Revision	Issue Date	Comments
00	18 Mar 2022	Draft
01	30 June 2022	Insert text that refer to an option of a split between detail design and succeeding phases. Insert text that speaks to site rehabilitation.
02	21 July 2022	As reviewed by Capitals Projects

ROLE / DISCIPLINE	INITIAL & SURNAME	SIGNATURE	DATE
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1. GENERAL

1.1. Project Introduction

PetroSA owns and operates a Gas to Liquids Refinery [GTLR] in Mossel Bay, South Africa and utilises the CBM and SPM facilities/terminals to import feedstock and export finished products.

The SPM terminal is located in the bay of Mossel Bay port, and it is connected to the Voorbaai onshore tank farm via three 3.4 km pipelines summarised in the table below:

No.	Size (N.B.)	Description
1.	8”	Previously utilised for ballast water but is no longer in use
2.	12”	Used for petrol export and reformate & condensate import
3.	14”	Used for diesel export and condensate import.

The section between the shoreline and the SPM Pipeline end Manifold (PLEM) is housed/bundled in a 2.95 km long 36” diameter subsea carrier pipe, and the onshore section between the shoreline and the tank farm is buried but not in a bundle.

External corrosion on the 12” & 14” pipelines was initially reported in 2016 when the intelligent pigging results indicated corrosion on an 800m subsea section located between Kilometre Points (KP) 2.1km to 2.9km from the onshore pig launcher. Subsequently, the inline inspection (ILI) undertaken in 2018 on the 12” pipeline confirmed further corrosion attack to the point of leakage (numerous defects with 85% WT. loss). In January 2019, the 12” pipeline failed the service test, and it was later placed out of service. The latest inspection of the 14” pipeline done in February 2023 reported corrosion anomalies to a maximum depth of 68% W.T. loss, located after 2 km of the pipeline and concentrated on full circle orientation.

In November 2020, ThyssenKrupp /CONSUB completed a Front-End Engineering and Design (FEED) study for the repair of damaged 12” and 14”. The FEED study recommended the replacement of the damaged section with a new pipeline assembly.

To proceed with the implementation of the succeeding phases, that is, Detail Design, Procurement, Fabrication Construction of the Project, and pre-commissioning; PetroSA invites

companies to provide competitive bids on the basis of "Engineering, Procurement and Construction Management" (EPCM) for the replacement of the damaged sections of the 12" and 14" SPM pipelines.

The bids will be evaluated on the quality of information submitted using the mandatory 'Technical Evaluation Criteria' and the 'Commercial Bid Analysis' forms.

1.2 Purpose of Document

The objective of this document is to detail the Scope of Work to be performed by the CONTRACTOR for the provision of SPM 12" & 14" pipeline engineering and repair services. It identifies all the main and key activities to be undertaken by the CONTRACTOR in fulfilment of its obligation hereunder.

1.4 Definition of Terms

Abbreviations and acronyms used include

Abbreviation	Description
“	Inch
CBM	Conventional Buoy Mooring
CV	Curriculum Vitae
EIA	Environmental Impact Assessment
EPCM	Engineering, Procurement and Construction management
EPIC	Engineering, procurement, construction, and Installation
FEED	Front End Engineering Design
GTLR	Gasto Liquids Refinery
HSE	Health Safety and Environment
ILI	In line inspection
ITT	Invitation to Tender
KP	Kilometre point
Metocean	Meteorological and oceanographic
PetroSA	The Petroleum Oil and Gas Corporation of South Africa
PLEM	Pipeline end manifold
PPE	Personal Protective Equipment
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
QCP	Quality Control Plan
SPM	Single Point Mooring
WT	Wall thickness

2. EPCM BRIEF SCOPE OF WORK

The EPCM CONTRACTOR shall bear the single point of responsibility to conduct detailed engineering, manage the procurement of all equipment and materials, fabrication, and construction/installation management for the repair of the 12 & 14" pipelines. The CONTRACTOR shall be responsible for both Onshore and Offshore Scope of work covering the following:

Scope	**Description**	**Contract Type**
Base Scope 1: Pre-Engineering *(Maximum timeframe of 4 months from start date*)*	• Conduct metocean studies (offshore only). • Conduct geophysical & geotechnical surveys (offshore only). • Site investigation.	Reimbursable
Base Scope 2: Detail Engineering / Design *(Maximum timeframe of 5 months from start date*)*	• Conduct Detailed Engineering Design. • Prepare Invitation to Tender (ITT) documentation to enable PetroSA to procure all services & material.	Reimbursable
Provisional Scope: Procurement & Construction Management. *(Maximum timeframe of 12 months from start date*)*	• Overall management of all services post Detail Engineering. • Management of the procurement of all material and services (fabrication, Installation & pre-commissioning)	Reimbursable

*Phase start date could be from issuing of a Purchase Order or a date as will be agreed between PetroSA and the Contractor.

3. FACILITY LOCATION

The area location, including the physical location of the SPM facility, associated facilities, and the defective sections to be replaced, are contained in **Attachment 2, Attachment 3,** and **Attachment 4** of this tender document.

4. EPCM DETAILED SCOPE OF WORK

The Scope of Work shall consist of the following:

- Base Scope 1 & 2
  - Metocean studies
  - Geotechnical & Geophysical survey
  - Detailed Engineering
  - Prepare cost estimates
  - Prepare a detailed project execution plan (procurement, fabrication, Installation & pre-commissioning)
  - Prepare ITT documents to enable the procurement of all services and material
- Provisional Scope
  - Comprehensive project management of all services.
  - Procurement management - Management of tendering processes for procurement of all services (fabrication, Installation & pre-commissioning) and material,
  - Construction material scope of supply
  - Expediting:
  - Billing:
  - Documentation & records:
  - Construction planning:
  - Health, safety, and environmental management system
  - Project quality guidelines/quality assurance plan

4.1. Base Scope

Base Scope 1:

The CONTRACTOR shall, on a Cost Reimbursable basis, provide an offer to Draft invitation to tender (ITT) and manage the following Scope:

4.1.1. METOCEAN DATA – Obtaining up-to-date detailed Metocean, wind, wave, current & temperature data required before the start of detailed engineering as detailed in Section 16.2.

4.1.2. SURVEY WORKS – Conducting of Geotechnical and Geophysical Survey of the seabed covering the installation corridor between the initial parking route and proposed installation route to confirm (i) seabed bathymetry and location of existing expected seabed installed facilities and unexpected debris, including the SPM

mooring footprint; (ii) sub-bottom profile along the proposed installation route and (iii) geotechnical survey to confirm the soil properties as detailed in Section 16.2.

4.1.3. SITE INVESTIGATIONS - Conducting invasive site investigations of the proposed bundle tie-in location to identify key features required to design the replacement pipeline.

Base Scope 2:

4.1.4. Detailed Engineering

4.1.4.1. The CONTRACTOR shall conduct a comprehensive, detailed design of the permanent facilities.

4.1.4.2. Develop all the necessary detailed engineering drawings with the Bill of Materials (BOM) for the necessary retrofitting works. The drawing submitted by the Contractor shall be good for execution at the site.

4.1.4.3. The CONTRACTOR shall manage all interfaces to ensure the functionality of the design.

4.1.4.4. The CONTRACTOR shall manage and coordinate all design activities.

4.1.4.5. The CONTRACTOR shall Contact the relevant certifying authority to review and certify the work independently.

All Detail Engineering and Design performed by the CONTRACTOR shall be in accordance with PetroSA Specifications and Standards. Where specifications and standards are outdated international standards and best practices will take precedence in consultation and agreement with the Client. The Works shall be in accordance with good engineering practices and shall be of such a standard as to enable a competent South African Contractor to fabricate and install the piping works and associated facilities in a technically acceptable and safe manner. The final subsea tie-ins will be executed during a planned short window outage.

4.1.5. Overall Project Schedule and Cost Estimates

4.1.5.1. The CONTRACTOR shall prepare a cost estimate & schedule for the total Project.

4.1.5.2. Cost estimation & schedule shall be provided for all items to be procured and service contracts, that is, cost for material, equipment, erection, and construction of the Works.

4.1.5.3. The Project cost & schedule will form the base for project monitoring and control during the implementation phase.

