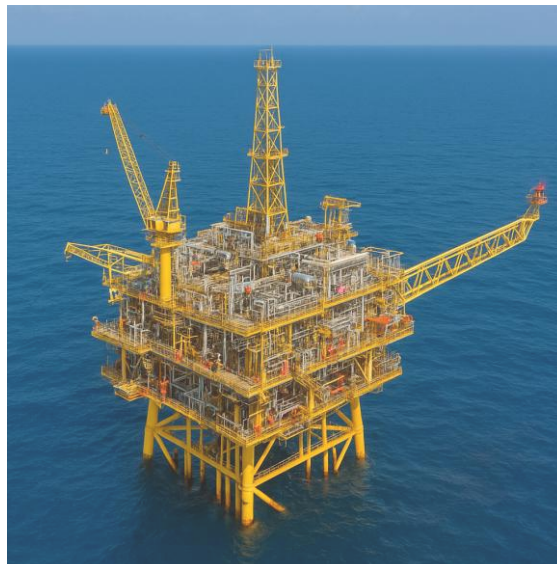


**FIRST SCHEDULE**

# **ENVIRONMENTAL IMPACT ASSESSMENT (EIA)**

*for*

## **Proposed Babadon Field Development in Block SK405B and SK438, Offshore Sarawak**



FEBRUARY 2026

CK/EV103/0048/2025

Project Proponent



**PTTEP**

**PTTEP HK OFFSHORE LIMITED**

Level 22, 23, 28-2, 33 – 35,  
Menara Prestige, No.1, Jalan Pinang,  
50450 Kuala Lumpur, Malaysia

Prepared by



**CHEMSAIN**

**CHEMSAIN KONSULTANT SDN BHD**

172 Rock Road,  
93200 Kuching, Sarawak, Malaysia

# EXECUTIVE SUMMARY



## Environmental Impact Assessment (EIA) for Proposed Babadon Field Development in Block SK405B and SK438, Offshore Sarawak

### Project Proponent



**PTTEP**

#### PTTEP HK OFFSHORE LIMITED

Levels 22, 23, 28-2, 33-35, Menara Prestige, No.1, Jalan Pinang, 50450 Kuala Lumpur, Malaysia

Contact Person: Toha Farid Mohd Zain ([TohaFMZ@pttep.com](mailto:TohaFMZ@pttep.com)) / Mazura Murat ([MazuraM@pttep.com](mailto:MazuraM@pttep.com))

### Qualified Persons



**CHEMSAIN**

#### CHEMSAIN KONSULTANT SDN BHD

No. 172, Rock Road, 93200 Kuching Sarawak.

Contact Person: Anthony Rentap Enchana

([anthony.enchana@chemsain.com](mailto:anthony.enchana@chemsain.com))

