

REVIEW, DESIGN, SUPPLY, REFURBISHMENT, MODIFICATION, INSTALLATION AND COMMISSIONING OF THE LUBE OIL SYSTEM AT THE VYGEBOOM, BOSLOOP AND WINTERSHOEK PUMP STATIONS OF THE KOMATI WATER SCHEME (KWS).



NEC3 Engineering & Construction Contract

**Between ESKOM ROTTEK INDUSTRIES SOC Ltd
(Reg No. 1990/006897/30)**

and

**for The review, design, supply, refurbishment,
modification, installation and commissioning of the
lube oil system at the Vygeboom, Bosloop and
Wintershoek pump stations of the Komati Water
Scheme (KWS).**

Contents:	No of pages
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CONTRACT No. [Insert at award stage]

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Part C1: Agreements & Contract Data

Contents:	No of pages
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[to be inserted from Returnable Documents at award stage]	
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[to be inserted from Returnable Documents at award stage]	

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C1.1 Form of Offer & Acceptance

Offer

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

THE REVIEW, DESIGN, SUPPLY, REFURBISHMENT, MODIFICATION, INSTALLATION AND COMMISSIONING OF THE LUBE OIL SYSTEM AT THE VYGEBOOM, BOSLOOP AND WINTERSHOEK PUMP STATIONS OF THE KOMATI WATER SCHEME (KWS).

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

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

Options A	The offered total of the Prices exclusive of VAT is	R
	Value Added Tax @ 15% is	R
	The offered total of the amount due inclusive of VAT is ¹	R

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 including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

¹ This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

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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 Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Works Information
Part C4	Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable 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 Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy signed between them 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(s)

Name(s)	Vishal Magan	
Capacity	BMS General Manager -Acting	
for the Employer	Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg 2022	

Name & signature of witness		Date	
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Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. 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.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	None	None

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any 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 Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the tenderer:

For the Employer

Signature

Name

Capacity

On behalf
of

Name &
signature
of witness

Date

Vishal Magan

BMS General Manager - Acting

Eskom Rotek Industries SOC Limited
Lower Germiston Road
Rosherville
Johannesburg
2022

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C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

[Instructions to the contract compiler: (delete these two notes in the final draft of a contract)]

1. Please read the relevant clauses in the conditions of contract before you enter data. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
1. Some ECC3 options are always selected by Eskom Holdings SOC Ltd. The remaining ECC3 options are identified by shading in the left hand column. In the event that the option is not required select and delete the whole row. Where the following symbol is used "■" - data is required to be inserted relevant to the specific option selected.]

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X2 Changes in the law
		X5 & Sectional Completion &
		X7: Delay Damages
		X16: Retention
		X18: Limitation of liability
		X19: Task Order
		Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	Vishal Magan
	Address	Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg 2022
10.1	The <i>Project Manager</i> is: (Name)	Lindiwe Nkonde
	Address	Eskom Rotek Industries SOC Limited Lower Germiston Road Rosherville Johannesburg

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		2022
	Tel	013 297 9932
	e-mail	Nkondel@eskom.co.za
10.1	The <i>Supervisor</i> is: (Name)	Jonas Mokoena
	Address	Eskom Rotek Industries SOC Ltd Roshland Office Park Lower Germiston Road Rosherville
	Tel No.	013 297 1100
	e-mail	Mokoemj@eskom.co.za
11.2(13)	The <i>works</i> are	THE REVIEW, DESIGN, SUPPLY, REFURBISHMENT, MODIFICATION, INSTALLATION AND COMMISSIONING OF THE LUBE OIL SYSTEM AT THE VYGEBOOM, BOSLOOP AND WINTERSHOEK PUMP STATIONS OF THE KOMATI WATER SCHEME (KWS).
11.2(14)	The following matters will be included in the Risk Register	<ol style="list-style-type: none"> 1. Weather conditions 2. Road Conditions 3. Community Protests 4. Work Stoppages
11.2(15)	The <i>boundaries of the site</i> are	Vygeboom, Bosloop and Wintershoek Pump Stations.
11.2(16)	The Site Information is in	Part 4: Site Information
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it refers.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	<ul style="list-style-type: none"> • 2 days for emergency correspondence (EW, NCRs, and safety related matters). • 5 days for non-urgent/general correspondence
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the Contractor in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.
3	Time	
11.2(3)	The <i>completion date</i> for the whole of the works is	28 February 2027

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11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met		key date
		1	Vygeboom Pump Station	31 August 2026
		2	Bosloop Pump Station	30 November 2026
		3	Wintershoek Pump Station	28 February 2027
30.1	The <i>access dates</i> are:	Part of the Site		Date
		1	Vygeboom Pump Station	01 June 2026
		2	Bosloop Pump Station	01 September 2026
		3	Wintershoek Pump Station	01 December 2026
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	7 days of the Contract Date.		
31.2	The <i>starting date</i> is	01 June 2026		
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	One week.		
4	Testing and Defects			
42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works.		
43.2	The <i>defect correction period</i> is	One week		
	except that the <i>defect correction period</i> for	Safety related works is immediately		
5	Payment			
50.1	The <i>assessment interval</i> is	between the 25th day of each successive month.		
51.1	The <i>currency of this contract</i> is the	South African Rand.		
51.2	The period within which payments are made is	30 days.		
51.4	The <i>interest rate</i> is	the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove)		

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for amounts due in Rands and

(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

6	Compensation events	Compensation event will be addressed by the Service Manager and the Contractor as and when it arises within the NEC requirements mentioned below.
60.1(1)		The <i>Service Manager</i> gives an instruction changing the Works Information except a change made to accept a defect or a change to the Service Information provided by the Contractor for his plan which is made at his sole request.
61.4		If the <i>Service Manager</i> decides that an event notified by the <i>Contractor</i> ...
62.3		The Contractor submits quotations within three weeks of being instructed to do so by the Service Manager. The Service Manager replies within two weeks of his submission. His reply will be: <ul style="list-style-type: none"> • An instruction to submit a revised quotation. • An acceptance of the quotation • A notification that a proposed instruction will not be given, or a proposed changed decision will not be made or • A notification that he will be making his own assessment under 61.6.

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7	Title	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	1. Weather Conditions 2. Community unrest 3. Work Stoppages
9	Termination	In the event Employer terminated the contract for any time for a reason not stated in the Contract, as per clause 90.1 The Employer will only pay termination costs as provided for in the contract as per clause 90.2.
91.2		The Employer may terminate if the Project Manager has notified that the Contractor has defaulted in one of the following ways and has not either: i) put the default right; or ii) commenced and thereafter diligently pursued a mutually agreed plan of remedy within four weeks of the notification.
92.2P3		The Employer may use any Equipment to which the Contractor has title to complete the works. condition to this agreement.
10	Data for main Option clause	
A	Priced contract with activity schedule	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.
60.6	The <i>method of measurement</i> is	Published by and amended as stated in Part C2.1, Pricing Assumptions.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
	Address	N/A

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Tel No. **N/A**

Fax No. **N/A**

e-mail **N/A**

W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration.
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	South Africa
	The person or organisation who will choose an arbitrator	
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.

12 Data for secondary Option clauses

X2	Changes in the law	Is a compensation event if it occurs after the Contract Date		
X5 & X7	Sectional Completion Delay Damages	section	Description	Penalty
		1	Vygeboom site	Refer to delay damages table on page 34
		2	Bosloop site	
		3	Wintershoek site	
X16	Retention			
X16.1	The <i>retention free amount</i> is			
	The <i>retention percentage</i> is	5% on every assessment amount		
		<ul style="list-style-type: none"> 50% of the retained amount will be released upon the approval of the last assessment by both parties and the remaining 50% will be released at end 		

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of defect liability period.

