. Decreased visibility causes trips, falls, runovers, backovers.	Poor visibility and lack of concentration can lead to serious injuries and property damage.	4	3	12	<p><u>Substitution:</u></p> <p>Temporary work zone lighting to ensure good visibility. Temporary lighting set to avoid glare and shadows for, equipment drivers, workers. Increased visibility of work vehicles, equipment, materials, hazards. Contractor should be aware that material and machine movement that is not well supervised could potentially cause serious injury and harm to workers and properties Accidents can occur as a result of poor housekeeping. Hazards at construction site are the same for both day and night shift while the risks of injury are much higher during night works because of the inherent poor illumination. It is essential that the workplace is kept clean and tidy to ensure safety and prevent accidents. One of the most important elements to consider before work at night is carried out is the EPR specifically for night time environment. A well established EPR can help both employer and employees to prepare; response and recover should a disaster occurs. Before night works are carried out, check the inventory of safety equipment to make sure they are sufficiently available, appropriate, and in good working condition</p>	2	3	6	Contractor to provide an "Safety Management Plan for Night time Work". Contractor to provide an "Emergency Preparedness and Response (EPR)".
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							<p><u>Admin:</u> Contractor to ensure employees are provided with sufficient training on how to minimize sleep loss Permission to work at night should be obtained from the relevant authority before construction works at night is carried out.</p> <p><u>PPE:</u> Retroreflective high visibility apparel</p>				
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9.3	Using plant & machinery on site	Interaction between man and machine (MMI)	Fatalities, Property damage and serious physical injuries	4	3	12	<p><u>Engineering:</u> Improve segregation between man and machine Physical barriers Consistency in physical standards Govern speed of mobile equipment Equip mobile equipment with interlocked seat belts or audible alarms Equip mobile equipment with audible alarms, lights, beacons, strobes</p> <p><u>Admin:</u> The contractor must ensure they appointed a medically fit & competent equipment operator in writing & keep records thereof in the safe file on site. Improve alert/awareness of mobile equipment Training and communication Warning signs, lights, alarms, etc. Establish and mark safe traffic control patterns Establish a "halo rule" that requires mobile equipment to be shut off when within 10 metres of unprotected pedestrians Provide mobile equipment operator training</p> <p><u>PPE:</u> Procure and implement the use of reflective/high-visibility garments on all personnel</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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10	Using plant & machinery on site	Intoxication / Substance Abuse	The use of alcohol affects an employee's sight, speech, coordination and reaction speed. Employees working with machinery or driving a vehicle, who are under the influence of alcohol, hold a high risk to contributing to accidents which could lead to serious injuries and property damage.	4	3	12	<p><u>Elimination:</u> The contractor to ensure that alcohol testing is conducted on employees prior to allowing them to commence with work on site. (Certified calibrated testing equipment is recommended).</p> <p><u>Admin:</u> The contractor to ensure a zero-tolerance policy towards alcohol and drugs to be implemented which means that employees may not be permitted to work if they are found to have any trace of alcohol or drugs in their system when tested. The contractor to ensure a disciplinary code to be enforced</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
11	Construction Coordination	Poor communication	Poor communication can result in delays, misunderstandings, and poor response management during emergencies.	3	3	9	<p><u>Substitution:</u> Both the escorts for the Engineer's Representative and the Contractor's Safety Managers will be in possession of radios which can communicate directly with Fire & Rescue. These radios will be used, inter alia, to communicate emergencies, as well as to arrange for opening and closing inspections.</p> <p>The Contractors' staff will be in contact with one another by means of a radio system of their own. Air Traffic Navigation Services (ATNS) will be required to authorize the use of any radio frequencies on the airside.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

12.1	Workplace design and construction	<u>Substandard Stacking and storage</u> Material stacked on uneven ground Insufficient storage area Storage area not demarcated Poor maintaining of housekeeping Odd size articles Pallets and containers in poor condition Unstable stack Walkways obstructed	Serious injuries / Property damage	3	3	9	<u>Substitution:</u> Contractor to ensure Material to be stacked on firm and solid level ground. Stacking to be supervised by a competent supervisor Contractor to ensure that adequate storage area to be marked and demarcated. Supervisor will maintain area at all times so that other employees can't injure themselves while working in that area. Contractor to ensure that storage area to be barricaded with netting or solid Barrication to be placed up around the perimeter. Contractor to ensure that storage area to be kept neat, clean and under control by the supervision Contractor to ensure that articles making up on list , all to be the same size shape and mass to prevent material been placed in the wrong place. Contractor to ensure that all pallets, containers and support structures must be structurally sound and in a good condition before been placed in the area for stacking. Supervisors to maintain areas at all times. Contractor to ensure that all unstable stacks to be dismantled and stacked properly to overcome the stack from been unstable. Contractor to ensure that all walkways to be clear of obstructions.	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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							<p>Any employee entering the stacking area must be aware of the implication of the hazards. Walkways will be maintained a meter apart from each other to prevent any person from slipping or falling.</p> <p>Contractor to ensure that stacking areas must be structured and maintained for any person or employee to enter in without getting injured at all times. No one will enter into the stacking area with the knowledge of the site supervisor or his permission.</p>				
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12.2	Workplace design and construction	Use and temporary storage of flammable liquids on construction sites	Fires, explosions, serious injuries, occupational illness	3	3	9	<p><u>Substitution:</u> The contractor to ensure all containers are labelled & closed. The contractor to ensure no flammable material is in close proximity to the storage area, minimum clearance 10m unless otherwise stipulated by supplies guidelines for products. storage area to be well ventilated & have sufficient drip tray in place.</p> <p><u>Engineering:</u> The contractor to ensure sufficient fire extinguishers are available and in good order.</p> <p><u>Admin:</u> The contractor to ensure no smoking/open flames signage is displayed. The contractor to ensure the responsible person for the chemical storage/flammable chemical storage area is displayed. The contractor to ensure sufficient fire fighters are trained and appointed by an accredited training services provider (SAQA US:12484), certified copies to be kept on the safe file on site.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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12.3	Workplace design and construction	Poor/lack of facilities available to employees	Occupational illness	4	3	12	<p><u>Substitution:</u> The contractor to ensure the facilities are cleaned atleast 2 times per week.</p> <p><u>Engineering:</u> The contractor to ensure at least one sanitary facility for each gender and for every 30 workers is available on site The above facilities, should include she-bins for female facilities. The above facilities, should include hand soap and towels or similiar means. The contractor to ensure employees have personal storage space available to them. The contractor to ensure that proper shaded eating facilities are available to employees, with tables, chairs, and access to waste disposal ect.</p> <p><u>Admin:</u> The contractor to ensure regular inspections are done on the facilities and records are kept in the safety file on site. The contractor to ensure records of cleaning is kept.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
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13	Use of handtools	Incompetent operators Slipping and Falling Defective hand tools Incorrect use of hand tools	Hand, finger, eye injuries, typically bruises & cuts	3	3	9	<p>Substitution: Contractor to ensure sufficient supervision is available on site.</p> <p>Admin: Equipment to be regularly inspected. (Records to be kept on safety file on site) Employees to be trained in the safe use of hand tools (Records to be kept on safety file on site)</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.1	Use of portable electrical hand tools	Electricity	Electric shock	3	3	9	<p>Substitution: Check condition of lead and plug before use. Use 110v or battery tools or RCD where practicable. Check for hidden/buried cables before drilling etc. Do not work where water is present without specialist advice.</p> <p>Admin: Contractor to ensured Qualified person to test all portable electrical hand tools and keep a record in the safety file on site.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.2	Use of portable electrical hand tools	Flammable/explosive atmosphere	Fire/Explosion	3	2	6	<p>Substitution: Do not work near flammables, compressed gases, in explosive atmospheres or confined spaces without specialist advice. Ensure fire extinguishers are available.</p> <p>Admin: Do not use heat generating equipment without Hot Work Permit.</p>	2	2	4	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

							<u>PPE:</u> Wear fire retardent PPE, including apron and sleeves.				
14.3	Use of portable electrical hand tools	Flying debris, swarf etc.	Eye, hand or facial injury	3	4	12	<u>Substitution:</u> Advise nearby persons of hazard. <u>Admin:</u> Do not use heat generating equipment without Hot Work Permit. <u>Engineering:</u> Use guards where appropriate. Isolate area with barriers, tape etc. where necessary. <u>PPE:</u> Use protective eyewear or face shield. Wear protective gloves where appropriate.	2	4	8	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.4	Use of portable electrical hand tools	Noise exposure	Noise enduced hearing loss	3	3	9	<u>Substitution:</u> Advise nearby persons of hazard. Supervisors should inform users of risks from noise. <u>PPE:</u> Wear hearing protection if above	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

							80dB(A) or if uncomfortably loud (request assessment if in doubt).				
14.5	Use of portable electrical hand tools	Exposure to Vibration	Hand/Arm Vibration Syndrome (HAVS) Carpal Tunnel Syndrome	3	3	9	<p><u>Substitution:</u> Restrict use of vibration inducing tools to recommended times (see Departmental guidance, manufacturer's information, local risk assessment or label on equipment/ box).</p> <p>Ensure tools are properly stored, maintained and used according to manufacturer's instructions. Supervisors should inform users of risks from vibration.</p> <p><u>Engineering:</u> Select power tools with lowest vibration levels. Minimise the time individuals use the equipment (e.g. job rotation).</p> <p><u>Admin:</u> Arrange health surveillance for those identified at risk from vibration.</p> <p><u>PPE:</u> Wear safety gloves</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

14.6	Use of portable electrical hand tools	Ergonomics	Musculo-skeletal injury	3	3	9	<p><u>Substitution:</u> Ensure there is adequate room to do the job. Minimise the time individuals use heavy equipment (e.g. job rotation). Use jigs and suspension systems to assist the handling of heavy equipment (e.g. large grinders). Wear safety footwear unless feet protected by other means (e.g. sitting at a bench).</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.7	Use of portable electrical hand tools	Slips, trips and falls	Minor injury Major injury Fatal injury	3	3	9	<p><u>Substitution:</u> Ensure work area is free (as is practicable) from trailing cables, tools, materials, debris and spills. All work should be from a suitable and stable work platform. The use of ladders restricted to trained users and must be cleared with supervisor.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.8	Use of portable electrical hand tools	Dust	Respiratory illness Reduced visibility Skin irritation	3	3	9	<p><u>Substitution:</u> Clean work area regularly (e.g. sweep, vacuum, wash down).</p> <p><u>Admin:</u> Do not use heat generating equipment without Hot Work Permit.</p> <p><u>Engineering:</u> Increase ventilation to work area</p> <p><u>PPE:</u> Use a dust mask (check for fit). Wear close-fitting safety goggles. Wear suitable protective clothing (especially gloves).</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

14.9	Use of portable electrical hand tools	Tool jamming or binding	Wrist/hand injury	3	3	9	<p><u>Substitution:</u> Check tool is appropriate for the job and used in accordance with manufacturer's instructions.</p> <p><u>Admin:</u> Trained operators only (or under strict supervision). Ensure tools are maintained according to manufacturer's instructions.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.
14.10	Use of portable electrical hand tools	Inappropriate use	All of above	3	3	9	<p><u>Substitution:</u> Check tool is appropriate for the job and used in accordance with manufacturer's instructions. Inexperienced power tools users should be supervised or observed when first using an unfamiliar item of equipment or in an unfamiliar environment. Power tools should be securely stored when not in use.</p> <p><u>Admin:</u> Users shall be trained in the correct use of portable tools.</p>	2	3	6	Contractor provide site specific/activity specific Risk Assessment accomodated with proposed method statement.

