

Part T1:
Tendering
Procedures

Transnet National Ports Authority

an Operating Division **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

**FOR THE: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE
TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN,
(HEREAFTER REFERRED TO AS TNPA)**

RFP NUMBER	: TNPA/2022/06/0504/5366/RFP
ISSUE DATE	: 28 June 2022
COMPULSORY VIRTUAL BRIEFING	: 08 July 2022 @ 11h00
CLOSING DATE	: 28 July 2022
CLOSING TIME	: 12h00pm
TENDER VALIDITY PERIOD	: 90 days from closing date.

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

SECTION 1: NOTICE TO TENDERERS

1. INVITATION TO TENDER

Responses to this Tender [hereinafter referred to as a **Tender**] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as a Tenderer].

DESCRIPTION	DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)
TENDER DOWNLOADING	This Tender may be downloaded directly from the National Treasury eTender Publication Portal at www.etenders.gov.za and the Transnet eTender Portal at www.transnet.net FREE OF CHARGE .
VIRTUAL-COMPULSORY TENDER CLARIFICATION MEETING	<p>A virtual-compulsory Briefing Session via Microsoft Teams will be held on Friday, 08th July 2022 from 11:00 - 13:00.</p> <p>If interested in attending the virtual briefing, kindly indicate by sending an email to wandisa.kula@transnet.net email address. A return email with meeting invite will be furnished. Potential respondents are permitted to send a representative.</p> <p>Transnet encourages all Respondents to attend. Transnet will not be held responsible if any Respondent who did not attend the virtual-compulsory session subsequently feels disadvantaged as a result thereof.</p> <p>Certificate of Attendance in the form set out in the Returnable Schedule T2.2-03 hereto must be completed and submitted with your Tender as proof of attendance is required for a virtual-compulsory meeting and/or tender briefing.</p> <p>After the Virtual-Compulsory Tender Clarification Meeting, tenderers are required to e-mail (wandisa.kula@transnet.net) this Returnable Schedule T2.2-03. to be signed by the <i>Employer's</i> Representative.</p> <p>Tenderers failing to attend the virtual-compulsory tender briefing will be disqualified.</p>
CLOSING DATE	<p>12:00pm on (28 July 2022)</p> <p>Tenderers must ensure that tenders are uploaded timeously onto the system. If a tender is late, it will not be accepted for consideration.</p>

2. TENDER SUBMISSION

Transnet has implemented a new electronic tender submission system, the e-Tender Submission Portal, in line with the overall Transnet digitalization strategy where suppliers can view advertised tenders, register their information, log their intent to respond to bids and upload their bid proposals/responses on to the system.

a) The Transnet e-Tender Submission Portal can be accessed as follows:

- Log on to the Transnet eTenders management platform website (<https://www.transnet.net>);
- Click on "TENDERS";
- Scroll towards the bottom right hand side of the page;
- On the blue window click on "register on our new eTender Portal";
- Click on "ADVERTISED TENDERS" to view advertised tenders;
- Click on "SIGN IN/REGISTER – for bidder to register their information (must fill in all mandatory information);
- Click on "SIGN IN/REGISTER" - to sign in if already registered;
- Toggle (click to switch) the "Log an Intent" button to submit a bid;
- Submit bid documents by uploading them into the system against each tender selected.

b) The tender offers to this tender will be opened as soon as possible after the closing date and time. Transnet shall not, at the opening of tenders, disclose to any other company any confidential details pertaining to the Tender Offers / information received, i.e. pricing, delivery, etc. The names and locations of the Tenderers will be divulged to other Tenderers upon request.

c) Submissions must not contain documents relating to any Tender other than that shown on the submission.

3. CONFIDENTIALITY

All information related to this RFP is to be treated with strict confidentiality. In this regard Tenderers are required to certify that they have acquainted themselves with the Non-Disclosure Agreement. All information related to a subsequent contract, both during and after completion thereof, will be treated with strict confidence. Should the need however arise to divulge any information gleaned from provision of the Works, which is either directly or indirectly related to Transnet's business, written approval to divulge such information must be obtained from Transnet.

4. DISCLAIMERS

Tenderers are hereby advised that Transnet is not committed to any course of action as a result of its issuance of this Tender and/or its receipt of a tender offer. In particular, please note that Transnet reserves the right to:

- 4.1. Award the business to the highest scoring Tenderer/s unless objective criteria justify the award to another tenderer.
- 4.2. Not necessarily accept the lowest priced tender or an alternative Tender;
- 4.3. Go to the open market if the quoted rates (for award of work) are deemed unreasonable;
- 4.4. Should the Tenderers be awarded business on strength of information furnished by the Tenderer, which after conclusion of the contract is proved to have been incorrect, Transnet reserves the right to terminate the contract;
- 4.5. Request audited financial statements or other documentation for the purposes of a due diligence exercise;
- 4.6. Not accept any changes or purported changes by the Tenderer to the tender rates after the closing date;
- 4.7. Verify any information supplied by a Tenderer by submitting a tender, the Tenderer/s hereby irrevocably grant the necessary consent to the Transnet to do so;
- 4.8. Conduct the evaluation process in parallel. The evaluation of Tenderers at any given stage must therefore not be interpreted to mean that Tenderers have necessarily passed any previous stage(s);
- 4.9. Unless otherwise expressly stated, each tender lodged in response to the invitation to tender shall be deemed to be an offer by the Tenderer. The Employer has the right in its sole and unfettered discretion not to accept any offer.
- 4.10. Not be held liable if tenderers do not provide the correct contact details during the clarification session and do not receive the latest information regarding this RFP with the possible consequence of being disadvantaged or disqualified as a result thereof.
- 4.11. Transnet reserves the right to exclude any Tenderers from the tender process who has been convicted of a serious breach of law during the preceding 5 [five] years including but not limited to breaches of the Competition Act 89 of 1998, as amended. Tenderers are required to indicate in tender returnable [clause 12 on T2.2-19], **[Breach of Law]**

whether or not they have been found guilty of a serious breach of law during the past 5 [five] years.

4.12. Transnet reserves the right to perform a risk analysis on the preferred tenderer to ascertain if any of the following might present an unacceptable commercial risk to the employer:

- *unduly high or unduly low tendered rates or amounts in the tender offer;*
- *contract data of contract provided by the tenderer; or*
- *the contents of the tender returnables which are to be included in the contract.*

5. Transnet will not reimburse any Tenderer for any preparatory costs or other work performed in connection with this Tender, whether or not the Tenderer is awarded a contract.

6. NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE

Tenderer are required to self-register on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information. The CSD can be accessed at <https://secure.csd.gov.za/>. Tenderer are required to provide the following to Transnet in order to enable it to verify information on the CSD:

Supplier Number..... and Unique registration reference number.....(Tender Data)

Transnet urges its clients, suppliers and the general public
to report any fraud or corruption to
TIP-OFFS ANONYMOUS: 0800 003 056 OR Transnet@tip-offs.com

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts. The Standard for Uniformity in Construction Procurement was first published in Board Notice 62 of 2004 in Government Gazette No 26427 of 9 June 2004. It was subsequently amended in Board Notice 67 of 2005 in Government Gazette No 28127 of 14 October 2005, Board Notice 93 of 2006 in Government Gazette No 29138 of 18 August 2006, Board Notice No 9 of 2008 in Government Gazette No 31823 of 30 January 2009, Board Notice 86 of 2010 in Government Gazette No 33239 of 28 May 2010, Board Notice 136 of 2015 in Government Gazette 38960 of 10 July 2015 and Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

This edition incorporates the amendments made in Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019. (see www.cidb.org.za).

The Standard Conditions of Tender make several references to Tender data for detail that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced in the left-hand column to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause	Data
C.1.1	The <i>Employer</i> is Transnet SOC Ltd (Reg No. 1990/000900/30)
C.1.2	The tender documents issued by the <i>Employer</i> comprise:
	Part T: The Tender
	Part T1: Tendering procedures
	T1.1 Tender notice and invitation to tender
	T1.2 Tender data
	Part T2 : Returnable documents
	T2.1 List of returnable documents
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	Part C1: Agreements and contract data
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	C2.2 Activity Schedule

	Part C3: Scope of work	C3 Scope of Work
	Part C4: Site information	C4.1 Site information
C.1.4	The Employer's agent is:	Contract Specialist
	Name:	Wandisa Kula
	Address:	Transnet National Ports Authority TNPA Building 34 South Arm Road Port of Cape Town 8001
	Tel No.	021 449 4387
	E – mail	Wandisa.kula@transnet.net
C.2.1	Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:	
	<i>Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.</i>	
	1. Stage One - Pre-qualification criteria for preferential procurement in terms of the Preferential Procurement Regulations, 2017:	
	Tenderers are required to meet the pre-qualification criteria of Sub-contracting of a minimum of 30% to one or more company/ies that meets the requirements of Regulation 4(1)(c) of the PPPFA Regulations 2017 as indicated hereto:	
	<ul style="list-style-type: none"> i. an EME or QSE which is at least 51% owned by black people; ii. an EME or QSE which is at least 51% owned by black people who are youth; iii. an EME or QSE which is at least 51% owned by black people who are women; or iv. an EME or QSE which is at least 51% owned by black people with disabilities; v. an EME or QSE which is 51% owned by black people living in rural or undeveloped areas or townships; vi. a cooperative which is at least 51% owned by black people; vii. an EME or QSE which is at least 51% owned by black people who are military veterans. 	
	All Subcontractors must be registered on the National Treasury CSD by closing date of the tender. Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.	

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

2. Stage Two - Local Production and Content in terms of the Preferential Procurement Regulations, 2017:

Tenderers must properly complete, duly sign and submit returnable schedule

T2.2-02, entitled "Declaration Certificate for Local Production and Content (SBD 6.2 and Annexures C, D & E)", committing to meet the following stipulated minimum thresholds for local production and content for the following designated sectors as determined by the Department of Trade and Industry (DTI):

- Aluminium (100%)
- Search and rescue lights (100%)
- Radars (100%)
- Naval combat Management System (100%)
- Naval Command and Control (100%)
- Communication Transceivers (100%)
- Firefighting equipment -100%
- Ventilation equipment -100%
- Air conditioning equipment (100%)
- Environmental protection (100%)
- Refrigeration equipment (100%)
- Preservation and coverings (100%)
- Insulation (100%)
- Mooring system (100%)
- Davits and Cranes (100%)
- Air Whistle CIF (100%)
- Hydrofoils (100%)
- Hydraulics (100%)
- Water tight doors (100%)
- Water tight windows (100%)
- Fire doors (100%)
- Valves (100%)

The exchange rate to be used for the calculation of local production and content must be the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of the advertisement of the tender. The rates of exchange quoted by the tenderer in paragraph 4.1 of Returnable Schedule T2.2-02 (the Declaration Certificate for Local Production and Content for Designated Sectors) may be verified for accuracy. Only the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 must be used to calculate local content.

The SABS approved technical specification number SATS 1286:2011 and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)] are accessible to all potential tenderers on the DTI's official website; <http://www.the dti.gov.za/industrial development/ip.jsp>

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

3. Stage Three - Eligibility with regards to attendance at the compulsory clarification meeting:

An authorised representative of the tendering entity or a representative of a tendering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting in terms C2.7

4. Stage Four - Functionality:

Only those tenderers who obtain the minimum qualifying score for functionality will be evaluated further in terms of price and the applicable preference point system. The minimum qualifying for score for functionality is 60 points.

The evaluation criteria for measuring functionality and the points for each criteria and, if any, each sub-criterion are as stated in C.3.11.3 below.

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

C.2.7 The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. **Tenderers must complete and sign the attendance register.** Addenda will be issued to and tenders will only be received from those tendering entities including those entities that intends forming a joint venture appearing on the attendance register.

Tenderers are also **required to bring their RFP document to the briefing session and have their returnable document T2.2-03 certificate of attendance** signed off by the Employer's authorised representative.

C.2.12 No alternative tender offers will be considered.

C.2.13.3 Each tender offer shall be in the **English Language**.

C.2.13.5 The *Employer's* details and identification details that are to be shown on each tender offer
C2.15.1 are as follows:

Identification details:

The tender documents must be uploaded with:

- Name of Tenderer: (insert company name)
- Contact person and details: (insert details)
- The Tender Number:
- The Tender Description

Documents must be marked for the attention of:

Employer's Agent:

C.2.13.9 Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.

C.2.15 The closing time for submission of tender offers is:

Time: **12:00pm** on the **28 July 2022** (Date)

Location: The Transnet e-Tender Submission Portal: www.transnet.net

NO LATE TENDERS WILL BE ACCEPTED

C.2.16 The tender offer validity period is **12 weeks** after the closing date. Tenderers are to note that they may be requested to extend the validity period of their tender, on the same terms and conditions, if Transnet's internal evaluation and governance approval processes has not been finalised within the validity period.

C.2.23 The tenderer is required to submit with his tender:

1. A valid Tax Clearance Certificate issued by the South African Revenue Services.
Tenderers also to provide Transnet with a TCS PIN to verify Tenderers compliance status.

2. A **valid B-BBEE Certificate** from a Verification Agency accredited by the South African Accreditation System [**SANAS**], or a **sworn affidavit** confirming annual turnover and level of black ownership in case of all EMEs and QSEs with 51% black ownership or more together with the tender;

3. Proof of registration on the Central Supplier Database;

4. Letter of Good Standing with the Workmen's compensation fund by the tendering entity or separate Letters of Good Standing from all members of a newly constituted JV.

Note: Refer to Section T2.1 for List of Returnable Documents

C3.11 The minimum number of evaluation points for functionality is: **60**

The procedure for the evaluation of responsive tenders is Functionality, Price and Preference:

Only those tenderers who attain the minimum number of evaluation points for

TRANSNET NATIONAL PORTS AUTHORITY

Contract Number: TNPA/2022/06/0504/5366/RFP

Description of the Works: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

Functionality will be eligible for further evaluation, failure to meet the minimum threshold will result in the tender being disqualified and removed from any further consideration.

Functionality Criteria

The functionality criteria and maximum score in respect of each of the criteria are as follows: **(Please see CIDB Compiler guidance note T1.2 – Tender Data).**

Evaluation Criteria	Description	Scoring principle	Returnable Schedule	Weighting
Previous Experience in Shipbuilding	Company (not individuals) experience in successfully designing, building, commissioning and handing over similar (i.e same class) motorised vessels (in accordance with scope of work) in the past 10 years.	More than six projects submitted of similar vessel previously built and delivered successfully = 100% 5 < projects submitted of similar vessel previously built and delivered successfully ≤ 6 = 80% 5 projects submitted of similar vessel previously built and delivered successfully = 60% 2 < projects submitted of similar vessel previously built and delivered successfully ≤ 4 = 40% 1 < project submitted of similar vessel previously designed, built and delivered successfully ≤ 2 = 20% No Response or no project submitted of the similar vessel previously built and delivered successfully or No evidence of designing of similar vessel irrespective of evidence of vessels previously delivered = 0%	A list of previous experience in designing, building, commissioning and handing over motorized vessels. Reference letter(s) for previously designing, building, commissioning and handing over motorized vessels. Reference letter(s) from client(s) on clients' company letterhead signed by the client confirming the work performed with a clear indication of clients' impression of the work performed. References must be traceable in order for the experience to be verified by TNPA where necessary.	43
	Sub-total			43
Management & CV's of Key Personnel and Organogram.	Project Manager	More than 7 years experience with a degree in Project Management (or equivalent) and professionally registered with PMI or PMSA = 100% 5 < years experience with a degree in Project Management (or equivalent) ≤ 7 = 80% 3 ≤ years experience with a degree in Project Management (or equivalent) ≤ 5 = 60% Less 3 years experience years with a degree in Project Management (or equivalent) = 40% less than 3 Years Experience with no degree in Project Management (or equivalent) = 20% No response = 0%	1. Qualifications 2. CV's with traceable references 3. Certificates	3

	Naval Architect registered with a recognized organisation such as RINA (Must be Class Approved)	<p>Professionally registered Naval Architect with more than 10 years experience = 100%</p> <p>Professionally registered Naval Architect with 7 < ten years experience ≤ 10 = 80%</p> <p>Professionally registered Naval Architect with 5 < years experience ≤ 7 = 60%</p> <p>Professionally registered Naval Architect with 3 ≤ years experience ≤ 5 = 40%</p> <p>Less than three years experience or not Professionally registered = 20%</p> <p>No Information provided = 0%</p>	<p>1. Qualifications</p> <p>2. CV's with traceable references</p> <p>3. Certificates</p>	3
	Risk Specialist	<p>More than seven years experience with risk management qualification = 100%</p> <p>5 < years experience and risk management certificate ≤ 7 = 80%</p> <p>3 < years experience and risk management certificate ≤ 5 = 60%</p> <p>1 < Years Experience ≤ 3 = 40%</p> <p>Years experience < 1 = 20%</p> <p>No Response = 0%</p>	<p>1. Qualifications</p> <p>2. CV's with traceable references</p> <p>3. Certificates</p>	2
	Superintendent / Foreman with Shipbuilding Background qualification	<p>> 7 Years Experience with a Diploma in Mechanical Eng and Chief Engineer's Qualifications (unlimited)) = 100%</p> <p>5 < Years Experience ≤ 7 = 80%</p> <p>3 < Years Experience ≤ 5 = 60%</p> <p>1 < Years Experience ≤ 3 = 40%</p> <p>Years Experience < 1 = 20%</p> <p>No Response = 0%</p>	<p>1. Qualifications</p> <p>2. CV's with traceable references</p> <p>3. Certificates</p>	3
	Quality Manager with experience in steel fabrication or shipbuilding.	<p>> 7 Years Experience and quality management diploma = 100%</p> <p>5 < Years Experience and quality management diploma ≤ 7 = 80%</p> <p>3 < Years Experience and quality management diploma ≤ 5 = 60%</p> <p>1 < Years Experience ≤ 3 = 40%</p> <p>Years Experience < 1 = 20%</p> <p>No Response = 0%</p>	<p>1. Qualifications</p> <p>2. CV's with traceable references</p> <p>3. Certificates</p>	1
	Coded Welders that are Class Approved with qualification (i.e. Welder's Qualification Test Certificate, Welders Procedure Specification)	<p>> 7 Years Experience = 100%</p> <p>5 < Years Experience ≤ 7 = 80%</p> <p>3 < Years Experience ≤ 5 = 60%</p> <p>1 < Years Experience ≤ 3 = 40%</p> <p>Years Experience < 1 = 20%</p> <p>No Response or not class approved and/or no qualification = 0%</p>	<p>1. Qualifications</p> <p>2. CV's with traceable references</p> <p>3. Certificates</p>	1