4.1.6. Preparation of Invitation to Tender (ITT) documents

4.1.6.1. The Contractor shall, in consultation with PetroSA, prepare invitations to tender documents to enable the PetroSA to procure all services, materials and equipment required to repair the damaged pipelines

The CONTRACTOR shall undertake all necessary management, progress monitoring and reporting to ensure the successful delivery of the work.

4.2. Provisional Scope

4.2.1. Comprehensive Project Management of All Services

4.2.1.1. Develop project strategy and schedules, establish monitoring, reporting, quality control, and project information systems.

4.2.1.2. Maintain and be responsible for management and control of all resources and subcontractors which are involved in this project covering all aspects of the work.

4.2.1.3. Develop overall project execution philosophy and project coordination procedures.

4.2.1.4. Maintain project procedures through regular review/updating/amendment.

4.2.1.5. Preparation of an overall project schedule, identifying critical path, milestones, priority activities and target dates for completion.

4.2.1.6. Updating the Master Schedule as and when necessary.

4.2.1.7. Hold regular project review meetings with contractors along with PetroSA.

4.2.1.8. Review, approve and monitor detailed schedules of contractors & vendors.

4.2.1.9. Establish formal lines of communication with PetroSA, Suppliers and Contractors.

4.2.1.10. Supervise fabrication and construction activities during execution of the work.

4.2.1.11. Coordinate and manage the interface between various disciplines, sub-contractors, vendors, project activities and work packages.

4.2.1.12. In consultation with PetroSA, provide and support clients and sub-contractors with travel assistance, i.e., visa letters and access to various sites.

4.2.2. Engineering

4.2.2.1. Respond to Vendor, and supplier technical queries during detail design, procurement, fabrication, construction and commissioning.

4.2.2.2. Support procurement, fabrication and construction activities.

4.2.2.3. Manage and coordinate all technical changes.

4.2.2.4. Manage fabrication and construction/installation Engineering.

4.2.2.5. The CONTRACTOR Shall design and engineer the complete Works as defined in Section 6 hereof.

4.2.2.6. The CONTRACTOR shall review and approve Vendor's / Subcontractor's designs and check that they conform to PetroSA's Specifications, Standards, Purchase Order and Contract requirements.

4.2.2.7. The CONTRACTOR shall deal with, manage, and expedite all queries from vendors and other contractors for and on behalf of PetroSA.

4.2.3. Procurement Services / Tendering

This section applies to all procurement and tendering to be managed by the CONTRACTOR on behalf of PetroSA, except for those identified as PetroSA issued in the table in section 4.2.4.

4.2.3.1. In consultation with PetroSA, the CONTRACTOR shall prepare invitations to tender documents to enable PetroSA to procure all services, materials and equipment required to repair the damaged pipelines.

4.2.3.2. Evaluation of technical bids, the recommendation for technical offers of service contracts/procurement contracts to PetroSA within and the same shall be forwarded to PetroSA for approval.

4.2.3.3. All procurement & tendering services to follow PetroSA Procurement Terms & Conditions unless waived by PetroSA to use the Contractor's.

4.2.3.4. Review quoted delivery dates to ensure compatibility with the approved Project schedule and ability to meet site material requirements during the construction phase.

4.2.3.5. Arrange customs clearance and transportation of materials to site through subcontractors.

4.2.3.6. Co-ordination with all transporters for shipping/transporting of equipment/material to PetroSA site from Vendor's works. Costs to be comparable to PetroSA's transport/courier companies and use the cheapest where time is favourable.

4.2.3.7. Management of the procurement of all material and services (fabrication, Installation & pre-commissioning)

4.2.4. Material scope of supply

The CONTRACTOR shall manage the procurement of all the required items as soon as details become available during or after the completion of Detail Engineering.

The table below summarises the responsibility for the specification and procurement management of materials and services. Responsibility for the corrosion and weight coating is to be defined at the Detailed Design stage.