## INTRODUCTION

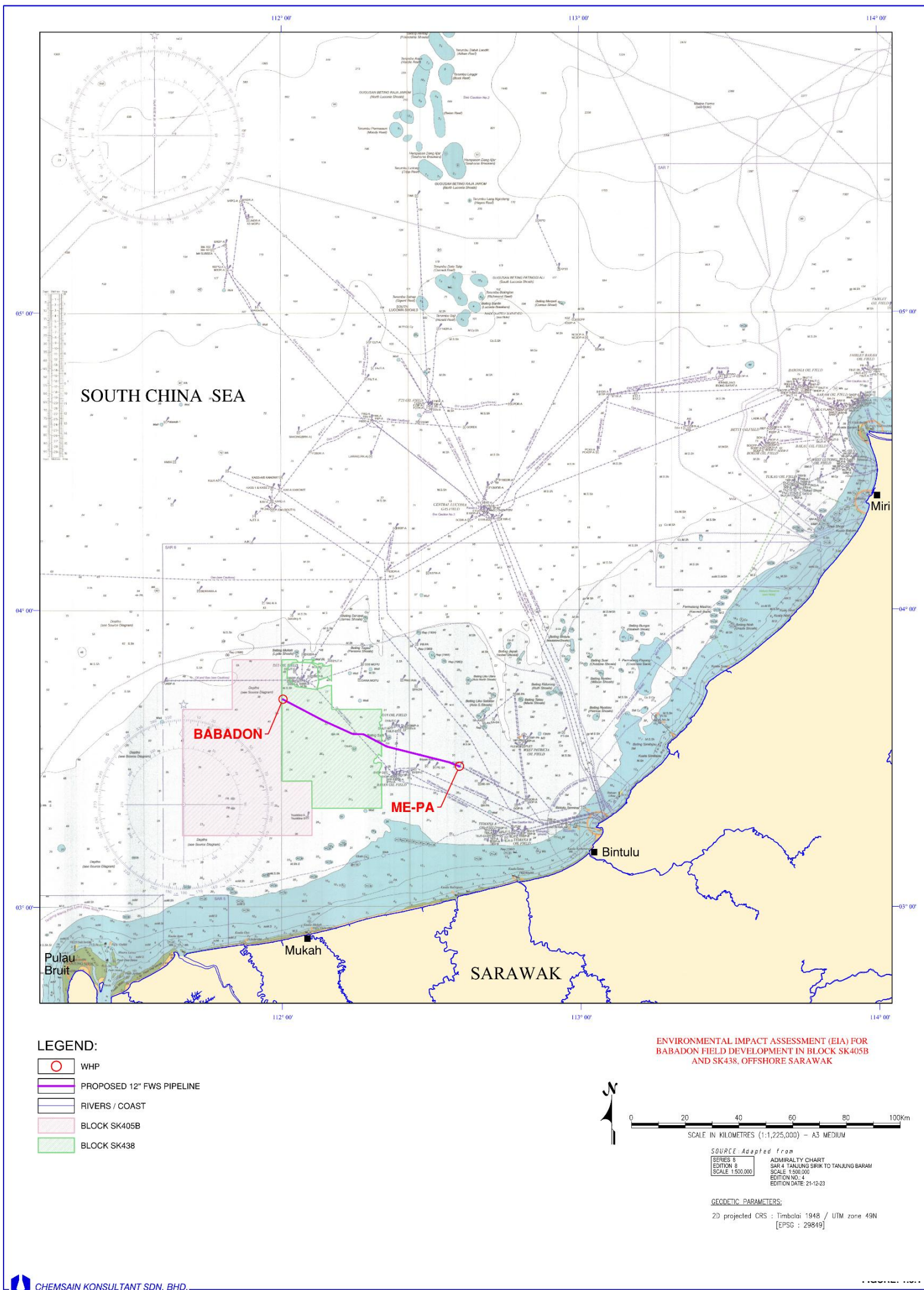
- The Babadon field lies across Block SK438 and SK405B.
- The SK405B Production Sharing Contract (PSC) is operated by PTTEP Sarawak Oil Limited (PTTEP SKO) with participation interest together with MOECO Oil (Sarawak) Sdn. Bhd, and PETRONAS Carigali Sdn. Bhd.
- The SK438 PSC is operated by PTTEP HK Offshore Limited (PTTEP HKO) with participation interest together with PETRONAS Carigali Sdn. Bhd.
- The Babadon Field located approximately 135 km offshore from Bintulu Onshore Receiving Facility (BORF) in Bintulu, Sarawak with a water depth of 44.3 m.
- PTTEP HKO will serve as the operator for Babadon Field.
- EIA Scope covers:
  - ❑ One (1) Babadon WHP
  - ❑ One (1) 71 km pipeline to existing Merapuh platform (ME-PA)

**Table ES-1: Coordinates of Platforms**

Platforms	Latitude	Longitude
Babadon WHP	3°41'58.497" N	112°0'22.14" E
ME-PA	3°28'23.557"N	112°35'50.776"E

Datum: WGS 84

# PROJECT LOCATION



## LEGISLATIVE REQUIREMENT



Environmental Quality (Prescribed Activities )  
(Environmental Impact Assessment ) Order 2015

### First Schedule -Item 9 Petroleum

- (a) Development of –
  - (ii) Gas field
  
- (b) Construction of 30 kilometres or more in length of –
  - (i) Offshore pipeline

## STATEMENT OF NEED



### (I) Proponent

- Fulfilling PSC commitments, monetising undeveloped reserves, and supplying gas to MLNG, Bintulu