	Millwright with trade test certificate	> 7 Years Experience = 100% 5 < Years Experience ≤ 7 = 80% 3 < Years Experience ≤ 5 = 60% 1 < Years Experience ≤ 3 = 40% Years Experience < 1 = 20% No Response or no trade test certificate = 0%	1. Qualifications 2. CV's with traceable references 3. Certificates	1
	Spray painter with a certificate in spray painting	> 7 Years Experience = 100% 5 < Years Experience ≤ 7 = 80% 3 < Years Experience ≤ 5 = 60% 1 < Years Experience ≤ 3 = 40% Years Experience < 1 = 20% No Response or no certificate = 0%	1. Qualifications 2. CV's with traceable references 3. Certificates	1
	Boilermaker with a trade test certificate	> 7 Years Experience = 100% 5 < Years Experience ≤ 7 = 80% 3 < Years Experience ≤ 5 = 60% 1 < Years Experience ≤ 3 = 40% Years Experience < 1 = 20% No Response or no trade test certificate = 0%	1. Qualifications 2. CV's with traceable references 3. Certificates	1
	Organogram that is Project Specific	All key people included with attached CV and qualification = 100% Missing 1 key person = 80% Missing 2 key people = 60% Missing 3 key people = 40% Missing 4 key people = 20% Missing 5 key people or No response or Not project specific = 0%	Project Specific Organogram	1
	Sub-total			17
Programme	Starting date and completion date are stated and the schedule does not exceed 14 months.	Starting date and completion is less than 13 months = 100% Starting date and completion date between 13 and 14 months = 80% Starting date and completion date between 14 and 15 months = 60% Starting date and completion date between 15 and 16 months = 40% Starting date and completion date exceeds 16 months = 20% No Response or Starting date and completion date not shown = 0%	Programme accompanied by basis of schedule.	1

	Detailed Level 4 Programme with supportive Information on how durations were estimated. Major milestones are all shown and all project requirements, timing and deliverables will be met.	<p>Exceeds expectations, showing importance issues with supportive information clearly indicating and defining the deliverables, detailed major milestones and the schedule is sufficiently flexible to accommodate changes that may occur. Activities are broken down into level 4 detail = 100%</p> <p>Meets expectations, showing important issues with supportive information clearly indicating and defining the deliverables, detailed major milestones and the schedule is sufficiently flexible to accommodate changes that may occur. Activities are broken down into level 4 detail = 80%</p> <p>The requirements partially meet the stipulated criteria with sparse supportive information/details how the durations were estimated however evidence is given that the project requirements, timing and deliverables will be met = 60%</p> <p>Does not meet requirements of the stipulated criteria with no supportive information on how the durations were estimated. The sequencing of the key project deliverables is inconsistent and illogical interrelationships of activities with an insufficient breakdown of tasks/activities = 40%</p> <p>Programme is not acceptable as it will not satisfy project objectives or requirements. The Tenderer has misunderstood the scope of services and does not deal with the critical aspects of the project = 20%</p> <p>No response = 0%</p>		2
	All activities as per level 4 detail to be logically tied using critical path method (CPM).	<p>The schedule is complete and detailed (level 4) with all activities properly linked using CPM and no open ends in between and basis of schedule to substantiate the linking of activities = 100%</p> <p>The schedule is complete and detailed (level 4) with all activities properly linked using CPM and no open ends in between = 80%</p> <p>The schedule is complete and detailed (level 4) with major activities properly linked using CPM and no open ends in between = 60%</p> <p>The schedule is partially complete and detailed (level 4) with major activities properly linked using CPM with no open ends in between = 40%</p> <p>The schedule is partially complete and detailed (level 4) with major activities properly linked using CPM with some open ends in between = 20%</p> <p>No response or schedule does not link activities using CPM or submission is not level 4 (i.e.level 1, level 2 or level 3) = 0%</p>		2

	All activity durations to be realistic and based on quantities and activities that can be measured in days. The calendar on the schedule should represent the actual work week/month used. E.g. weekends as nonworking periods.	All activities are broken down into days and weekends, public holidays and builders' breaks are marked as non-working days with time risk allowances shown = 100% All activities are broken down into days and weekends, public holidays and builders break are marked as non-working days = 80% Major activities are broken down into days and weekends, public holidays and builders break are marked as non-working days = 60% Activities are broken down into days and weekends and public holidays are marked as non-working days = 40% Activities are broken down into weeks and weekends and public holidays are marked as non-working days = 20% No response = 0%		2
	Programme submission Format (Software)	Programme submitted in either MS project or Primavera including resource loading and cashflow forecast = 100% Programme submitted in either MS project or Primavera including resource loading = 80% Programme submitted in either MS project or Primavera = 60% Programme submitted in MS Excel = 40% Programme submitted not in MS Excel, MS Project nor Primavera = 20% No response = 0%		3
	Sub-total			10
SHERQ	Documented Integrated SHERQ Policy and the Procedure Documents (i.e. Signed SHE Plan, SHE Risk Assessments, Environmental Management Plan, Method Statement.)	The submission includes all activities (i.e. Signed SHE Plan, SHE Risk Assessments, Environmental Management Plan, Method Statement) = 100% The Service provider has developed a Signed SHE Plan, SHE Risk Assessments, Method Statement but no EMP Submitted = 80% The Service provider has developed a Signed SHE Plan, SHE Risk Assessments but no EMP Submitted and no Method Statement = 60% The Service provider has developed a Signed SHE Plan but no SHE Risk Assessments and no EMP Submitted and no Method Statement = 40% Generic documents submitted and irrelevant to the project = 20% No Response - No Information provided = 0%	SHERQ Policy and Procedure Documents.	5
	Sub-total			5

Method Statement	Bollard Pull ≥ 4 tonnes (see Clause 2.1.2.4 of the C3)	Bollard pull ahead exceeding 4,2 tonnes = 100% 4 < Bollard pull ahead $\leq 4,2$ tonnes = 80% Bollard pull ahead of 4 tonnes = 60% 3,2 < Bollard pull ahead < 4 tonnes = 40% 3,2 < Bollard pull ahead $\leq 3,5$ tonnes = 20% No response or Bollard pull ahead < 3.2 tonnes = 0%	1. Clause by Clause Compliance to C3.2. Completed Compliance Sheet	2
	Below the deck accommodation with two berths of 2.1 x 0.9 m with ceiling and walls completely lined (see Clause 9.5.1 of the C3)	Below the deck accommodation with more than three berths of 2.1 x 0.9 m with ceiling and walls completely lined = 100% Below the deck accommodation with three berths of 2.1 x 0.9 m with ceiling and walls completely lined = 80% Below the deck accommodation with two berths of 2.1 x 0.9 m with ceiling and walls completely lined = 60% Below the deck accommodation with two berths of 2.1 x 0.9 m without ceiling and walls completely lined = 40% Below the deck accommodation with one berth smaller than 2.1 x 0.9 m without ceiling and walls completely lined = 20% No response or No accommodation provided = 0%		1
	298 kW \leq Engine power < 350 (See Clauses 4.1.2 and 2.1.2.4)	300 kW < Engine Power < 350 kW = 100% 298 kW < Engine Power \leq 300 kW = 80% Engine power of 298 kW = 60% 290 kW < Engine Power < 298 kW = 40% 285 kW < Engine Power \leq 290 kW = 20% Engine power \leq 285 kW = 0%		1
	Compliance to noise levels in engine room (Maximum = 100 dB(A) measured at 80% power of main engine) (see clause 9.1.1 of the C3)	Below 95 dB(A) = 100% 95 < dB(A) \leq 99 = 80% 100 dB(A) = 60% 101 < dB(A) \leq 102 = 40% 102 < dB(A) \leq 103 = 20% more than 103 dB(A) = 0%		1
	A maximum speed of 8.0 knots with 50% tanks capacity (see clauses 2.1.2.4 and 2.4.3.4 of the C3)	A maximum speed above 9.0 knots with 50% tanks capacity = 100% 8 Knots < maximum with 50% tanks capacity \leq 9 Knots = 80% A maximum speed of 8.0 knots with 50% tanks capacity = 60% 6 Knots < maximum with 50% tanks capacity \leq 7 Knots = 40% 5 Knots < maximum with 50% tanks capacity \leq 6 Knots = 20% No response or 5 Knots < maximum with 50% tanks capacity = 0%		1

	Air Conditioning cooling unit to be installed in the wheelhouse (See clause 5.10.2)	Highly energy efficient Air Conditioning cooling unit to be installed in the wheelhouse = 100% Inverter Conditioning cooling unit to be installed in the wheelhouse = 80% Air Conditioning cooling unit to be installed in the wheelhouse = 60% Non-inverter Conditioning cooling unit to be installed in the wheelhouse = 40% No Air Conditioning cooling unit and only fan to be installed in the wheelhouse= 20% No response or No Air Conditioning cooling unit or fan to be installed in the wheelhouse= 0%		1
	Critical spares shall be delivered with the vessel (See clause 1.12 of the C3); • 1 X Propeller Shaft, • 1 set of Propeller shaft bearings, • 1 X Fixed-pitch propeller. • 1 set of engine spares as recommended by OEM.	Two or more spares in addition to the Four above to be provided = 100% One more spare in addition to the four above to be provided = 80% All four as stated above to be provided = 60% Only three of the above to be provided = 40% Only two of the above to be provided = 20% No response or less than two of the above is provided = 0% (0)		1
	All Classification Society Spares are included as per clause 1.12 of the C3.	More than 105% of the total number of Classification Society Spares included = 100% 105% of the total number of Classification Society Spares included = 80% 100% of the total number of Classification Society Spares included = 60% 95% of the total number of Classification Society Spares included = 40% Less than 95% of the total number of Classification Society Spares included = 20% No response or less than 90% of the total number of Classification Society Spares included = 0%		1
	The Vessel shall be delivered with all required tools (See Clause 2.1.2.9 of the C3)	More than 105% of the total number of Tools to be provided and comply with specifications = 100% 105% of the total number of Tools to be provided and comply with specifications = 80% 100% of the total number of Tools to be provided and comply with specifications = 60% 95% of the total number of Tools to be provided and comply with specifications = 40% less than 95% of the total number of Tools to be provided and comply with specifications = 20%		1

TRANSNET NATIONAL PORTS AUTHORITY

Contract Number: TNPA/2022/06/0504/5366/RFP

Description of the Works: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

		No Response or Tools to be provided does not comply with specification = 0%		
	Method Statement includes all specifications as per the C3 - Goods Information and demonstrates a clear understanding of the Goods Information	<p>The methodology approach deals with ALL critical characteristics of the project. Besides meeting the "80" rating, the important issues are approached in an innovative and efficient way, indicating that the tenderer has outstanding knowledge of state-of-the-art approaches. The methodology approach details ways to improve the project outcomes and the quality of the outputs = 100%</p> <p>The methodology approach deals with most characteristics of the project. The methodology/approach is specifically tailored to address the specific project objectives and methodology and is sufficiently flexible to accommodate changes that may occur during execution. The methodology/approach to manage activities is specifically tailored to the critical characteristics of the project = 80%</p> <p>The methodology approach deals with most of the characteristics of the project. Satisfactory response/solution to the particular aspect of the requirement and evidence given that the stated employer's requirements will be met = 60%</p> <p>The methodology approach deals with only minimal characteristics of the project. The methodology/approach is generic and not tailored to address the specific project objectives and methodology = 40%</p> <p>The methodology/approach and work alignment to project schedule is poorly presented, generic and not tailored to address the specific project objectives and methodology = 20%</p> <p>The tenderer has submitted no information or inadequate information to determine a score= 0%</p>	Method Statement	10
	Sub total			20

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Quality Expectations	Project Specific Quality Plan for the project.	PQP covers all and above the project quality requirements of the project scope = 100% PQP shows above average understanding of the project quality requirements = 80% PQP shows adequate understanding of project quality requirements = 60%PQP is project specific but inadequate to cover project scope = 40% PQP is too general with not project specifics = 20%No Response = 0%	Project Specific Quality Plan	2
	Project specific Quality Control Plan (For each task).	QCP covers all and above the project quality requirements of the project scope = 100% QCP shows above average understanding of the project quality requirements = 80% QCP shows adequate understanding of project quality requirements = 60% QCP is project specific but inadequate to cover project scope = 40% QCPs are not project specific = 20% No Response - No Information provided = 0%	Project specific Quality Control Plan	2
	Project specific Quality data book index.	The Data book index covers all and above the project quality requirements of the project scope = 100% Data book index shows above average understanding of the project quality requirements = 80% Data book index shows adequate understanding of project quality requirements = 60% Quality Data book index is project specific but inadequate to cover project scope = 40% Quality Data book index is not project specific = 20% No Response = 0%	Quality data book index.	1
	Sub total			5
TOTAL RATING				100

C.3.11. Functionality shall be scored independently by not less than 3 (three) evaluators and averaged in accordance with the following schedules:

- T2.2-04 Previous Experience in Shipbuilding
- T2.2-05 Management & CV's of Key Personnel and Organogram.
- T2.2-06 Programme
- T2.2-07 SHERQ
- T2.2-08 Method Statement
- T2.2-09 Quality Expectations

Each evaluation criteria will be assessed in terms of scores of 0, 20, 40, 60, 80 or 100. The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for functionality, unless scored collectively. (See CIDB Inform Practice Note #9).

Note: Any tender not complying with the above mentioned requirements, will be regarded as non-responsive and will therefore not be considered for further evaluation. This note must be read in conjunction with Clause C.2.1.

Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 80/20 or 90/10 preference points systems as described in Preferential Procurement Regulations 6 and 7.

90 where the financial value of one or more responsive tenders received have a value equal to or above R50 million, inclusive of all applicable taxes.

Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed. **Should the BBBEE rating not be provided, tenderers with no verification will score zero points for preferencing.**

Note: Transnet reserves the right to carry out an independent audit of the tenderers scorecard components at any stage from the date of close of the tenders until completion of the contract.

C.3.13 Tender offers will only be accepted if:

1. The tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;

2. the tenderer does not appear on Transnet's list for restricted tenderers and National Treasury's list of Tender Defaulters;
3. the tenderer has fully and properly completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process and persons in the employ of the state.
4. Transnet reserves the right to award the tender to the tenderer who scores the highest number of points overall, unless there are **objective criteria** which will justify the award of the tender to another tenderer. Objective criteria include but are not limited to the outcome of a due diligence exercise to be conducted. The due diligence exercise may take the following factors into account inter alia;

the tenderer:

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

C.3.17 The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

Part C1:
Agreements and
Contract Data



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2022/06/0504/5366/RFP

DESCRIPTION OF THE WORKS: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

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:

Design, Manufacture and Delivery of Two Launches for the Transnet National Ports Authority for the Port of Cape Town.

The tenderer, identified in the Offer signature block, has

	examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.
--	---

By the representative of the tenderer, deemed to be duly 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.

The offered total of the Prices exclusive of VAT is	R
Value Added Tax @ 15% is	R
The offered total of the Prices inclusive of VAT is	R
(in words)	

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:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number:



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: Goods 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 of this document, including the Schedule of Deviations (if any).