X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.00 (Zero)
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	The amount of the deductibles relevant to the event described in the insurance policy format selected in the data for clause 84.1 above, which policy is available on http://www.eskom.co.za/Tenders/InsurancePoliciesProcedures/Pages/ [current working link to be included] or the Task Order value, whichever is higher.
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	• one hundred percent (100%) of the total contract price.
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	one hundred percent (100%) of the total contract price applies in contract, tort or delict and otherwise to the extent allowed under the law of the contract. The excluded matters are amounts are amounts for which the Contractor is liable under this contract for: <ul style="list-style-type: none">• Defects due to his design, plan and specifications• Death of or injury to a person and• Infringement of intellectual property right.
X18.5	The <i>end of liability date</i> is	(i) 52 weeks from the date of commission. (ii) the date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter. A latent Defect is a Defect which would not have been discovered on reasonable inspection by the <i>Employer</i> or the <i>Supervisor</i> before the <i>defects date</i>, without requiring any inspection not ordinarily carried out by the <i>Employer</i> or the <i>Supervisor</i> during that period. If the <i>Employer</i> or the <i>Supervisor</i> do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the <i>Employer</i> or the <i>Supervisor</i> to have discovered the Defect.
Z	The <i>Additional conditions of contract</i> are	Z1 to Z15 always apply.

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Z1 Cession delegation and assignment

- Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.
- Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

Z2 Joint ventures

- Z2.1 If the *Contractor* constitutes a joint venture, consortium, or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.
- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium, or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Works.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.
- Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Project Manager*.
- Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information

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which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken, if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*.

Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z6 Health, safety, and the environment: Add to core clause 27.4

Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *works*. Without limitation the *Contractor* accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Site.

warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of *works*; and

undertakes, in and about the execution of the *works*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z6.2 The *Contractor*, in and about the execution of the *works*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z7 Provision of a Tax Invoice and interest. Add to core clause 51

Z7.1 Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 If the Contractor does not provide a tax invoice in the form and by the time required by this contract, the time by when the Employer is to make a payment is extended to the following invoicing month without attracting any interest to the Employer nor. The Contractor will ensure that operations are not impacted nor effected its failure to submit valid and correct tax invoices on time.

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- Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

- Z8.1 Delete from the last sentence in core clause 61.3, "unless the *Project Manager* should have notified the event to the *Contractor* but did not".

Z9 Employer's limitation of liability

- Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z9.2 The *Contractor's* entitlement under the indemnity in 83.1 is provided for in 60.1(14) and the *Employer's* liability under the indemnity is limited.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

- Z10.1 or had a business rescue order granted against it.

Z11 Addition to secondary Option X7 Delay damages (if applicable in this contract)

- Z11.1 If the amount due for the *Contractor's* payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the *Employer* may terminate the *Contractor's* obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.
- Z11.2 Notwithstanding the Delay damages, failure for the *Contractor* to mobilise resources on site within 30 days after receipt of task order/conclusion of contract then ERI may terminate the contract.

Z12 Ethics

For the purposes of this Z-clause, the following definitions apply:

- Affected Party** means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,
- Coercive Action** means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
- Collusive Action** means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
- Committing Party** means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractor or the Subcontractor's

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employees,

Corrupt Action means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,

Fraudulent Action means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

Prohibited Action means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z12.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.

Z12.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z12.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

84.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.

84.2 The *Contractor* provides the insurances stated in the Insurance Table A.

84.3 The insurances provide cover for events which are at the *Contractor's* risk from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage to the works, Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance

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	The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract	<p><u>Loss of or damage to property</u></p> <p><u><i>Employer's</i> property</u></p> <p>The replacement cost where not covered by the <i>Employer's</i> insurance</p> <p>The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance</p> <p><u>Other property</u></p> <p>The replacement cost</p> <p><u>Bodily injury to or death of a person</u></p> <p>The amount required by applicable law</p>
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 13.2

Replace core clause 87 with the following:

The *Employer* provides the insurances stated in the Insurance Table B.

INSURANCE TABLE B

Insurance against or name of policy	Minimum amount of cover or minimum limit of indemnity
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

Z14 Nuclear Liability

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- Z14.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.
- Z14.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z14.3 Subject to clause Z14.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z14.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z15 Asbestos

For the purposes of this Z-clause, the following definitions apply:

AAIA	means approved asbestos inspection authority.
ACM	means asbestos containing materials.
AL	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
Ambient Air	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
Compliance Monitoring	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
Standard	means the <i>Employer's</i> Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos

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Containing Material, Equipment and Articles.

SANAS means the South African National Accreditation System.

TWA means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

- Z15.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.
- Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z15.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.
- Z15.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.
- Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.

Annexure A: One-in-ten-year-return weather data obtained from SA Weather Bureau for WEATHER BUREAU 2908025, RAINFALL STATION NO: 480/184 (515), CAROLINA.

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event.

Weather Measurements			
Month	Cumulative rainfall (mm)	Number of days with rain more	[Other measurements]

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		than 10mm	if applicable]
January	127.8	4	
February	91.2	3	
March	82.1	3	
April	40.8	2	
May	17.9	0	
June	10.2	0	
July	6.7	0	
August	11.7	0	
September	26.4	1	
October	79.3	3	
November	135.1	5	
December	117.5	4	

Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

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C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)² in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data
3. Where a form field like this [] appears, data is required to be inserted relevant to the option selected. Click on the form field **once** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	
11.2(18)	The <i>working areas</i> are the Site and	Vygeboom, Bosloop and Nooitgedaght Pump Station Sites only
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: Experience:	

² Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

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	3 Name:			
	Job			
	Responsibilities			
	Qualifications			
	Experience			
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	28 February 2027		
11.2(14)	The following matters will be included in the Risk Register	1. Weather conditions 2. Road Conditions 3. Community Protests 4. Project Delays		
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:			
31.1	The programme identified in the Contract Data is	The contractor submits the first programme to the Project Manager for acceptance within the period stated in the Contract Data		
A	Priced contract with activity schedule			
11.2(20)	The <i>activity schedule</i> is in	C2.2 of the Contract Data		
11.2(30)	The tendered total of the Prices is			
A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:			
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	0%		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.	Category of employee Supervisor		Hourly rate

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	Please insert another schedule if foreign resources may also be used	Skilled Labour		
		Semi-Skilled		
62 in SSCC	The percentage for design overheads is			
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:	Not Applicable		
24 in SCC	The rates of special Equipment are:	Equipment	Size or capacity	Rate
		Not Applicable		
44 in SCC	The percentage for Working Areas overheads is:			
51 in SCC	The hourly rates for Defined Cost of manufacture or fabrication outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates Please insert another schedule if foreign resources may also be used	Category of employee	Hourly rate	
52 in SCC	The percentage for manufacture and fabrication overheads is			

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C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, (ECC3) Option A states:

Identified and defined terms	11	
	11.2	(20) The Activity Schedule is the <i>activity schedule</i> unless later changed in accordance with this contract.
		(27) The Price for Work Done to Date is the total of the Prices for each group of completed activities and each completed activity which is not in a group.
		A completed activity is one which is without Defects which would either delay or be covered by immediately following work.
		(30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

This confirms that Option A is a lump sum form of contract where the work is broken down into activities, each of which is priced by the tendering contractor as a lump sum. Only completed activities are assessed for payment at each assessment date; no part payment is made if the activity is not completed by the assessment date.