**SAFETY SPECIFICATION AND BASELINE RISK ASSESSMENT
ISSUE REGISTER**

Date of Original Safety Specification Compilation	Compiled By	Issue Date
21 September 2022	J Bhana	

Revision Summary	Revised By	Revision Date

Acknowledgement:

I, _____ representing
_____(Contractor),

Upon receipt of this specification, agree and acknowledge ACSA's right to impose penalties should I or any of my employees or contractors fail to comply with these conditions.

Signature of Contractor Date

At _____(Airport) _____ (dd/mm/yyyy)

Comments:

C3.7.2: ENVIRONMENTAL WORK INSTRUCTIONS

THE ACSA ENVIRONMENTAL SPECIFICATION

It is a requirement of the Airports Company South Africa (ACSA) - that all construction works within ACSA airports be undertaken in accordance with the ACSA Environmental Specification

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LIST OF ABBREVIATIONS

ACSA	Airports Company South Africa
AEC	Airport Environmental Committee
EO	Environmental Officer
ES	Environmental Specification
EMS	Environmental Management System for ACSA
ESA	Environmentally Sensitive Areas
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resource Agency
SSSI	Sites of Special Scientific Interest

PART 1: ACSA ENVIRONMENTAL SPECIFICATIONS OVERVIEW

1. PURPOSE OF THE ENVIRONMENTAL SPECIFICATIONS

The purpose of the Environmental Specifications (ES) is to translate the recommendations of the Environmental Management System (EMS) into a contractual environmental specification for application during construction activities.

The Environmental Specifications will be applicable to all construction activities that occur on ACSA owned and/or managed airports. Construction activities include construction of buildings, infrastructure as well as developer / tenant property and rehabilitation works at the airport.

2. IMPLEMENTATION OF THE ENVIRONMENTAL SPECIFICATIONS

The Environmental Specifications is intended for dissemination by ACSA to the “Employer”, who is the party for whom the construction works are to be executed (hereafter referred to as the Employer). The Employer may therefore be ACSA (the relevant Departmental Manager responsible for construction activities), a tenant or a developer with a land lease or another party such as a contractor responsible for developing or rehabilitation of the site or sites at the airport.

The Employer shall ensure that the Environmental Specification is included in the Tender Document(s) issued to the prospective Contractor and is also responsible for appointing/designating, in writing, a Responsible Person for the construction works.

The Responsible Person would manage the requirements outlined in the Environmental Specifications on behalf of the Employer. The Contractors shall incorporate the requirements of the ES in their tender submissions to the Employer and are responsible for implementing the ES on a daily basis.

The Environmental Officer (EO) will be responsible for updating the ES as required, auditing the implementation of the ES for each construction project and for maintaining the document control and record systems associated with it.

The Environmental Specifications report has been structured to be incorporated into a standard engineering tender document as the Environmental Particular Specification.

A ‘Particular Specification’ is the terminology used for a specification that covers activities that are not adequately covered in the standardised SABS 1200 series specifications for engineering contracts, or where the specification is sufficiently detailed to make it inappropriate for inclusion as a variation or addition to a standardised specification.

The Environmental Specification is a generic document applicable to construction projects at all ACSA airports. The majority of the specifications within the ES will apply to all construction work, although it is anticipated that variations to this specification may need to be included for some specific developments. Variations would be made by the Environmental Officer, prior to the issue of the ES to the Employer.

PART 2: ENVIRONMENTAL PARTICULAR SPECIFICATIONS

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EP1 INTRODUCTION

The ES has been prepared and is to be implemented as part of the Environmental Management Systems for ACSA.

The ES provides specifications that the Contractor shall adhere to, in order to minimise adverse environmental impacts and optimise opportunities associated with construction activities.

The ES is provided to the Contractor at the tender stage so that the costs of implementing the ES are included into the contract cost and so that the Contractor is aware of his environmental responsibilities before commencing work.

The aim of this ES is to ensure that environmental management of site activities is integrated into the other management systems implemented by the Contractor (e.g. quality management, health and safety). For this reason, the ES includes a requirement for the Contractor(s) to develop their own system (i.e. roles, responsibilities and timing) for ensuring that the requirements of the ES are met, and that the Contractor checks, by means of an internal audit, that this system is operating effectively.

EP2 ORGANISATIONAL REQUIREMENTS

EP2.1 Organisational Structure

This section outlines the required management structure for the administration of the ES, with particular emphasis on the roles and responsibilities of key individuals.

The organisational structure for the implementation of the ES is presented in Figure 1 and should be viewed in conjunction with the roles and responsibilities below.

EP2.2 Roles and responsibilities

EP2.2.1 Airports Company South Africa

Airports Company South Africa is ultimately responsible for ensuring effective environmental management at the airport in terms of the scope of the Environmental Management Systems.

EP2.2.2 Environmental Officer (EO)

The Environmental Officer has been appointed by ACSA, and is responsible for monitoring the implementation of the requirements of the Environmental Specification by the relevant parties as specified.

The Environmental Officer shall:

- Review and approve in writing valid method statements;
- Inspect the Contractor's site to check compliance with method statements and the requirements of the ES (at least weekly and more frequently if thought to be warranted by the EO) and maintain inspection reports on file;
- Meet with the Responsible Person for the developer or tenant, whereby the Responsible Person reports on the implementation of the ES (at least monthly) and keep a record of minutes of the above meetings;
- Provide material / manuals and assistance to the Responsible Person for the initial environmental training sessions; and
- Report in writing any problems related to conformance with the ES which cannot be resolved in co-operation with the relevant Responsible Person to ACSA Managers or the relevant developer / tenant.

EP2.2.3 Employer

The Employer shall:

- Include the ES, with any revisions, in any tender document related to construction activities on site;
- Designate in writing a Responsible Person for the proper implementation of the ES; and

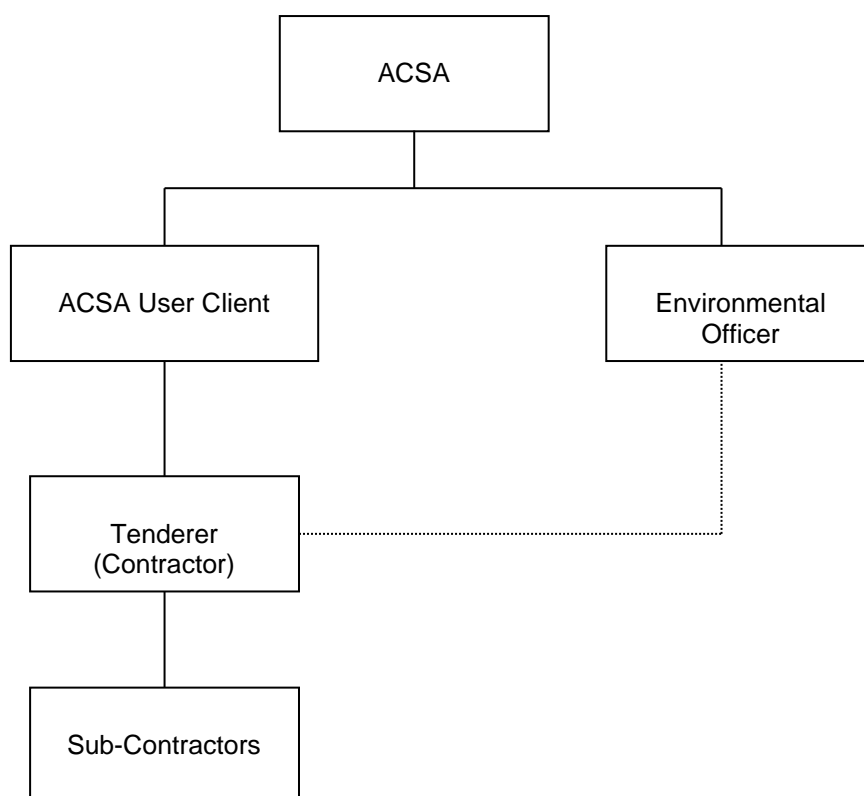
- Send a copy of the letter of appointment of the Responsible Person to the EO.

EP2.2.4 Responsible Person

The Responsible Person for each building site or infrastructure installation shall:

- Develop a system to ensure that the ES is effectively implemented;
- Audit this system so that he/she can demonstrate to the EO that the ES is being effectively implemented;
- Ensure that Contractors staff, sub-contractors, suppliers etc. receive appropriate environmental awareness training prior to commencement of work on the project and maintain records of training. It is anticipated, though not a requirement, that the Responsible Person will deliver training sessions;
- Ensure that responsible persons for sub-contractors are designated to carry out the requirements of the Environmental Specifications
- Submit method statements to the Environmental Officer for approval as specified in the Environmental Specifications and maintain approved method statements on file; and
- Have sufficient authority to issue site instructions to the Contractors staff on their site. It is probable, though not a requirement, that the Responsible Person will be the Engineers Representative.

Figure 1: Organisational structure showing lines of responsibility and communication during the construction phase at the airport.



EP3 METHOD STATEMENTS

The Contractor shall submit a written method statement to the Responsible Person for approval, covering those activities which are identified (in this document and/or by the Environmental Officer), as being potentially harmful to the environment.

Method statements indicate how compliance with the Environmental Particular Specification will be achieved.

The method statement shall state clearly:

- timing of activities;
- materials to be used;
- equipment and staffing requirements;
- the proposed construction procedure designed to implement the relevant environmental specifications;
- the system to be implemented to ensure compliance with the above; and
- other information deemed necessary by the Environmental Officer and Responsible Person.

The method statement shall be submitted at least five working days prior to expected commencement of work on an activity, to allow the Responsible Person time to study and approve the method statement. The contractor shall ensure ACSA that the activity is conducted according to the method statement which will be approved in writing by the ACSA successful tenderer (and also signed by the ACSA Environmental Officer), which shall be done within five working days of receipt.

Due to changing circumstances, it may be necessary to modify method statements. In such cases, the proposed modifications must be indicated and agreed upon in writing between the Environmental Officer and Responsible Person. The EO and Responsible Person must retain records of any amendments and ensure that the most current version of any method statement is being used.