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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)

Capacity

**for the
Employer**

Transnet SOC Ltd

(Insert name and address of organisation)

Name &
signature of
witness

Date



TRANSNET NATIONAL PORTS AUTHORITY

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DESCRIPTION OF THE WORKS: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

Schedule of Deviations

Note:

1. To be completed by the Employer prior to award of contract. 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		
2		
3		
4		
5		

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	(Insert name and address of organisation)	Transnet SOC Ltd
Name & signature of witness	_____	_____
Date	_____	_____

C1.2 Contract Data

Part one - Data provided by the *Employer*

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	
		X1: Price adjustment for inflation
		X2: Changes in the law
		X4: Parent company guarantee
		X7: Delay damages
		X13: Performance Bond
		X16: Retention
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Engineering and Construction Contract June 2005 (amended June 2006 and April 2013)	
10.1	The <i>Employer</i> is:	Transnet SOC Ltd (Registration No. 1990/000900/30)



	Address	Registered address: eMendi Admin Building, Klub Road, Port of Ngqura, Neptune Road, Coega, PORT ELIZABETH, 6100
	Having elected its Contractual Address for the purposes of this contract as:	Transnet National Ports Authority (REGISTRATION NO.1990/000900/30), trading through its Operating Division, Transnet National Ports Authority South Arm Road Cape Town 8001
10.1	The <i>Project Manager</i> is: (Name)	Vusi Chabalala
	Address	Room 207, TNPA House South Arm Road Cape Town 8000
	Tel	021 449 3217
	e-mail	Vusi.Chabalala@transnet.net
10.1	The <i>Supervisor</i> is: (Name)
	Address
	Tel No.
	e-mail
11.2(13)	The <i>works</i> are	Design, Manufacture and Delivery of Two Launches for Transnet National Ports Authority, Port of Cape Town.
11.2(14)	The following matters will be included in the Risk Register	No additional data is required for this section of the conditions of contract.
11.2(15)	The <i>boundaries of the site</i> are	No additional data is required for this section of the conditions of contract.
11.2(16)	The Site Information is in	No additional data is required for this section of the conditions of contract.
11.2(19)	The Works Information is in	Part C3



12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	2 weeks
2	The <i>Contractor's</i> main responsibilities	No additional data is required for this section of the <i>conditions of contract</i>.
3	Time	
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	25 January 2024



11.2(9) The *key dates* and the *conditions* to be met are:

1	Submission of Approved Advanced Payment Guarantee	28-Oct-22
2	Submission of Class Drawing	25-Nov-22
3	Placement of Steel Order	02-Dec-22
4	Placement of Main Engine and Gearbox Order	25-Jan-23
5	Commencement of the 1st Plate Cutting	21-Feb-23
6	Keel Laying of Vessel A (Start of Construction)	17-Mar-23
7	Keel Laying of Vessel B (Start of Construction)	19-Apr-23
8	Delivery of Main Engines and Gearboxes Vessel A	07-Jul-23
9	Delivery of Main Engines and Gearboxes Vessel B	07-Jul-23
10	Completion of Superstructure Vessel A	21-Jul-23
11	Completion of Superstructure Vessel B	04-Aug-23
12	Completion of Hull, Deck and Bulkheads Vessel A	14-Aug-23
13	Completion of Hull, Deck and Bulkheads Vessel B	04-Sep-23
14	Completion of Factory Acceptance Tests (FATs) and Harbour Acceptance Tests (HATs), Prior to Start of Sea Acceptance Tests (SATs) Vessel A	21-Nov-23
15	Completion of Factory Acceptance Tests (FATs) and Harbour Acceptance Tests (HATs), Prior to Start of Sea Acceptance Tests (SATs) Vessel B	14-Dec-23
16	Handover of Completed Vessel A	28-Nov-23
17	Handover of Completed Vessel B	04-Sep-23
18	3D digital model compatible with a readily available 3D free online viewer,	12-Jan-23
19	General Arrangement Plan,	
20	Docking or hoisting plan,	
21	Engine room arrangement,	
22	Diagrams of all systems (including Piping and Instrumentation Diagrams),	

23	Electric Power Distribution Diagrams,	
24	Propulsion Arrangement,	
25	General Construction Plan,	
26	Deck arrangements, including deck equipment and future equipment,	
27	Trial test reports,	
28	Safety Plan,	
29	Tank tables for all tanks,	
30	Engine room logbook,	
31	Paint list and documentation,	
32	Paint inspection report	
33	Inventory list,	
34	A stability booklet	

31.1 The *Contractor* is to submit a first **2 weeks of the Contract Date.**
programme for acceptance within

31.2 The *starting date* is **28 October 2022**

32.2 The *Contractor* submits revised
programmes at intervals no longer than **2 weeks.**

4 Testing and Defects

42.2 The *defects date* is **52 (fifty-two) weeks after Completion of the whole of the works.**

43.2 The *defect correction period* is **2 weeks**

5 Payment

50.1 The *assessment interval* is monthly on **25th (twenty fifth) day of each successive month.**
the

51.1 The *currency of this contract* is the **South African Rand.**

51.2 The period within which payments are made is **Payment will be effected on or before the last day of the month following the month during which a valid Tax Invoice and Statement were received.**

51.4 The *interest rate* is **the prime lending rate of Standard Bank of South Africa.**

6 Compensation events

- 60.1(13) The *weather measurements* to be recorded for each calendar month are,
- the cumulative rainfall (mm)**
 - the number of days with rainfall more than 10 mm**
 - the number of days with minimum air temperature less than 0 degrees Celsius**
 - the number of days with snow lying at 08:00 hours South African Time**
 - and these measurements:**
- The place where weather is to be recorded (on the Site) is: **The *Contractor's* premises**
- The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at: **Cape Town**
- and which are available from: **South African Weather Service 012 367 6023 or info3@weathersa.co.za.**

7	Title	No additional data is required for this section of the <i>conditions of contract</i>.
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	No additional data is required for this section of the conditions of contract
84.1	The <i>Employer</i> provides these insurances from the Insurance Table	
	1 Insurance against:	Loss of or damage to the <i>works</i>, Plant and Materials is as stated in the Insurance policy for Contract Works/ Public Liability.
	Cover / indemnity:	to the extent as stated in the insurance policy for Contract Works / Public Liability



The deductibles are:		as stated in the insurance policy for Contract Works / Public Liability
2	Insurance against:	Loss of or damage to property (except the <i>works</i>, Plant and Materials & Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) arising out of or in connection with the performance of the Contract as stated in the insurance policy for Contract Works / Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are	as stated in the insurance policy for Contract Works / Public Liability
3	Insurance against:	Loss of or damage to Equipment (Temporary Works only) as stated in the insurance policy for contract Works and Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	As stated in the insurance policy for Contract Works / Public Liability
4	Insurance against:	Contract Works SASRIA insurance subject to the terms, exceptions and conditions of the SASRIA coupon
	Cover / indemnity	Cover / indemnity is to the extent provided by the SASRIA coupon
	The deductibles are	The deductibles are, in respect of each and every theft claim, 0,1% of the contract value subject to a minimum of R2,500 and a maximum of R25,000.



Note:

The deductibles for the insurance as stated above are listed in the document titled "Certificate of Insurance: Transnet (SOC) Limited Principal Controlled Insurance."

84.1

The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is

The *Contractor* must comply at a minimum with the provisions of the Compensation Occupational Injuries and Diseases Act 130 of 1993 as amended.

The *Contractor* provides these 1 additional Insurances

Where the contract requires that the design of any part of the *works* shall be provided by the *Contractor* the *Contractor* shall satisfy the *Employer* that professional indemnity insurance cover in connection therewith has been affected

2 Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the *works* at premises other than the site, the *Contractor* shall satisfy the *Employer* that such plant & materials, components or other goods for incorporation in the *works* are adequately insured during manufacture and/or fabrication and transportation to the site.

3 Should the *Employer* have an insurable interest in such items during manufacture, and/or fabrication, such interest shall be noted by endorsement to the *Contractor's* policies of insurance as well as those of any sub-contractor

-
- 4 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R10 000 000.**
 - 5 Marine Craft Hull insurance in respect of all marine craft or vessels utilised in performance of the Works for a sum sufficient to provide for their replacement**
 - 6 Protection and Indemnity Insurance in respect of all marine craft or vessels utilised in performance of the Works extended for Specialist Operations with a minimum indemnity limit of R 20,000,000**
 - 7 The insurance coverage referred to in 1, 2, 3, 4, 5 and 6 above shall be obtained from an insurer(s) in terms of an insurance policy approved by the *Employer*. The *Contractor* shall arrange with the insurer to submit to the *Project Manager* the original and the duplicate original of the policy or policies of insurance and the receipts for payment of current premiums, together with a certificate from the insurer or insurance broker concerned, confirming that the policy or policies provide the full coverage as required. The original policy will be returned to the *Contractor*.**
-



84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the works, Plant, 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 for any one event is	Whatever the <i>Contractor</i> requires in addition to the amount of insurance taken out by the <i>Employer</i> for the same risk.
84.2	The insurance against loss of or damage to the works, Plant and Materials as stated in the insurance policy for contract works and public liability selected from:	Principal Controlled Insurance policy for Contract OR Project Specific Insurance for the contract
9	Termination	There is no additional Contract Data required for this section of the <i>conditions of contract</i>.
10	Data for main Option clause	
A	Priced contract with Activity Schedule	No additional data is required for this Option.
11	Data for Option W1	
W1.1	The <i>Adjudicator</i> is	Both parties will agree as and when a dispute arises. If the parties cannot reach an agreement on the <i>Adjudicator</i>, the Chairman of the Association of Arbitrators will appoint an <i>Adjudicator</i>.
W1.2(3)	The <i>Adjudicator nominating body</i> is: If no <i>Adjudicator nominating body</i> is entered, it is:	The Chairman of the Association of Arbitrators (Southern Africa) the Association of Arbitrators (Southern Africa)
W1.4(2)	The <i>tribunal</i> is:	Arbitration
W1.4(5)	The <i>arbitration procedure</i> is	The Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)

	The place where arbitration is to be held is	Cape Town, South Africa		
	The person or organisation who will choose an arbitrator			
	- if the Parties cannot agree a choice or	The Chairman of the Association of Arbitrators (Southern Africa)		
	- if the arbitration procedure does not state who selects an arbitrator, is			
12	Data for secondary Option clauses			
X1	Price adjustment for inflation			
X1.1(a)	The <i>base date</i> for indices is	May 2022		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are: The base index date that was used was May 2022	Proportion	Linked to the index for	Index prepared by
		37.60%	Labour	SEIFSA – Table C3
		12.50%	Material	SEIFSA – Table E-EX
		8.30%	Equipment	SEIFSA – Table U
		41.60%	Foreign Component	
X2	Changes in the law	No additional data is required for this Option		
X4	Parent company guarantee	No additional data is required for this Option		
X7	Delay damages			
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	R 25 000.00 per day		
X13	Performance bond			
X13.1	The amount of the performance bond is	10% of the total of the Prices		
X16	Retention			
X16.1	The retention free amount is	Nil		
	The retention percentage is	5% on all payments certified.		



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:	Nil
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 deductible of the relevant insurance policy
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:	The cost of correcting the Defect
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:	The Total of the Prices
X18.5	The <i>end of liability date</i> is	5 years after Completion of the whole of the works
Z	<i>Additional conditions of contract are:</i>	
Z.1	Obligations in respect of Subcontracting	
Z1.1	It will be a material term of this contract that the Contractor must subcontract a minimum of 30% of the value of the contract.	

Z1.2	<p>The Contractor's Subcontracting percentage as detailed in the tender submission Returnable T2.2-01 will constitute a binding agreement throughout the duration of the contract until Completion, if not, it will be deemed that the Contractor has failed in full to meet the material term of the contract, which may constitute a reason for termination.</p>
Z1.3	<p>The Contractor shall report to the Employer on a monthly basis during the term of the Contract, the amounts spent on each sub-contractor.</p>
Z1.4	<p>Insert addition to Clause 26.2. The Contractor may not replace any sub-contractor without acceptance of the Project Manager. The Project Manager shall before acceptance of a replacement by the Contractor of any sub-contractor as detailed in the tender submission Returnable T2.2-01 obtain representations or input from the initial sub-contractor to make an informed decision as to the proposed replacement. The sub-contracting arrangement/contract remains between the Contractor and sub-contractor.</p>
Z1.5	<p>The Contractor shall provide to the Employer, upon receiving an instruction to do so, any documentation and/or evidence required by the Employer, which in the Employer's opinion would be necessary to verify whether the Contractor has maintained the subcontracting percentage.</p> <p>The Contractor shall provide the said documentation and/or evidence within the period stated in the instruction. The provision of the documentation and/or evidence shall not constitute a compensation event.</p>
Z2	<p>Local Production and Content Obligations</p>

Z2.1

In terms of Local Production and Content (SBD 6.2), Annexure A and Annexure C of the Returnable Schedule T2.2-02 Eligibility Criteria Schedule: Declaration Certificate of Local Production and Content, the Contractor has undertaken to fulfil its obligations of the Local Production and Content for the following designated sectors:

1. Working Vessels 60%

Z2.2

The Contractor is required to note that the Employer, the Department of Trade and Industry [DTI] and/or the body appointed by the DTI as the verification authority for local content may conduct compliance audits with regard to the Local Production and Content requirements as prescribed in Regulation 8 of the Preferential Procurement Regulations, 2017 issued in terms of the Preferential Procurement Policy Framework Act no. 5 of 2000.

Z2.3

The Contractor is required to continuously update Declarations C, D and E of the Local Production and Content Declaration commitments with the actual local content values for the duration of the contract.

The Contractor shall report to the Employer on a monthly basis during the term of the Contract, the amounts spend on Local Production and Content for the designated sectors for the duration of the contract.

Z2.4

The Contractor must refer to Schedule A attached to the Returnable Schedule T2.2-02 Eligibility Criteria Schedule: Declaration Certificate of Local Production and Content concerning non-compliance penalties applicable to Local Production and Content.

Z2.5

Breach of Local Production and Content commitments provides the Employer cause to terminate the contract.

Z3 Obligations in respect of Job Creation

Z3.1

It will be a material term of this contract that the *Contractor* must contribute to the *Employer's* job-creation objectives as set out in Returnable Schedule T.2.2-27.

Z3.2

The *Contractor's* undertaking as to the number of new jobs created due to the award of this contract as set out in Returnable Schedule T.2.2-27 will constitute a binding agreement throughout the duration of the contract until Completion, if not, it will be deemed that the *Contractor* has failed in full to meet this specific material term of the contract, which may constitute a reason for termination..

Z3.3

The *Contractor* shall provide to the *Employer*, on a monthly basis or upon receiving an instruction to do so by the *Project Manager*, any documentation and/or evidence required by the *Employer*, which in the *Employer's* opinion would be necessary to verify whether the *Contractor* has maintained the job-creation undertaking as stipulated in Returnable Schedule T.2.2-27 The *Contractor* shall provide the said documentation and/or evidence within the period stated or as instructed. The provision of the documentation and/or evidence shall not constitute a compensation event.

Z4 Additional clause relating to Performance Bonds and/or Guarantees

Z4.1

The Performance Guarantee under X13 above shall be an irrevocable, on-demand performance guarantee, to be issued exactly in the form of the Pro Forma documents provided for this purpose under C1.3 (Forms of Securities), in favour of the *Employer* by a financial institution reasonably acceptable to the *Employer*.

Z5 Additional clauses relating to Joint Venture

Z5.1

Insert the additional core clause 27.5

27.5. In the instance that the *Contractor* is a joint venture, the *Contractor* shall provide the *Employer* with a certified copy of its signed joint venture agreement, and in the instance that the joint venture is an 'Incorporated Joint Venture,' the Memorandum of Incorporation, within 4 (four) weeks of the Contract Date.

The Joint Venture agreement shall contain but not be limited to the following:

- A brief description of the Contract and the Deliverables;
- The name, physical address, communications addresses and domicilium citandi et executandi of each of the constituents and of the Joint Venture;
- The constituent's interests;
- A schedule of the insurance policies, sureties, indemnities and guarantees which must be taken out by the Joint Venture and by the individual constituents;
- Details of an internal dispute resolution procedure;
- Written confirmation by all of the constituents:
 - i. of their joint and several liabilities to the *Employer* to Provide the Works;
 - ii. identification of the lead partner in the joint venture confirming the authority of the lead partner to bind the joint venture through the *Contractor's* representative;
 - iii. Identification of the roles and responsibilities of the constituents to provide the Works.
- Financial requirements for the Joint Venture:

-
- iv. the working capital requirements for the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the constituents from time to time;
 - v. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

Z5.2

Insert additional core clause 27.6

27.6. The *Contractor* shall not alter its composition or legal status of the Joint Venture without the prior approval of the *Employer*.

Z6 Additional obligations in respect of Termination

Z6.1

The following will be included under core clause 91.1:

In the second main bullet, after the word 'partnership' add 'joint venture whether incorporate or otherwise (including any constituent of the joint venture)' and

Under the second main bullet, insert the following additional bullets after the last sub-bullet:

- commenced business rescue proceedings (R22)
- repudiated this Contract (R23)

Z6.2 Termination Table

The following will be included under core clause 90.2 Termination Table as follows:

Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"

Z6.3

Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."

Z7 Right Reserved by the *Employer* to Conduct Vetting through SSA

Z7.1

The *Employer* reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any *Contractor* who has access to National Key Points for the following without limitations:

1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state.
2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state.
3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.

Z8 Additional Clause Relating to Collusion in the Construction Industry

Z8.1

The contract award is made without prejudice to any rights the *Employer* may have to take appropriate action later with regard to any declared tender rigging including blacklisting.

Z9 Protection of Personal Information Act

Z9.1

The *Employer* and the *Contractor* are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act.

Z10 BBBEE Clauses



Z10.1

Insert additional clause 27.7.

27.7.1. The *Employer* encourages its *Contractors* to constantly strive to improve their B-BBEE Contributor Status Levels.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

The tendering *Contractor* is advised to read both the NEC3 Engineering and Construction Contract - June 2005 (with amendments June 2006 and April 2013) and the relevant parts of its Guidance Notes (ECC3-GN) 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 Guidance Notes.