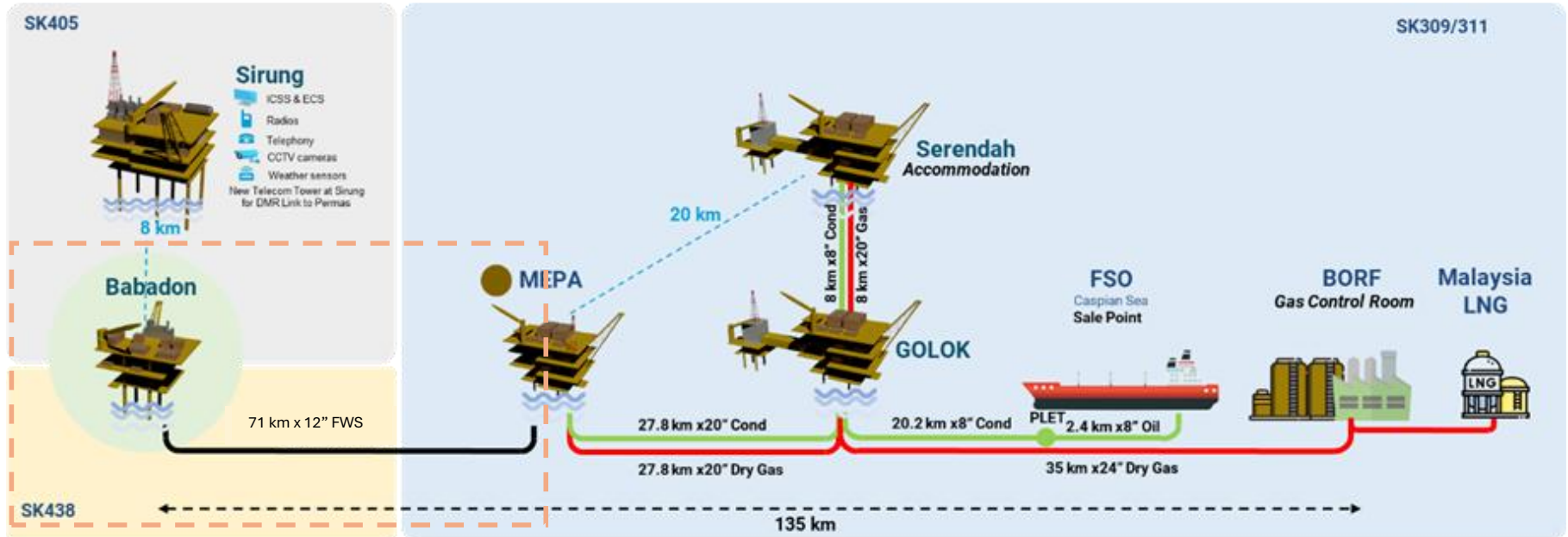
### (II) Economy

- Supporting national energy security, creating jobs, and aligning with Sarawak's strategic and sustainability goals

## PROJECT DESCRIPTION

- **Wellhead Platform (WHP):** One (1) unmanned WHP at Babadon field
- **Pipeline:** One (1) 71 km x 12" multiphase pipeline from Babadon WHP to existing platform, ME-PA.
- **Modification:** Modification for host tie-in at ME-PA.
- **Gas Production:** peak production of **60 Mmscf/D** in 2029-2031.
- **Condensate Production:** peak production of 2,800 B/D.
- **Produced water:** peak at 1,600B/D and will be treated at ME-PA produced water treatment system with design capacity of 2,500 B/D. Current capacity is not more than 100 B/D.
- Gas and condensate from Babadon will be channelled to existing Merapuh platform, ME-PA for initial gas processing and produced water treatment.
- Gas will be evacuated to BORF and onward to the Malaysia LNG Plant (MLNG), Bintulu, while condensate will be routed via the existing line to the FSO Caspian Sea for export.

# PROJECT OVERVIEW



Notes:



Babadon Scope

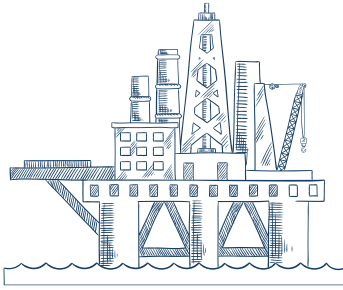
MEPA, Serendah, Golok and BORF – PTTEP Existing Facilities

Sirung – PTTEP Future New Facility (2028)

## ➤ Project Scope:

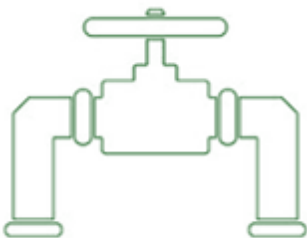
- One (1) Babadon WHP
- One (1) 71 km pipeline to existing Merapuh platform (ME-PA)

## WELLHEAD PLATFORM (WHP)



- **Structure & Design:** Four-legged and sixteen well slots (eight will be used) platform for not normally manned operations with a 15 years design life.
- **Equipment and system:** wellhead and hydraulic operated wellhead valves, production flowlines and associated system, production and test manifold, 2-phase test separator, export riser, pig launcher, open drain system, closed drain system, knock out drum, Corrosion and Scale Inhibitor System, diesel fuel system, wash water, and pedestal crane.
- **Power source:** solar system and wind turbine
- **Control & monitoring:** all systems are remotely controlled and monitored at existing central control room (CCR) at BORF. Remote monitoring at ME-PA CCR will be made available.
- **Visit frequency:** 1-2 times per month depending on operational needs (e.g., replenishing consumables, planned maintenance, etc.)