Item	General description	Responsibility	Reference
1.	Piping components (piping, bends, flanges, tees, valves, mechanical connectors, stud bolts, nuts, gaskets).	PetroSA/ CONTRACTOR	Material Take Off Document Appendix A (Ref /A6/)
2.	Bracelet anodes for pipelines.	PetroSA/ CONTRACTOR	Material Take Off Document Appendix A (Ref /A6/)
3.	Equipment and personnel to perform pipeline flooding and hydro testing on the completed pipeline, excluding pigging services.	PetroSA/ CONTRACTOR	Pre-Commissioning Philosophy Ref /A2/
4.	Pigging Services and pig units for item 3.	CONTRACTOR	Pre-Commissioning Philosophy Ref /A2/
5.	External bulkhead Seal.	CONTRACTOR	Drawing C-0022-PLE-DWG-006 Ref /A14/
6.	Towing Structures excluding the piping elements listed in item 1 above.	CONTRACTOR	Drawings C-0022-PLE-DWG-004 & C-0022-PLE-DWG-005 Refs /A12/ and /A13/
7.	Spacers and bindings to maintain 12” and 14” pipelines at a fixed separation	CONTRACTOR	To be developed during detailed design phase.
8.	All other items not specifically listed in items 1 and 2 above, including buoyancy tanks on pipeline and tow heads, trimming chains and ballast weights.	CONTRACTOR	To be developed during detailed design phase.

4.2.5. Expediting

4.2.5.1. Expedite vendors for timely equipment/bulk material deliveries and closely monitor delivery dates. Prepare plans for remedial actions in case of any delay foreseen in the delivery of material.

4.2.5.2. Monthly progress status report shall be obtained from all the critical vendors and to be submitted to PetroSA along with a consolidated monthly status report of all procurement items (equipment/bulk material) prepared by the Contractor.

4.2.6. Billing

4.2.6.1. Verify the actual work completed by subcontractors and recommend to PetroSA for release of each progress payment according to the Contract.

4.2.6.2. The CONTRACTOR shall ensure sub-contractors submit the running bills in acceptable formats and certify/recommend for payment by PetroSA.

4.2.6.3. The CONTRACTOR shall assume complete responsibility for settling extra claims by its subcontractors.

4.2.6.4. The final bill of subcontractors will be recommended for payment by the Contractor after ensuring that all contractual obligations have been fulfilled, including supply of spares, as-built documentation etc. Monitor closely the value of work done so that the final bill value, including extra works, shall not exceed the contract value.

4.2.6.5. The CONTRACTOR shall ensure subcontractors submit final bills within 30 days of completion of work and shall forward the recommendation to PetroSA for payment release. The Contractor shall process recoveries from subcontractors for the issue of materials, hire charges, rents etc., as per the provision of contracts. Wherever required, Contractor shall deal with subcontractors for expeditious settlement of extra claims, disputes, etc.

4.2.6.6. Variation in quantities to be handled with subcontractors as per standard practices and variation limits.

4.2.7. Documentation & records

4.2.7.1. The CONTRACTOR shall submit technical documentation, including detailed procedures, calculations and drawings required for the work performance, Operations and maintenance of the facility.

4.2.7.2. Ensure drawings, reports, and specifications are correctly filed and archived for retrieval by the client and team members

4.2.7.3. Establish a central database for project documentation

4.2.7.4. Perform document review distribution and comment collation

4.2.7.5. Ensure documents are reviewed and commented on

4.2.7.6. Provide reminders and follow-ups to document reviews

4.2.7.7. Ensure PetroSA numbers are placed onto documentation for ease of transfer into PetroSA SAP DMS

4.2.8. Construction Management

4.2.8.1. Establish and manage materials lay-down area and warehouse within GTLR/Voorbaai/Mossel Bay, thereby ensuring seamless transfer for fabrication and construction

4.2.8.2. The CONTRACTOR shall make the site ready to install fixtures and assemblies required to complete pipe stalk fabrication. This involves the planning, procurement and execution of all material and services required to complete the work unless agreed otherwise with PetroSA.

4.2.8.3. Finalise co-ordination procedures between PetroSA, Contractor and sub-contractors' from time to time.

4.2.8.4. Establish detailed construction plans and schedules with sub-contractors' to match the overall Project schedule.

4.2.8.5. Identify construction / field organisation of sub-contractors' and other Suppliers / Vendors.

4.2.8.6. Finalise construction codes, standards, and specifications to be followed.

4.2.8.7. Review site mobilisation plan and pursue for required mobilisation for all workforce/resources/equipment, etc.

4.2.8.8. Monitoring sub-contractors' work schedule, progress against program and preparation of monthly progress/exception reports highlighting percentage completion of work, areas of concern with respect to schedule/inputs to be deployed and recommend proactive corrective actions and remedial measures to remove back-log in progress. Distribution of reports/construction documents to all concerned.