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	
24.1	The <i>Contractor's</i> key persons are:	
	1 Name:	
	Job:	
	Responsibilities:	
	Qualifications:	
	Experience:	
	2 Name:	
	Job	
	Responsibilities:	
	Qualifications:	
	Experience:	

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled.....		
11.2(14)	The following matters will be included in the Risk Register			
31.1	The programme identified in the Contract Data is			
A	Priced contract with activity schedule			
11.2(20)	The <i>activity schedule</i> is in			
11.2(30)	The tendered total of the Prices is	(in figures)		
		(in words), excluding VAT		
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60 of ECC, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC.</i>		
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	% (state plus or minus)		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate

61	in	The hourly rates for Defined Cost of design outside the Working Areas are	Category of employee	Hourly rate
62	in	The percentage for design overheads is	%	
63	in	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:		

Part C2: Pricing Data

TRANSNET NATIONAL PORTS AUTHORITY

Contract Number: TNPA/2022/06/0504/5366/RFP

Description of the Works: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

PART 2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing instructions: Option A	1
C2.2	Activity Schedule	3

C2.1 Pricing Instructions: Option A

1. The *conditions of contract*

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005, (with amendments June 2006 and April 2013) (ECC) Option A states:

**Identified 11
and
defined 11.2
terms**

(20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract.

(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.

(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 sums for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

1.2. Measurement and Payment

1.2.1 The Activity Schedule provides the basis of all valuations of the Price for Work Done to Date, payments in multiple currencies, price adjustments for inflation and general progress monitoring.

1.2.2 The amount due at each assessment date is based on **completed activities and/or milestones** as indicated on the Activity Schedule.

1.2.3 The Activity Schedule work breakdown structure provided by the *Contractor* is based on the Activity Schedule provided by the *Employer*. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. The activity schedule work breakdown structure is compiled to the satisfaction of the *Project Manager* with any additions and/or amendments deemed necessary.

1.2.4 The *Contractor's* detailed Activity Schedule summates back to the Activity Schedule provided by the *Employer* and is in sufficient detail to monitor completion of activities related to the Accepted Programme in order that payment of completed activities may be assessed.

TRANSNET NATIONAL PORTS AUTHORITY

Contract Number: TNPA/2022/06/0504/5366/RFP

Description of the Works: DESIGN, MANUFACTURE AND DELIVERY OF TWO LAUNCHES FOR THE TRANSNET NATIONAL PORTS AUTHORITY FOR THE PORT OF CAPE TOWN, (HEREAFTER REFERRED TO AS TNPA)

- 1.2.5 The short descriptions in the Activity Schedule are for identification purposes only. All work described in the Works Information is deemed included in the activities.
- 1.2.6 The Activity Schedule is integrated with the Prices, Accepted Programme and where required the forecast rate of payment schedule.
- 1.2.7 Activities in multiple currencies are separately identified on both the Activity Schedule and the Accepted Programme for each currency.
- 1.2.8 The tendered total of the prices as stated in the Contract Data is obtained from the Activity Schedule summary. The tendered total of the prices includes for all direct and indirect costs, overheads, profits, risks, liabilities and obligations relative to the Contract.

C2.2 Activity Schedule

The Tenderer details his Activity Schedule below or makes reference to his Activity Schedule and attaches it to this schedule.

The details given below serve as guidelines only and the Tenderer may split or combine the activities to suit his particular methods.

Item	Description	Unit Cost (ZAR)	Qty	Total Price (ZAR)
1	Hull		2	
2	Wheelhouse & fittings		2	
3	Accommodation & fittings		2	
4	Machinery & compressor plant		2	
5	Main engines & alternators		2	
6	Electrical installations		2	
7	Air conditioning & ventilation		2	
8	Refrigeration		2	
9	Communication & navigational aids		2	
10	Fire fighting		2	
11	Painting		2	
12	Other		2	
Total Cost Excluding VAT <i>(write out in words below)</i>				

The milestones and percent payments shown below serve as guidelines only. The Tenderer may propose different milestones as they see fit for the successful execution of the project. Tenderer must also attach an accompanying document that explicitly defines each milestone in such a manner

that there is no room for misinterpretation or subjectivity. Each milestone must be tangible and measurable upon completion.

Milestone	Milestone Description
1	On the submission of the approved Advance Payment Guarantee
2	On Approval of Design
3	On Start of Steel Cutting
4	On laying of the Keel vessel A (start of construction)
5	On laying of the Keel vessel B (start of construction)
6	On Completion of the Hull and Superstructure (Fully Assembled Together): Vessel A
7	On Completion of the Hull and Superstructure (Fully Assembled Together): Vessel B
8	On Successful Testing of Main Engines; Vessel A
9	On Successful Testing of Main Engines; Vessel B
10	On Commissioning of Systems (Including Completion of Outfitting): Vessel A
11	On Commissioning of Systems (Including Completion of Outfitting): Vessel B
12	Completion of SATS and HATS: Vessel A
13	Completion of SATS and HATS: Vessel B
14	Due and payable on Handover of Completed Vessel A
15	Due and payable on Handover of Completed Vessel B

Part C3:

Scope of Service



TRANSNET NATIONAL PORTS AUTHORITY

**A DIVISION OF TRANSNET LTD
(Registration No. 1990/000900/06)**

PART C3: GOODS INFORMATION – LAUNCH BOAT

Revised: June 2022



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LIST OF ABBREVIATIONS

3D	Three-dimensional
AIS	Automatic Identification System
AISI	American Iron and Steel Institute
CD	Compact Disk
COLREGS	International Regulations for Preventing Collisions at Sea
DSC	Digital Selective Calling
EIAPP	Engine International Air Pollution Prevention
GMDSS	Global Maritime Distress and Safety System
IMO	International Maritime Organisation
ISO	International Organization for Standardization
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MARPOL	International Convention for the Prevention of Pollution from Ships
NACA	National Advisory Committee for Aeronautics
SAMSA	South African Maritime Safety Authority
SART	Search and Rescue Transponder
SWL	Safe Working Load
USB	Universal Serial Bus
VHF	Very High Frequency
WH	Wheelhouse

1 COMMERCIAL REQUIREMENTS

1.1. Definitions

The following words and/or expressions used herein will have the meaning as defined hereinafter:

"Vessel"	The Harbor Launch as described in this specification.
"Buyer"	Transnet National Ports Authority.
"Builder"	Preferred Contractor / Shipbuilder.
"Builder's standards"	Manner of construction and/or outfitting as customary at Builder's yard.
"Standard execution"	The execution of the Vessel, built and equipped with the materials, fittings and items as described in this specification.
"Or" / "Or equivalent"	The substitution of equivalent equipment of different manufacturers may be proposed by builder.
"Capacity"	Capacities of equipment mentioned in this specification reflect theoretical performance as listed by the equipment vendor.
"Contractor"	Shipbuilder appointed by TNPA to build vessels.

- 1.2. This specification covers the construction and requirements of two modern single screw, harbour launches with fixed pitch propeller.
- 1.3. It will be the responsibility of the contractor to advise SAMSA of the intention to build the vessel. The requirements of the Department shall be established at the tendering stage.
- 1.4. All costs in connection with certificates, registrations, surveys, SAMSA and the Classification Society, are to be borne by the contractor. The builder is to deliver completed vessels to the Port of Cape Town ready for use.
- 1.5. Metric standards are to be used throughout for construction and drawings. All instruments and gauges are to be graduated in S.I. units.
- 1.6. Tenders from builders who are inexperienced in shipbuilding of motorised vessels may not be considered unless such tenders are submitted jointly with a firm of specialists in building motorised vessels. Tenderers are to substantiate their claims as experienced shipbuilders.

- 1.7. In the case of inexperienced Tenderers, it is required that the division of financial responsibility between tenderer and the specialist firm for the satisfactory completion of the contract, be stated in a covering letter accompanying the tender offer.
- 1.7.1. Tenderers must submit General Arrangement and Outline drawings of their proposals when tendering. The outline drawings are to include a general arrangement, profile, mid-ship section, plan and end views, forward and aft. Frame spacings and all scantlings are to be clearly indicated.
- 1.8. Full particulars of all machinery and equipment (including OEMs supplied items) are also to be furnished and data sheets completed in all respects. Failure to comply with this requirement may result in the Tenderer's offer being overlooked.
- 1.9. The tenderer must indicate, paragraph by paragraph, either that his tender complies in every respect with this specification, in which case they need only state "will comply" or, if not, precisely how it differs from the specification. Alternative offers may be submitted but all divergences from this specification must be clearly stated. A broad statement that the equipment is in accordance with these requirements may preclude a tender from consideration.
- 1.10. The contractor shall submit all working drawings to the TNPA nominated representative for approval prior to manufacture or installation. It shall be arranged that the first of the working drawings be submitted for approval as soon as possible so that construction can commence with immediate effect.
- 1.10.1. To enable the construction to proceed uninterrupted, subsequent working drawings are to be submitted systematically and in sufficient time to permit full scrutiny, approval and return to the contractor.
- 1.10.2. Two prints of each detailed working drawing shall be submitted to the Marine Technical Manager or other TNPA nominated representative for approval.
- 1.10.2.1. Where the approval of the classification society is required, this shall be obtained prior to submission.
- 1.10.2.2. After approval one print will be returned to the contractor.
- 1.10.3. All prints are to be dated and signature obtained on delivery and return.
- 1.10.4. To facilitate checking, when submitting drawings for approval, arrangement drawings must be submitted with or before detailed working drawings.

- 1.11. In addition to the drawings for approval, the contractor shall supply one set of as-built drawings on digital format (USB, CD, etc.) plus two sets of paper drawings. They are to show full details of the vessel and all machinery and equipment as actually constructed, they are to be properly indexed and packed in box files and canisters of good quality.
- 1.11.1. The electrical drawings shall be complete in every respect and show ratings where applicable.
- 1.11.2. Drawings shall include docking plan, shell expansion, lines plan, hydrostatic curves, stability data, displacement data, tank capacities, trials data, pumping, piping, electrical and wiring arrangements.
- 1.11.3. All lettering and figures on drawings shall be easily legible. The working shall be in English and all dimensions shall be in metric units. The drawings shall comply with ISO and be within the limit A4 to A0.
- 1.12. Spares required by the Classification Society are to be included in the tender price and a detailed list of these spares is to be furnished. In addition, the following critical spares shall be delivered with the vessel;
- 1 X Propeller Shaft,
 - 1 set of Propeller shaft bearings,
 - 1 X Fixed-pitch propeller.
 - 1 set of engine spares as recommended by OEM.
- 1.13. During construction, the contractor is to afford full inspection facilities to TNPA or TNPA selected representative. Reasonable, on-site, office facilities are to be provided by the contractor if required.
- 1.14. The tenderer is to state the date of delivery of the vessel upon contract signing.
- 1.15. The delivery shall be at the contractor's risk.
- 1.16. It will be the contractor's responsibility to arrange adequate insurance cover (full replacement value) for any loss during the construction period and until acceptance of the vessel by TNPA.
- 1.17. Notwithstanding any errors, omissions or inconsistencies in the specification or drawings, but considered necessary for the satisfactory completion and operation of the vessel is to be borne by the contractor and be included in his tender price.
- 1.18. The cost of any work material or equipment not covered by the specification or drawings, but considered necessary for the satisfactory completion and operation of the vessel is to be borne by the contractor and be included in his tender price.

1.19. Prior to advising TNPA that the launches are ready for acceptance trials at the port of Cape Town, the contractor shall carry out his own trials to be satisfied that the vessel fully meets the requirements of the specification and is complete in all respects.

1.19.1. Acceptance trials of the launch and all its equipment (including maneuvering, speed, ahead and astern bollard pull trials) shall be thereafter carried out in the presence of TNPA Marine Technical Manager or his deputy and other officers selected by TNPA for this purpose.

1.19.2. National Ports Authority will not accept delivery until such time as these trials and an underwater inspection in dry dock have been completed to the satisfaction of the TNPA selected representatives.

1.19.3. National Ports Authority will issue a signed acceptance certificate and arrange to take delivery of the vessel.

1.19.4. The contractor shall supply all crew, fuel, consumables and labour until the launch has been accepted by TNPA unless otherwise agreed to in writing.

1.20. Tenderers must furnish a guarantee that the specified speed and bollard pull, both ahead and astern, will be obtained at the continuous rated power as well as the rated speed of the engines. Steering and maneuvering characteristics shall also be of an acceptable standard for this type of vessel.

If the speed or bollard pull is less than that specified, TNPA may, at their discretion, refuse acceptance of the vessel.

1.21. The tenderer is free for consideration to offer any changes to this specification as long as it is to the benefit of TNPA and they comply in full to the Classification Society requirements as well as SAMSA requirements for this class of vessel.

1.22. Transnet's new policy ensures that focus is placed on the development, promotion and support of the previously disadvantaged.

1.23. Previously disadvantaged includes small, medium and micro enterprises as well as established businesses within those communities.

-
- 1.24. To this end, Tenderers are to furnish details of work that will be allocated to these groups as called for in the schedule of work allocated to the previously disadvantaged.
- 1.25. All equipment offered must have local agents and spares readily available in South Africa.

2 GENERAL DESCRIPTION

2.1 Main Particulars

2.1.1 Function

The Vessel specifications shall have been adapted in line with the Functional Specifications addressing the following operational window:

- Running of mooring lines,
- Shifting of caissons and smaller fishing vessels around the port,
- Assists workboats in docking, sailing and shifting of fishing vessels.

2.1.2 Design

The Builder shall be responsible to deliver a Vessel that shall be a modern single-screw steel harbour launch for port operations based preferably on a proven design of which the Builder shall have delivered multiple vessels in the past of similar design. In addition, the Buyer must be able to visit and have access to view and inspect such a similar design.

The Vessel shall have a single chine hull, of which the hull and superstructure shall be of an all-welded steel construction. The design must ensure the following qualities for all aspects of the Vessel and for all the tasks it shall have to perform:

- Efficient and accessible layout,
- Excellent performance,
- Cost-effective to operate,
- Easy to maintain,
- Built to modern and high standards,
- Fitted with new and high standard commercial components.

2.1.2.1 Layout

The hull shall be divided into four watertight compartments. Around the hull, at deck level, a heavy-duty steel sheerstrake shall be provided. A bulwark shall be placed on the foredeck till frame 14. The superstructure shall be placed well inboard and shall be resiliently mounted to reduce noise levels. Aft of

the superstructure a spacious work deck area shall be provided. A single-pole towing bitt shall be located on the aft work deck. The vessel shall be propelled by an electrically started marine diesel engine with a open cooling water system that drives a fixed-pitch propeller.

2.1.2.2 Principal Dimensions

The overall dimensions of the vessel must ensure compliance with the building of small vessels as prescribed by the Marine Notice 20 of 2018. Below are the approximate.

Length overall	13.0 m (approx.)
Beam overall	5.00 m (approx.)
Draught Aft (approximately)	1.60 m (approx.)

Note: These shall be approximate dimensions desired limited to 10% variation of above principal dimensions.

2.1.2.3 Tank Capacities

Fuel oil, two tanks total	5.80 m ³	4.80 tonnes (approx.)
Fresh water	0.35 m ³	0.35 tonnes (approx.)
Sewage	0.36 m ³	0.36 tonnes (approx.)

Tank capacities shall be based on 98 % filling. See related General Arrangement Plan.

2.1.2.4 Other Capacities & Limits

Crew	3 (1 Coxswain, 2 Able Seafarers),
Gross Tonnage	< 25 tonnes,
Maximum Installed Power	< 350 kW,
Bollard Pull	4.0 tonnes minimum,
Maximum Speed	8.0 knots.

2.1.2.5 Propulsion and Speed

The Vessel's propulsion system shall consist of a single marine diesel engine, driving a fixed-pitch propeller. The engine shall have a open cooling water system and shall be electrically started. The engine is to be sized and located such that it can be removed via a large hatch. Full details shall be given in the Propulsion Selection Diagram (item 4.1.2) including speed and bollard pull rating.

2.1.2.6 Weather Protected Assembly

The construction, assembly of all equipment, the painting and other sensitive activities required for the construction of the Vessel will take place in a covered working area, with controlled conditions, protected from weather influences and providing full material handling facilities such as overhead cranes with sufficient lifting capacity, power supply, and a safe working environment.

2.1.2.7 Quality Policy

The builder shall apply a Quality Management System to every facet of operations and seek to maintain and upgrade the quality of products and organization.

The Builder shall ensure that the design, construction and delivery of the Vessel, including after-sales services, shall have been certified by Classification Society (see section 2.2.1.1) for the following:

- Quality Management System to the ISO 9001:2015 standards
- Environmental Management System to the ISO 14001:2015 standard
- Occupational Health & Safety Management System Quality Assurance Limited to the OHSAS 18001:2007 standards

At the Builder's yard, an office must be made available for TNPA.

2.1.2.8 Workmanship and Quality of Materials and Fittings

The workmanship on the hull and fittings throughout shall be of good marine practice. Care shall be taken to ensure fair lines, smooth surfaces and neat welding. All materials and equipment installed in or delivered with the vessel shall be new and of good marine quality.