## PIPELINE

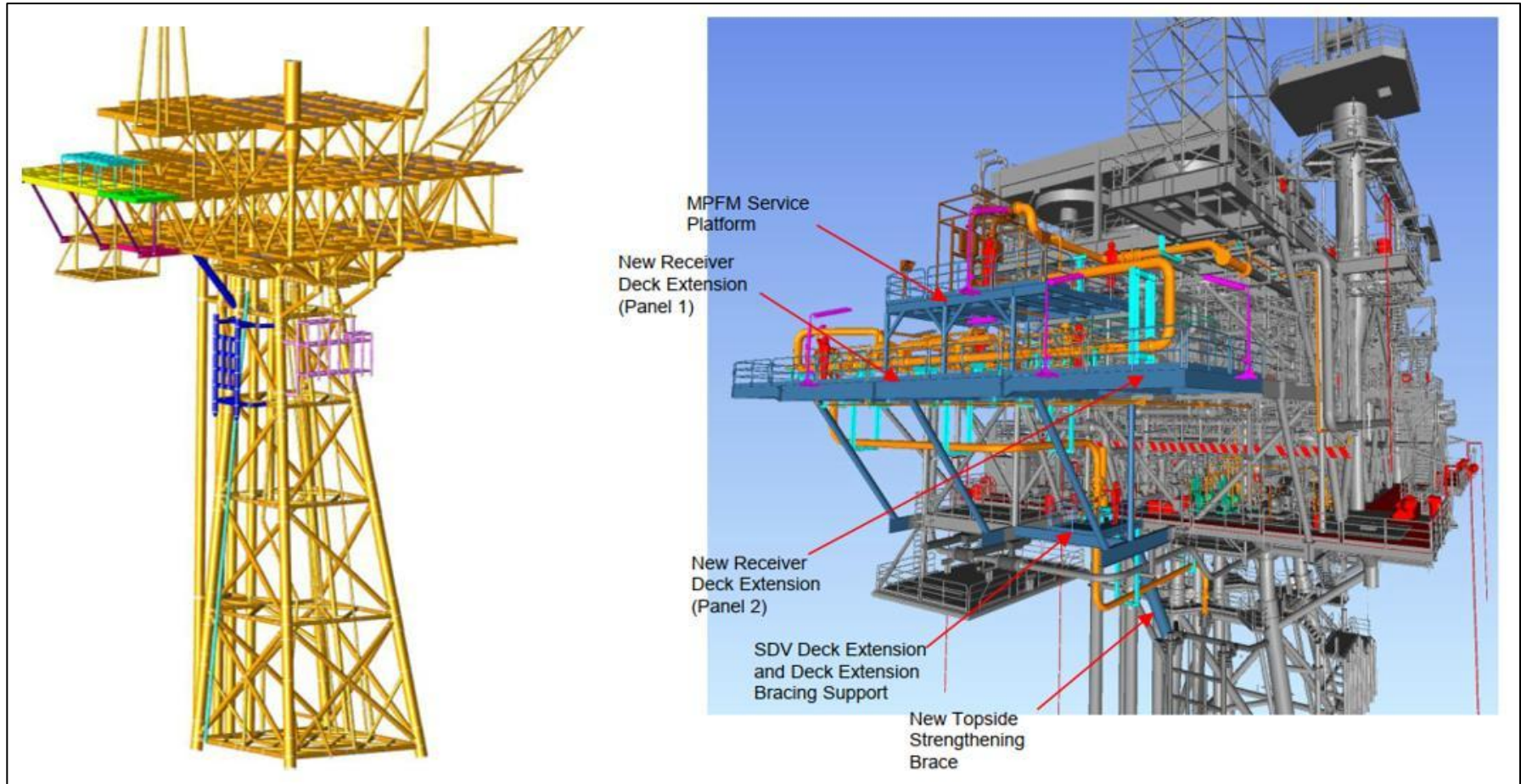


- **Service:** Multiphase gas pipeline
- **Design specification:** has a design life of 15 years, 12" x 71 km long with corrosion allowance of min. 4 mm. Pipeline material grade is API 5L X65.
- **Pipeline crossing:** three (3) pipeline crossings; protection measures such as concrete mattresses and concrete sleepers will be carried out. Coordination with respective asset owners will be conducted.