Function of the Activity Schedule

Clause 54.1 in Option A states: "Information in the Activity Schedule is not Works Information or Site Information". This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Works in accordance with the Works Information". Hence the *Contractor* does **not** Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

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C2.2 the *activity schedule*

Activity Schedule Pricing:

KWS PUMP STATIONS

Item	Activity	Price
Vygeboom Pump Station	Activity 1.1: Design of Lube oil system and acceptance thereof	
	Activity 1.2 Site establishment	
	Activity 1.3 Manufacturing	
	Activity 1.4 Factory Acceptance	
	Activity 1.5 On site Installation which covers modification and refurbishment	
	Activity 1.6 Testing and Commissioning	
	Activity 1.7 Review of Data Pack	
	Activity 1.8 Training and Plant Handover	
	Activity 1.9 Site de-establishment	
Bosloop High lift A Tank	Activity 1.1: Design of Lube oil system and acceptance thereof	
	Activity 1.2 Site establishment	
	Activity 1.3 Manufacturing	
	Activity 1.4 Factory Acceptance	
	Activity 1.5 On site Installation which covers modification and refurbishment	
	Activity 1.6 Testing and Commissioning	
	Activity 1.7 Review of Data Pack	
	Activity 1.8 Training and Plant Handover	
Bosloop High lift B Tank	Activity 1.1: Design of Lube oil system and acceptance thereof	
	Activity 1.2 Manufacturing	
	Activity 1.3 Factory Acceptance	
	Activity 1.4 On site Installation which covers modification and refurbishment	
	Activity 1.5 Testing and Commissioning	
	Activity 1.6 Review of Data Pack	
	Activity 1.7 Training and Plant Handover	

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	Activity 1.8: Site de-establishment	
Wintershoek Pump Station A Tank	Activity 1.1: Design of Lube oil system and acceptance thereof	
	Activity 1.2 Site establishment	
	Activity 1.3 Manufacturing	
	Activity 1.4 Factory Acceptance	
	Activity 1.5 On site Installation which covers modification and refurbishment	
	Activity 1.6 Testing and Commissioning	
	Activity 1.7 Review of Data Pack	
	Activity 1.8 Training and Plant Handover	
Wintershoek Pump Station B Tank	Activity 1.1: Design of Lube oil system and acceptance thereof	
	Activity 1.2 Manufacturing	
	Activity 1.3 Factory Acceptance	
	Activity 1.4 On site Installation which covers modification and refurbishment	
	Activity 1.5 Testing and Commissioning	
	Activity 1.6 Review of Data Pack	
	Activity 1.7 Training and Plant Handover	
	Activity 1.8: Site de-establishment	
TOTAL AMOUNT		

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	<i>Employer's</i> Works Information	
C3.2	<i>Contractor's</i> Works Information	
	Total number of pages	

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1 Description of the works

1.1 Executive overview

The *works* is for the review, design, supply, refurbishment, modification, installation and commissioning of the lube oil system at the Vygeboom, Bosloop and Wintershoek pump stations of the Komati Water Scheme (KWS). The existing lube oil system is running with risks on certain components of the system. Some of the lube oil pumps and oil coolers are difficult to maintain due to unavailability of spares. The aim of this work is to replace these components and add eight motor bearings at Vygeboom and six motor bearings at Bosloop to the respective lube oil systems.

The current systems at all 3 pump stations (except Wintershoek 1-4) uses water cooled heat exchangers. All water-cooled heat exchangers must be replaced with air cooled units and located outside of the pump station buildings. All lube oil pumps must be replaced and preferably selecting the same pump for all the sites.

Komati Water Scheme Overview

The three pumping stations with included lube oil systems are Wintershoek, Bosloop and Vygeboom which are in the Carolina and Badplaas areas respectively.

Five lube oil systems are part of the scope and listed below:

- Vygeboom 1-4
- Bosloop 1-3
- Bosloop 4-6
- Wintershoek 1-4
- Wintershoek 5-9

Each lube oil system consists of a lube oil tank, 2 lube oil pumps and motors (duty and standby), dual oil filter with manual change over valve, cooling system, supply and return pipework to and from the main pumps. See typical schematic layout below:

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Komati Water Scheme Typical Lube Oil System Layout

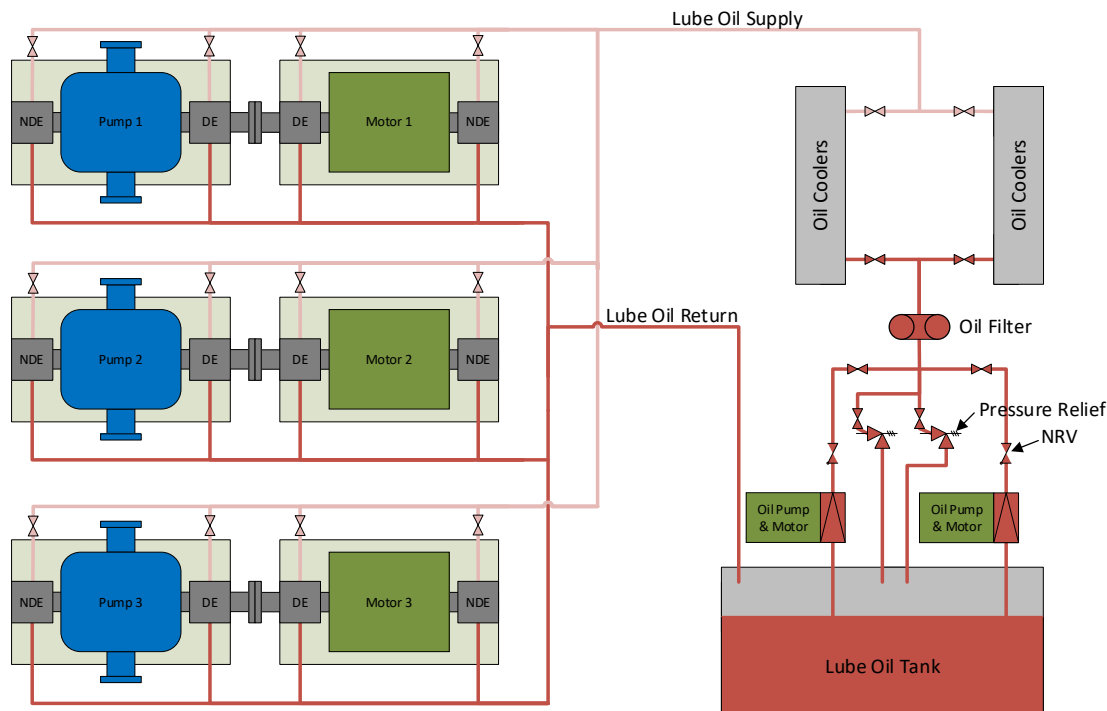


Figure 1 – Typical Lube Oil System Schematic

The following components must be replaced:

- Lube oil pumps and motors. The same pump and motor should be used at all the lube oil systems to ease spares holding and future maintenance.
- Oil filters with manual change-over facility
- The existing water coolers are replaced with a redundant air cooler system (1 duty and 1 standby) and should be located outside the pump station building next to or close to the lube oil system.
- Lube oil system control panel

The following components must be added to the lube oil systems:

- Vygeboom – drive end and non-drive end bearings for motors 1 to 4. Extend existing supply and return pipework from the pump
- Bosloop 1-3 – drive end and non-drive end bearings for motors 1 to 3. Extend existing supply and return pipework from the pump

Design and drawings

- Detail design of all the required changes included in a comprehensive design report.
- P&ID drawings of each system
- Layout drawings of each system

Documentation & Training

- Operation manual
- Maintenance manual
- Training for staff

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1.2 Employer's objectives and purpose of the works

It is the *Employer's* objective to improve the pump station reliability on the Komati Water Scheme by replacing oil pumps and oil coolers as well as the adding of bearings to the lube oil systems at Vygeboom, Bosloop and Wintershoek pump stations.

1.3 Interpretation and terminology

If required include here definitions additional to those used in the *conditions of contract* which are required only for the purpose of making the Works Information easier to draft and read. Also list abbreviations used and provide a full interpretation of each one, for example:

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
DE	Drive end
KWS	Komati Water Scheme
NDE	Non drive end
PM	Project Manager
SHEQ	Eskom Safety, Health, Environment and Quality

1.4 Vygeboom

Vygeboom pump station consists of 4 pumps and motors pumping into 2 pipelines to Bosloop reservoir with 2 pumps per pipeline running in parallel. All pumps are duty with no stand-by capacity. The current lube oil system only services the DE and NDE bearings of the pumps but not the motors. The DE and NDE bearings on the 4 motors has self-contained oil reservoirs and must be added to the lube oil system as part of this work. The lube oil supply and return pipework from the pumps must be extended and connected to the motor bearings.

The existing lube oil system make use of 2 oil coolers (1 duty 1 stand-by) that is cooled with water from the suction manifold. These water coolers must be replaced with 2 air coolers and be located outside the pump station building. Space next to the pump station building on the South-Western corner is available. This is next to the lube oil tank and pumps inside the building. The design of the oil coolers must include a concrete support structure for the oil coolers with an integral bund wall to contain any possible oil spill. The structure should also include a steel roof, steel fence and lockable gate around the oil coolers.