During the outfitting, high standards shall be kept regarding the clean keeping, safety and environmental protection. The builder shall have a standardisation department for quality control and assurance, and design improvement.

Trade names and names of specific manufacturers mentioned in the specifications shall be intended to describe the desired quality and/or construction of the equipment and materials and not to exclude any other makes of similar quality or construction.

All bolts, chains, fittings and other small equipment exposed to seawater shall be, where possible, of stainless steel and at least of galvanised steel.

2.1.2.9 Delivery (Port of Cape Town)

The Vessel shall be delivered to the Buyer with almost empty tanks, complete with equipment and tools as per purchase order or contract.

2.1.2.10 Modifications

The Builder has the liberty to propose minor modifications to the construction and/or designs, provided such proposals shall be approved by the Buyer and Classification Society / SAMSA and do not adversely affect the Vessel as described in this specification.

2.1.2.11 Buyer's Supply

In the event the Buyer shall be supplying information, components, equipment and/or any other materials to be incorporated in the Vessel, this shall be described as "Buyer's supply". Additional costs for incorporating in the Vessel design, bringing on board and/or for installation onboard, shall not be included in this specification unless specifically indicated otherwise.

Effects on Vessel performance (e.g. weight, speed, stability, etc.) due to incorporation of the Buyer's supply has not been included in this specification.

2.1.3 Design Conditions

2.1.3.1 General Requirements

The Vessel shall be generally designed for safe operation in the following environmental conditions:

- Seawater temperature
 - Maximum 32 °C
 - Minimum 13 °C

- Air temperature outside
 - Maximum 40 °C
 - Minimum 10 °C

For the specific design condition of the propulsion installation, air conditioning, heating, etc., see the individual items.

Performance de-rating can occur at the boundaries of the ranges as specified above.

2.1.4 Manuals and Documentation

2.1.4.1 Documentation and Manuals Upon Delivery

Upon completion and acceptance of the Vessel by the Buyer, the Builder will deliver to the Buyer in hard copy and digital format (CD, USB or other media) two complete sets of the as-built construction drawings, arrangement drawings, plans and documents in the English language, including but not limited to:

- Supply 3D digital model compatible with a readily available 3D free online viewer,
- General Arrangement Plan,
- Docking or hoisting plan,
- Engine room arrangement,
- Diagrams of all systems (including Piping and Instrumentation Diagrams),
- Electric Power Distribution Diagrams,
- Propulsion Arrangement,
- General Construction Plan,
- Deck arrangements, including deck equipment and future equipment,
- Trial test reports,
- Safety Plan,
- Tank tables for all tanks,
- Engine room logbook,
- Paint list and documentation,
- Paint inspection report,
- Inventory list,
- A stability booklet, as indicated in item 2.4.1.1.

2.1.4.2 Certificates

At the time of delivery and acceptance by the Buyer of the Vessel, the Builder shall supply the Buyer with the original Certificates/Statements, including a hard copy and digital copy (CD, USB or other media), including but not limited to the following Certificates / Statements:

- Builder's certificate,
- Classification certificates,
- Certificates of relevant components according to classification requirements,
- Load line certificate,
- Life raft certificate,
- Anchor and cable certificates,
- Certificates of navigation lights,
- Certificates of fire extinguishers,
- Tonnage certificate,
- Bollard pull statement,
- Material certificates (as far as required by Classification Society),
- Inclining test report,
- Radio certificates / statements,
- EIAPP statement (Compliance with Annex VI of Marpol 73/78).

2.1.4.3 Equipment Supplier's Maintenance Manuals and Handbooks

The Builder will deliver to the Buyer in hard copy and digital format (CD, USB or other media) two complete sets of each equipment supplier's maintenance manuals and handbooks, where applicable and available. One hard copy set of maintenance manuals and handbooks shall be placed in the vessel. Each hard copy set of maintenance manuals and handbooks shall be placed in a box file of good quality, be indexed in a proper and orderly manner and complete.

Maintenance manuals and handbooks shall be provided in English. Maintenance manuals and handbooks shall be provided for all critical equipment installed, such as the items listed below (but not limited to):

- Main Engine(s),
- Auxiliary Engine(s) (Gensets),
- Gearbox(es),

- Pumps,
- Electrical Equipment,
- Hydraulic Equipment,
- Dredging Equipment,
- Debris Collection Equipment,
- Hydraulic Crane and Winch,
- Electric Anchor Winch,
- Navigation Equipment,
- Communication Equipment,
- Safety equipment.

2.1.4.4 Ship's Handbook

Two hard copies and one digital copy of a Ship's Handbook shall be delivered with the vessel. One hard copy shall be placed in the Vessel. The Ship's Handbook contains the as-built information relating to the Vessel's equipment and systems that are not included in the individual supplier's handbooks/manuals. The information in the Ship's Handbook shall be intended to supplement the information in the various system and equipment handbooks provided by equipment suppliers.

Note: The Ship's Handbook shall not replace the equipment maintenance manuals or handbooks supplied. The builder shall engage critical equipment suppliers to review and accept the Ship's Handbook's content relating to their equipment operating and maintenance requirements. In case of conflict between the Ship's Handbook and the information in the equipment supplier's maintenance manual/handbook, the equipment supplier's maintenance manual/handbook shall always take precedence.

2.1.4.5 Display of Plans and Diagrams

The following weatherproof plans/diagrams (in the English language) shall be fitted in frames and displayed at the appropriate location:

- Safety Plan, to be approved and stamped by SAMSA,
- Bilge / Ballast / internal fire-fighting diagram,
- Fuel oil system diagram,

- Cooling water system diagram,
- Fresh water system diagram,
- Waste water system diagram,
- Hydraulic system diagram.

2.2 Classification

2.2.1 Classification Society

2.2.1.1 Bureau Veritas or Equivalent

The Vessel shall be classed by Bureau Veritas or equivalent. The classification notation shall be:

I ✕ Hull • MACH Seagoing Launch

For vessels intended for seagoing service, limited at wind force not exceeding 6 Beaufort Scale.

2.2.2 Flag State Authorities

2.2.2.1 South African Maritime Safety Authority (SAMSA)

The Vessel shall be designed and built to the approval of the regulatory body South African Maritime Safety Authority (SAMSA) of South Africa. Actual SAMSA registration of the Vessel shall be arranged by the Builder with the support from the Buyer. All costs relating to SAMSA registration shall be for the Builder's account.

2.2.3 Other Authorities

2.2.3.1 Regulations

The Vessel shall comply with the latest edition of the following applicable rules of Class Society and IMO:

- International Regulations for Preventing Collisions at Sea 1972,
- The intact stability complies with IMO resolution A469,
- MARPOL 1973 / 1978 consolidate edition with all amendments in force at the time of keel laying including Annex VI: regulation for air pollution prevention and NOx and SOx technical code.

2.3 Transport Materials

2.3.1 Hoisting Gear

Four separate hoisting cables and four green pin shackles shall be provided for the hoisting of the vessel. The hoisting system shall be designed to meet shipbuilder safety standards and Classification Society requirements.

Cables and shackles shall be provided with manufacture certificates.

2.4 Test, Trials and Acceptance

2.4.1 General Description

All work and equipment on the Vessel shall be tested at Builder's yard for suitability, performance and workmanship for their intended purpose and shall be in accordance with Builder's standards and the Classification Society. A detailed report of all tests and trials shall be delivered with the Vessel. The Builder will furnish all consumables including manning necessary for tests and trials.

Note: Final (successful) harbour tests, sea trials and delivery to be done in the Port of Cape Town / Table Bay prior Buyer's acceptance.

2.4.1.1 Stability Booklet

The builder shall prepare a final stability booklet. This booklet shall be submitted for approval by SAMSA and Classification Society.

2.4.2 Factory Tests / Harbour Tests

2.4.2.1 General

The below-mentioned test shall be indicative only and may change based upon the final requirements of the main equipment suppliers and/or Classification Society, if applicable.

2.4.2.2 Equipment

The following equipment shall be tested:

- Anchor equipment,

- Hose test windows, watertight/weathertight doors and hatches,
- Navigation and communication equipment,
- Deck Equipment,
- Firefighting Equipment.

2.4.2.3 Systems

Systems to be tested shall include but not be limited to the following:

- Control of the propulsion system,
- The cooling water system,
- Bilge system,
- General Service and internal/ external fire-fighting hydrant(s),
- Fuel system,
- Hydraulic system,
- Ventilation systems,
- Electrical system,
- Communication and Navigation Systems,
- Lighting system,
- Pressure test fixed fire-fighting system,
- Freshwater system,
- Wastewater system,
- Air conditioning system,
- Bilgewater / dirty oil system,

2.4.2.4 Inclining Test & Stability Information

An inclining test shall be executed for determination of the Vessel's weight and center of gravity. A stability booklet shall be provided and includes:

- Hydrostatic data,
- Stability calculations for various loading conditions,
- Tank tables,
- General information of the Vessel.

The Classification Society and SAMSA shall be present to witness the incline test. A Classification Society signed stability booklet, shall be delivered with the Vessel.

2.4.3 Sea Trials

2.4.3.1 General

Sea trials shall be performed in attendance with, and certified by, the Classification Society appointed Surveyor. During the tests and trials listed below, data shall be recorded regarding wind speed, wave heights, water depth, air and seawater temperature, draught, trim and weight of the Vessel, etc. Parameters that cannot be recorded in real-time from on-board the Vessel (e.g. wave height) shall be estimated and noted as such in the trial report.

A Classification Society signed trial report shall be delivered with the Vessel together with a certified speed document.

During Trials the following observers/crew members shall be in attendance:

- Buyer's Representative / Contract Manager,
- Builder's Representative / Contract Manager,
- Classification Society's Project Surveyor,
- SAMSA Surveyor,
- Builder's Appointed Skipper and Crew,
- Buyer's Appointed Skipper and Engineer.

2.4.3.2 Speed Trials

The Vessel's speed ahead shall be measured at maximum throttle on a one nautical mile course. A total of two runs, in opposite directions (one in each direction), shall be performed. The speed shall be measured with a GPS device. The trial condition of the Vessel shall be defined by the minimum loading condition (tonnes as per item 2.4.3.4) and the maximum sea condition (item 2.4.3.5).

The Vessel shall be designed to meet the trial speed as shall be stated in the Propulsion Selection Diagram (item 4.1.2).

Optional equipment or Buyer's supplies shall be not included in the trial condition unless stated otherwise.

2.4.3.3 Bollard Pull Test

To be executed according to Classification Society rules in the Port of Cape Town using Class certified calibrated equipment.

2.4.3.4 Loading Condition

Item	Condition	Weight
Fuel oil	50 %	2.40 tonnes,
Fresh water	50 %	0.17 tonnes,
Waste water	50 %	0.18 tonnes,
Bilge water / dirty oil	0 %	0.00 tonnes,
Crew and effects	3	0.21 tonnes,
Passengers	3	0.21 tonnes,
Total		3.17 tonnes.

Note: percentages shall be indicative, listed weights shall be leading

2.4.3.5 Weather Condition:

Trials shall be based on the following maximum weather and sea conditions:

- Sea state ≤ 2 ,
- Beaufort ≤ 3 ,
- Water depth $> \frac{1}{2}$ times the waterline length.

2.4.3.6 Endurance Trials

An endurance test at maximum rpm of the main engines shall be carried out with the Vessel for a period of 1 hour. During the test, the exhaust gas temperature, cooling water temperature and lubrication oil temperature of the main engines shall be recorded. The approximate fuel consumption shall be read out from the (engine) management system.

2.4.3.7 Maneuvering Trials

The following maneuvering trials shall be carried out:

- Measurement of the time and distance needed for a crash stop,
- Measurement of the turning circle diameter,
- Steering gear trials.

3 SHIPBUILDING (HULL AND OUTFITTING)

3.1 General

3.1.1 Materials

The hull shall be manufactured from Steel or equivalents to steel grade A (equivalent to EN 10025 - S235 JRG2, St 37 / Fe 360).

3.1.2 Welding

All welding shall be performed in accordance with the applicable Classification Society requirement. On the outside of the hull and for all other areas where contact with water is expected, the welding shall be continuous.

All costs relating to non-destructive testing requested by the Classification Society's surveyor to ensure weld quality shall be covered by the Builder.

3.2 Hull

3.2.1 General Description

The single chine hull shall have a transom stern and a tapered bow. The transom corners shall be well rounded. The hull shall be made of steel plates, certified by the Classification Society.

Three bulkheads shall divide the hull into 4 watertight compartments as follows:

- Aft peak,
- Engine room,
- Accommodation with fuel tanks in the side and double bottom,
- Forepeak.

The bow thruster pipe in the hull shall be pre-installed.

3.2.2 Tank Configuration

3.2.2.1 General

All tanks shall be provided with bolted manhole covers, bronze drain plugs (docking plugs), filling, discharge and de-aeration pipes. Furthermore, all tanks shall be pressure tested in accordance with Classification Society requirements and tests to be witnessed by Class surveyor prior to commencement of painting.

Note: All tank capacities stated below are approximate estimates and the Builder may finalise exact capacities, within 10% deviation from the estimated values, in their proposed design.

Important: The tank top plating of fuel oil tanks shall be lower than the work deck plating to allow welding on the main deck. The suction line ends at the lowest point of each tank.

3.2.2.2 Fuel Oil Tanks

Two steel fuel oil tanks shall be integrated into the hull construction and situated at the fore-end of the engine room between frames. Each fuel tank shall be provided with a bolted manhole cover, drain valve and gauge glass with self-closing valve, filling and de-aeration pipes to the deck.

Capacity: 3.3 m³ at starboard, 2.5 m³ at port

3.2.2.3 Fresh Water Tank

A steel freshwater tank shall be integrated into the hull construction between frames. The tank shall be provided with a bolted manhole cover, filling and de-aeration pipes to the deck.

Capacity: 0.35 m³

3.2.2.4 Dirty Oil Tank

A dirty oil tank shall be integrated into the hull construction between frames. The tank shall be provided with a bolted manhole cover and a de-aeration pipe to the deck. An electrically driven (230) dirty oil general service pump shall be installed for the emptying of the dirty water tank.

Capacity: 0.36 m³

3.2.3 Hull Scantlings

Hull scantlings shall be determined by the requirements of the Classification Society. All the below mentioned thicknesses shall be indicative only and shall be changed based upon final construction analysis.

	(mm)
Side plating	6
Bottom plating	8
Deck plating	6
Bulkheads	6
Transom plating	10

3.2.4 Cooling Channels

The longitudinal outside bottom frames of 100 x 90 x 8 mm serve as cooling channels. The cooling shall be adequate for tropical conditions.

3.2.5 Anchor Hawse Pipe

One anchor hawse pipe shall be welded through the forepeak. The rim of the anchor hawse pipe shall be protected with a half-round bar. A galvanized steel hawse pipe cover, secured with a stainless steel chain, shall be provided.

3.2.6 Engine Seating

The engine seating shall be sufficiently stiffened using class approved Isoflex Trunnion mounting system (or similar) to minimise hull vibrations excited by the engine and consist of longitudinals of 10 mm plates, each with a top plate of flat bar 200 x 20 mm. The main engine and reduction/reverse gearbox shall be secured to the top plates of the seating.

3.2.7 Bulwark

Along the foredeck, a bulwark shall be provided. The plate thickness shall be 5 mm. The top of the bulwark shall be protected and reinforced with a thick-walled steel pipe. The bulwark shall have a height of 1.00 m.

3.2.8 Chain Locker

One chain locker shall be integrated into the hull construction and shall be provided with sufficient drains.

3.3 Superstructure

3.3.1 General Description

The superstructure shall be made of steel plates, certified by the Classification Society. The efficient wheelhouse layout is to offer an unobstructed view in all directions. The wheelhouse shall be designed to prevent damage when coming alongside (i.e. heeling). The wheelhouse shall be resiliently mounted. Aft of the wheelhouse, ventilation in and outlet ducts shall be fitted, rigidly welded to the aft deck structure.

3.3.2 Wheelhouse Door and Windows Lay-Out:

The wheelhouse shall have:

- A watertight aluminium access door with one large window in the aft bulkhead,
- Three windows at the front, centre window fitted with clear view screen,
- One large window at each side,
- Two windows at the aft,
- Three sky windows.

Nuts shall be welded around the wheelhouse windows to bolt window covers.

3.3.3 Resilient Mounting Wheelhouse:

The wheelhouse shall be resiliently mounted using class approved Isoflex Trunnion mounting system (or similar) to reduce noise levels. The mounting system shall consist of an all-round Sylodyne rubber profile glued by means of an epoxy type Sikaflex glue (or similar) to the wheelhouse structure and the main deck structure. Steel clamps shall be mounted as end stops.

3.3.4 Superstructure Scantlings

Hull scantlings shall be determined by the requirements of a major Classification Society.

All the below mentioned thicknesses shall be indicative only and can be changed based upon final construction analysis.

	(mm)
• Front	5
• Side	5
• Top deck	5
• Wheelhouse floor	5
• Stiffeners bars	80 x 8
• Top deck beams angle profiles	100 x 50 x 5

3.4 Hatches / Doors / Windows

3.4.1 Hatches

3.4.1.1 General Description

All hatch covers shall be watertight by means of neoprene rubber gaskets. All hinges shall be adjustable and provided with grease nipples. For all hinges, the eye bolts and pins shall be stainless steel. All outside hatches and doors can be locked either with a seawater resistant padlock or from the inside.