4.2.8.9. Review the construction work/progress regularly to ensure that the sub-contractors' allocation of numbers and type of workforce is adequate, and to

ensure that construction equipment, cranes, tools, etc. for the execution of the work are adequate and in safe working condition.

4.2.8.10. Review and approve the drawings and technical specifications produced at site by the sub-contractors to ensure compliance with the Project specification.

4.2.8.11. Review and audit approved welding procedures and welders' qualification procedures.

4.2.8.12. Monitoring, controlling and co-ordination of all tests (destructive/non-destructive) at site analyse and certify results.

4.2.8.13. Ensure that contractors take all necessary precautions to protect construction work and material from damage by climate elements and construction activities.

4.2.8.14.

4.2.8.15. Supervise and ensure that all works or modifications that PetroSA has approved are performed according to approved specifications.

4.2.8.16. Inspect all the contractors' site activities, which include recording, field purchasing etc. The following data and files will be collected and recorded:

4.2.8.17. Contractor's daily workforce reports

4.2.8.18. Welder's qualification certificates

4.2.8.19. Equipment transportation, deliveries and receiving reports

4.2.8.20. Ensure contractors perform housekeeping activities, including maintaining ablution facilities, sweeping, cleaning up, and removing excess materials/ temporary / facilities as necessary.

4.2.9. Health, Safety and Environmental Management System

4.2.9.1. The CONTRACTOR must perform any work at PetroSA's site within the general safety management system in operation and the HSE Philosophy. Refer to attachment 6.

4.2.9.2. CONSUB Document No: C-0022-HSE-PHI-001. (Attachment 6)

4.2.9.3. A safety organisation and procedures are expected to be well established within the Contractor's corporate organisation. Application of these to the PROJECT must be considered to ensure maximum benefit.

4.2.9.4. CONTRACTOR shall provide the following prior the execution of applicable work scope division, i.e., Base Scope and/or Provisional Scope:

- A copy of Contractor's signed corporate safety policy.
- A copy of CONTRACTOR'S corporate safety organisation indicating how the individual responsible for safety reports into the organisation.
- CONTRACTOR's accident statistics for the last 5 years, including those of CONTRACTOR's affiliates.
- Description of any regular or special training programs implemented.
- Outline of any initiatives taken or planned to promote health and safety.
- Covid-19 compliance and risk assessments.
- Environmental Management Plan.
- Project Risk Register.
- Task Risk Assessment.
- HS&E plans

The documents (4.2.9.4) required above are not to be submitted with the Contractor's offer but are required prior execution of the scope of work.

4.2.9.5. All personnel entering construction sites are required to use standard PPE, which comprises safety overall (long sleeve), Safety Hat, Safety shoes, Safety glasses, etc., as per PetroSA safety procedures.

4.2.9.6. The Contractor shall provide safety officers to ensure safety at the site.

4.2.9.7. Preparation of job safety plan for site activities and ensuring execution as per safety plans.

4.2.9.8. Contractor shall conduct regular safety meetings. Safety mission statement (MIS) shall be provided to PetroSA. On site qualified safety officers shall provide supervision. Number of safety supervisors shall be based on the activity.

4.2.9.9. All material handling equipment should be subjected to required load test, initially and then periodically, to ensure safe/stable operation. Contractor to witness and maintain record of all such tests.

4.2.10. Project Quality Guidelines/Quality Assurance Plan

The Contractor, its contractors, and subcontractors shall prepare quality assurance procedures (QAP/QCP) and submit them to PetroSA for review and /or acceptance.

The QAP/QCP shall, at a minimum, describe all activities, their control points, and controlling documents or procedure, including the Contractor's quality activity and the required result. The format of the quality assurance plan shall be as per Contractor's standard form.

It is the responsibility of the Contractor to manage and ensure that its subcontractors meet the deliverable as per the QAP/QCP. The Contractor shall expand its own QAP/QCP to include the subcontracted work's activities.