Component	Add / Replace	Number	Description
Lube oil pumps	Replace	2	Dual lube oil pumps configured to run as 1 duty and 1 stand-by with automatic change over between the pumps without substantial pressure loss in the system.
Lube Oil Tank	Replace	1	Replace lube oil tank with size suitable to supply all 16 pump and motor bearings on site
Lube Oil Tank Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Oil filter	Replace	1	Dual oil filter with integrated change over valve to replace / clean the filter without stopping the system.
Oil coolers	Replace	2	Dual air-cooled oil coolers (1 duty and 1 stand-by) with integrated fans and manual change over valve to

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Component	Add / Replace	Number	Description
			be located outside the pump station building.
Oil coolers Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Main motor DE and NDE bearings	Add	8	Additional 8 bearings from motors 1 to 4 to be added to the lube oil system. Existing supply and return pipework from pumps 1 to 4 to be extended to include the motors.
Flow control valves	Add	16	Flow control valves to be included for all existing and new bearings on the system
Flow control switches	Add	16	Flow control switches must be installed close to flow control valves. Wiring of the switches is excluded.
Control panel	Replace	1	A new lube oil system control panel must be installed according to the requirements in this document.

1.5 Bosloop 1-3

Bosloop Pump Station consists of 6 pumps and motors pumping into 2 pipelines to Nooitgedacht Dam with 2 duty pumps per pipeline running in parallel and 1 stand-by pump. Bosloop 1-3 lube oil system only services the DE and NDE bearings of pumps 1 to 3 but not the motors. The DE and NDE bearings on the 3 motors has self-contained oil reservoirs and must be added to the lube oil system as part of this work. The lube oil supply and return pipework from the pumps must be extended and connected to the motor bearings.

The existing lube oil system make use of 2 oil coolers (1 duty 1 stand-by) that is cooled with water from the suction manifold. These water coolers must be replaced with 2 air coolers and be located outside the pump station building. Space next to the pump station building on the South-Western corner is available. This is next to the lube oil tank and pumps inside the building. The design of the oil coolers must include a concrete support structure for the oil coolers with an integral bund wall to contain any possible oil spill. The structure should also include a steel roof, steel fence and lockable gate around the oil coolers.

Component	Add / Replace	Number	Description
Lube oil pumps	Replace	2	Dual lube oil pumps configured to run as 1 duty and 1 stand-by with automatic change over between the pumps without substantial pressure loss in the system.
Lube Oil Tank	Replace	1	Replace lube oil tank with size suitable to supply all 12 pump and motor bearings on site
Lube Oil Tank Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Oil filter	Replace	1	Dual oil filter with integrated change over valve to replace / clean the filter without stopping the system.
Oil coolers	Replace	2	Dual air-cooled oil coolers (1 duty and 1 stand-by) with integrated fans and manual change over valve to be located outside the pump station building.
Oil coolers Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Main motor DE and NDE bearings	Add	6	Additional 6 bearings from motors 1 to 3 to be added to the lube oil system. Existing supply and return pipework from pumps 1 to 3 to be extended to include the motor bearings.
Flow control valves	Add	12	Flow control valves to be included for all existing and new bearings on the system
Flow control switches	Add	12	Flow control switches must be installed close to flow control valves. Wiring of the switches is excluded.
Control panel	Replace	1	A new lube oil system control panel must be installed

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Component	Add / Replace	Number	Description
			according to the requirements in this document.

1.6 Bosloop 4-6

Bosloop Pump Station consists of 6 pumps and motors pumping into 2 pipelines to Nooitgedacht Dam with 2 duty pumps per pipeline running in parallel and 1 stand-by pump. Bosloop 4-6 lube oil system services the DE and NDE bearings of pump and motor sets 4 to 6.

The existing lube oil system make use of 2 oil coolers (1 duty 1 stand-by) that is cooled with water from the suction manifold. These water coolers must be replaced with 2 air coolers and be located outside the pump station building. Space next to the pump station building between the A and B pipeline manifolds is available. This is next to the lube oil tank and pumps inside the building. The design of the oil coolers must include a concrete support structure for the oil coolers with an integral bund wall to contain any possible oil spill. The structure should also include a steel roof, steel fence and lockable gate around the oil coolers.

Component	Add / Replace	Number	Description
Lube oil pumps	Replace	2	Dual lube oil pumps configured to run as 1 duty and 1 stand-by with automatic change over between the pumps without substantial pressure loss in the system.
Oil filter	Replace	1	Dual oil filter with integrated change over valve to replace / clean the filter without stopping the system.
Oil coolers	Replace	2	Dual air-cooled oil coolers (1 duty and 1 stand-by) with integrated fans and manual change over valve to be located outside the pump station building.
Oil coolers Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Flow control valves	Add	12	Flow control valves to be included for all existing and new bearings on the system
Flow control switches	Add	12	Flow control switches must be installed close to flow control valves. Wiring of the switches is excluded.
Control panel	Replace	1	A new lube oil system control panel must be supplied according to the requirements in this document.

Note: The current Lube oil tank and its bund wall shall be discussed during compulsory site clarification to confirm if manufactures will use or they need to replace to suit their design.

1.7 Wintershoek 1-4

Wintershoek Pump Station consists of 9 pumps and motors pumping into 3 pipelines with 2 duty pumps per pipeline running in parallel and 1 stand-by pump. Wintershoek 1-4 lube oil system services the DE and NDE bearings of pump and motor sets 1 to 4.

The existing lube oil system coolers has already been converted to air cooled units with 1 duty and 1 standby. A steel roof, steel fence and lockable gate around the oil coolers must be supplied for the existing structure.

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Component	Add / Replace	Number	Description
Lube oil pumps	Replace	2	Dual lube oil pumps configured to run as 1 duty and 1 stand-by with automatic change over between the pumps without substantial pressure loss in the system.
Lube Oil Tank Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Oil filter	Replace	1	Dual oil filter with integrated change over valve to replace / clean the filter without stopping the system.
Control panel	Replace	1	A new lube oil system control panel must be supplied according to the requirements in this document.

Note: The current Lube oil tank, flow control valves, flow control switch, oil coolers and its bund wall shall be discussed during compulsory site clarification to confirm if manufactures will use or they need to replace to suit their design.

1.8 Wintershoek 5-9

Wintershoek Pump Station consists of 9 pumps and motors pumping into 3 pipelines to Arnot and Hendrina power stations with 2 duty pumps per pipeline running in parallel and 1 stand-by pump. Wintershoek 5-9 lube oil system services the DE and NDE bearings of pump and motor sets 5 to 9.

The existing lube oil system make use of 2 oil coolers (1 duty and 1 stand-by) that is cooled with water from the suction manifold. These water coolers must be replaced with 2 air coolers and be located outside the pump station building. The space next to the pump station building on the South-Eastern side is available. This is next to the lube oil tank and pumps inside the building.

Component	Add / Replace	Number	Description
Lube oil pumps	Replace	2	Dual lube oil pumps configured to run as 1 duty and 1 stand-by with automatic change over between the pumps without substantial pressure loss in the system.
Oil filter	Replace	1	Dual oil filter with integrated change over valve to replace / clean the filter without stopping the system.
Oil coolers	Replace	2	Dual air-cooled oil coolers (1 duty and 1 stand-by) with integrated fans and manual change over valve to be located outside the pump station building.
Oil coolers Bund Wall	Add	1	Build a bund wall suitable to carry lube oil tank capacity plus 10%
Flow control valves	Add	20	Flow control valves to be included for all existing and new bearings on the system
Flow control switches	Add	20	Flow control switches must be installed close to flow control valves. Wiring of the switches is excluded.
Control panel	Replace	1	A new lube oil system control panel must be supplied according to the requirements in this document.

Note: The current Lube oil tank and its bund wall shall be discussed during compulsory site clarification to confirm if manufactures will use or they need to replace to suit their design.