Provisions for securing hatch covers in an open position shall be provided. Escape hatches of engine room and accommodation shall be fitted with a gas spring for easy handling. The following hatches shall be fitted:

- **Engine Removal Hatch**

One flush hatch for the removal of the main engines. Hatch cover shall be closed by means of bolts.

Access opening: 1.6 m x 1.2 m (may vary depending on main engine dimensions)

- **Engine Room Escape Hatch**

An engine room escape hatch and an aft peak entrance hatch on a raised coaming at the aft deck. For easy handling, the hatches shall be fitted with gas springs. Both hatch covers shall be hinged and can be closed by toggles.

Access opening: 0.78 m x 0.58 m (minimum)

- ***Store Entrance Hatch***

A store entrance hatch on a raised coaming shall be fitted in the wheelhouse.

- ***Escape/ Store Hatch***

An escape/store hatch on a raised coaming shall be fitted on the foredeck.

Hatch cover shall be hinged and can be closed by toggles. For easy handling, the hatch shall be fitted with a gas spring.

Access opening: 0.78 m x 0.58 m (minimum)

- ***Foredeck Hatch***

A flush aluminium Freeman type hatch shall be fitted in the foredeck, for access to the forepeak.

Diameter hatch: 450 mm (minimum)

3.4.2 Air duct covers

The air ducts for the ventilation of the engine room can be closed with internal steel covers.

3.4.3 Manholes

Each tank shall have a manhole. The manholes shall be closed by watertight plate covers, secured by bolts.

Access opening diameter: 450 mm (minimum)

3.4.4 Watertight and Weather Tight Doors

3.4.4.1 General Description

All watertight/weathertight doors shall be fitted with hinges and toggles, equivalently spaced along the circumference. All hinges shall be provided with grease nipples. For all hinges, the eye bolts shall be of stainless steel. All doors are to be certified by the Classification Society.

3.4.4.2 Engine Room Access Door

One watertight steel door at frame 11 between the engine room and accommodation with a central locking device.

3.4.4.3 Wheelhouse Access Door

One weathertight aluminium door in the aft side of the wheelhouse shall be fitted with one large window. The outside door can be locked from the inside.

3.4.5 Windows

3.4.5.1 General Description

All windows shall be made of hardened glass and certified by the Classification Society. All windows shall be fixed with the exception of the portside front window. All windows shall be fitted in an aluminium frame.

3.4.5.2 Wheelhouse Windows

Six (6) clear wheelhouse windows shall be fitted, three front windows, one window on each side and an aft window next to the access door. A clear view screen shall be fitted to the front centre window. An additional window shall be fitted to the wheelhouse access door. The portside front window shall be of the opening type. Glass thickness for the wheelhouse windows shall be as follows:

Glass thickness side and aft windows:	15 mm,
Glass thickness front windows:	15 mm,
Glass thickness window aft:	15 mm,
Glass thickness access door:	12 mm.

3.4.5.3 Sky Windows

Five (5) green-tinted sky windows shall be fitted, three above the front windows and one on each side, according to the General Arrangement Plan.

Glass thickness:	10 mm.
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3.4.5.4 Sky Window Blinds

Roller blinds shall be fitted for the sky windows.

3.4.5.5 Window Wipers

One, dual speed, electrical parallel window wiper shall be installed on the front port and front starboard window. The switches shall be situated in the dashboard, for two speeds, window wash, interval and auto-parking.

3.4.5.6 Window Wash System

The windows with window wipers shall be provided with a freshwater washing system.

3.4.5.7 Clear View Screen

The wheelhouse front centre window shall be fitted with a 400mm clear view screen with a heating element to ensure the screen does not fog up.

One on and off switch for the clear view screen shall be situated on the dashboard.

3.4.5.8 Solar Screens

Solar screens of the rolling type shall be fitted to all the wheelhouse windows.

3.4.6 Docking and Drain Plugs

All the major tanks shall be fitted with docking plugs. The freshwater tank docking plug shall be 30 mm with square keyhole. Other tanks shall be fitted with a 42 mm keyhole. Plugs shall be made of bronze. The two different spanners shall be supplied with the Vessel. The tank number shall be welded near each bottom plug.

3.5 Stairs, Ladders and Handrails

3.5.1 Stairs and Ladders

3.5.1.1 Stairs

All exterior and interior stairs shall be made of steel and have non-slip steps; the exterior stairs have galvanised perforated steps. Interior stairs shall be provided with rubber with fluorescent strips on the first step at the bottom and the last step at the top.

The following stairs shall be installed:

- At aft side of the deckhouse entrance (outside)
- Between the main deck and below deck store, steel steps covered with rubber anti-slip (resiliently mounted).

3.5.1.2 Ladders

All ladders shall be made of steel and have non-slip steps or square bars. The following ladders shall be installed:

- Wheelhouse starboard aft to the top deck
- Engine room escape hatch
- Aft peak entrance hatch
- Store escape hatch

3.5.2 Handrails

Galvanised steel handrails, Ø42,4 x 5 mm, shall be welded along the front and the sides of the wheelhouse. On top deck handrails according to General Arrangement Plan shall be fitted.

Stanchions shall be adequately supported to avoid vibrations.

3.5.3 Pilot Transfer Platform

Both on port and starboard side a foldable platform shall be provided to assist with the transfer of pilot. The platform shall provide sufficient elevation to comfortably clear the bulwark and gain access to the elevated adjacent ship. A removable "pole" shall be provided which the pilot can hold for balance during transfer.

3.6 Additions to Ships Construction

3.6.1 General Description

The construction and installation of the hull equipment shall be in accordance with Builder's Standards and where necessary conform to the relevant rules of the class.

3.6.2 Fender

3.6.2.1 Sheerstrake

The (integrated) sheerstrake around the hull shall act as a fender.

3.6.2.2 Rubber Fender at Sides and Stern

A continuous D-type fender shall be fitted at the sides and the stern. Size 150 x 150 mm. The fender shall be fitted with stainless steel bolts and nuts between flat bars.

3.6.2.3 Tyre Fender Lugs

Around the hull, fender tyres lugs shall be fitted by installing eye-nuts on the fixating bolts for the D-fender.

3.6.2.4 Tyre Fendering

Eight tyres shall be placed around the hull Ø 600 mm, tyres shall be fitted with hoisting slings to protect the D-fender and avoid paint damages.

Tyres shall be provided by Builder.

3.6.3 Pushbow

A steel pushbow with a cylindrical rubber fender, provided with steps and grips shall be rigidly welded to the bow. The dimension of rubber fender: 380 mm diameter with hole 190 mm diameter.

Pushbow step shall be provided to offer comfortable access to pushbow bollard.

3.6.4 Bollards and Bitts

3.6.4.1 General

Safe Working Load (SWL) to be shown on all bollards.

3.6.4.2 Double Bollards

Double bollards shall be fitted on both sides at the aft deck. On both sides at the foredeck, double bollards shall be integrated into the bulwark. Amidships single bollards shall be fitted.

Bollard dimensions: Pipe 168.3 mm OD x 10.0 mm wall.

3.6.4.3 Double Bollard on Bow

A Double Bollard shall be fitted longitudinally on top of Pushbow.

Bollard dimensions: Pipe 168.3 mm OD x 10.0 mm wall.

3.6.4.4 Towing Bitt Aft Deck

The single-pole type towing bitt shall be welded to a reinforced web frame.

Dimensions: Pipe 273 mm OD x 12.5 mm wall.

3.6.4.5 Hydraulic Towing Hook

A hydraulic towing hook shall be fitted aft of the towing bitt.

Make:	Mampaey or equivalent,
Type:	DCX 5/7 or equivalent,
SWL:	7 tonnes minimum,
Control:	Hydraulic remote control in wheelhouse.

3.6.4.6 Towing Beams

Local tow wire protection rails shall be arranged in way of the escape hatch engine room/entrance hatch aft peak. Rails of substantial steel tube construction.

3.6.4.7 Gob Eye Aft Deck

A flush gob eye shall be welded to the deck construction between frame 0 and 1. The gob eye box shall be provided with a galvanised steel drain pipe and a closing plate.

3.6.5 Lifting Lugs

Four lifting lugs shall be rigidly welded to the hull structure for shipping/lifting of the Vessel.

3.6.6 Ballast

A fixed ballast shall be used to compensate for the heel of the vessel due to the asymmetric layout. Ballast is to consist of steel blocks, properly conserved and fixed. The ballast shall be laid on a rubber mat and covered with cement. Quantity and position of ballast shall depend on the final execution and layout of the vessel.

3.6.7 Superstructure Rope Guard

A steel rope guard shall be fitted over the wheelhouse, made of pipe Ø76.1 x 5 mm as per the General Arrangement Plan.

3.6.8 Mast

An aluminium mast for navigation lights and antennae shall be fitted at the aft side of the wheelhouse top deck. The mast shall be lowered by means of a manual winch. In a lowered position, the mast, including all equipment attached, shall not protrude outside the Superstructure Rope Guard in order to minimize potential damage during rope handling above the superstructure. Electric wiring shall be led through the mast with watertight sockets. All cables shall be connected to the mast through a junction box.

3.6.9 Markings Hull and Superstructure

3.6.9.1 Name, Port of Registry and Company Emblem

Adhesive characters for the name on the bow and for the port of registry on the stern shall be applied. A company emblem on the wheelhouse sides shall be fixed if required.

3.6.9.2 Draught Marks

At both sides of the bow and the stern welded draught marks (spacing 20 cm) shall be placed (bead welds).

3.6.9.3 Name Plates

Where applicable, filling, sounding and de-aeration pipes, valves, pumps, doors, ventilation hatches, goosenecks, etc. shall be marked by nameplates.

- Nameplates outside shall be made of stainless steel,
- Nameplates inside engine rooms shall be made of brass,
- Nameplates inside accommodation shall be made of Gravoply or equivalent,
- Sounding scales in the engine room on header tanks shall be made of brass.

Tank numbers and tank destination shall be shown on nameplates which shall be provided on or close to all sounding, filling, air/vent pipes and valves.

3.7 Corrosion Protection and Deck Covering

3.7.1 Painting

3.7.1.1 General

The hull plates shall be cleaned and cleared of mill scale by blast cleaning and coated with a primer prior to fabrication. The primer shall have no deteriorative effect on subsequent welding work and shall be compatible with paints or other coatings subsequently applied. All welds and damaged areas shall be hand-painted with a "pre-layer" before spraying.

After installation of engines, auxiliaries, etc. damaged paintwork shall be repainted in original colours and quality. An inspector of the paint manufacturer shall check the paint and the application of the paint.

Attention shall be paid to avoid sharp edges and other paint unfriendly construction details in order to optimise the protection and maintainability of the paint system.

Paint specifications shall be based on "International Paint" standards or equivalent.

For future maintenance, Builder shall supply a Painting Manual of the complete Vessel, including maintenance procedures, materials to use and further relevant recommendations and information.

A basic maintenance package including paint and tools shall be delivered by the yard.

3.7.1.2 Galvanised Surfaces

Galvanised surfaces shall be degreased and coated with a primer before painting. The paint specification for galvanised surfaces shall be the same as for steel.

3.7.1.3 Hull Outside, Below Load Waterline

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA 300/A (Epoxy) Bronze	150
1 Coat INTERSHIELD 300 ENA 301/A (Epoxy) Aluminium	150
1 Coat INTERGARD 263 FAJ034/A (Tie Coat) Light Grey	75
1 Coat INTERSWIFT 6800 HS BMA688 Brown	100
1 Coat INTERSWIFT 6800 HS BMA684 Dark Red	100

3.7.1.4 Hull Outside, Above Load Waterline

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	150
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	150
1 Coat INTERGARD 263 FAJ 034/A (Tie Coat) Light Grey	75
1 Coat INTERTHANE 990 PHY999/A (Covercoat Urethane) Black	50

3.7.1.5 Keel Cooling Channels

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	50
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	50
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	50
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	50
1 Coat INTERGARD 263 FAJ034/A (Tie Coat) Light Grey	50
1 Coat INTERSWIFT 6800 HS BMA688 Brown	50
1 Coat INTERSWIFT 6800 HS BMA684 Dark Red	50

3.7.1.6 Superstructure Outside and Rope Guard

Coating	Thickness(μm)
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1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	100
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	100
1 Coat INTERGARD 263 FAJ034/A (Tie Coat) Light Grey	75
1 Coat INTERTHANE 990 PHB000/A White	50

3.7.1.7 Pushbow, Bollards, Bitts, Outside Bulwark and Toppipe Railing

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	100
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	100
1 Coat INTERGARD 263 FAJ 034/A (Tie Coat) Light grey	75
1 Coat INTERTHANE 990 PHY999/A (Covercoat Urethane) Black	50

3.7.1.8 Inside Bulwark and Mast

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	100
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	100
1 Coat INTERGARD 263 FAJ034/A (Tie Coat) Light Grey	75
1 Coat INTERTHANE 990 PHE143/A Buff	50

3.7.1.9 Weather Decks

Coating	Thickness(μm)
1 Coat INTERSHIELD 300 ENA300/A (Epoxy) Bronze	100
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	100
1 Coat INTERGARD 263 FAJ034/A (Tie Coat) Light Grey	75
1 Coat INTERTHANE 990 PHL549/A (Covercoat Urethane) Signal Green	50

In the final coat Jotun Non skid shall be added.

3.7.2 Hull and Superstructure Inside

3.7.2.1 Below Deck Surfaces

Surfaces below deck level without panelling Without panelling (engine room, etc.)

Coating	Thickness(μm)
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1 Coat INTERPRIME 538 CPA537 (zinc phosphate primer) Grey	75
1 Coat INTERPRIME 538 CPA538 (zinc phosphate primer) White	75
1 Coat INTERLAC 665 CLE017 (finish) White	35

3.7.2.2 Floors and Bottom Below Floor Plates

Coating	Thickness(μm)
1 Coat INTERGARD 5620 KUA626/A Red	100
1 Coat INTERGARD 5620 KUA622/A Grey	100

3.7.2.3 Wheelhouse Without Panelling

Coating	Thickness (μm)
1 Coat INTERPRIME 538 CPA537 (zinc phosphate primer) Grey	75
1 Coat INTERPRIME 538 CPA538 (zinc phosphate primer) White	50
2 Coats INTERLAC 665 CLZ625 (finish) grey RAL 7042	each 35

3.7.2.4 Wheelhouse, etc., With Panelling

Coating	Thickness(μm)
1 Coat INTERPRIME 538 CPA537 (zinc phosphate primer) Grey	75
1 Coat INTERSHIELD 300 ENA301/A (Epoxy) Aluminium	150

3.7.2.5 Touch Up Equipment

Paint and painter's tools to be supplied with the Vessel to touch up the painting when damaged during the first months of the working activities. These tools shall consist of:

- approx. 20 litres paint in total,
- paintbrushes,
- paint rollers,
- white spirit.

3.7.3 Cathodic Protection

The underwater parts of the hull shall have a cathodic aluminium anode protection. The number and weight of the anodes shall be sufficient for 5 years in tropical conditions, placed at significant positions. Anodes placed on the hull shall be bolted, with galvanised bolts and self-locking stainless-steel nut.

4 PROPULSION AND STEERING SYSTEM

4.1 Propulsion System

The design and layout of the propulsion installation shall be in accordance with Builder's Standards and with the relevant rules of the classification society and shall be such that permanent attendance in the engine room shall be not required. The marine diesel engine shall drive a Cu-Ni-Al Bronze fixed pitch propeller through a reverse/reduction gearbox. Engine, gearbox and propeller shaft shall be mounted "inline".

For the shaft arrangement both torsional and lateral (bending) vibration analysis shall be performed to avoid resonances in the working speed range.

The marine diesel engine shall be removable and replaceable through the engine hatchway.

4.1.1 Engine Arrangement

The main engine and transmission shall be of a closed coupled arrangement and shall be installed on engine brackets or top plates, which shall be welded on the longitudinal bottom girders.

4.1.2 Propulsion Selection Diagram

Standard Main Engine	Rating	Total Power kW (bhp) rpm	Reduction Gearbox Type	Speed (Knots) approx.	Bollard Pull (Tonne-f) approx.	Prop. Diam. (mm) approx.	Draught Aft. (m) approx.	Emissions Standard
Cummins or equivalent	1	298 (400) 2100	Twin Disc MGX 5114 DC or equivalent	8.0	4.0	1100	1.60	Compliance with MARPOL Annexure VI, Tier II or the latest requirement as per IMO reg.

Rating:

1: Heavy Duty Rating

For commercial vessels with displacement hulls in heavy operation. Load and speed could be constant, and full power can be used without interruption.

Notes for Propulsion Selection Diagram:

- All performances shall be based upon ISO 3046/I under mild weather conditions, wind force not exceeding 3 Beaufort and a minimum water depth of 5 times vessels draught.
- The values for draught aft apply to the vessel in standard execution with 50% tanks.
- 1 bhp = 0.7457 kW.
- Speed trials shall be based on 50% tanks
- Bollard pull test shall be at maximum draught aft.
- Main engine rpm during bollard pull test at max. $\pm 2\%$ and during speed trials at max. $+ 5\%$.