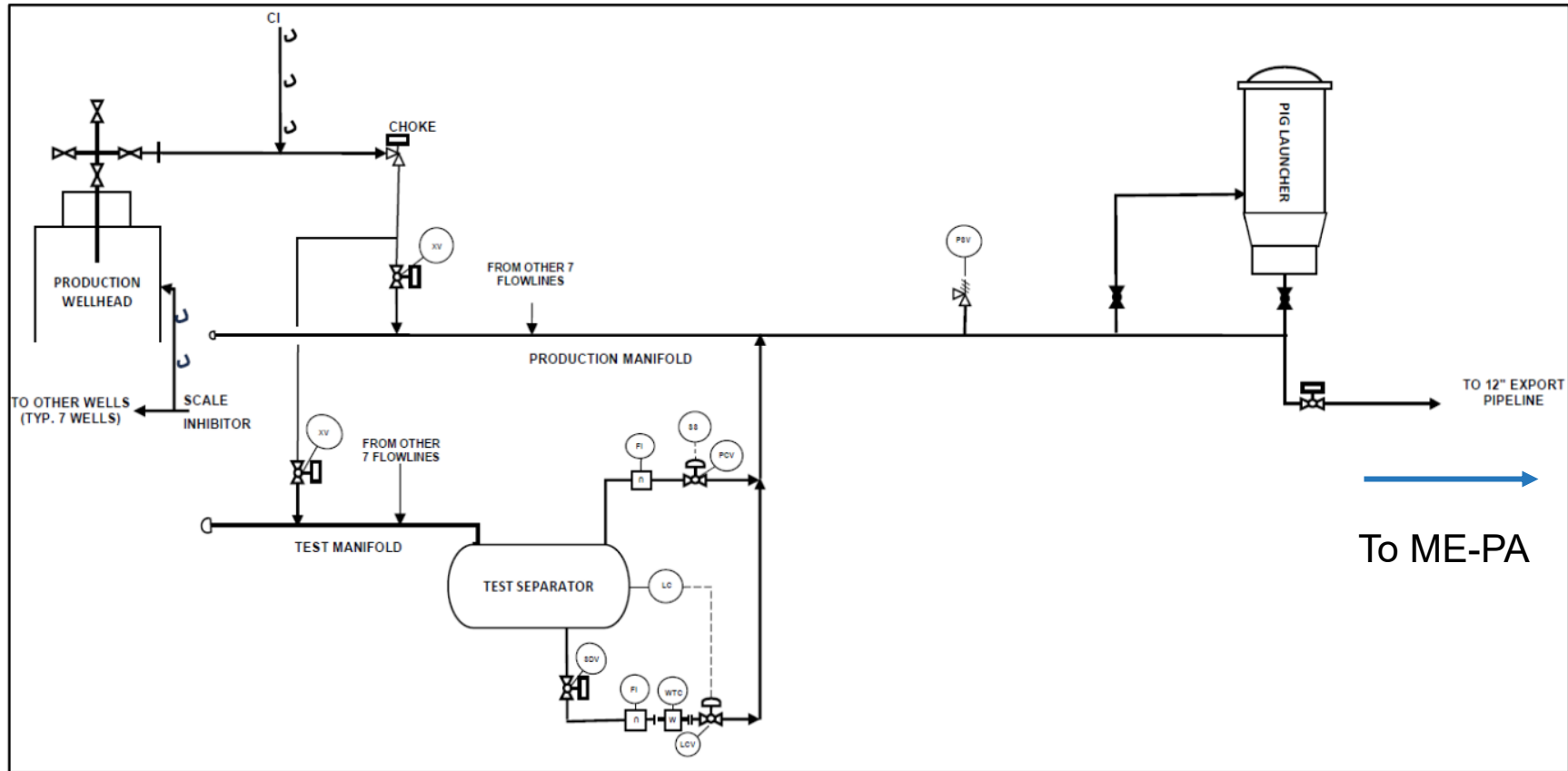


- **Existing processing facilities:** gas and condensate separation system, produced water treatment system, gas and condensate export facilities.
  
- **Modification for tie-in:**
  - ❖ new riser,
  - ❖ new pig receiver
  - ❖ new Multiphase Flowmeter
  - ❖ replacement of existing condensate re-injection pumps with higher capacity centrifugal pumps
  - ❖ pressure class derating at receiving line
  - ❖ three (3) nos. of high pressure trip transmitter
  - ❖ ME-PA platform deck extension
  - ❖ Utility tie-in.