EP4 GENERAL SITE PROCEDURES

EP4.1 Demarcation of Environmentally Sensitive Areas

Before construction commences there needs to be confirmation by ACSA's Environmental Officer that the vegetation in the area to be impacted by construction activities is not identified as an Environmentally Sensitive Area (ESA). However, should Environmentally Sensitive Areas be identified during the construction period the following actions would have to be taken to minimize adverse impacts:

- Environmentally Sensitive Areas, shall not be entered or used for any purpose unless a written motivation has been submitted to the EO by the Responsible Person, and written approval has been obtained from the EO;
- The Contractor shall exercise special care when working close to the ESA's in order to avoid damage or physical disturbance of these areas. The EO may instruct the Responsible Person to restrict the number of construction personnel and equipment operating near Environmentally Sensitive Areas (ESA's);
- Damage caused to ESAs by the Contractor shall be cause for the Contractor to make good any damaged areas to the written satisfaction of the EO;
- The Contractor shall note the proximity to the site of any designated ESAs. The Contractor shall fence any ESAs located within 20-m of the site boundary. The fencing shall extend along the boundary of the ESA for sufficient distance to ensure that the location of the ESA is obvious from the Contractor's site and from the approach to the Contractor's Site; and
- The Contractor shall make provision for the demarcation of ESAs with fencing to the following specifications:

Posts shall be wooden droppers or steel standards where the ground is too hard for wooden droppers to be driven in;

- The posts shall be long enough and spaced closely enough to support a strand of 12-gauge wire at 750- mm above the ground level; and
- The top 300-mm of the posts shall be painted white for easy visibility.

EP4.2 Location of camp and depot

The Contractor's Camp and Materials Storage Area shall be located at a position approved by the Responsible Person. No site staff other than security personnel shall be housed on site.

The Contractor shall provide water and/or washing facilities at the Contractor's Camp for personnel.

The Contractor's Camp and Materials Storage Area shall be kept neat and tidy and free of litter.

EP4.3 Demarcation of the site

It is important that activities are conducted within a limited area to facilitate control and to minimise the impact on the existing natural environment, existing tenants and other construction activities in the vicinity and public thoroughfares.

The Contractor shall demarcate the boundaries of the site in order to restrict his construction activities to the site. The method of demarcation and the location of the demarcated area shall be determined by the Contractor and approved by the Responsible Person before any work being undertaken. The Contractor shall ensure that all plant, labour and materials remain within the boundaries of the site. Failure to do so may result in the Contractor being required to fence the boundaries of the site at his/her own expense to the satisfaction of the Responsible Person.

If additional areas (e.g. for lay down, rest areas) are required, these must be approved in writing by the Responsible Person. The Contractor is advised that it may take approximately one week to obtain such permission from the Responsible Person.

Suitable temporary fencing may need to be erected during construction to minimise the risk of injury to the public, and animals.

EP4.4 Ablution Facilities

The Contractor shall provide the necessary ablution facilities for all his personnel.

Toilets with chemical disinfectants shall be provided, with a minimum of one toilet per 15-persons. Toilets shall be easily accessible and shall be transportable. The toilets shall be secured to prevent them from blowing over, and shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilet paper dispensers shall be provided in all toilets. Toilets shall be cleaned and serviced regularly by a reputable toilet servicing company. Toilets shall be emptied before long weekends and builders' holidays.

The Contractor shall ensure that chemicals and/or waste from toilet cleaning operations are not spilled on the ground at any time. Should there be repeated spillage of chemicals and/or waste (i.e. more than three incidents), the EO shall require the Contractor to place the toilets on a solid base with a sump at his own expense. Accumulations of chemicals and waste will have to be removed from the site and disposed at an approved waste disposal site or sewage plant.

Abluting anywhere other than in the toilets shall not be permitted. Repeated use of open areas, rivers or other areas for ablution purposes (i.e. more than three incidents) may result in the guilty party being given a spot fine. The Contractor shall also be responsible for cleaning up any waste deposited by his personnel.

EP4.5 Domestic waste water

Waste-water from any other ablution or kitchen facilities on site shall be discharged into a suitable conservancy tank. The Contractor shall be responsible for ensuring that the system continues to operate effectively throughout the project and that the conservancy tank is emptied as required during the project. The Contractor shall employ a suitable qualified sub-contractor or the local authority to empty the conservancy tank.

EP4.6 Refuse

Refuse refers to all solid waste, including construction debris (e.g. wrapping materials, timber, cans etc.) waste and surplus food, food packaging etc.

The Contractor shall institute an on-site waste management system that is acceptable to the Responsible Person in order to prevent the spread of refuse within and beyond the site. The Contractor is reminded that wind velocities on the construction site can be extremely high.

All waste shall be collected and contained immediately. The Contractor shall institute a weekly clean up of the site if so instructed by the Responsible Person. This daily/weekly clean up shall be for the Contractor's account.

The Contractor shall not dispose of any waste and/or construction debris by burning or burying. The use of waste bins and skips is recommended. The bins shall be provided with lids and an external closing mechanism to prevent their contents from blowing out. The Contractor shall ensure that all waste is deposited by his employees in the waste bins for removal by the Contractor. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off-site at approved landfill sites.

Waste generated at the construction camps shall be separated into recyclable and non-recyclable waste, and shall be separated as follows:

- Hazardous waste (including used oil, diesel, petrol tins, paint, bitumen, etc.);
- Recyclable waste (paper, tins, glass);
- General waste; and
- Reusable construction material

Recyclable waste shall be deposited in separate skips/bins and removed off-site for recycling. The Contractor may wish to enter into an agreement with the surrounding communities and/or his staff with regard to the collection and sale of recyclable and reusable materials.

Hazardous waste, including waste oil and other chemicals (e.g. paints, solvents) shall be stored in (an) enclosed area(s), and shall be clearly marked. If deemed necessary by the Responsible Person, the Contractor shall obtain the advice of a specialist waste expert concerning the storage of hazardous waste. Such waste shall be disposed of off-site by a specialist waste contractor, at a permitted hazardous waste disposal site.

The EO shall be consulted about, and agree to, the method of storage and disposal of hazardous waste.

The Contractor is advised that spot fines for littering have been included in this document. Offenders found littering will be liable for a spot fine.

EP4.7 Protection of fauna and flora

All fauna within and around the site shall be protected. Birds and animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares. Offenders may be prosecuted in terms of the Animals Protection Act 71 of 1962.

EP4.8 Defacement of natural features

Defacement of any features outside of the construction site shall not occur without the prior written permission of the Responsible Person. Any features defaced by the Contractor shall be restored to the satisfaction of the Responsible Person.

EP4.9 Protection of archaeological and palaeontological Sites

If any possible palaeontological /archaeological material is found during excavations, the Contractor shall stop work immediately and inform the Responsible Person. The Responsible person will inform the South African Heritage Resource Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary excavate, the material, subject to acquiring the requisite permits from the National Monuments Council. Costs incurred will be for the Employer's account.

EP4.10 Effluent and storm-water management

EP4.10.1 General

The Contractor must ensure that pollution of the ground or surface water does not occur as a result of site activities. Pollution could result from the accidental release of contaminated run-off from construction camps, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run-off from stockpiles, solid waste, litter, etc.

EP4.10.2 Run off from construction camps

The Contractor shall ensure that polluted run-off (excluding silt "pollution"), such as run-off from construction camps where equipment is cleaned and/or serviced, fuel stores, workshops, etc. is not discharged overland. The Contractor may direct it into the local sewerage main, with the written permission of the Responsible Person. Alternatively, the Contractor shall erect an earth/brick berm 0,5 m high around such areas and shall collect all run-off from these areas and store it in a conservancy tank for removal from the site. The Contractor shall ensure that silt-laden water is not discharged directly into any surface watercourses (i.e. vleis, etc.), and shall take suitable measures to prevent this.

Natural run-off shall be diverted away from any camps towards the storm-water drains where these are available. Special care must be taken in areas susceptible to erosion, e.g. steep slopes. The Contractor shall ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm-water drain system, or any surface watercourse. The Contractor shall take appropriate measures, e.g. the erection of silt traps, or drainage retention areas, to prevent silt and sand entering drainage or watercourses. Any partial or complete blockage of the storm-water drainage system shall be cleared by the Contractor at his / her own expense.

EP4.10.3 Discharge of construction water

Construction water refers to all water dirtied as a result of construction activities.

The Contractor may discharge silt laden water overland and allow this water to filter into the ground. However, s/he shall ensure that he does not cause erosion as a result of any overland discharge.

The Contractor may discharge limited quantities (less than 50L) of cement-laden water overland, i.e. washings from trowels, wheelbarrows and the like.

Water from washing large concrete-mixing equipment (mixers and the like) shall not be discharged overland. Such water shall be collected in a conservancy tank, removed from the site and disposed of in the correct manner. The Contractor may consider reusing such water for washing other concrete equipment to minimise the amount required to be removed off-site.

Trucks delivering concrete shall not wash the trucks or the chutes on the site. All washing operations shall take place off-site at a location where wastewater can be disposed of in the correct manner.

EP4.10.4 Servicing/fuelling of construction equipment

Servicing and fuelling should preferably occur off-site.

However, if these activities occur on site, the Contractor shall ensure that all servicing of vehicles and equipment takes place in designated areas agreed upon by the Responsible Person. All waste shall be collected and disposed of off-site at an appropriately licensed landfill site. All equipment that leaks onto the ground shall be repaired immediately or removed.

Similarly, no vehicles or machines shall be refuelled on site except at designated refuelling locations, unless otherwise agreed with the Responsible Person. The Contractor shall not change oil or lubricants anywhere on site except at designated locations, except if there is a breakdown or an emergency repair. In such instances, the Contractor shall ensure that he has Drizit pads (or equivalent) and/or drip trays available to collect any oil, fluid, etc.

EP4.10.5 Fuels and chemicals

The Contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of his activities.

The Contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The Contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, which is intended to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly and the contaminated water disposed of off-site at a facility capable of handling such wastewater. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing, and before long week ends and holidays.

The Contractor shall remove all oil-, petrol-, and diesel-soaked sand immediately and shall dispose of it as hazardous waste.

Should the Responsible Person/ECO and/or the relevant authorities deem it necessary to institute a programme for the removal of contaminated ground resulting from the non-compliance of the controls detailed above, these costs will be for the Contractor's account. Remedial action shall be approved by the ECO and relevant authorities, if appropriate.

EP4.11 Dust control

The Contractor shall be responsible for the continued control of dust arising from his/her operations, through measures including, but not limited to, spraying of water on bare areas, rotovating straw bales into the soil surface and the scheduling of dust-generating activities to times when wind velocity is low. Overhead sprayers shall not be used in windy conditions, due to water loss through evaporation. The use of water carts is preferred.

The Contractor shall inform the Responsible Person 48 hours in advance of anticipated "unavoidable" dust-generating activities. The Responsible Person and/or ECO may inform adjacent land users, tenants and communities about the possibility of dust pollution, and the approximate duration of the problem.

EP4.12 Noise control

The Contractor shall take all reasonable precautions to minimise noise generated on site as a result of his operations, especially when working in areas or on activities that may impact on neighbouring land users.

The Contractor shall comply with the applicable regulations with regard to noise.

The Contractor shall inform the Responsible Person 48-hours in advance of anticipated "unavoidable" noise-generating activities. The Responsible Person and/or Environmental Officer may inform adjacent land users, tenants and communities about the possibility of noise pollution and the approximate duration of the problem.