The Contractor shall indicate his intended inspection points at the subcontractor's site.

4.2.10.1. PetroSA shall at its discretion conduct surveillance assessment or Audits. Supervision of all the construction activities for retrofitting works as per approved QA/QC plan by experienced site supervisors/Engineers.

4.2.10.2. Review and approve the Quality Assurance and Control procedures proposed for the Project.

4.2.10.3. Ensure that quality assurance plans are being followed and that proper documentation is provided for all equipment and bulk materials.

PetroSA shall, at its discretion, conduct surveillance assessment or Audits.

5. GENERAL PRINCIPLES

- All work to be completed within and consistent with the requirements of standard DNVGL-ST-F101 Submarine Pipeline Systems.
- All work to be performed at PetroSA sites shall comply with the PetroSA's general safety management and the HSE Philosophy document A6.
- Depending on the contractors' capability and proposals, the various work packages described below may be the responsibility of multiple or single contractors. The EPCM CONTRACTOR will be responsible for the detailed design of the permanent facilities (pipelines, spools, structures etc.) and shall anticipate and manage all interfaces between separate work packages under separate contractor control.
- Where applicable, Contractor to indicate which Scope of the Project will be subcontracted and provide name/s of the subcontractors.
- Where applicable, tenderers are expected to source suitable skills locally (South African context), and in Mossel Bay and surroundings.
- Upon project completion, the Contractor shall rehabilitate the Fabrication Yard, the Onshore Pipe Stalk Fabrication & Handling Facility, and Launch Corridor; and cause all other contractors and subcontractors to do the same.
- Where reference is made to international or local standards and specifications, the Contractor and all contractors shall verify the validity of such documents and use the latest available in all cases.

6. WORK SCOPE DIVISION

The Project Manager will be responsible for both the Onshore and Offshore Scope of Work. It is anticipated that the project manager will be supported by a Lead / Leads for each division, i.e., Onshore Lead and Offshore lead.

The Scope of work is divided into Onshore and Offshore services and is summarised as follows:

6.1. Onshore Work Scope

6.1.1. Fabrication Yard Set Up and Commissioning

6.1.2. Pipe Coating

6.1.3. Pipe Stalk Fabrication

6.1.4. Pipe Launch and Assembly

6.1.5. Pipeline End Structure & External Bulkhead Assembly

6.1.6. Tie in Spool Fabrication

6.1.7. Onshore Pipeline Flooding, Gauging and Hydro-testing (Pre-Commissioning)

6.2. Offshore Work Scope

6.2.1. Pre-Engineering Activities

6.2.1.1. Site Investigations - conduct invasive site investigations of the proposed bundle tie in location to identify key features required to design the replacement pipeline.

6.2.1.2. Metocean Data – Obtaining of up-to-date detailed metocean data is required prior to the start of detailed engineering. Monthly and annual data is required for the facilities' detailed design and construction and installation engineering activities.

6.2.1.3. Hydrographic Survey Works - The hydrographic survey contractor shall check the seabed and installation corridor between the initial parking route and proposed installation route to confirm (i) seabed bathymetry and location of existing expected seabed installed facilities and unexpected debris including the SPM mooring footprint; (ii) geotechnical properties and sub bottom profile along the proposed installation route.

The EPCM shall be responsible for preparing and managing the pre-engineering survey scope to obtain enough data to enable reliable, detailed engineering. The survey contractor shall:

- Acquire accurate bathymetric data within route survey corridors.
- Chart and interpret seabed morphology, features, and sediments.
- Chart all debris items that may obstruct safe pipeline installation.
- Accurately chart existing infrastructure within route survey corridors.

- Chart and interpret shallow soils within the final installed route corridor.
- Collect and interpret geotechnical data along the final installed route corridor.