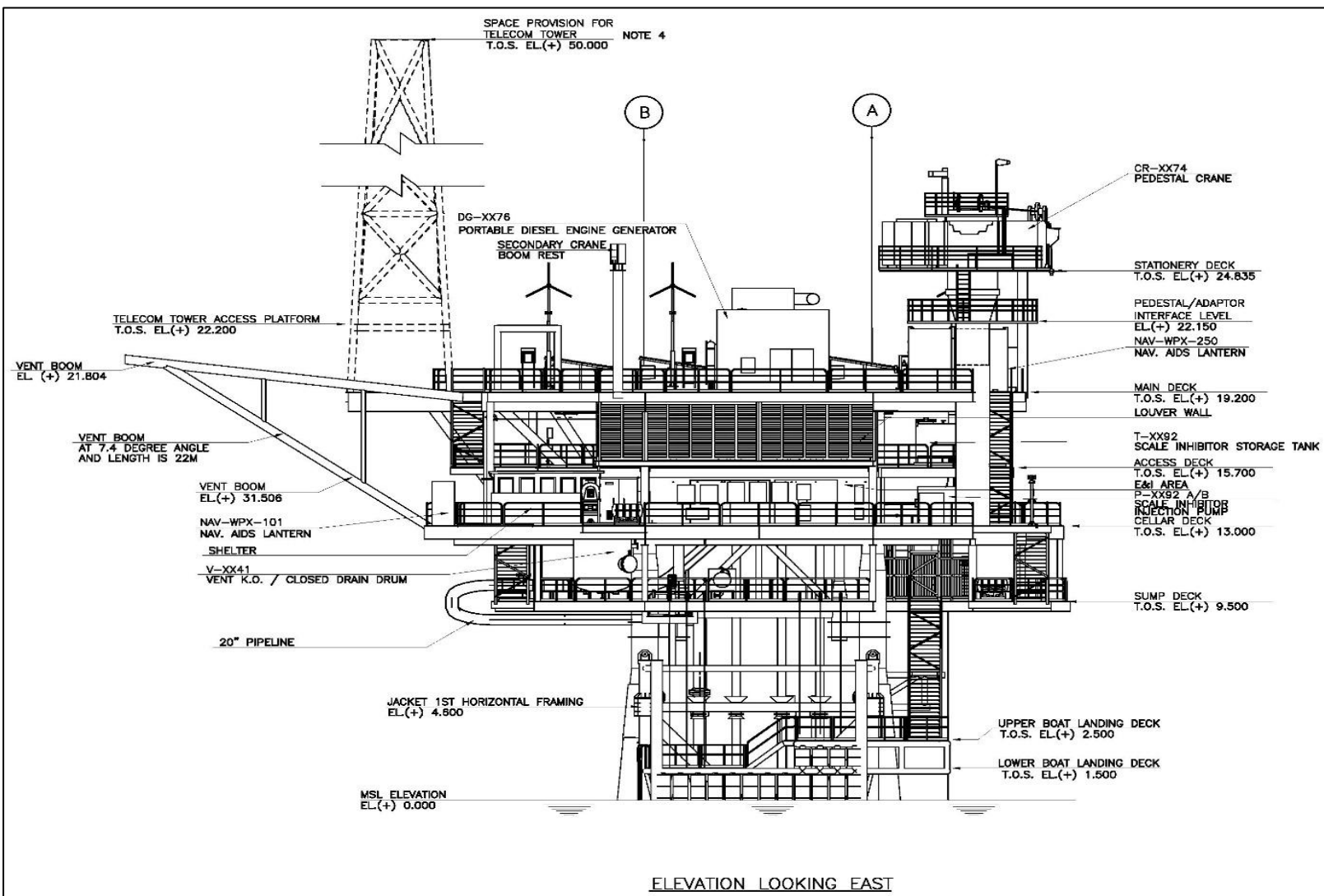
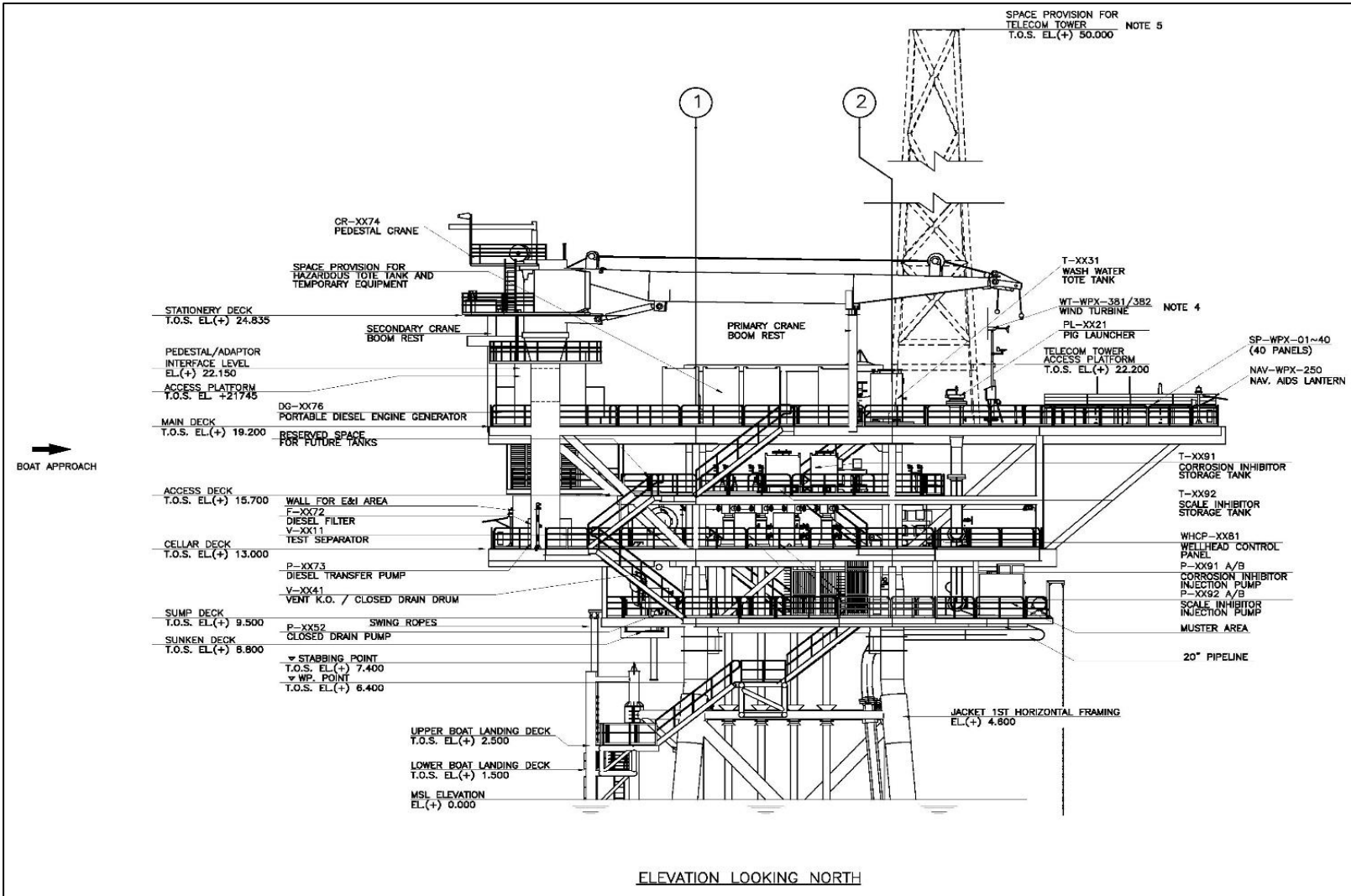
# OVERVIEW OF BABADON HOST TIE-IN FACILITIES ON ME-PA