EP4.13 Materials use, handling, storage and transport

Procedure for material handling must be discussed with and approved by the Responsible Person prior to commencement of this activity.

EP4.13.1 Use of cement/concrete

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. Therefore the Contractor shall ensure that:

- concrete is mixed on mortar boards, and not directly on the ground;
- visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing visible signs into the ground is not acceptable; and

- all aggregate is also removed.

EP4.13.2 Fuel storage and use

Tanks containing fuels shall have lids and shall remain firmly shut. Only clean, empty tanks may be stored on the bare ground. Fuel stores shall be placed on a bunded sealed base - the bunds shall have a volume of 110% of the volume of the largest tank in the storage area. Any waste-water or spilled fuel collected within the bund shall be disposed of as hazardous waste.

The Contractor shall take all the necessary precautions to prevent fires or spills. No smoking shall be allowed in the vicinity of the fuel stores. Failure to adhere to this specification shall be cause for a spot fine being imposed on the offender.

The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

EP4.13.3 Hazardous materials

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials. If necessary, the Contractor shall obtain the advice of the manufacturer with regard to the safe handling of hazardous materials. Any claims against the Contractor shall be for his/her account.

The Contractor shall provide the Responsible Person with a list of hazardous substances on site, together with storage procedures for these materials.

The Contractor shall ensure that there is an emergency procedure to deal with accidents and incidents (e.g. spills) arising from hazardous substances. The Contractor shall report major incidents (spills in excess of 50 litres) to the Responsible Person immediately.

The Contractor shall maintain a register of spills or incidents involving hazardous materials, as well as measures taken.

The Contractor shall ensure that information on all hazardous substances is available to all personnel on site. The Contractor shall furthermore be responsible for the training of all personnel on site who will be handling the material about its proper use, handling and disposal.

EP4.13.4 Transport of materials outside the site

The Contractor shall comply with all the applicable local, regional and national by-laws with regard to road safety and the transport of materials, especially hazardous and/or toxic materials. Any claims against the Contractor shall be for his account.

The Responsible Person shall provide the Environmental Officer with a schedule of the proposed transportation of significant quantities of hazardous material onto the site, before commencing work on site. The Environmental Officer may request further details or notifications of specific material movements if considered necessary.

EP4.14 Emergency procedures

EP4.14.1 General

The Contractor shall ensure that emergency procedures are set up prior to commencing work. Emergency procedures shall include, but are not limited to, fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc. Emergency procedures, including responsible personnel, contact details of emergency services, etc. shall be made available to all the relevant personnel and shall be clearly demarcated at the relevant locations around the site.

The Responsible Person shall advise the EO of any emergencies on site, together with a record of action taken.

EP4.14.2 Fire

The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his/her activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

No open fires shall be permitted on or off-site. Closed fires or stoves shall only be permitted at designated safe sites in the construction camps. Fires shall also not be permitted near any potential sources of combustion, such as fuel stores, stockpiles of plant material etc.

The Contractor is advised that sparks generated during welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

EP4.15 Social issues

EP4.15.1 Third party or public complaints

The Environmental Officer shall be responsible for responding to queries and/or complaints and may request assistance from the Responsible Person in this regard.

The Environmental Officer shall notify the Responsible Person of any complaints lodged by a third party, and request appropriate information and measures to address such complaints. The Environmental Officer shall be responsible for maintaining a complaints register in which all complaints are recorded, as well as action taken. This register shall be available to the Responsible Person and the Contractor on request.

EP4.15.2 Information sharing

The Responsible Person and/or the Contractor may need to make staff available for formal consultation with affected parties for the purpose of explaining the construction process and answering queries if necessary.

EP5 SITE CLEARANCE

EP5.1 Removal of topsoil

Following removal of vegetation from the site, all topsoil shall be removed (up to a maximum of 30-cm depth) and stock-piled for re-use in subsequent rehabilitation and landscaping activities. The stockpiles shall not be higher than 2-m in order to minimise composting. The stockpiles of topsoil shall be located in an area agreed with the Responsible Person.

EP5.2 Stabilisation of steep slopes

The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The Contractor shall ensure that slopes that are disturbed during construction are stabilised to prevent erosion occurring. Where re-vegetation of slopes is undertaken, this shall be in accordance with the specification provided in EP6.

Slopes that are susceptible to accidental damage during construction shall be protected to reduce the risk of disturbance.

Any erosion that does occur must be reinstated at the Contractor's cost.

EP5.3 Removal of alien vegetation

The Contractor shall clear all alien vegetation from areas within the demarcated site that are to be landscaped or which fall within open space or buffer zones (e.g. pipeline routes, road fringes).

EP6 SITE REHABILITATION

EP6.1 Scope

The Contractor shall be responsible for rehabilitating any areas cleared or disturbed for construction purposes that are to be incorporated into open space or buffer zones. The Contractor shall re-vegetate such areas in accordance with the specification provided below.

The Contractor shall stabilise, by straw rot ovation or other means, any areas that are cleared or disturbed for construction purposes which are not going to be incorporated into open space or buffer zones (i.e. areas that will be subsequently developed by another party).

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or on any other land not owned by ACSA.

EP6.2 Landscaping and preparation for re-vegetation

Areas that require reshaping shall be cut, filled and compacted so as to follow the contours of the surrounding landscape. Topsoil removed from the area initially shall be replaced. Care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before re-vegetation is commenced, the Contractor shall, at his own cost, loosen the crust by scarifying to a depth of 150-mm.

EP7 MANAGEMENT AND MONITORING

This section focuses on the systems and procedures required to ensure that the environmental specifications are effectively implemented. The emphasis is on monitoring, training and penalties/incentives aimed at ensuring compliance with this document. Suitable documentation and external checks are crucial to ensure compliance and methods to achieve this are also presented in this section.

EP7.1 General Inspection, Monitoring and Reporting

The Responsible Person shall:

- Inspect the site on a daily basis to ensure that the environmental specifications are adhered to.
- Provide the Environmental Officer with a monthly written report, detailing both compliance with the Environmental Specifications as well as general environmental performance.
- Maintain a record of major incidents (spills, impacts, complaints, legal transgressions etc) as well as corrective and preventive actions taken, for submission to the Environmental Officer at scheduled monthly report back meetings.
- Conduct regular internal audits to ensure that the system for implementation of the ES is operating effectively. The audit shall check that a procedure is in place to ensure that:
 - the Method Statements and Environmental Specifications being used are the up-to-date versions;
 - variations to the Environmental Specifications/Method Statements and non-compliances and corrective action are documented;
 - appropriate environmental training of personnel is undertaken; and
 - emergency procedures are in place and effectively communicated to personnel.
- Provide the required information to the Environmental Officer during external audits conducted, as part of the Environmental Management Systems auditing procedure. The information required will include the reports of internal audits conducted by the Responsible Person.

EP7.2 Environmental awareness training

EP7.2.1 Environmental awareness training prior to commencing work

An initial environmental awareness training workshop shall be held prior to any work commencing at the airport. The Responsible Person shall organise (deliver) the workshop and will record the names of those attending. It is recommended that the Contractor allow one hour for this workshop. The workshop shall be attended by all site staff, including sub-contractor's staff.

The Contractor is responsible for ensuring that personnel commencing work on site after the start of the contract (who therefore miss the initial workshop) are also made aware of the environmental procedures before commencing work.

The emphasis should be on any (potential) environmental impacts relating to the construction activities to be undertaken on site and the related environmental precautions, which need to be taken to avoid or mitigate these impacts. The contractual obligation to comply with the specifications in the Environmental Specifications must also be emphasised (some training material will be specific to certain sites or tenders).

A general environmental awareness programme aimed at all employees of the Contractor, sub-contractors and suppliers is available from the Environmental Officer.

EP7.2.2 Additional environmental awareness sessions

If there are persistent breaches of the specifications contained in the Environmental Specification and/or if new environmental issues arise during the course of construction, the Environmental Officer may require additional environmental training sessions. Attendance at these sessions will be determined by the EO, in consultation with the Responsible Person. The Contractor shall make provision for one hour a month for attendance (of construction staff) at these meetings.

EP7.3 Documentation

The Responsible Person shall ensure that all records of spills, pollution incidents, spot fines, training details etc. are copied to the Environmental Officer for his/her records. All documents shall be open for inspection by the Airport Environmental Committee (AEC).

The Environmental Officer shall ensure that a register of public complaints and action taken thereon, plus the relevant documentation from the Contractors, is maintained.

EP7.4 Incentives and penalties

EP7.4.1 Incentives

The Environmental Officer may identify a Contractor that is best implementing this Environmental Specifications and may make a (monthly) award to, or acknowledge, that Contractor.

EP7.4.2 Penalties

Spot fines shall be imposed by the Environmental Officer on Contractors who are found to be infringing these specifications. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine, and furthermore the Contractor shall determine how to recover the fine from the relevant employee and/or sub-contractor. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and shall advise the Environmental Officer accordingly.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings by the Council, authorities, land owners and/or members of the public may institute against the Contractor.

Spot fines shall be between R500 and R2000, depending upon the severity of the infringement. The decision on how much to impose will be made by the Environmental Officer, and will be final. In addition to the spot fine, the

Contractor shall be required to make good any damage caused as a result of the infringement at his/her own expense.

A preliminary list of infringements for which spot fines will be imposed is as follows:

- moving outside the demarcated site boundaries;
- littering of waste on site and surrounds and burying waste on site and surrounds;
- smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
- making fires outside designated areas;
- defacement of natural features;
- spillage onto the ground of oil, diesel, etc;
- picking/damaging plant material;
- damaging/killing wild animals; and
- additional fines as determined by the Environmental Officer.

The Responsible Person may also order the Contractor to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the ES (i.e. more than 3 cases of infringements). The suspension will be enforced until the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

EP7.5 External audit

Regular scheduled audits of the EMS will be conducted. However, this is not a dedicated audit of the implementation of this document (which is one of many components of the EMS). Nevertheless, it is anticipated that implementation of the terms and specifications contained in this document will be periodically audited as part of the EMS audit.

All documentation held by the Environmental Officer shall be available for the EMS audit at all times. Contractors shall also be required to provide any information required by the EMS auditors.

AIRSIDE PROJECT/WORK SAFETY PLAN

(OHS and Environmental Safety Plans to be submitted separately)

Contractor:

Project/work:

ACSA Dept.