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1.9 Lube Oil Pumps

High quality fit for purpose helical gear pump and motors shall be selected for the works. The pumps must be easy to maintain and local support for spares and maintenance must be available. The same pump must be selected for all 5 lube oil systems.

1.10 Oil Coolers

Wintershoek pumps 1 to 4 currently uses Frigotherm Heat Exchangers (Type: FOT20) with a 62 l/min capacity. Same or similar heat exchangers must be used for all lube oil systems where new oil cooling systems are required.

Two heat exchangers shall be provided for each system with one duty and one standby. Manual change over valves must be provided next to the oil cooler installation.

- [1] New oil coolers must be installed outside the pump stations on ground level and next to the lube oil system on the inside. The oil coolers must be installed on a concrete base with an integral bund wall that allows sufficient capacity to contain all the lube oil in each system should a leak occur at one of the coolers.

Each oil cooler installation shall include a steel roof, steel fence and lockable gate around the oil coolers.

1.11 Oil Filters

Dual oil filter to enable cleaning of the filter under live conditions is required. A single filter with two compartments and change over valve like the existing units must be provided.

1.12 Flow control valves

Suitable flow control valves shall be installed on the inlet line for each bearing (excluding Wintershoek 1-4). These valves will be used to adjust the flow to each bearing

1.13 Flow switches

Flow switches shall be installed on the inlet line for each bearing (excluding Wintershoek 1-4). Wiring of the switches to the control system is excluded from the scope.

1.14 Control Panel

New control panels must be designed and manufactured for each lube oil system. No programmable controllers shall be used in the design to operate the system. The following operating philosophy shall be incorporated:

- One lube oil pump is required to always run to keep the lube oil system pressurised. Lube oil pressure is one of the main pump interlocks and will prevent the main pumps to start if not pressurised.
- The two lube oil pumps shall operate in a duty and stand-by configuration and should the duty pump fail, the standby pump shall start immediately to maintain oil pressure.
- Only one pump shall be allowed to run at a time, even with the system selected to local control.
- Should a power failure occur, the duty pump shall automatically start once the power is restored.
- All analogue values shall be displayed using EUROTHERM panel display units (Model: 32H8i). These units are multifunctional and include functions like alarm, trip and signal relay that can be incorporated into the system design.
- The EUROTHERM unit's retransmit function to wired to terminals (+ and -) for Telemetry inputs to monitor pumps, temperatures and pressure. A contact for status on the fans and pumps running and a system trip alarm or pressure trip.

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- The following functions and displays shall be included on the control panel:

Function	Type	Description
Auto / Manual selection	Two position selector switch	Auto: Normal operation where one pump will always run with automatic change over to stand-by. Local: Manual control – used by the operator to do maintenance – pumps can be stopped and started from control panel
Duty pump selection	Two position selector switch	1: Pump 1 selected as duty pump and pump 2 as stand-by 2: Pump 2 selected as duty pump and pump 1 as stand-by With system on Auto, this switch will change the running pump. With system on Manual, this switch will have no effect.
Pump control	1 start & 1 stop pushbutton for each pump	Used as start and stop buttons when system is on Manual
Pump running indicator	Indicator light	Green indicator light to light up while pump is running for each pump
Pump fault indicator	Indicator light and contact	Red indicator light to light up on pump fault for each pump and relay contact for relaying of the signal.
Oil tank level	EUROTHERM display	Display oil tank level in %. Alarm and trip values to be indicated on screen. Alarm: 30%, Trip: 10%
Oil pressure before filter	EUROTHERM display	Display oil pressure in kPa before the filter
Oil pressure after filter	EUROTHERM display	Display oil pressure in kPa after the filter
Filter differential pressure alarm	Indicator light and contact	Red indicator to light up on a pre-set differential pressure and relay contact for relaying of the signal
Oil temperature before cooler	EUROTHERM display	Display oil temperature in °C before the oil coolers
Oil temperature after cooler 1	EUROTHERM display	Display oil temperature in °C after the oil cooler 1. EUROTHERM to be used to control cooler fan motor. On at 60°, off at 40° Alarm: 70°
Oil temperature after cooler 2	EUROTHERM display	Display oil temperature in °C after the oil cooler 2. EUROTHERM to be used to control cooler fan motor. On at 60°, off at 40° Alarm: 70°
Cooler fan running	Indicator light	Green indicator light to light up when fan is running for each cooler.

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Function	Type	Description
Cooler fan fault	Indicator light and contact	Red indicator light to light up when fan is faulty for each cooler and relay contact for relaying of the signal.
Emergency Stop	Switch	Emergency pull switch to stop the running pump

1.15 Power Supply

Existing power supply connection from each pump station's 380V board shall be used to power the lube oil system. Local distribution and control for each system's electrical components shall be provided locally. The Contractor must confirm the suitability of the power supply in his design.

All electrical installation to conform to

- SANS 10142-1: The wiring of premises part 1: Low-voltage installations
- SANS1507: Electric cables with extruded solid dielectric insulation for fixed installations (300/500V to 1900/3 300 V). all applicable parts.
- SANS 1091: National colour standard
- 240-56356396: Earthing and Lightning protection Specification.

1.16 Electrical Motors

Electrical motors shall comply to:

- SANS 1804
- 240-56355466: Procurement of Power Station Low Voltage Motors.

1.17 Lube Oil Piping

The following standards are applicable to the works

240-123801640: Standard for Low Pressure Pipelines

240-56356376: On-Site Commissioning for Low Pressure Systems Standard

EN 13480 - All parts: Piping

240-105020315: Standard for Low Pressure Valves

2 Management and start up

2.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attended By
Risk registers and compensation events	Bi-weekly on Fridays at KWS sites or as per Project Managers request.	Nooitgedacht/Vygeboom/Bosloop Pump Stations or venue specified by PM	Employer, Contractor, Technical staff and end users, safety and environmental staff.
Overall contract progress and feedback	Monthly on the 1 st Wednesday of each month at KWS sites or	Nooitgedacht/Vygeboom/Bosloop Pump Stations or	<i>Employer, Contractor,</i>

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	the next working day if the mention day is a Public holiday	venue specified by PM	<i>Supervisor</i> , and other Interested parties
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Meetings of a specialist nature may be convened as required. Records of these meetings are submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

All meetings are recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

Meetings are arranged as per the specific contract requirements. During the design phase the progress feedback meetings are held at Megawatt Park (MWP) or via video conference on a bi-weekly basis. This meeting is attended by *Employer's* representatives and *Contractor* representatives.

2.2 Documentation control

- All verbal communication is followed up with written confirmation.
- All written communication should be on formal letters with corporate letter heads.
- An email system is used for general communication.
- Minutes of Meetings are held for all meetings relating to the project.
- Communication is extremely important and is managed to ensure maximum benefits to the project.
- A document management system will be implemented.
- All communication to be directed to the *Project Manager*

2.3 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure C of this Works Information.

2.4 Environmental constraints and management

- The *Contractor* conforms to the Eskom SHEQ policy, KWS environmental emergency and response work instruction, spill handling work instruction, environmental incident management and waste management work instruction. An environmental induction will be provided before the *Contractor* commence work on site.
- The *contractor* manages environmental impacts as identified in the environmental risk assessment.
- The *contractor* is responsible for safe disposal of the existing fence and associated components by ensuring that the fence and components are taken to the authorised recycling site. The waste manifesto from the receiving site must be submitted to Eskom/KWS Environmental Officer within 7 days.

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- The following environmental requirements will be included in the Tender/Request for Proposal (RFP):
 - Environmental Risks Assessment as per scope of the project
 - Environmental costing as per the scope of the project.

A template for compiling risks assessment and example of the environmental costing is included on SHEQ Documents (see Appendix B).

2.5 Quality assurance requirements

Quality requirements will be negotiated and linked to contract award. Quality objectives are as follows:

- Contract Quality Plan Requirement as per Scope of works.
- Quality Control Plan (Inspection and Test Plan) Requirements as per scope of works.
- The supplier shall complete and sign Form A (Enquiry/Contract/Quality Requirements for QM58 and ISO 9001).