4.1.3 Propulsion Engine System

The marine diesel engine shall be electrically started and water-cooled by means of an open cooling system. Provision shall also be made for mechanical starter. A secondary starting system shall be provided as backup. The engine must be of a type that is extensively used and proven in marine applications and tenderers must furnish adequate data and information to substantiate that requirements have been complied with.

The engine shall be capable, for periods of two hours, of developing a load of 100% of its rated output, without undue heating of the engine, or other mechanical trouble. The engine shall be arranged for electrical starting from the wheelhouse with facility to start locally on the engine provided.

For make, type and further details see Propulsion Selection Diagram (section 4.1.2).

4.1.3.1 Technical Description:

The Cummins marine propulsion engine model QSL9 or equivalent shall be a four-stroke 6 cylinder inline diesel engine, turbocharged and aftercooled. Provided with an electronic engine management system with electronic fuel injectors.

4.1.3.2 Air Filters

The air filters shall be incorporated in each engine layout.

4.1.3.3 Reduction Gear

The gearbox shall be connected to the main engine with a flexible coupling and takes the axial thrust. Make, type and further details, see Propulsion Selection Diagram (section 4.1.2).

4.1.4 Shaft and Propeller

4.1.4.1 Propeller Shaft and Sterntube General

The propeller shaft passes through the stern tube and shall be supported by a water-lubricated rubber sleeve bearing at the aft side and at the fore side by a grease-lubricated bronze bearing with a sealing gland.

The propeller shaft shall be made of stainless steel AISI 431.

4.1.4.2 Propeller Shaft Lubrication

The aft bearing shall be naturally water lubricated. The fore bearing shall be grease lubricated by a manual grease pump.

4.1.4.3 Sterntubes and Struts

The sterntube shall consist of a pipe with a fore and an aft bossing. The forward bossing shall be supported in the hull by a frame. The aft bossing shall be supported by two rigid streamlined struts. The brackets shall be streamlined to optimise the propeller wake-field and to prevent/minimise propeller induced vibration.

4.1.4.4 Fixed Pitch Propeller

The Cu-Ni-Al Bronze fixed pitch propeller shall be designed for the nominal diesel engine power.

Propeller diameter: see Propulsion Selection Diagram (section 4.1.2). The propeller shall be manufactured well within the tolerances as laid down in ISO 484, class II.

The number of blades and gearbox reduction ratio shall be carefully chosen, to avoid vibrations. The blade frequency and hull frequency shall be compared so resonant vibration can be avoided in the operation modes.

4.1.4.5 Rope Guard

A wire protection pipe shall be fitted between the rudder and the hull.

4.1.4.6 Spare Propeller Shaft and Propeller Set

One spare propeller shaft as per 4.1.4.1 and one fixed pitch propeller as per 4.1.4.4 shall be provided.

4.1.5 Propulsion Control System

The design and layout of the control and alarm system shall contain the complete control of the propulsion installation from the wheelhouse control panel. The control consoles shall be made of steel. The top panel shall be made out of black aluminium with engraved text and/or symbols, which shall be grouped together to one dashboard for engine control, start/stop buttons, visual and audible alarms, meters and switches.

Main engine speed and ahead/astern gearbox position shall be operated by electronic remote control with one handle, type Twin Disc or equivalent, on the wheelhouse console.

The handle shall be to be positioned on the port side of the steering wheel. All controls shall be anatomically positioned for a user-friendly interface.

A multi-information display shall be fitted to make Cummins or equivalent. On this display, the following information (but not limited to) shall be available.

- Engine hours,
- Coolant temp,
- Boost pressure,

- Fuel consumption,
- Engine rpm,
- Alarms,
- Service alarms,
- Oil pressure,
- Trip hours,
- A tachometer with an engine hour counter shall be installed for the main engine.

4.2 Steering System

4.2.1 Rudder Installation

One high-performance type streamlined double plate rudder shall be supported in a step bearing welded to the sole piece. The rudder and the rudder stock shall be interconnected by a bolted horizontal flange coupling. This flange coupling allows easy removal of the rudder. The upper and lower bearings of the rudder stock shall be grease lubricated cast iron bushes. Rudder stops shall be fitted outside on the hull. A hand-operated device for grease lubrication shall be installed.

4.2.1.1 Rudder

The propulsion unit shall be fitted with a single streamlined (NACA) double plate rudder

- Design type: fishtail or equivalent for manoeuvrability.

4.2.1.2 Skeg

To increase direction stability of the Vessel, forward and astern movement, a skeg shall be added, one port and one starboard as per the General Arrangement plan.

4.2.1.3 Steering Gear System

The steering casing shall be situated in the forepart of the wheelhouse. The wooden steering wheel with an aluminium frame, diameter 700 mm shall be placed in the centre line of the wheelhouse.

4.2.1.4 Steering Gear Hand-Hydraulic (HH)

A hydraulic steering cylinder, mounted to the rudder stock lever and controlled by the hydraulic pump on the steering wheel, shall be installed. Maximum rudder angle of maximum approx. 60°.

4.2.1.5 Emergency Steering

A mechanical emergency steering tiller shall be provided, operated from the aft deck.

A by-pass over the steering cylinder shall be fitted. Steel tiller shall be stored in the engine room.

4.2.1.6 Rudder Position Indicator

A 24 V rudder position indicator shall be mounted in the dashboard in the wheelhouse.

5 PRIMARY SHIP SYSTEMS

5.1 General

5.1.1 Pumps

The installation and quality of the pumps shall be according to Builder's Standards.

5.1.2 Piping

The design and layout of the piping system, the materials, installation and testing shall be to Builder's Standards and comply furthermore with the relevant rules of the Classification Society. All pipes shall be made of steel. For the hydraulic system, precision steel pipes and steel valves shall be used. Below deck steel pipes and above deck stainless steel pipes. For freshwater lines, galvanised steel, and copper pipes shall be used. For salt-water sanitary supply pipes, synthetic piping shall be used. Pipes shall be adequately supported to prevent undue vibration. Where necessary flexible connections shall be made. Piping shall be colour coded according to the ISO 14726.

5.2 Bilge System

5.2.1 Bilge System

The general service pump serves as a bilge pump. The pump inlet shall be connected to the bilge manifold and the pump outlet shall be connected to the overboard connection. The bilge manifold shall be connected with one suction point in the engine room, one suction point in the store/accommodation space and with the forepeak. The bilge suction points shall be fitted as low as possible and protected with galvanised strainer baskets.

5.2.2 Bilge Pump - Electrically Driven

A self-priming electrically driven general service pump shall be connected via a valve chest with two suction points in the engine room and one in the store/accommodation space. The aft peak shall be provided with a self-closing drain valve. A standby hand-operated pump shall be fitted. Pump specifications shall be as follows:

Make:	Southern Pumps of equivalent
Capacity:	9.0 m ³ /hr at 18 m.w.g.

The impeller of the pump shall be made of bronze.

5.3 Fuel Oil System

5.3.1 Fuel Oil Piping

The fuel oil tanks shall be connected via valves and a water trap from the tank to the engine fuel oil filters. The suction and return lines shall be flexibly connected to the engines. Self-closing drain valves shall be mounted to the tanks.

5.3.2 Water Separator

A duplex change-over fuel water separator (make Separ, type SWK-2000, or similar) shall be mounted in the main fuel oil lines. The Separ fuel water separator shall be fitted with the Standard Separ filter-elements (30 microns). Fast and easy change over shall be guaranteed by a single lever. The alarm (high water lever) shall be presented in the main alarm installation.

5.3.3 Emergency Stopping of the Fuel Oil Supply

The valves on the fuel oil tanks can be closed from a remote-control position in the wheelhouse in the event of engine room fire.

5.3.4 Duplex Fuel Oil Filter

A duplex fuel oil filter shall be incorporated in each main engine layout.

5.4 Cooling Water System

The main engines are seawater cooled via an inter-cooling system comprising a closed freshwater system and an open seawater system. A heat exchanger shall be fitted to cool the freshwater system with the seawater system.

5.4.1 Expansion Tanks

An expansion tank shall be situated at the aft side of the wheelhouse bulkhead for Low Temperature (LT) open cooling water circuit and High Temperature (HT) closed cooling water circuit of the main engine.

5.4.2 Fresh Water Cooling Pumps

The fresh water-cooling pump shall be integrated in the engine layout and driven by the engine.

5.5 Fresh Water System

5.5.1 Pressure Set

Freshwater shall be supplied by an electrically (24 V) driven pressure set, make Speck or equivalent.

5.5.2 Fresh Water Tap

In the wheelhouse, a washbasin with freshwater tap shall be fitted.

5.6 Sanitary Discharge System

An electrically driven (24 V) sewage pump shall be installed:

Make: Southern Pumps or equivalent.

5.7 Scuppers and Drainpipes

The washbasin drain via hoses and/or steel pipes to the sewage tank. The sewage pump can empty this tank via a deck connection to shore facility and, in case of emergency, direct overboard.

5.8 Filling, Sounding and De-Aeration System

The tanks shall be provided with a filling/sounding pipe and a separate de-aeration pipe. All sounding pipes above deck shall be of stainless steel. The fuel oil de-aeration pipe shall be equipped with a de-aeration cap with a (self) closing device and flame trap. The filling pipe shall have bronze caps, secured by a stainless steel chain. The cooling water expansion tanks shall be equipped with a combined filling/de-aeration cap. Crankcase de-aeration shall be integrated into the diesel engine layout. The filling pipe shall be fitted with an integrated drip tray with a drain plug.

5.8.1 Level-Indicator System for Fuel Oil Tanks

A gauge glass with self-closing valve shall be fitted at each fuel oil tank in the engine room

5.9 Lubrication Oil System

The engine shall have its own lubrication oil system incorporated in the engine layout.

5.9.1 Sump Drain Pump

The diesel engine and gearbox combination shall have one hand-operated sump drain pump.

5.9.2 Greasing Devices - Hand-Operated

Hand-operated greasing devices shall be installed respectively in the engine room and aft peak for the grease lubrication of the fore bearings of the propeller shaft and the bearings of the rudderstock.

5.9.3 Grease Piping

Steel pressure pipes connect the hand-operated grease guns, installed in the engine room and aft peak, with the bearings.

5.9.4 Lubrication Oil Filter

The lubrication oil filter, duplex type with relief valve and by-pass, shall be incorporated in the engine layout.

5.10 Ventilation, Air-conditioning and Heating System

5.10.1 Natural and Mechanical Ventilation System

5.10.1.1 General

Wheelhouse, accommodation/stores and engine room have natural ventilation through air ducts, opening windows and ventilation cowls.

5.10.1.2 Natural Ventilation Wheelhouse

The wheelhouse shall have natural ventilation through an opening window and ventilation cowls.

5.10.1.3 Natural Ventilation Accommodation

Two integrated ventilation boxes fitted at the wheelhouse sides shall provide fresh air into the accommodation.

5.10.1.4 Natural Ventilation Engine Room

Two ventilation ducts, incorporated in the wheelhouse aft bulkhead supply fresh air into the engine room. The air grating for ventilation/"overpressure" shall be made of stainless steel. The air intake shall be suitably sized to allow sufficient natural airflow towards the engine.

5.10.1.5 Wheelhouse Fans

Electrical window fan (24V) capacity 165 m³/hr shall be mounted near the wheelhouse front windows with 3 nozzles mounted in the ceiling to prevent windows from getting steamed up.

5.10.1.6 Mechanical Engine Room Ventilation

An electrical axial flow fan shall supply fresh air.

Type: Salor VM 40 or equivalent,

Capacity approx.: 8000 m³/hr.

The inside walls of the ventilation inlet duct shall be covered with sound-absorbing material to reduce the noise level on the aft deck.

The inlet grating shall be of the mist eliminator type, made of seas water-resistant aluminium.

5.10.1.7 Extraction Fan

An extraction fan serving sanitary space and galley shall be fitted.

Capacity: 225 m³/hr

5.10.2 Air-Conditioning

A desert-type split A.C. unit shall be installed for the wheelhouse. The air-cooled condenser unit shall be fitted on the top deck. The cooling unit shall be placed in the wheelhouse.

5.11 Exhaust System

5.11.1 Exhaust Piping

The exhaust shall be made of steel pipes, which shall be insulated with heat resistant material. Arrangements shall be made to prevent any entry of water in the engine, by a gooseneck water trap in the exhaust line, fitted in the aft bulwark. The exhaust pipe through the transom plating shall be welded in a stainless-steel flange plate.

A stainless-steel compensator shall be fitted between each exhaust manifold and the exhaust piping.

5.11.2 Exhaust Silencer

The 45 dB(A) exhaust silencer shall be of adequate capacity. The exhaust pipe shall be insulated with heat resistant material.

5.11.3 Spark Arrestor

The exhaust silencer shall be provided with a spark arrestor.

6 ELECTRIC INSTALLATION

6.1 General Description

The design and layout of the electric system, the materials, installation and testing shall be to Builder's Standards. All electric cables and materials shall be suited for marine applications and in accordance with requirements for safe and efficient operation of the vessel. All electric equipment, with no obvious function shall be labeled accordingly. For the supply to the electric consumers and installations the following networks shall be installed:

- A bipolar 24 V network,
- 220 V, 50 Hz network.

6.2 Batteries

6.2.1 Alternator 24 V

One alternator shall be fitted on and driven by the main engine and shall feed the consumer network battery set and the starting battery set.

6.2.2 Consumer Battery Set - 24 V

Two batteries, 12 V 200 Ah each, combined to one battery bank, 24 V 200 Ah, feed the electric consumer system. The battery set shall be installed on a grating in an ABS battery box in the engine room.

6.2.3 Starting Battery Set – 24 V

Two batteries, 12 V 200 Ah each, combined to one battery bank, 24 V 200 Ah, feed the anchor winch and the bow thruster and the electric starting system. The battery set shall be installed on a grating in an ABS battery box in the engine room.

6.2.4 Emergency Battery Set – 24V

Two batteries 12 V – 70 Ah each, combined to one battery bank, 24 V – 70 Ah feed the electric emergency system. The battery set shall be installed on a grating in an ABS battery box integrated into the wheelhouse settee.

6.2.5 Shore Connection

A shore power supply connection of 16 Amp. with a cable of 25 metres with a female plug (shipside, fits into a fuse box) and a male plug (shore side) shall be supplied. An extra female plug shall be supplied for adaptation to the shore system. For the connection cable a bronze screw-type passage shall be fitted, so the vessel can be left locked, without interrupting the shore connection.

The connection shall be for battery charging of the consumer network battery set and for feeding the 220 V circuit.

6.2.6 Battery Charger – Consumer Set

One 220 V battery charger, 24 V 50 A, shall be installed for the consumer battery. The charger shall be intended for float charging of the batteries with automatic change over to trickle charging.

6.2.7 Battery Charging - Emergency Set

A battery charger, 24V 25 A, shall be installed. The charger shall be intended for float charging of the batteries with automatic change over to trickle charging.

6.3 Cables and Wiring

6.3.1 Cables

6.3.1.1 General

Electric cables shall be of a marine type. Cables used for signaling and communication with a voltage less than 100 V shall have a minimum cross-section of 0.75 mm². Other cables have a minimum cross-section of at least 1.5 mm². For electronic equipment cables with earth-screen shall be applied. These cables shall be separated from the high voltage cables.

6.3.1.2 24 V network

The 24 V installation shall be bi-polar, insulated from earth, and consists of the following networks:

- One network for supplying ships consumers,
- One network for supplying the start motors of the diesel engines.

6.3.1.3 220 V network

The power network shall be nominal voltage 220 V - 50 Hz, 1-phase, insulated from earth.

6.3.2 Switchboards

6.3.2.1 General

All materials and constructions shall be sufficiently shockproof for this type of vessel, suitable for tropic conditions, and shall be according to the classification requirements for this type of vessel.

6.3.2.2 Switchboard 24 V wheelhouse

The 24 V switchboard shall be placed in the wheelhouse and shall be provided with:

- Main switch,
- Panel lighting,
- A time switch for engine room lighting,
- Voltmeter and ammeter of the battery supplying the consumers,
- Voltmeter and ammeter of the battery supplying the starter motors.

Combined switches/automatic circuit-breakers for the following outgoing circuits:

- Navigation lights shall be as follows:
 - Sidelights,
 - Masthead light,
 - Stern light,
 - 2nd Masthead light,
 - Towing light,
 - N.U.C. lights,
- Searchlight,
- Horn,
- Integrated Navigation System,
- Fluxgate compass,
- Echosounder,
- GPS,
- VHF (1),
- VHF (2),
- Radar,
- AIS,
- Wheelhouse, deck and engine room lighting,
- Rudder position indication,
- Window wipers,
- Bilge pump,
- Pressure set,
- Sewage pump,
- Engine controls and instruments,
- Bowthruster,

- 3 Spare switches,

6.3.2.3 Switchboard 220 V

A 220 V switchboard shall be mounted in the wheelhouse with outgoing circuits for:

- ER ventilator,
- Air-conditioning unit wheelhouse,
- Battery charger,
- Galley plates,
- Sockets wheelhouse,
- Socket below deck area,
- Double socket engine room.

6.3.2.4 Battery Change-Over Facility

A battery change-over facility enables a user to start the main engines with any of both 24 V– 200 Ah battery sets.