- 1 Disruption to normal operations (Minimise)**
 - a. Hours of work
 - b. Information to Stakeholders in writing
 - c. NOTAM
- 2 Access**
 - a. Access point and route
 - b. Marking of Route
 - c. Movement area crossing points
 - d. Vehicle / Equipment control
 - e. Communication facilities
 - f. Escorts
- 3 Height restrictions**
 - a. Vehicles / Cranes
 - b. Operating heights of crane jibs
- 4 Aircraft movement area inspections : F&RS/Airside Safety**
 - a. Frequency
 - Areas open to a/c use
 - Areas closed to a/c use
 - b. Cleaning / sweeping
- 5 Site inspection**
 - a. Adherence to safety requirements
- 6 Marking of obstacles**
 - a. Hoarding / demarcation of site
 - b. Markings
 - c. Lighting
- 7 Safety training**
 - a. Airside Inductions
 - b. AVOP
 - c. OHS
 - d. Environment
- 8 Security Permits**
 - a. Personnel
 - b. Vehicles / equipment inspections
- 9 PPE**
 - a. Reflective jackets / vests
 - b. Ear protections

- 10 **Hot work permit – Fire & Rescue**
- 11 **Contractor staff briefings** (proof may be requested)
- a. Precise area in which work may be done
 - b. Routes to be followed to and from working area
 - c. R/T procedures to be used
 - d. Escorting procedures and briefs
 - e. Safety precautions to be observed, eg:
 - Maintenance of listening watch
 - Use of look-outs
 - f. Reporting procedure to be followed on completion of work
- 12 **Written warning to contractor of possible hazards to personnel**
(Attach copy)
eg: - Jet blast; Noise
- 13 **List of mechanical equipment**
(Brief descriptions of equipment may be requested to enhance understanding.)
- 14 **Schedule of Contractors**
- 15 **General comments**

Compiled by:

Signature:

Date:

APPENDIX A

SITE INSPECTION PROTOCOL FOR CONSTRUCTION ACTIVITIES

The ACSA: Environmental Officer should audit one or more method statement per site (if applicable), as well as the general requirements of the Construction ES (see checklist overleaf) during a site inspection.

Project reference:.....
Contractor:.....
Responsible Person:.....
Date:.....

Method statement(s) audited:

Tick one box:

☐

method statement properly implemented

☐

method statement not properly implemented

If method statement not properly implemented, describe deviations/omissions/problems:

1.
2.
3.

Describe actions/plans to ensure proper implementation of the method statement:

1.
2.
3.

Other observations about implementation (if any):

1.

Signed..... (ACSA ECO)

Signed..... (Responsible Person)

Date:

Date:

SITE INSPECTION PROTOCOL FOR CONSTRUCTION ACTIVITIES

ISSUE	REQUIREMENT FOR COMPLIANCE		COMMENTS/ACTIONS
Site	Site boundary is clearly demarcated and activities undertaken within boundary.		
Toilets	Adequate toilets have been provided. These are secure and well maintained.		
Wastewater	Waste water is discharged to the reticulated system or to a conservancy tank which is emptied as required.		
Refuse	Site is generally tidy and free from litter.		
	No burning or burying waste.		
Natural features	No defacement of natural features to be protected in the site or the immediate surrounding area.		
Runoff	No polluted runoff from the site.		
	No pollution or erosion resulting from runoff of construction water.		
Fuels & chemicals	Servicing & fuelling occurs in designated place. No significant ground contamination.		
	Drip trays in place for pumps and other machinery in fixed location for at least 2 days.		
	Fuel stores on sealed base and adequately bunded.		
	Hazardous materials stored in an enclosed area or as agreed in method statement and appropriately labelled.		
	Spill clean up materials available on site.		
	No significant spillage.		
Dust	No excessive dust which could cause a nuisance to employees or the public.		
Fire	No fires on site. Use of closed stoves or fires limited to construction camps.		
	Fire extinguishers available near any welding or metal cutting.		
Topsoil	Topsoil removed and stockpiled < 2m high.		
Stabilisation	Slopes stabilised as necessary to prevent erosion.		
Monitoring	Responsible Person's record of major incidents is up to date.		
Training	All Contractors' personnel are aware of environmental responsibilities.		
	Records of training maintained by Responsible Person.		

C3.7.3: REQUIREMENTS OF GOVERNMENT'S PROGRAMME FOR BROAD-BASED BLACK EMPOWERMENT

C3.7.3.1 SCOPE

1. GOVERNMENT POLICY

There is a compelling need to elevate development of previously disadvantaged individuals and enterprises, and leadership by ACSA is required to establish the framework for the development of previously disadvantaged individuals and enterprises. (based on CIDB NCDP 2011).

The objective of the NCDP is to promote equity ownership across the different contracting categories and grades, as well as improving skills and performance in the delivery and maintenance of capital works across the public sector.

2. APPLICABLE LEGISLATION

All tenders will be considered with specific reference to applicable legislation in force from time to time and which are specifically applicable to organs of state for example the following:-

- 2.1 Public Finance Management Act No. 1 of 1999;
- 2.2 Preferential Procurement Policy Framework Act No. 5 of 2000;
- 2.3 The Constitution of South Africa
- 2.4 Broad-Based Black Economic Empowerment Act No. 53 of 2003
- 2.5 National Small Business Amendment Act No. 26 of 2003

C3.7.3.2 DEFINITIONS

- 1) **BBBEE**
Broad-Based Black Economic Empowerment
- 2) **BO**
Black Owned
- 3) **BWOYO**
Black Woman Owned, Youth Owned
- 4) **CIDB**
Construction Industry Development Board
- 5) **CPG**
Contract Participation Goals
- 6) **EME**
Exempted Micro Enterprise
- 7) **ISO**
Quality management systems standards
- 8) **JV**
Joint Venture
- 9) **NCDP**
National Contractors Development Programme
- 10) **PPPFA**
Preferential Procurement Policy Framework Act
- 11) **PWPDO**
Persons with Physical Disability Owned
- 12) **SADC**
Southern African Development Community
- 13) **PPM**
Project Portfolio Management

TABLE A

Size	Total Gross asset value (fixed property excluded) (less than)	Total annual turnover (less than)	Total full time equivalent of paid employees (less than)
Medium	R 5 m	R 26 m	200
Small	R 1 m	R 6 m	50
Very Small	R 0.5 m	R 3 m	20
Micro	R 0.1 m	R 0.2 m	5

C3.7.3.3 CONTRACT PARTICIPATION

Airports Company South Africa aims to contract predominantly with Empowering Suppliers per the definition in P010 004P (ACSA internal transformation policy) were this relates to:

- an increase in local production,
- raw material beneficiation
- retention and employment of black people
- the transfer of skills to black owned EME's and QSE's.

1. Contract Participation Goals (CPG)

CPG refers to the extent to which the contracted resources achieve predetermined transformation objectives, expressed as a percentage (%) of the contract value. Bidders are expected to achieve this target by the end of the project.

- Bidders are to submit a transformation proposal meeting the CPG target for all contracts over R1m including VAT.
- CPG for this contract will be at 50% which will consist of the following B-BBEE elements:
 - Equity (Target 50%): 40% weighting.
 - Management (Target 50%): 40% weighting
 - Skills development: 5% weighting
 - Enterprise and supplier development: 10% weighting
 - Socio economic development: 5% weighting
- To facilitate achievement of targets set out in 3, and transfer of skills, the tenderer **must** subcontract more than 30% of the contract value to CIDB Grade 2 to 6 CE contractors that are women owned, youth owned, PWPDO, or allocate to EME, QSE that are 51% black owned entities.
- In the event that the Contractor/consultant fails to substantiate that any failure to achieve the contract participation goal relating to the granting of a preference was due to quantitative underruns, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, the Contractor/Consultant shall be liable to pay to the Employer a financial penalty calculated in the following manner:

$$P = (0,15 \times (D - Do) \times CA) / 100$$
 - where D is the tendered contract participation goal percentage;
 - Do is the contract participation goal which the Employer's representative, certifies based on the credits passed, as being achieved upon completion of the contract;
 - CA is the contract amount.
 - P is the monetary value of penalty payable

No financial award is due for over performance on CPG.

6. Sample score sheet for Calculation of Contract Participation goals

Transformation score sheet (C3.7.3.3(6))							
<i>(Only Populate the white blocks/cells)</i>							
Ownership target 51%	Method 1	% of contract executed by prime contractor	% Black Ownership	Total CPG/ Element	Weightir CPG	Contract CPG	
	Method 2	% contract being executed by targeted JV Partners	% Black Ownership				
	Method 3	% on contract being executed by targeted subcontracto	% Black Ownership				
Management target 51:	Method 1	% of contract executed by prime contractor	% Black Management	Total CPG/ Element	Weighting		
	Method 2	% contract being executed by targeted JV Partners	% Black Management				
	Method 3	% on contract being executed by targeted subcontracto	% Black Management				
Skills Development	Method 2	% contract being executed by targeted JV Partners	% Black Management	Total CPG/ Element	Weighting		
	Method 3	% on contract being executed by targeted subcontracto	% Black Management				
ESD	Method 2	% contract being executed by targeted JV Partners	% Black management	Total CPG/ Element	Weighting		
	Method 3	% on contract being executed by targeted subcontracto	% Black management				
SED	Method 2	% contract being executed by targeted JV Partners	% Black Management	Total CPG/ Element	Weighting		
	Method 3	% on contract being executed by targeted subcontracto	% Black management				
				CPG Score:			

C3.7.4: REQUIREMENTS OF THE CIDB BUILD PROGRAMME

The contractor shall achieve in the performance of the contract the Contract Skills Development Goals (CSDG) as stated in the Standard for Developing Skills through Infrastructure Contracts (Published in GN 43495 of 20 March 2020)

CSDG shall be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities linked to work associated with a contract which culminate in or lead to:

- a) **Method 1:** a part- or full occupational qualification registered on the National Qualification Framework;
- b) **Method 2:** a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);
- c) **Method 3:** a national diploma registered on the National Qualification Framework; and
- d) **Method 4:** registration in a professional category by one of the professional bodies listed in the standard.

This section shall be read concurrently with the Standard for Developing Skills through Infrastructure Contracts (Published in GN 43495 of 20 March 2020). The contractor shall comply with the provisions of the Standard for Developing Skills through Infrastructure Contracts for the contract duration.

The Construction Skills Development Goal shall be a minimum of 0.25% of the contract value for this contract. The contractor shall make use of the table below in preparing a proposal on how the CSDG will be met in this contract.

PC 1.2.12 in the bill of quantities has been allowed in the bill of quantities for CSDG over a period of 10 Months. This item is a time related item and shall be paid out monthly for over the contract duration.

The table below shall be used by the Contractor to propose the method in which the CSDG will be met. In the event of the Contractor failing to meet the relevant requirements and goals, the Contractor will be penalised as detailed in Item 5 of C3.7.3.3 above.