The supplier shall submit objective evidence of a developed and implemented QMS that complies with ISO 9001:2015 or any applicable standard of quality management system (the latest applicable revision). The following documents (approved copies) shall be submitted:

- (1) Quality management system manual or a document that is defined and describes the QMS and its scope
- (2) Quality Policy
- (3) Quality Objectives
- (4) Control of documented information
- (5) Records required by ISO 9001 standard (List of Records)
- (6) Internal audit procedure
- (7) Control of nonconformity outputs
- (8) Nonconformity and Corrective action procedure
- (9) Documented information for defined roles, responsibilities, and authorities
- (10) Documented information for Control of Externally Provided Processes, Products and Services
- (11) Latest copy of an internal management system audit report (with Nonconformity, Correction and/ or Corrective Action Reports)
- (12) Latest copy of an external management system audit report (with Nonconformity, Correction and/ or Corrective Action Reports)
- (13) Detailed objective criteria are attached in the Quality evaluation criteria form.

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(14) DELAY DAMAGES TABLE X7

DESCRIPTION	EMPLOYER'S REQUIREMENTS	PENALTY
After the Task Order for the specific site has been issued to the Contractor, the Contractor shall submit a programme showing all the activities, the start, and the end date.	Supplier to submit the programme within 5 days.	1% of the month assessment will be deducted per day from day 6 up to a maximum of 10% if not notified of the delays.
Failure to handover the Nooitgedaght fully operational Lube Oil plant within the stipulated time.	Handover Nooitgedaght fully operational Lube oil plant as per the agreed completion date	1% deductible per day after the agreed or accepted due date, capped at 10% of the monthly assessment if not notified of the delays
Failure to handover the Bosloop fully operational Lube Oil plant within the stipulated time.	Handover Bosloop fully operational Lube oil plant as per the agreed completion date	1% deductible per day after the agreed or accepted due date, capped at 10% of the monthly assessment if not notified of the delays
Failure to handover the Vygeboom fully operational Lube Oil plant within the stipulated time.	Handover Vygeboom fully operational Lube oil plant on the as per the agreed completion date	1% deductible per day after the agreed or accepted due date, capped at 10% of the monthly assessment if not notified of the delays

2.6 Programming constraints

Not Applicable

2.7 Contractor's management, supervision, and key people

The *Contractor* submits an organogram with updated CVs of each employee on the project.

Reporting structures and responsibilities are to be included on the organogram or in an addendum to the organogram.

2.8 Invoicing and payment

Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate.

The *Contractor* addresses the tax invoice to ERI (Eskom Rotek Industries) invoicing email address:

invoiceserilocal85@eskom.co.za or to the following address: The *Project Manager*, Eskom Rotek Industries SOC Ltd, Lower Germiston Road, Rosherville Johannesburg, P.O. Box 40698, Cleveland 2022 and include on each invoice the following information:

- Name and address of the Contractor
- The Contractor's Company name
- The Contractor's vendor number
- The Contractor Invoice number

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- The Contractor's Order number
- The contract number and title.
- The *Employer's* registration number: 1990/006897/30
- Contractor's VAT registration number.
- The *Employer's* VAT registration number 4330196330
- Description of service provided for each item invoiced based on the Price List.
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.

Every 25th of each month, the *Employer* and *Contractor* will perform an assessment on the work completed for the month.

The assessment will be signed off by both parties.

The *Contractor* will submit an invoice to the *Project Manager* either hand delivery or a PDF document per email.

The *Project Manager* will submit the assessment with the invoice to Eskom Rotek Industries's Accounts Payable Section for payment.

2.9 Insurance provided by the *Employer*

Refer to Policy Number ESK 2015/6 ACAR.

2.10 Contract change management

All scope changes must be approved by the *Project Manager*.

2.11 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

All project related documents to be kept in either electronic format or hard copies in files at the *Contractor's* premises.

2.12 Training workshops and technology transfer

On completion of the works, Plant specific operating and maintenance philosophy training to be done with the *Employer's* staff and issue certificates.

The *Contractor* is to supply all OEM manuals in A4 files which are clearly marked with the contract name and contract number.

3 Engineering and the *Contractor's* Design

REVIEW, DESIGN, SUPPLY, REFURBISHMENT, MODIFICATION, INSTALLATION AND COMMISSIONING OF THE LUBE OIL SYSTEM AT THE VYGEBOOM, BOSLOOP AND WINTERSHOEK PUMP STATIONS OF THE KOMATI WATER SCHEME (KWS).

3.1 Employer's Design

Five lube oil systems are part of the scope and listed below:

Vygeboom 1-4

Bosloop 1-3

Bosloop 4-6

Wintershoek 1-4

Wintershoek 5-9

Each lube oil system consists of a lube oil tank, 2 lube oil pumps and motors (duty and standby), dual oil filter with manual change over valve, cooling system, supply and return pipework to and from the main pumps. See typical schematic layout below:

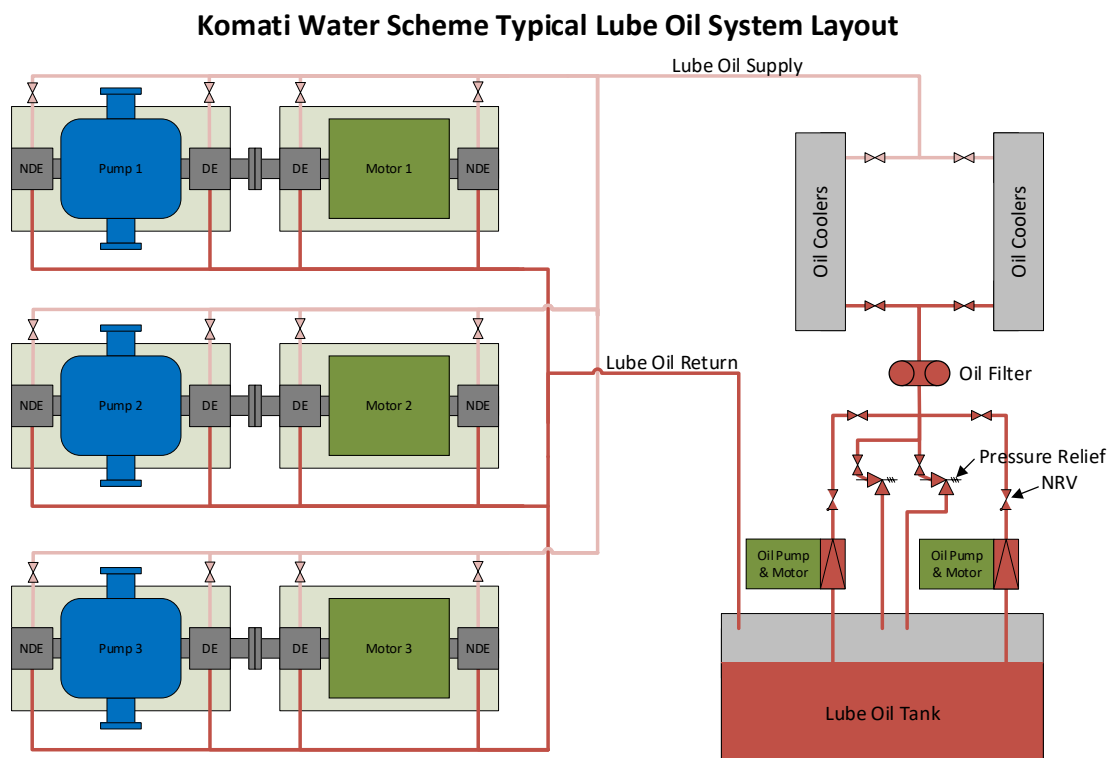


Figure 1 – Typical Lube Oil System Schematic

3.2 Parts of the *works* which the Contractor is to design

- 1) [21.1] The Contractor designs all of the *works* as described in the Works Information.
- 2) The Contractor design the works according to the relevant South African (SANS), British (BS) or other internationally accepted standards for all components or sub- components of the *works*. Reference to

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applicable standards are made on all design drawings and documentation describing the design. [21.1]
[21.2] The Contractor takes the following into consideration in the design of the works:

- size, mass or space limitations
- design standards and codes of practice (with variations as applicable)
- materials and workmanship specifications including references to standard codes and specifications
- loading and capacity requirements
- codification, labelling and configuration management
- environmental constraints
- operational performance requirements
- design life and maintainability
- •other operational performance requirements

The following components must be replaced:

- Lube oil pumps and motors. The same pump and motor should be used at all the lube oil systems to ease spares holding and future maintenance.
- Oil filters with manual change-over facility.
- The existing water coolers are replaced with a redundant air cooler system (1 duty and 1 standby) and should be located outside the pump station building next to or close to the lube oil system.
- Lube oil system control panel

The following extensions must be added to the lube oil systems:

- Vygeboom – drive end and non-drive end bearings for motors 1 to 4. Extend existing supply and return pipework from the pump
- Bosloop 1-3 – drive end and non-drive end bearings for motors 1 to 3. Extend existing supply and return pipework from the pump
- Flow control valves and flow control switches as indicated.