6.4 Alarm System

0.1.1 General

The alarm system shall comprise of a number of alarms for the marine diesel engine and general ships duty. The alarms shall be individually presented on the wheelhouse dashboard.

Each alarm shall have its own red light, and accept push-button and an audible signal (a buzzer in the wheelhouse) shall be installed.

In case of an alarm condition, an individual red light shall be illuminated, and the acoustical signal shall be activated until the accept push-button is pressed.

6.4.1 Alarms Wheelhouse

6.4.1.1 Alarm Signals

The following alarms shall be presented in the wheelhouse:

- Water level/fuel water separator main fuel oil line high,
- Cooling water temperature high,
- Lubrication oil pressure supply to main engine low,
- Lubrication oil pressure supply to gearbox low,

- Cooling water level low,
- Steering gear oil level low,
- Fuel oil level low.

6.4.1.2 Alarm Stops

The following stops shall be fitted:

- Main engine cooling water temperature high (2nd stage),
- Main engine lubrication oil pressure low (2nd stage).

Note:

According to the requirements of the engine manufacturer and/or the Classification Society, the number of alarms may be changed.

6.4.1.3 Auxiliary Engine Alarm

An audible and visible alarm, Praxis Mini Guard or equivalent, shall be provided in the wheelhouse dashboard.

6.4.1.4 Bilge Alarm

An audible and visible (indicator) alarm shall be provided for indicating a high bilge water level in the engine room and the below deck store.

6.4.1.5 Watertight Door Alarm

An open/closed alarm shall be fitted for the watertight door between the engine room and store and escape hatches ER.

6.4.1.6 Fire Detection Alarm

A simple fire detection alarm system for the ER shall be fitted connected to the ER alarm panels, consisting of:

- 2 heat detectors for the engine room,
- 1 smoke detector for wheelhouse,

Reset fire detectors on WH dashboard

6.5 Lighting

6.5.1 General

A lighting network, nominal voltage 24 V shall be installed. The interior of the vessel shall be adequately lit with marine-type (LED) lights. All exterior lights shall be waterproof marine-type (LED) lights.

The number, type and location of light switches shall be determined in line with safe and efficient operation.

A number of spare lights are provided for interior and exterior lighting.

6.5.2 Interior Lighting

The lights are 24 V unless specifically mentioned otherwise.

6.5.2.1 Engine Room

- 4 LED tube type light units 2 x 8 W, controlled by a time switch,
- 1 socket (220 V).

6.5.2.2 Aft Peak

1 bulls-eye LED light with switch, controlled by engine room lighting time switch.

6.5.2.3 Wheelhouse

- 1 LED Ceiling light 12 W with a switch near the entrance,
- Variable instrument lighting,
- 1 Socket (24 V),
- 1 socket (220 V),
- Chart reading light.

6.5.2.4 Accommodation

- 2 LED tube type light unit 2 x 8W each, with a switch near the staircase,
- 1 Socket (24 V),
- 1 socket (220 V),
- 1 Bed reading LED light with a switch at each bunk.

6.5.2.5 Emergency Lighting

- 24 V emergency lighting supply integrated into the existing installation,
- ER 1 fluorescent unit,

-
- Wheelhouse 1 ceiling light,
 - Accommodation 1 fluorescent unit in the ceiling.

6.5.3 Exterior Lighting

6.5.3.1 Main deck

One (1) watertight 12 W 24 V deck light at the aft side of the wheelhouse with a switch in the wheelhouse.

6.5.3.2 Floodlights

Two (2) watertight 100 W 220 V LED floodlights (minimum 7000 lumens) are installed to illuminate one aft and one fore. Switches located inside the wheelhouse.

7 DECK EQUIPMENT

7.1 Anchor Equipment

7.1.1 General

The anchor equipment and installation shall be in accordance with the Classification society's regulations. The anchors installed shall be High Holding Power anchors, type Pool. The chain cable shall be galvanised.

7.1.2 Anchor with chain

Anchor weight:	48 kg,
Spare anchor weight:	48 kg,
Chain length:	80 m,
Chain diameter:	13 mm (short-link),
Quality:	Q2 (Class).

The main anchor shall be fitted against the bow and the spare anchor shall be stored in the engine room.

7.1.3 Anchor winch (electrically driven)

An electrically driven (24V) anchor winch shall be mounted on a foundation, welded on the foredeck. A chain stopper shall be fitted.

7.1.4 Anchor chain quick release

One anchor chain release shall be fitted on the foredeck.

7.2 Mooring system

3 Polypropylene mooring lines shall be provided, each with a length of 27.5 m and a diameter of 22 mm.

Each line shall be provided with an eye.

7.3 Life-Saving and Fire Protection Equipment

7.3.1 Life-Saving Equipment

7.3.1.1 General

All safety appliances shall be according to normal Builder's Standards and SAMSA requirements. The number and capacities of the life raft, lifebuoys and life jackets can be optionally altered according to the Owner's requirements as long as it complies with the rules of the classification society and SAMSA.

7.3.1.2 Lifebuoys

Two lifebuoys shall be stored in frames, at appropriate places.

7.3.1.3 Life jackets

Four life jackets shall be provided.

7.3.1.4 Life raft

One inflatable life raft shall be provided on the top deck. The raft shall be fitted with a hydrostatic release.

Make: Zodiak or equivalent,

Capacity: 4 persons.

7.3.1.5 First-Aid Equipment

A first-aid kit (according to SAMSA Marine notice number 5 of 2021) shall be supplied.

7.3.1.6 Fire Signals

Emergency fire signals, parachute type and waterproof packed shall be provided as per SAMSA requirements.

7.3.1.7 Smoke Light Signals

Smoke lights signals shall be provided as per SAMSA requirements.

7.3.1.8 Miscellaneous Safety Equipment

The following safety equipment shall be provided as per SAMSA requirements

- Fire axe
- One safety lamp
- 1 work light (portable)
- Markus net or equivalent

7.3.2 Fire Protection Equipment

Portable fire extinguishers are fitted according to Classification Society and SAMSA requirements and will at minimum be located in the:

- Wheelhouse
- Engine Room
- Accommodation

8 AUXILIARY SYSTEMS

A CO₂ fixed fire-fighting system for the engine room shall be installed in a separate locker and shall be activated from a position near the deckhouse. The key of the CO₂ locker shall be stored in a stainless-steel cabinet and the same should be installed and commissioned in accordance with Classification Societies

9 JOINERY AND ACCOMMODATION

9.1 General

The layout shall be shown on the relevant General Arrangement Plan. Tabletops shall be made of hard plastic covered waterproof plywood. Aluminium and steel handrails shall be fitted where necessary. Sea fastening shall be provided for all chairs. For the outside door, a doormat shall be supplied.

9.1.1 Acoustical Insulation

Measures to obtain low noise levels include as following:

- Absorbent mineral wool behind all carpentry linings,
- Resiliently mounted the main engine,
- Resiliently mounted wheelhouse,
- Floating floor system in the store,
- Prometech foam or equivalent.
- Perforated Dampa or equivalent system ceiling in the wheelhouse,
- Resiliently mounted auxiliary set,
- Flexibly mounted silencers and a part of the exhaust piping,
- The engine room inlet ventilation ducts shall be covered with sound-absorbing material.

Maximum Noise Levels

- Engine Room 95-100 dB(A),
- Wheelhouse 70 dB(A),
- Accommodation 62-64 dB(A).

Sound measurements to be done at 80% power of Main Engines.

9.2 Joinery

9.2.1 General

All joinery work shall be in accordance with normal Builder's Standards. For panelling hard plastic-coated marine plywood shall be used in the colour light grey (coated on both sides), fastened with galvanised steel screws and finished with Omega wall joints and aluminium profiles.

Where necessary, non-combustible and fire-retardant materials shall be used.

9.2.2 Floor Wheelhouse

The floors in the wheelhouse, store and accommodation shall be of the composite rubber/synthetic type.

Make: Bolidt or equivalent,

Colour: Grey or equivalent.

The basic floors shall be of the floating type, and no direct contact shall be made between the floors and the steel structure.

9.2.3 Floor Engine Room

Chequered aluminium floor plates shall be fitted in the engine room and fixed with stainless steel screws. The plates shall be mounted on angle section frames in such a way that all equipment can be reached for operation and maintenance.

9.2.4 Walls Wheelhouse

The wheelhouse walls shall be insulated with mineral wool and paneled up to the wheelhouse windows. The thickness of the insulation shall be approximately 50 mm and of the panels 20 mm. The dashboard casing colour black shall be made of hard Formica on marine plywood.

9.2.5 Ceiling Wheelhouse

The wheelhouse ceiling shall be insulated with mineral wool and paneled. The thickness of the insulation shall be approximately 50 mm and of the panels 10 mm.

Special sound-absorbing perforated panels, colour anthracite, Dampa type or equivalent, shall be used for the ceiling.

9.3 Arrangement Wheelhouse

9.3.1 Dustbin

The wheelhouse shall be fitted with a dustbin.

9.3.2 Helmsman Seat

One helmsman seat of foldable type shall be provided.

9.3.3 Settee and Table

A settee and table shall be installed in the wheelhouse. Seat and back cushions shall be made of artificial leather, colour black. Under the seat equipment, such as life jackets, tools, etc. can be stored.

9.3.4 Time Clock

A quartz marine clock 10 cm, chrome-plated, with silence periods, shall be mounted in the wheelhouse.

9.3.5 Binoculars

One pair of prismatic binoculars make Steiner, type Skipper (7x50) or equivalent shall be provided in a binocular box.

9.3.6 Keys

A double set of keys with a key locker shall be provided.

9.3.7 Miscellaneous Wheelhouse

Furthermore provided:

- Ribbed mat,
- 2x Cupholders.

9.4 Arrangement Sanitary Spaces and Additional Spaces

9.4.1 Wheelhouse Wash Basin

In the wheelhouse, a washbasin with freshwater tap shall be fitted.

9.5 Arrangement Accommodation and Boatswain Equipment

In the accommodation below deck, two large wooden shelves shall be arranged. Ceiling and walls shall be completely lined.

9.5.1 Accommodation

Below the deck, two berths of 2.1 x 0.9 m shall be fitted. Ceiling and walls shall be completely lined. A complete inventory including bed sheets, pillows, and covers, blankets and towels shall be provided for 2 persons.

9.5.2 Galley

The galley below deck shall be equipped with a kitchen unit with stainless steel worktop with cupboards underneath and small wall type lockers. Stainless steel sink complete with water tap hot and cold and drainage to sewage tank with non-return valve, 2- burner electric cooker (220 V) with pan fittings and 100 net litres refrigerator underneath (24/ 220 V).

Ceiling and walls shall be completely lined.

A complete galley inventory including dishes, cups, pans, etc. shall be provided for a crew of 3 persons.

Anti-slip placemats shall be supplied.

9.5.3 Lockers

Four lockers with keylocks shall be fitted.

9.5.4 Deck-Cleaning Equipment

The following deck cleaning equipment shall be supplied with the Vessel:

- 1 Rubber bucket with a line,
- 1 Broom deck brush,
- 1 Wash-leather,
- 1 Sponge,
- 1 Boat hook.

9.5.5 Basic Cleaning Set

The following basic cleaning set shall be provided with the Vessel:

- Floor mop,
- Cleaning materials for metal, plastic, wood,
- Rust remover,
- Wash & Shine or equivalent soap,
- Stainless steel cleaner,
- PU foam insulation material.

9.6 Engine Room Workshop and Tools

Standard toolset shall be supplied by the engine manufacturer(s):

- 1 Toolbox,

- 1 Adjustable spanner,
- 1 Pliers,
- 2 Screwdrivers,
- 1 Extension,
- 1 Jointed handle,
- 1 Double open end spanner 10-11 mm,
- 1 Double open end spanner 12-13 mm,
- 1 Double open end spanner 14-15 mm,
- 1 Double open end spanner 17-19 mm,
- 1 Double open end spanner 22-24 mm,
- 1 Socket 10 mm,
- 1 Socket 11 mm,
- 1 Socket 12 mm,
- 1 Socket 13 mm,
- 1 Socket 14 mm,
- 1 Socket 15 mm,
- 1 Socket 17 mm,
- 1 Socket 19 mm,
- 1 Socket 22 mm,
- 1 Socket 30 mm.

Furthermore, the following shall be fitted:

- 1 Grease gun with a set of required heads,
- 1 Propeller nut spanner,
- 1 Propeller pulling device,
- 1 Battery water filling bottle,
- 1 Spare Padlock,
- Set of spare (LED) lights and fuses.

10 NAUTICAL, NAVIGATION AND COMMUNICATION EQUIPMENT

10.1 Navigation Lighting

10.1.1 Navigation lights

The navigation lights shall be controlled with the combined switches/automatic circuit breakers from the 24 Volt switchboard in the wheelhouse.

The following (LED) lights shall be installed:

- 2 Sidelights (red and green led type) shall be fitted at the sides of the wheelhouse top,
- A stern light (white led type) shall be fitted in the mast,
- 2 Masthead lights (white led type) shall be fitted in the mast,
- Towing lights (yellow led type) shall be fitted in the mast,
- An anchor light (white led type) shall be fitted,
- Three R.I.M. (Restricted In Manoeuvring) led type lights (red, white, red) shall be fitted in the mast. Lights can also be used as N.U.C (Not Under Command) lights (red, red).

All lights shall be fitted to conform the COLREGS' requirements. Some lights can be used for more functions.

Make: Praxis controller /Den Haan navigation lights or equivalent,

Type: Megaguard NLCS or equivalent.

10.1.2 Search Light System

A searchlight shall be mounted on the wheelhouse top deck, with a control handle and switch near the steering position.

Voltage: 24 V,

Capacity: 500 W or LED equivalent,

Make: Den Haan or equivalent.

10.2 Signals and Flags

10.2.1 Code Shapes

One set of code shapes shall be provided with the Vessel and stored onboard. The following black shapes shall be provided:

Ball: 3,
Diamond: 1,
Cylinder: 1.

Make: Den Haan or equivalent,
Type: Signals or equivalent.

10.2.2 Horn

A horn shall be fitted on the wheelhouse top deck or in the mast. For operation, a push-button shall be situated on the wheelhouse dashboard.

Make: Den Haan or equivalent,
Type: DHR H300 or equivalent.

10.2.3 National Flag

One South African national flag, 55 x 75 cm, shall be supplied.

10.3 Nautical and Bridge Systems

10.3.1 Navigation

10.3.1.1 Integrated Navigation System

A radar system with a chart plotter shall be part of an integrated navigation system.

Display: 15.6" colour TFT wide screen,
Radar scanner: DRS4D-NXT 24" digital dome, HD colour, 4 kW or equivalent,
GPS: GP330 150 GPS or equivalent,
Echo sounder: Built in with Airmar transducer P79 or equivalent,

Chart: Navionics Silver or equivalent,
Voltage: 24 V,
Make: Furuno or equivalent,
Type radar: TZTLF15F 120 series or equivalent.

The chart plotter shall be provided with basic charts of South Africa. C-map charts of the operational area can be offered upon request.

10.3.1.2 Fluxgate Compass

A fluxgate compass, make Radio Zeeland, type Sigma 345 or equivalent, shall be located in the mast. The display shall be fitted in the wheelhouse dashboard.

10.3.2 Internal Communication

An integrated intercom/loudhailer system shall be installed. Stations shall be on the following places:

- A master station in the wheelhouse,
- Engine room,
- Accommodation.

The loudhailer shall be fitted to the mast. The microphone shall be situated on the wheelhouse control panel (palm microphone type).

Make: Furuno or equivalent,
Type: LH7000 or equivalent.

10.3.3 External Communication

A VHF radio telephone with all international channels shall be installed. The radio telephone shall be equipped with an integrated DSC unit and DSC watch receiver, class A (Ch. 70). The antennae shall be mounted on the wheelhouse top deck or in the mast.

Capacity: 25 W,
Number: 2,
Make: Sailor or equivalent,

Type: RT 6222 or equivalent.

10.3.3.1 Handheld Waterproof VHF Radio Telephone

A handheld waterproof VHF radio telephone shall be installed, complete with a battery charger and belt clip. Hands-free waterproof earpiece with secure headband is to be provided. The handheld waterproof VHF radio telephone shall be GMDSS approved.

Number: 2,
Make: Sailor or equivalent,
Type: SP3520 or equivalent.

10.3.3.2 AIS System

An Automatic Identification System (AIS) shall be fitted including failsafe power supply, connected to GPS and VHF. Within VHF-range the position, course, speed, navigational status, etc. of surrounding vessels can be displayed on the AIS. No own course and speed information shall be available.

Make: Furuno or equivalent,
Type: FA-170 or equivalent.

10.3.3.3 SART

A radar transponder shall be supplied, GMDSS approved.

Make: Sailor or equivalent,
Type: SART II or equivalent.

10.3.4 Meteorological Equipment

A weather system shall be installed. The sensor shall be mounted in the mast.

Output: Relative wind speed and direction, Air temperature and pressure,
Display: LCD,
Voltage: 24 V,

Make: Furuno or equivalent,
Type: RD-33 or equivalent,
Sensor: Airmar 150 WX solid state or equivalent.

11 GENERAL ARRANGEMENT DRAWING