Skills Types	Number of Learners	*Notional Cost/ Learner/ Quarter (Rand)	Notional Cost /learner/ year (Rand)	Total Notional Cost over 10 Months Contract (Rand)
Method 1: a part- or full occupational qualification registered on the National Qualification Framework;				
Method 2: a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);				
Method 3: a national diploma registered on the National Qualification Framework;				
Method 4: registration in a professional category by one of the professional bodies listed in the standard.				
Total Cost (Cost of CSDG)				
CSDG Score % (Total cost of CSDG/Contract value Excluding VAT)				



AIRPORTS COMPANY SOUTH AFRICA

BRAM FISCHER INTERNATIONAL AIRPORT

TENDER NO: BFIA 7139/2023/RFP

REHABILITATION OF RUNWAY 0220 AND TAXIWAYS AT BRAM FISCHER INTERNATIONAL AIRPORT

C4: SITE INFORMATION

C4.1 SCOPE AND DISCLAIMERS

C4.2 SITE DESCRIPTION

C4.3 CLIMATE DATA

C4.4 CONSTRUCTION CONSTRAINTS AND ENVIRONMENTAL CONDITIONS

C4.5 RESTRICTED ACCESS TO THE SITE OF THE WORKS

C4.6 TRAFFIC

C4.7 EXISTING PAVEMENT PROFILE AND MATERIAL CLASSIFICATION

C4: SITE INFORMATION

C4.1. SCOPE AND DISCLAIMERS

The information contained in Part C4 is intended as an indication of the conditions likely to be encountered. All drawings, opinions, interpretations and suggested working methods given in this volume must be regarded as a guide. The results are given in good faith but no warranty is given that the information is representative of the entire airport or route, and no responsibility will be accepted for any consequence arising from actual conditions being different from those indicated in this volume.

This tender applies to the (a) Skills Development Standard. Although in the case of this standard there are no returnable documents, tenderers are sensitised that the proforma documents as listed below, shall be completed by the successful contractor after award of the contract within the stipulated period. (The proforma documents are provided in the tender data for information purposes only).

PRO-FORMA DOCUMENTS

Form A 1 List of Recognised Skills Development Agencies

Form A 2 Baseline Training Plan

Form A 3 Project Interim Report

Form A 4 Supervisor Agreement

Form A 5 Project Completion Report (CSDG).

Form A1 List of Recognised Skills Development Agencies

CIDB Recognised Skills Development Agencies								
No	Name of SDA	SDA Recognition Number	Status	Recognition End Date	Province	Contact Person	Contact Number	Email Address
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								

CIDB SKILLS STANDARD BASELINE TRAINING PLAN

Contractor Details						
Contractor Name:						
CRS Number:						
Estimated start date						
Estimated Completion date						
Size of Organisation	Small (1-49 employees)		Medium (50-149 employees)		Large (≥150 employees)	

Contractor Contact Details	
Name of Contact Person	
Designation of Contact Person	
Contact Details	Cell Number:
	Landline Number:
	Email address:

Construction Skills Development Goal (CSDG) Baseline Training Plan					
Training Method	Number of Employed Learners	Number of Unemployed Learners	Area/s of Specialisation/Trade	Duration of Placement	Total Notional Cost
Total					

Note: Refer to Table 3 in the Standard for Developing Skills through Infrastructure Contracts Government Gazette 43495 of 3 July 2020 for the notional costs

Contractor's
Representative
Name:

Designation:

Signature:

Date:

Employer's
Representative
Name:

Designation:

Signature:

Date:

Form A 3 Project Interim Report

cidb PROJECT ASSESSMENT SCHEME: STANDARD FOR DEVELOPING SKILLS PROJECT INTERIM TRAINING REPORT																																						
Section A: Employer Information																																						
cidb Employer Number																																						
Employer Name																																						
Section B: Contract Data																																						
cidb Contract Number																																						
Contract Title																																						
Tender Value (R)																																						
Contract Skills Development Goal (R)																																						
SIP Number (If Applicable)																																						
SIP Project Code (If Applicable)																																						
Definitions:																																						
Training Methods: Method 1: structured workplace learning opportunities for learners towards the attainment of a part or a full occupational qualification; Method 2: structured workplace learning opportunities for apprentices or other artisan learners towards the attainment of a trade qualification leading to a listed trade subject to at least 60% of the artisan learners being holders of public TVET college qualifications; Method 3: work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas; Method 4: structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council listed in Table 1 above																																						
Learner/Candidates Full Name and Surname	Gender		Ethnic Group					Identity Number	Training Method (Please tick)				Placement Start Date	Placement End Date	Occupation Description	Description of Practical Task Completed (as per logbook or POE)	Status	Supporting documents available on request (Please tick)																				
	Male	Female	Black	White	Coloured	Indian	Other		M1	M2	M3	M4						Learner Training Plan	Attendance Register	Signed Logbooks/POE	Medical Assessments	Induction	Health and Safety Training	PPE Register														
Eg. Joe Smith	1			1			1	2	3	4	5	6	7	4	5	6	8	9	1		X			01 May 2016	31 May 2016	Bricklaying	Read and interpret drawings Set out building as per drawing Transfer levels using dumpy level Batch and mix concrete	Completed In progress In progress Completed	x	x	x	x	x	x	x			

Form A 4 Supervisor Agreement

[illegible]

[illegible]

C4.2. SITE DESCRIPTION

C4.2.1 General

The general locality of the main facilities is indicated in the diagram below:

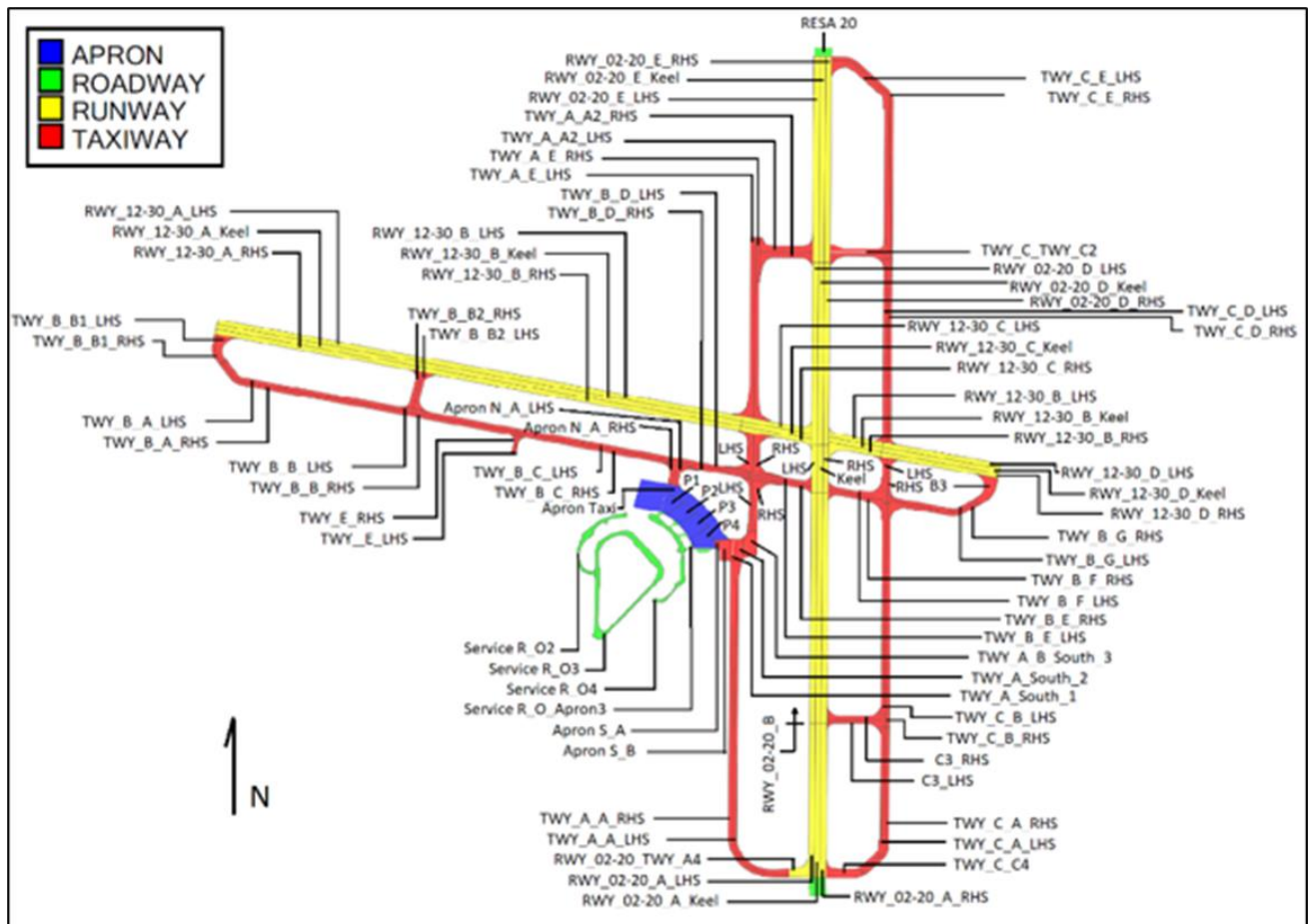


Figure 1: Map of BFIA with element (Branch ID) description with the facility usage in colour codes

C4.3 CLIMATE DATA

The average long term annual rainfall for the area is 556mm. The rainy season starts in September and ends in April, with peak rainfalls in the months of December, January, February and March. The driest period occurs in the months of autumn and winter, from June to August. Climate data is presented in Figures 2 and 3.

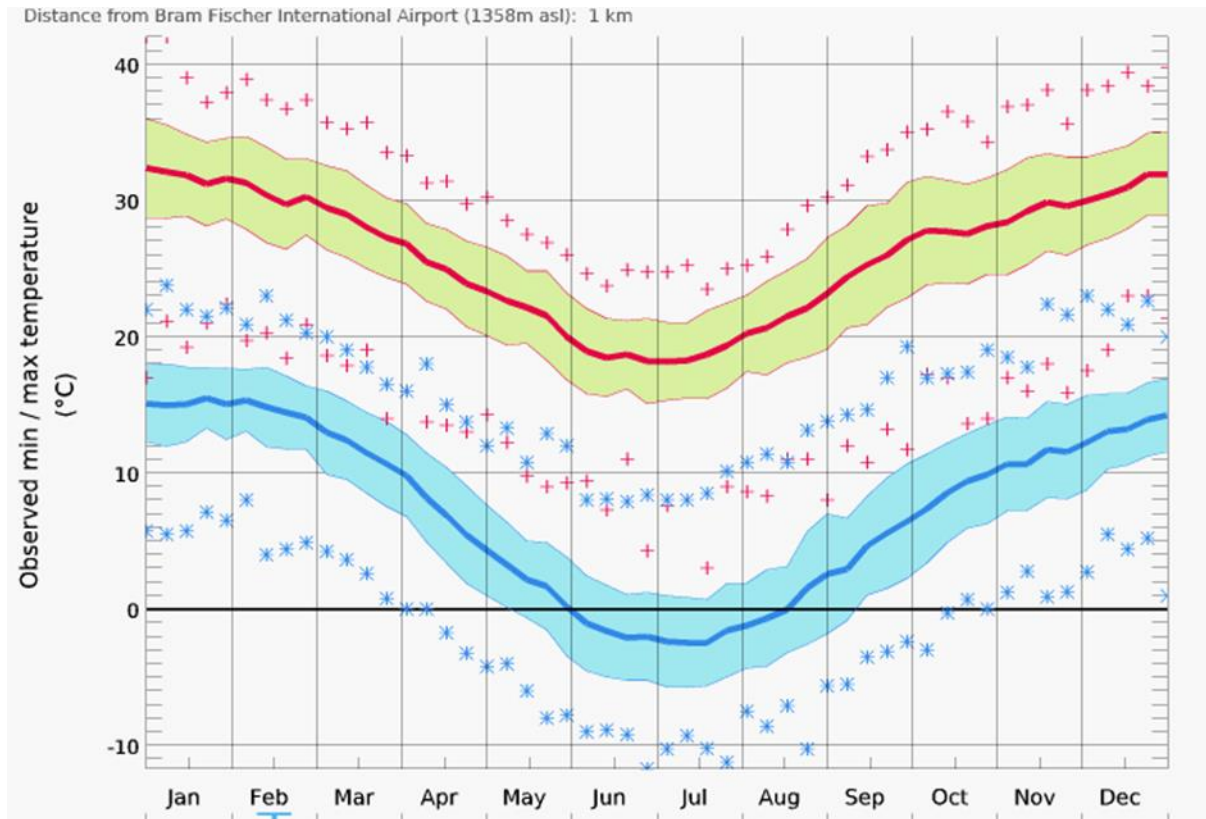


Figure 2: Average monthly air temperatures (Metroblue 2022)