Design and drawings

- Detail design of all the required changes included in a comprehensive design report.
- P&ID drawings of each system
- Layout drawings of each system

Documentation & Training

- Operation manual
- Maintenance manual
- Training for staff

3.3 Procedure for submission and acceptance of *Contractor's* design

The Contractor submits the design or part of the design to the Project Manager for acceptance. The designs are submitted in print and electronic format (PDF). The Project Manager may request the Contractor to submit design calculations.

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3.4 Other requirements of the *Contractor's* design

KKS Requirements

3.5 Use of *Contractor's* design

The *works* is constructed using the accepted design.

3.6 Design of Equipment

Design to be presented to the Employer

3.7 Equipment required to be included in the *works*

Contractor to provide rigging equipment that will be used for the installation of the plant.

Inspected and tested equipment are to be used for this purpose.

3.8 As-built drawings, operating manuals and maintenance schedules

The *Contractor* must provide the *Employer* with as built drawings of the plant which depicts the details of the plant. The *Contractor* also provides the *Employer* with process flow diagrams which show the flows into and out of the plant as well the plant operations.

The *Contractor* also provides the *Employer* with the operation and maintenance manuals for the plants. These manuals must also include the technical specification of all the equipment installed in the plant.

4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed on the Site.

Contractor to bring his own people with their Identity documents, Police Clearances and work permits if they are foreigners.

4.1.2 BBBEE and preferencing scheme

The standard Z3 Clause included in this contract is applicable.

4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

If the ASGI-SA requirements are to be included in this contract specify constraints which *Contractor* must comply with after contract award in regard to any ASGI-SA requirements. The ASGI-SA Compliance Schedule completed in the returnable tender schedules is reproduced here. If ASGI-SA does not apply, delete this paragraph.

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule stated below

[Insert the agreed ASGI-SA Compliance Schedule here]

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The *Contractor* shall keep accurate records and provide the *Project Manager* with reports on the *Contractor's* actual delivery against the above stated ASGI-SA criteria. [Elaborate on access to and format of records and frequency of submission etc.]

The *Contractor's* failure to comply with his ASGI-SA obligations constitutes substantial failure on the part of the *Contractor* to comply with his obligations under this contract.

4.2 Subcontracting

4.2.1 Preferred subcontractors

Not Applicable.

4.2.2 Subcontract documentation, and assessment of subcontract tenders

Not Applicable

4.2.3 Limitations on subcontracting

Not Applicable

4.2.4 Attendance on subcontractors

Not Applicable

4.3 Plant and Materials

4.3.1 Quality

4.3.2 Plant & Materials provided “free issue” by the *Employer*.

Employer will provide oil tanks and a crane operator.

4.3.3 *Contractor's* procurement of Plant and Materials

All Plant & and Materials supplied by the Contractor must comply with the Employer's quality requirements.

All test certificates and quality inspection documents to be included in the O&M manuals.

Materials to be sourced locally as far as possible.

4.3.4 Spares and Consumables.

Contractor to supply a list of all spares and consumables. The life cycle of the product must be further supported in terms of spares availability for a minimum period of seven (7) years after discontinuation of the product.

4.4 Tests and inspections before delivery

The Contractor is responsible for all necessary tests and inspections before delivery to ensure successful testing and construction of the works.

The Contractor submits evidence, during the tender phase, that plant and equipment meet the specifications defined in the Works Information. He demonstration tests are locally based at a suitable venue arranged by the Contractor.

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The Contractor arranges a time, date, and venue with the Project Manager.

The Employer requires representation during the demonstration tests to confirm and accept the plant and equipment has met the requirements of the Employer. The demonstration test allows for one retest/retune/reconfiguration of plant and equipment for each test point.

4.4.1 Factory Acceptance Test

The *Contractor* submits factory acceptance test procedures in accordance with the Works Information.

The factory acceptance tests are locally based at a suitable venue arranged by the Contractor.

The Contractor arranges a time, date and venue with the Project Manager.

The *Employer* requires representation at the acceptance tests to confirm and accept the plant and confirm if the equipment has met the requirement of the *Employer*.

4.5 Marking Plant and Materials outside the Working Areas

Plant main components must be clearly marked with the KKS number provided by the Employer.

Project designated area will be barricaded and access control will be implemented.

All equipment to be safely stored as per the OHSAct and environmental requirements.

All plant and equipment Materials to be removed from the designated area can only be removed with the permission of the *Contractor* and Project Manager.

4.6 Contractor's Equipment (including temporary works).

The *Contractor* is liable for all plant & equipment in the designated area under his control. The *Employer* will not take any responsibility for any loss or damage to the equipment.

4.7 Cataloguing requirements by the Contractor

Not Applicable

5 Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 Employer's Site entry and security control, permits, and Site regulations.

1. The *Contractor* abides by security protocols and access control procedures.
2. Alcohol testing will be conducted at any time on all employees entering the Eskom premises. All staff that tested positive for alcohol abuse will not be allowed on site.
3. The contractor will undergo plant Induction.
4. When entering the site, the contractor or visitors will be requested to come out from their vehicle in front of the gate and identify them self by means of ID card/document.

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5. Police Clearance for the contractor or visitors to be submitted to the head of security before coming/ entering the site.
6. The contractor/visitor will be always subjected to be search before entering the site.
7. The contractor shall have their tools list when entering the site.
8. The contractor will be requested to fill in the register when entering site.
9. Wearing of musk when necessary & always wash the hands.
10. Not report on duty when sick, inform their supervisor

5.1.2 Restrictions to access on Site, roads, walkways, and barricades.

1. All vehicles must comply with the National Road Traffic Act, 1996 (Act No. 93 Of 1996)
2. Vehicle inspections will be conducted daily and check sheets must be kept at the Contractor's offices.
3. The contractor is restricted from entering the plant (Pump Station, Switchgear Room, Distribution Yard etc.) without authorisation by the Project Manager or Employer's representative. The following is prohibited.
 - Firearm not allowed on site.
 - No alcohol on site.
 - Not making of fire on site.

5.1.3 People restrictions on Site; hours of work, conduct and records.

1. Restrictions and hours of work may apply on Sites.
2. It is very important that the Contractor keeps records of his people and plant on Site, including those of his Subcontractors which the Project Manager or Supervisor have access to at any time. These records may be needed when assessing compensation events.
3. No weekend work is permitted without the acceptance of the Project Manager Employer and Contractor working hours will be aligned from 07:00 to 12:00 and 12:30 – 16:30 from Monday to Friday. Health and safety facilities on Site
4. The Contractor to supply the following for his employees:
 - Job Specific Safety training
 - Personal Protective Equipment
 - Toolbox talks
 - Safety Representatives to be trained for all areas of the works.
 - Qualified First aiders to be appointed for all areas of the works.

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5.1.4 Health and safety facilities on Site

In addition to the requirements of the laws governing health and safety, Eskom may have some additional requirements particular to the service and the Affected Property for this contract. The *Contractor* shall comply with the Environmental Management Systems:

The *Contractor* carries out the works in compliance with Occupational Health and Safety Act of 1993 (as amended) and all applicable Eskom Environmental, Health and Safety policies and procedures.