# PROCESS SCHEMATIC DIAGRAM



# PLATFORM EQUIPMENT LAYOUT



### **Transportation and Offshore Installation**

Jackets, piles, boat landings, topsides and associated components will be fabricated onshore in Malaysia and transported by barge to site. Offshore installation of WHP will be carried out using a Heavy Lift Vessel (HLV), followed by pile driving, boat landing installation and topside placement. Subsea pipeline and riser will be installed using pipelay barge.

### **Drilling and Well Clean-up**

Jack-up drilling rig will be mobilized to drill eight (8) production wells. Well clean-up and completion will be carried out to prepare the well for safe production and ensure its performance is satisfactory.

### **Commissioning and Start-up**

Non-hydrocarbon system will be commissioned first, followed by hydrocarbon systems to confirm readiness.

After start-up checks and testing, hydrocarbon will be introduced in a controlled manner and production will begin once operations are stable.

### **Operation and Maintenance**

Remote monitoring and control of the Babadon WHP will be from BORF central control room. Remote monitoring from ME-PA central control room will also be made available. Maintenance will be carried out quarterly.

### **Decommissioning and Abandonment**

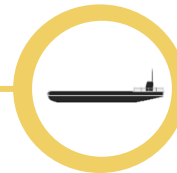
Decommissioning and abandonment shall be carried out at the end of economic field life of the facility with PETRONAS approval in accordance to the Governing Standard and DOE Guideline on Decommissioning of Oil and Gas Facilities in Malaysia.

# PROJECT SCHEDULE

**Fabrication**  
Apr-27 to Feb-28



**Transportation and Installation**  
Mar-28 to May-28



**Drilling**  
Apr-28 to Aug-28

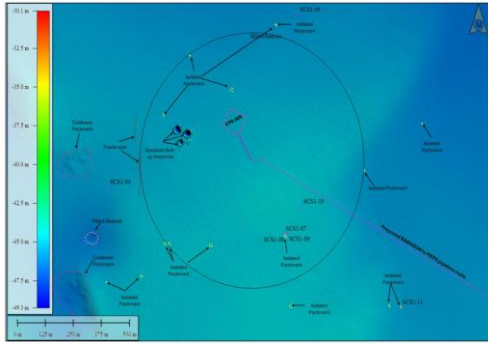


**Hook-up and Commissioning**  
Jul-28 to Sep-28



**First Gas Date (FGD)**  
Oct-28





## Bathymetry and Seabed Features

### Babadon-ME-PA route (71km)

- The pipeline route lies at 30.5–45.7 m below MSL, with seabed conditions changing from gentle shoaling to localized undulations (up to  $\sim 1.7^\circ$ ) before gently dipping northeast at  $< 1^\circ$ .
- Seabed irregularities along the proposed route are attributed to carbonate outcrops, sand ripples, pockmarks, disturbed sediments, and coarse deposits.



## Oceanography

- **Wind:** Offshore Sarawak winds are dominated by the NE Monsoon (Sept–Apr, stronger) and SW Monsoon (Apr–Sept, lighter), with transitional squalls and occasional tropical cyclones (July–Sept,  $> 25$  m/s).
- **Waves:** Dominant waves are from the north in winter and from the west in summer.
- **Currents:** Surface currents are monsoon-driven, cyclonic during the NE Monsoon and anticyclonic during the SW Monsoon, with influence from eddies, upwelling, and occasional cyclone.
- **Tides:** Offshore Sarawak experiences diurnal tides, influenced by Pacific Ocean tidal waves entering the South China Sea

## Environmental Baseline Sampling



➤ **Date:** 9<sup>th</sup> to 12<sup>th</sup> August 2025

➤ **Sampling Activities:** Marine water, seabed sediment, planktons and macrobenthos

### Sampling Points:

❖ **Babadon WHP:** Four (4) sampling stations at 600m radius from the WHP

❖ **Control Point:** One (1) sampling station at 5km south of the Babadon WHP

❖ **Pipeline:** Seven (7) sampling stations at 200m away and 9km interval of the proposed 71km pipeline

### Sampling Results:

❖ **Marine Water:** All tested parameters complied with the Class 3 limits of the MMWQS.