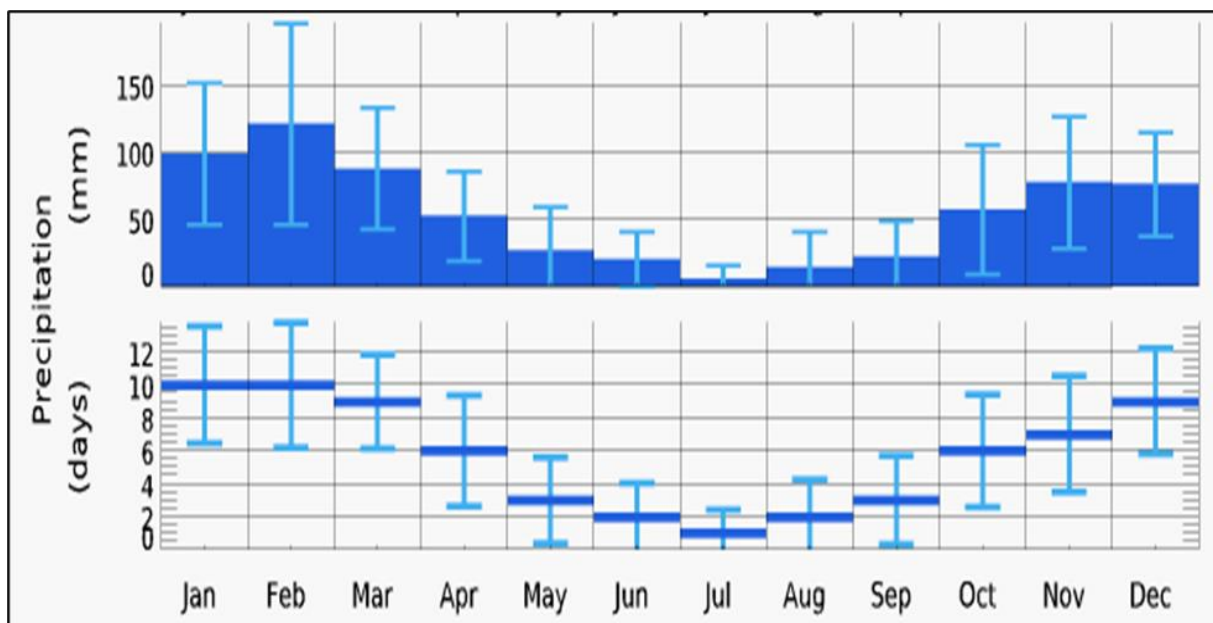


Figure 3: Long Term Average and maximum 24hr monthly rainfall (Metroblue 2022)

C4.4 CONSTRUCTION CONSTRAINTS AND ENVIRONMENTAL CONDITIONS

The following climatic aspects are of significance to the construction and performance of the asphalt work and others:

- During the summer, rainfall occurs mostly in the form of high intensity thunderstorms, the month that should have the least disruption on construction activities is May to November. The rest of the month's rain delays can be expected with the highest delays in December to February.
- Asphalt temperatures cool very rapidly when being placed during days when the temperature drops to below 5°C and, it might be difficult to achieve effective compaction of thin asphalt and surfacing layers. Bitumen's are also sensitive for these conditions with possible stripping of stone particularly for night work during the winter months.

It is undesirable to construct the asphalt in very cold weather, which highlights the importance of planning in months May, June, July and August as previously mentioned, asphalt premix work will be severely constrained with the minimum temperature falling below 5°C.

- Very low temperatures increase the stiffness of asphalt mixes and also the brittleness of the mixes. This can lead to early fatigue and shrinkage cracking if design principles are ignored.
- Consistently high air temperatures (> 25°C,) during the summer can result in the softening of the asphalt leading to rutting (deformation) in the upper asphalt under slow moving (creep load) with high tyre pressures. Special attention needs to be given to asphalt and bitumen properties, considering the choice of binder and mix stability.

C4.5 RESTRICTED ACCESS TO THE SITE OF THE WORKS

C4.5.1 Restricted Areas

The contractor will have restricted access to the works at any given time because simultaneous closure of the runway and taxiways during normal operational hours will not be permitted.

Although the entire site will be handed to the Contractor at the start of the contract, the airport manager and the air traffic controller have the right to decide at short notice where on the site the Contractor may work. Works on all Runways, Aprons and Taxiways will remain operational and has access on the runway. Therefore, it is compulsory for the Contractor to complete the portion of surfacing milled for the night shift the same night and to allow normal air-traffic for the next day.

C4.5.2 Access Point and Routes

The designated access point for plant and personnel will be provided to the contractor. The Contractor will be required to provide 24 hour security at these Gates. The security stall at this Gate will be in radio contract with Fire & Rescue at all times to enable the provision of escort services.

Construction material must be delivered via the temporary access gate to the site camp under escort service. The Contractor shall erect, maintain, move and finally remove temporary barriers, fences, signs and markings, all as prescribed by the airport authorities. The Contractor shall ensure that all barricades, markers and signs are placed under escort, prior to entering a work area for construction purposes.

Movement outside the areas demarcated for construction shall not be permitted, unless special arrangements have been made and approved by the AM.

C4.6 TRAFFIC

A straight-line simplification of the rebound is done here simply to provide the traffic figures for pavement design calculation some form of normalcy with a steady growth rate.

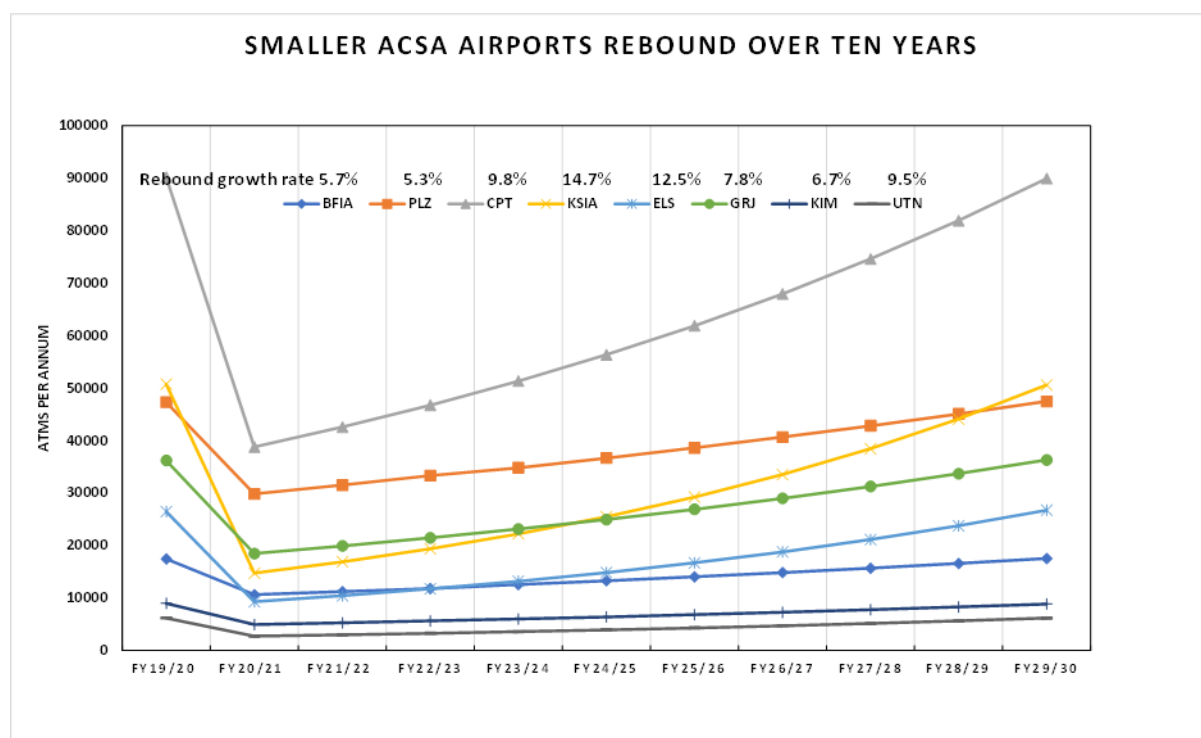


Figure 4: Rebound modelling of ATMs of smaller 8 ACSA airports

The traffic distribution per runway, per taxiway, per taxi-lane and on the aprons is still to be determined. The distribution or weight per airside element, are assigned via logical travel paths following such annual arrivals and departures and are assigned per aircraft type. These weights are shown in the bottom line of Table 1.

Table 1: Directions of departure and arrivals

BFIA Traffic			Runway 02/20 (46x2563m)	Runway 12/30 (46x2194)	Alpha TWY (1930x20m)	Alpha 1 TWY (100x20)	Alpha 4 TWY (120x30)	Bravo TWY (30x2000)	Bravo 1 TWY (30x6600)	Bravo 2 TWY (30x6600)	Bravo 3 TWY (30x6600)	Charlie TWY (30x2540)	Charlie 1 TWY (30x220)	Charlie 2 TWY (30x166)	Charlie 3 TWY (30x166)	Charlie 4 TWY (30x220)	Apron Alpha concrete (200x65)	Apron Alpha or Alpha-Taxi-lane Asphalt (200x30)
Plane	Departure percentage	Operations																
B-737-200-3	0.7%	142	66	15	44	37	58	44	22	7	22	37	37	4	4	7	37	37
B-737-800	5.3%	1104	511	114	341	284	454	341	170	57	170	284	284	28	28	57	284	284
Beech 200	20.5%	4246	1965	437	1310	1092	1747	1310	655	218	655	1092	1092	109	109	218	1092	1092
CHALLENGER CL600	20.5%	4246	1965	437	1310	1092	1747	1310	655	218	655	1092	1092	109	109	218	1092	1092
DASH8	30.4%	6285	2909	646	1939	1616	2586	1939	970	323	970	1616	1616	162	162	323	1616	1616
DC-9-51	1.0%	212	98	22	65	55	87	65	33	11	33	55	55	5	5	11	55	55
	21.4%	4431	2051	456	1367	1139	1823	1367	684	228	684	1139	1139	114	114	228	1139	1139
Weight distribution per air side element of ATMs			0.9	0.2	0.6	0.5	0.8	0.6	0.3	0.1	0.3	0.5	0.5	0.05	0.05	0.1	0.5	0.5

C4.7 EXISTING PAVEMENT PROFILE AND MATERIAL CLASSIFICATION

The test-pit profile and material descriptions are shown in **Table** to **Table**. The test pit material profiles for Runway 0220 and Taxiway Charlie are described to be wet in the base and subbase. For taxiways Alpha, Taxiway Bravo and Apron Bravo, the test pits are described as moist and slightly moist in the base, subbase and lower layers. The presence of moisture in the test pits as described is indicative of possible subsoil drainage issues. This could be linked to what was observed during the visual assessment of defects such as ponding spots, fines materials and water pumping through surface cracks and deterioration of the pavement layer works.