The *Contractor* is responsible for obtaining all accreditations and training required to carry out the works. The *Contractor* implements and maintains active site safety and an accident prevention program in accordance with Eskom's Safety Regulations as laid down by the applicable Safety Manuals.

The *Contractor* liaises with the *Project Manager* and is responsible for cordoning off work areas with solid barricades and the erection of warning signs to prevent access by others working on the premises.

Identifies and reports emerging risks to *The Employer* on a weekly basis.

Identifies and reports on quality related issues.

The *Contractor* shall comply with the health and safety requirements that will be sent by Health and safety department.

5.1.5 Environmental controls, fauna & flora, dealing with objects of historical interest.

Not Applicable

5.1.6 Title to materials from demolition and excavation

Removal of the topsoil

5.1.7 Cooperating with and obtaining acceptance of Others

The *Contractor* will interact with the following stakeholders:

- Primary Energy representatives – Site management
- Eskom Rotek Industries Bulk Material Services representatives – Employer

5.1.8 Publicity and progress photographs

1. No pictures will be taken without the written authorisation of the Project manager.

5.1.9 Contractor's Equipment

1. The *Contractor* submits a list of all tools and equipment when entering site. Equipment and tools not declared will become the Employer's property.
2. On completion of the project, all tools and equipment will be removed only with permission from the Project Manager on the applicable approved *Employer* documents.

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5.1.10 Equipment provided by the *Employer*

Four Oil Tanks and Overhead Crane operator.

5.1.11 Site services and facilities

The *Employer* will provide power, raw water and ablution facilities for the *Contractor* to use whilst on site.

5.1.12 Facilities provided by the *Contractor*

1. The *contractor* provides accommodation for his /her team.
2. Contractor's Main components will be allocated a space inside the pump station.
3. All drivers' fitness to operate specified vehicles and licenses to be always available for inspections by the *Employer*.
4. The *Contractor* provides temporary office space for the duration of the contract for Contractor employees at the site where the works is executed.
5. All equipment must comply with the OHSAct.

5.1.13 Existing premises, inspection of adjoining properties and checking work of Others.

The *Contractor* is expected to assess the conditions and state of the existing infrastructure on the respective sites. This inspection is to be conducted before work commences so that the *Employer* may be made aware of any defects or modifications that are required to be carried before the work commences.

It is also incumbent on the *Contractor* to inform the *Employer* in writing if any of the work that is to be conducted has the potential to damage property on the sites. The *Employer* will then inform the *Contractor* on how to proceed with the works in such instances.

5.1.14 Survey control and setting out of the *works*

Not Applicable

Excavations and associated water control

Not Applicable

5.1.15 Underground services, other existing services, cable and pipe trenches and covers

Not Applicable

Control of noise, dust, water and waste

1. To be included in Risk Assessment.
2. As per authorisations and the Employers policies, procedures, and work instructions.

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5.1.16 Sequences of construction or installation

The *Contractor* will commence with the *Works* at Vygeboom pump station and thereafter proceed to Bosloop and Wintershoek/Nooitgedaght pump stations.

5.1.17 Giving notice of work to be covered up

All intended activities must be captured in the scope of work and also on the project schedule. The project schedule will be reviewed and updated weekly by the Project Manager or when there is a need.

5.1.18 Hook ups to existing works

Not applicable

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case, before the dates stated. The *Project Manager* cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

	Item of work	To be completed by
	As built drawings of All plant	Within 30 days after Completion of each site.
	Performance testing of the <i>works</i> at each site	Various completion days as per test specified in the specification.

5.2.2 Use of the *works* before Completion has been certified

The *Employer* will not make use of the works before it has been certified to be complete.

5.2.3 Materials facilities and samples for tests and inspections

Not Applicable

5.2.4 Commissioning

The *Contractor* will then be responsible for the commissioning of the plant upon completion of the installation. The *Contractor* must develop a commissioning procedure which will be used to commission the plant and hand this over to the *Employer*.

5.2.5 Start-up procedures required to put the *works* into operation

The *Contractor* submits start-up procedures for the works to the *Employer*. The *Contractor* is responsible for the commissioning and start-up of the works when the works are certified to be complete. This commissioning will be conducted with the *Employer* in attendance.

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5.2.6 Take over procedures.

1. The Contractor compiles data packs progressively for all manufacturing and construction/erection inspection, operating manuals and test records and documents for every piece of plant worked on. The Contractor submits data packs to the supervisor and Project Manager for their review for all equipment and works undertaken with the applicable requirements and specifications.
2. Apart from any statutory data packages required, the Contractor also compiles and signs off a data package of the relevant drawings, test certificates etc. to the Project Manager for acceptance. These include, but are not limited to:
 - Approved ITP's, QCP's;
 - Method statements and specifications adhered to
 - Approved Drawings;
 - Design Calculation Reports
 - Fabrication Drawings;
 - Material Certificates;
 - ;Certificate of Manufacture;
 - Inspection Reports;
 - Spares list

5.2.7 Access given by the *Employer* for correction of Defects.

Access shall be granted to the Contractor for correction of Defects by the Project Manager.

5.2.8 Performance tests after Completion

Performance monitoring will be done by the Employer after commissioning.

5.2.9 Training and technology transfer

Contractor to provide an operational demonstration to the operating staff.

5.2.10 Operational maintenance after Completion

Operational maintenance will be done by the Employer after commissioning.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey and Site clearance

Not Applicable

6.2 Building works

Not Applicable

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6.3 Civil engineering and structural works

Not Applicable

6.4 Electrical & mechanical engineering works

6.4.1 Power Supply

Existing power supply connection from each pump station's 380V board shall be used to power the lube oil system. Local distribution and control for each system's electrical components shall be provided locally. The Contractor must confirm the suitability of the power supply in his design.

All electrical installation to conform to

- SANS 10142-1: The wiring of premises part 1: Low-voltage installations
- SANS1507: Electric cables with extruded solid dielectric insulation for fixed installations (300/500V to 1900/3 300 V). all applicable parts.
- SANS 1091: National colour standard
- 240-56356396: Earthing and Lightning protection Specification.

6.4.2 Electrical Motors

Electrical motors shall comply to:

- SANS 1804
- 240-56355466: Procurement of Power Station Low Voltage Motors.

6.4.3 Lube Oil Piping

The following standards are applicable to the works.

240-123801640: Standard for Low Pressure Pipelines

240-56356376: On-Site Commissioning for Low Pressure Systems Standard

EN 13480 - All parts: Piping

240-105020315: Standard for Low Pressure Valves

6.5 Process control and IT works

Not Applicable

6.6 Other [as required]

7 List of drawings

7.1 Drawings issued by the *Employer*.

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

Note: Some drawings may contain both Works Information and Site Information.

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Drawing number	Revision	Title
None		

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C3.2 *CONTRACTOR'S* WORKS INFORMATION

This section of the Works Information will always be contract specific depending on the nature of the *works*. It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the *Employer* prior to award of contract now become obligations of the *Contractor* per core clause 20.1.





Typical sub headings could be

- a) *Contractor's* design
- b) Plant and Materials specifications and schedules
- c) Other


This section could also be compiled as a separate file.

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APPENDIX A: QUALITY REQUIREMENTS

#	Folder	Document Number	Document Title	Rev	Document
01	Quality Documents	240-105658000	<i>Supplier Quality Management Specification</i>	2	 Supplier Quality Management Specif
		240-126469599	<i>Method Statement Template</i>	6	 240-126469599 hod Statement te
		240-109253302	<i>ITP Template</i>		 20170524_240-53302 ITP Temp
		240-109253698	<i>Typical Contract Quality Plan Template</i>	3	 240-109253698 Template 2016 R

Annexure C: KWS LUBE OIL SYSTEM PROJECT SHE Specifications

#	Folder	Document Number	Document Title	Rev	Document
01	SHE Documents	240-73416879	<i>KWS Lube Oil System Project SHE specification</i>	01	 KWS Lube Oil System Project SHE Specifica
		240-128739857	<i>Environmental Evaluation Criteria for KWS</i>	2	

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