6.2.2. Pipeline Bundle Tow and Installation

6.2.3. Pipeline Bundle Tie In

6.2.4. Offshore Pipeline Flooding, Gauging and Hydro-testing (Pre-Commissioning)

6.2.5. Pipeline Burial

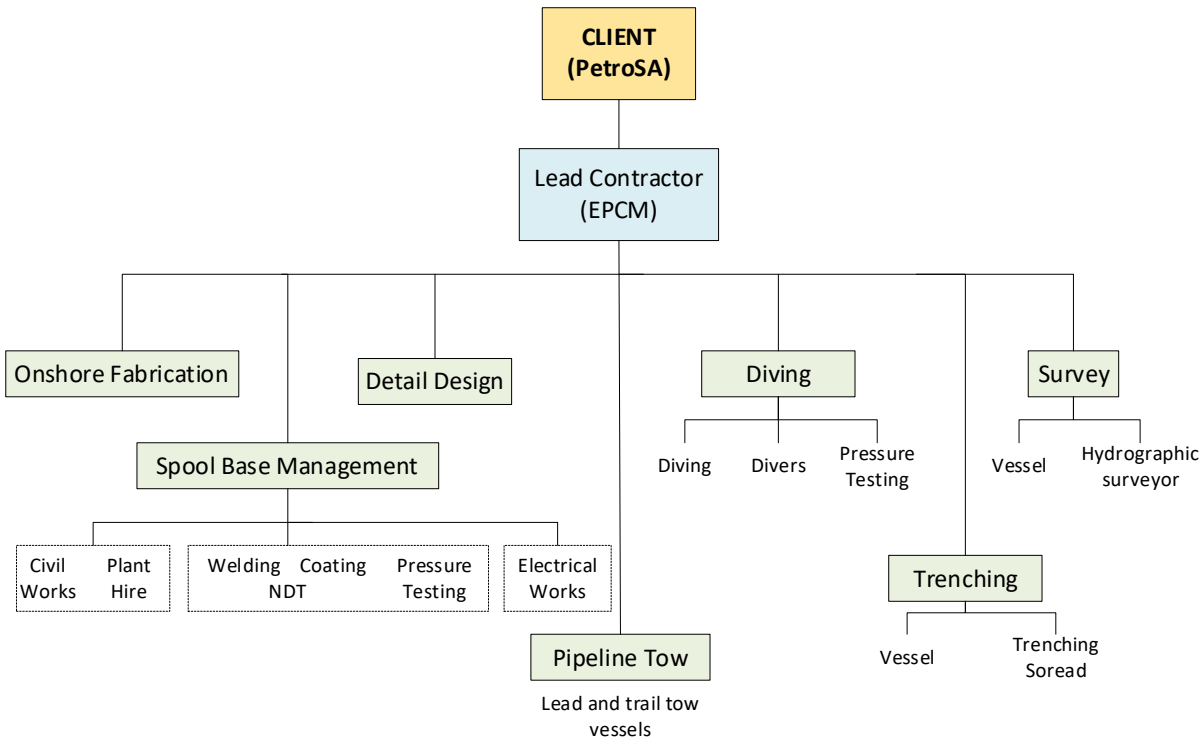
6.2.6. Miscellaneous Diver Works

Environmental Impact Assessment (EIA) is specifically excluded from the Contractor's responsibility. However, the Contractor shall nevertheless deliver inputs into, and receive directives from the Contractors doing EIA.

For a comprehensive work scope, see SPM Execution Scope of Work CONSUB Document No: C-0022-PLE-PHI-001-A. **(Attachment 1)**

6.3. Work Package Overview

The chart below identifies the range of potential subcontractors engaged in the proposed works.



6.4. SPM Pipelines Design and Operating Conditions

For design and operating conditions of the 12" and 14" pipelines see "SPM Export Facility - Design Premise (ODS-D100-PL-501 Rev D1)". **(Attachment 5)**

As per the design premise, the 12" pipeline was intended for distillate export, and the 14" pipeline intended for petrol export. Over the years PetroSA switched between the two lines based on the desired offloading speed governed by the shipping tanker size (capacity). However, the Operating and Design conditions of the 12" and 14" pipelines shall be maintained as per the Design Premise.

The document C0022 PMT BOD 001 Rev B Basis of Design should take precedence for the design of the repair. See **Attachment 7**.

7. PROJECT STAFFING

7.1. General

7.1.1. Contractor shall provide details of the structure of its Project team indicating discipline leads and their experience for design, engineering, management, planning, site supervision, etc. The details should be of the team proposed for this Project.

7.1.2. The structure of the team could vary in terms of numbers/field of expertise/location of work for different phases of the Project Work.