The observed existence of wetness/moistness in the pavement layers is an indication of a poor subdrainage systems which is not effective in ensuring protection of layer works against water ingress..

Table 2: Test Pit Profile Runway 0220

Depth (mm)	Description
<u>0mm</u>	
	0-5mm: Sand Seal, Loss of individual aggregate visible on close inspection.5-70mm: Medium grade asphalt
<u>70mm</u>	
	WET, dark GREY, DENSE, clast supported, SUB-ANGULAR, silty GRAVEL, IMPORTED, water seepage at -170mm, no reaction with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/15 (COLTO: 1998 - G5)
<u>160mm</u>	
	WET, light orangey BROWN, DENSE, clast supported, SUB-ANGULAR, silty GRAVEL, IMPORTED, water through the entire layer, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/15 (COLTO: 1998 - G5)
<u>380mm</u>	
	Very MOIST, light yellowish ORANGE, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with abundant cobbles, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/16 (COLTO: 1998 - G7)
<u>700mm</u>	
	MOIST, light GREY, STIFF, intact, clayey SILT, ALLUVIUM, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/17 (COLTO: 1998 - <G9)
<u>850mm</u>	
Excavation stopped at -850mm below existing ground level by means of pick and shovel supplemented by power tools	

Table 3: Test Pit Profile Taxiway Alpha

Depth (mm)	Description
<u>0mm</u>	
<u>72mm</u>	0-15mm: Graded Seal 7-20mm aggregate, course, no cracking, no bleeding, no stripping, binder not fresh but sticky. 15-72mm: Medium grade asphalt
<u>300mm</u>	slightly MOIST, light GREY, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED, no reaction with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/1 (COLTO: 1998 - G5)
<u>540mm</u>	slightly MOIST, light BROWN, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with abundant cobbles, Effervescence with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/2 (COLTO: 1998 - G7)
<u>640mm</u>	slightly MOIST, light BROWN, very DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with minor cobbles, no reaction with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/3 (COLTO: 1998 - G6)
<u>800mm</u>	slightly MOIST, light OLIVE, medium DENSE, intact, SUB-ROUNDED, silty GRAVEL, IMPORTED, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/4 (COLTO: 1998 - G6)
Excavation stopped at -800mm below existing ground level by means of pick and shovel supplemented by power tools	

Table 01: Test Pit Profile Taxiway Bravo

Depth (mm)	Description
<u>0mm</u>	
<u>40mm</u>	0-15mm: Graded Seal 7-20mm aggregate, course, no cracking, no bleeding, no stripping, binder not fresh but sticky. 15-40mm: Medium grade asphalt
<u>110mm</u>	MOIST, dark GREY, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED, no reaction with HCL acid and does not change color with Phenolphthalein, not sampled (70mm thin layer, not enough material for sampling)
<u>420mm</u>	MOIST, dark BROWN, DENSE, clast supported, SUB-ANGULAR, silty GRAVEL, IMPORTED, localized very slow water seepage, no reaction with HCL acid and does not turn PINK with Phenolphthalein, sample no: 8924/12 (COLTO: 1998 - G6)
<u>670mm</u>	very MOIST, light orangey BROWN, DENSE, intact, SUB-ROUNDED, silty GRAVEL, IMPORTED, no reaction with HCL acid and does not turn PINK with Phenolphthalein, sample no: 8924/13 (COLTO: 1998 - <G9)
<u>880mm</u>	very MOIST, dark BROWN, FIRM, intact, clayey SILT, ALLUVIUM, traces of roots, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/14 (COLTO: 1998 - G9)
Excavation stopped at -880mm below existing ground level by means of pick and shovel supplemented by power tools.	

Table 5: Test Pit Profile Taxiway Charlie

Depth (mm)	Description
<u>0mm</u>	
<u>70mm</u>	0-22mm: Graded Seal 7-20mm aggregate, course, faint cracks, no bleeding, no stripping, binder not fresh but sticky. 22-70mm: Medium grade asphalt
<u>170mm</u>	WET, dark GREY, DENSE, intact, SUB-ANGULAR, silty GRAVEL with abundant cobbles, IMPORTED, no reaction with HCL acid and does not change color with Phenolphthalein, water seepage to -180mm, sample no: 8924/5 (COLTO: 1998 - G5)
<u>460mm</u>	Wet, light BROWN, DENSE, intact, SUB-ANGULAR, silty GRAVEL minor cobbles, IMPORTED, no reaction with HCL acid and does not change color with Phenolphthalein, sample no: 8924/5 (COLTO: 1998 - G5)
<u>765mm</u>	MOIST, light yellowish ORANGE, medium DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED, no reaction with HCL acid and does not change color with Phenolphthalein, sample no: 8924/6 (COLTO: 1998 - G5)
<u>800mm</u>	MOIST, light OLIVE, FIRM, intact, silty CLAY, ALLUVIUM, no reaction with HCL acid and no colour change with Phenolphthalein, sample no: 8924/7 (R-Ind)
Excavation stopped at -800mm below existing ground level by means of pick and shovel supplemented by power tools	

Table 6: Test Pit 1 Profile Apron Bravo

Depth (mm)	Description
<u>0mm</u>	Interlocking Pavers
<u>70mm</u>	MOIST, light BROWN, medium DENSE, intact, SUB-ROUNDED, silty GRAVEL, IMPORTED, no reaction with HCL acid and does not change color with Phenolphthalein, not sampled (Imported bedding material, similar material to sampled material on test pit 2 Apron Bravo)
<u>180mm</u>	Wet, light orange, BROWN, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with frequent cobbles, Effervescence with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/10 (COLTO: 1998 - G6)
<u>320mm</u>	MOIST, dark ORANGE, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with minor cobbles, no reaction with HCL acid and does not change color with Phenolphthalein, sample no: 8924/11 (COLTO: 1998 - G7)
<u>800mm</u>	
Excavation stopped at -800mm below existing ground level by means of pick and shovel supplemented by power tools	

Table 7: Test Pit 2 Profile Apron Bravo

Depth (mm)	Description
<u>0mm</u>	Interlocking Pavers
<u>70mm</u>	
<u>220mm</u>	slightly MOIST, light yellowish BROWN, DENSE, intact, SUB-ANGULAR, silty GRAVEL, IMPORTED with minor cobbles, Effervescence with HCL acid and turns PINK with Phenolphthalein, sample no: 8924/8 (COLTO: 1998 - G7)
<u>640mm</u>	MOIST, light BROWN, DENSE, intact, SUB-ROUNDED, silty GRAVEL, IMPORTED with abundant cobbles and boulders, no reaction with HCL acid and does not change color with Phenolphthalein, sample no: 8924/9 (COLTO: 1998 - G5)
Refusal on boulders at -640mm below existing ground level by means of pick and shovel supplemented by power tools	

Table 8: Summary of test pit results of airside elements

Test Pit	Depth	Description	GM	PI	LS %	Mat. Class TRH14	MOD (kg/m3)	OMC	CBR @ %					
									100	98	97	95	93	90
RWY 0220	0.070 to 0.380	Dusky Red Poorly Graded Silty sand	1.80	NP	0.0	G5	2335	3.0	105	75	63	45	32	19
RWY 0220	0.380 to 0.700	Dark Red. Orange Silty sand	0.90	SP	1.2	G7	2363	4.1	84	60	50	36	25	15
RWY 0220	0.700 to 0.880	Dark Grey Poorly Graded Silty sand	2.20	SP	1.2	<G9	2073	7.4	8	7	7	6	5	4
TWY-A	0.080 to 0.300	Dark Brown Well graded gravel with silt and sand	2.40	NP	0.0	G5	2480	3.9	99	82	74	61	51	38
TWY-A	0.300 to 0.540	Dark Red. Orange Poorly graded gravel with silt and sand	2.50	SP	1.2	G7	2194	8.6	28	24	22	19	17	13
TWY-A	0.540 to 0.640	Dark Red. Orange Well graded gravel with silt and sand	2.60	SP	0.6	G6	2170	7.0	110	89	80	65	53	39
TWY-A	0.640 to 0.800	Dark Red. Orange Well Graded Silty sand	2.30	SP	1.1	G6	2310	5.8	60	49	45	37	30	22
TWY-B	0.110 to 0.420	Dark Reddish Brown Well graded gravel with silt and sand	2.40	NP	0.0	G6	2281	4.8	134	76	57	32	18	8
TWY-B	0.420 to 0.670	Dark Red. Orange Well Graded Silty sand	2.30	SP	1.2	<G9	2362	6.8	22	13	10	6	3	1
TWY-B	0.670 to 0.880	Dark Grey Silty/clayey sand	0.80	5	2.2	G9	1976	6.2	11	10	9	8	7	6
TWY-C	0.070 to 0.460	Dark Red. Orange Poorly graded gravel with silt and sand	2.50	3	1.4	G5	2406	5.0	196	128	104	68	44	23
TWY-C	0.460 to 0.765	dusky Red Well graded Silty sand	2.40	NP	0.0	G5	2455	6.1	72	69	67	64	61	57

TWY-C	0.765 to 0.800	Dark Grey Silty/clayey sand	0.80	6	2.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
APRON-B1	0.180 to 0.320	Dark Red. Orange Well graded gravel with silt and sand	2.50	SP	1.1	G6	2200	7.6	54	44	40	33	27	20
APRON-B1	0.320 to 0.800	Dark Reddish Brown Well graded silty/clayey gravel with sand	2.60	6	2.6	G7	2325	7.0	65	43	35	24	16	9
APRON-B2	0.070 to 0.220	Dark Reddish Brown Poorly graded silty/clayey gravel with sand	2.50	7	3.2	G7	2237	7.5	30	27	25	22	20	16
APRON-B2	0.220 to 0.640	Dark Red. Orange Well graded silty/clayey gravel with sand	2.50	5	2.3	G5	2296	7.3	119	84	71	50	35	21

RWY0220: RUNWAY,0220

TWY-B: TAXIWAY BRAVO

APRON-B1: APRON BRAVO 1

TWY-A: TAXIWAY ALPHA

TWY-C: TAXIWAY CHARLIE

APRON-B2: APRON BRAVO 2