7.1.3. Contractor shall ensure that lead engineers are dedicated and engaged specifically to this Project. Any replacement or change-over of lead engineers due to employee attrition shall be done in conjunction with the PetroSA.

7.2. Project Management Structure

A project management/execution structure shall be provided for each work scope division of the project as outlined in **Section 2**. The structure shall include personnel names, showing their roles in the project and reporting positions. In addition, the Contractor shall indicate a high-level reporting relationship of the Project Execution structure to that of the corporate structure.

Detailed C.V's shall be provided for the Engineering Manager, Project Manager, Detail Design Lead and for all Principal / Lead Engineers or Supervisors for respective disciplines (piping, mechanical, civil, etc.). **Relevant information** to the project scope requirements must be displayed on each personnel CV. For each personnel CV submitted, the following must be stated: Personnel Profile, Employment History, Roles, Experience / Competency and Qualifications. See template provided by PetroSA.

8. WARRANTIES & GUARANTEES

8.1. General Warranties. Contractor Warrants that:

8.1.1. Personnel: All professional personnel of Contractor and its Subcontractors shall have proper qualifications for the work assigned to them hereunder and shall deploy the required number of personnel.

8.1.2. Standard of Care and Work: Contractor and each Subcontractor shall perform their obligations under this Contract in conformity with the highest international standards

of care employed by leading engineering firms in the oil and gas industry and all work shall be first class.

8.1.3. Management, Design and Development: The management, design and development of the WORK shall conform to this Contract and shall be free of defects and deficiencies. The management, design and development shall be such that the WORK shall comply with this Contract's terms and meet all design, safety and performance and other criteria as specified herein.

8.1.4. Work: The Work shall be fit for the purposes and uses intended and capable of use in the manner contemplated in the Contract.

8.1.5. Other Services: All Work performed by the Contractor and Subcontractors not otherwise mentioned in this section, including, without limitation, inspections performed by Contractor or its Subcontractors under this Contract, shall be adequate and sufficient for the purposes intended, in conformity with the terms of this Contract and free of defects and deficiencies.

9. TENDERING REQUIREMENTS

Tenderers are invited to submit their offer for the execution of this Project as outlined above.

Tendering contractors are requested to provide separate pricing offer for **Base Scope 1** (management scope of obtaining pre-engineering activities); separate pricing offer for **Base Scope 2** (Detail Design) as state in Section 4.1 and separate pricing offer for the **Provisional Scope** as stated in Section 4.2. It is mandatory for all contractors tendering to provide pricing for the three, failing which, the tenderer will be disqualified from further evaluation. PetroSA reserves the right to award the Base Scope (1&2) separately from the Provisional Scope of the Project. Furthermore, PetroSA reserves the right to re-tender for Provisional Scope on EPCI basis at the completion of Detail Design if so desired.

The CONTRACTOR to indicate in its offer the earliest start date for Base Scope 1 and 2. PetroSA envisages these phases to run in parallel where practically possible.

10. ATTACHMENTS

Attachment #	Description	Attachment
Attachment 1	C-0022-PLE-PHI-001Execution Scope of Work	C-0022-PLE-PHI-001 Execution Scope of '
Attachment 2	SPM CBM & DESALINATION PLANT SUB SEA ROUTING	SPM CBM & DESALINATION PLAN
Attachment 3	SPM Export Facility: Site Plan Layout	SPM Export Facility Site Plan Layout.pdf
Attachment 4	C-0022-PLE-DWG-001_A Field layout Drawing	C-0022-PLE-DWG-0 01_A Field layout Dr
Attachment 5	SPM Export Facility - Design Premise (ODS-D100-PL-501 Rev D1)	ODS-D100-PL-501 SPM_Export_Facility_[
Attachment 6	C0022 HSE PHI 001 Rev A HSE Philosophy	C0022 HSE PHI 001 Rev A HSE Philosopl
Attachment 7	C0022 PMT BOD 001 Rev B Basis of Design	C0022 PMT BOD 001 Rev B Basis of D
Attachment 8	C-0022-SUR-SPE-001 Rev A Pre and Post Survey Pipeline Installation Survey Specification	C-0022-SUR-SPE-00 1 RevA Pre and Post