❖ **Seabed Sediment:** The concentrations of metals in all the seabed sediment samples are well below the stipulated ERL and ERM of the NOAA Guidelines.

❖ **Macrobenthos:** The macrobenthic communities within the proposed project area revealed moderately diverse, dominated by *Upogebia sp.* (a burrowing mud shrimp).

❖ **Phytoplankton:** The phytoplankton community was moderately diverse, dominated by diatoms, with elevated cyanobacteria at stations B2–B4 indicating possible eutrophic conditions.

❖ **Zooplankton:** Zooplankton diversity was low to moderate with uneven distribution, dominated by Arthropoda, particularly Copepoda across all stations.

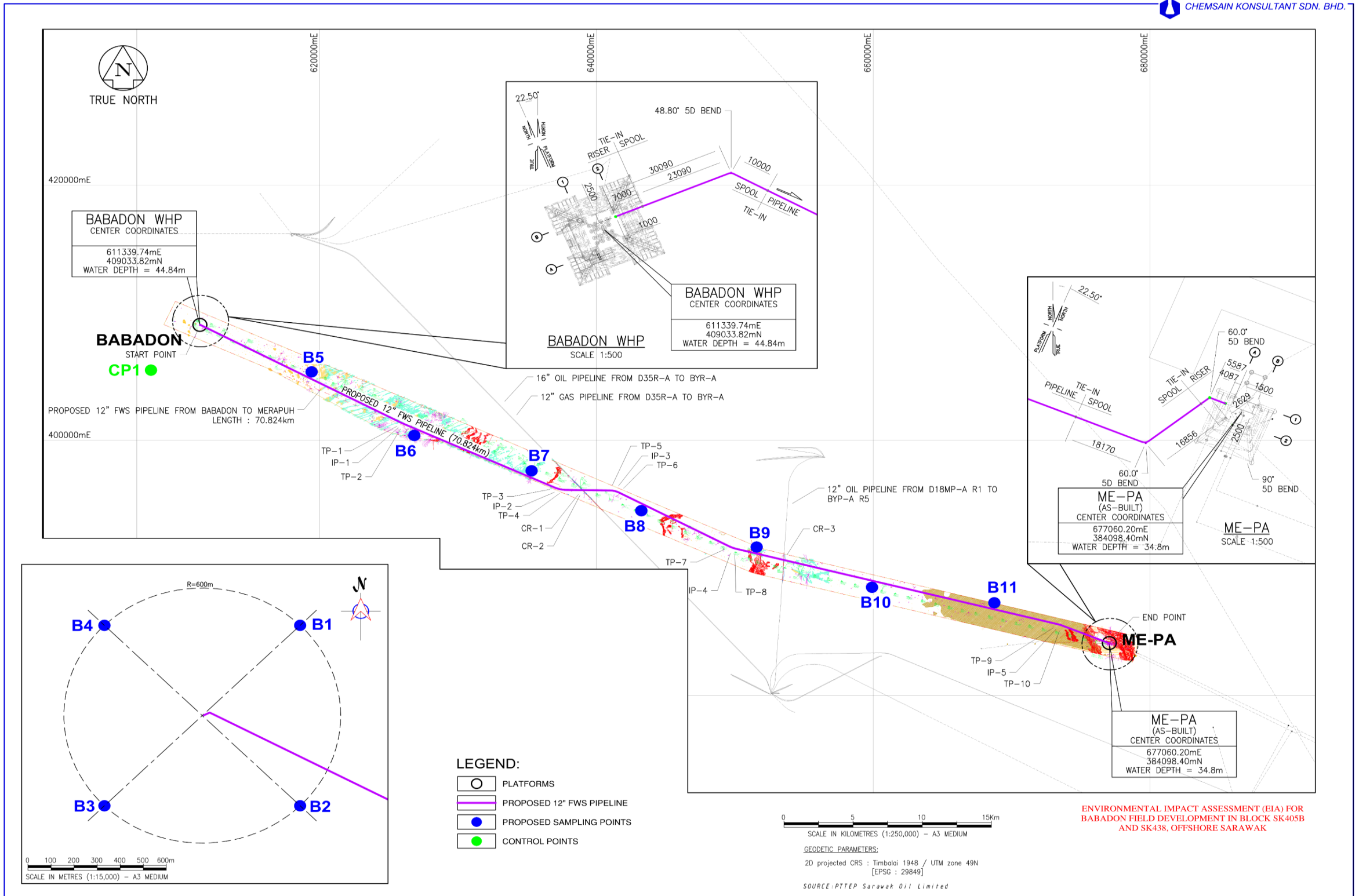


## Environmentally Sensitive Area

❖ **Shoreline:** About 87.3km to the Mukah shoreline.

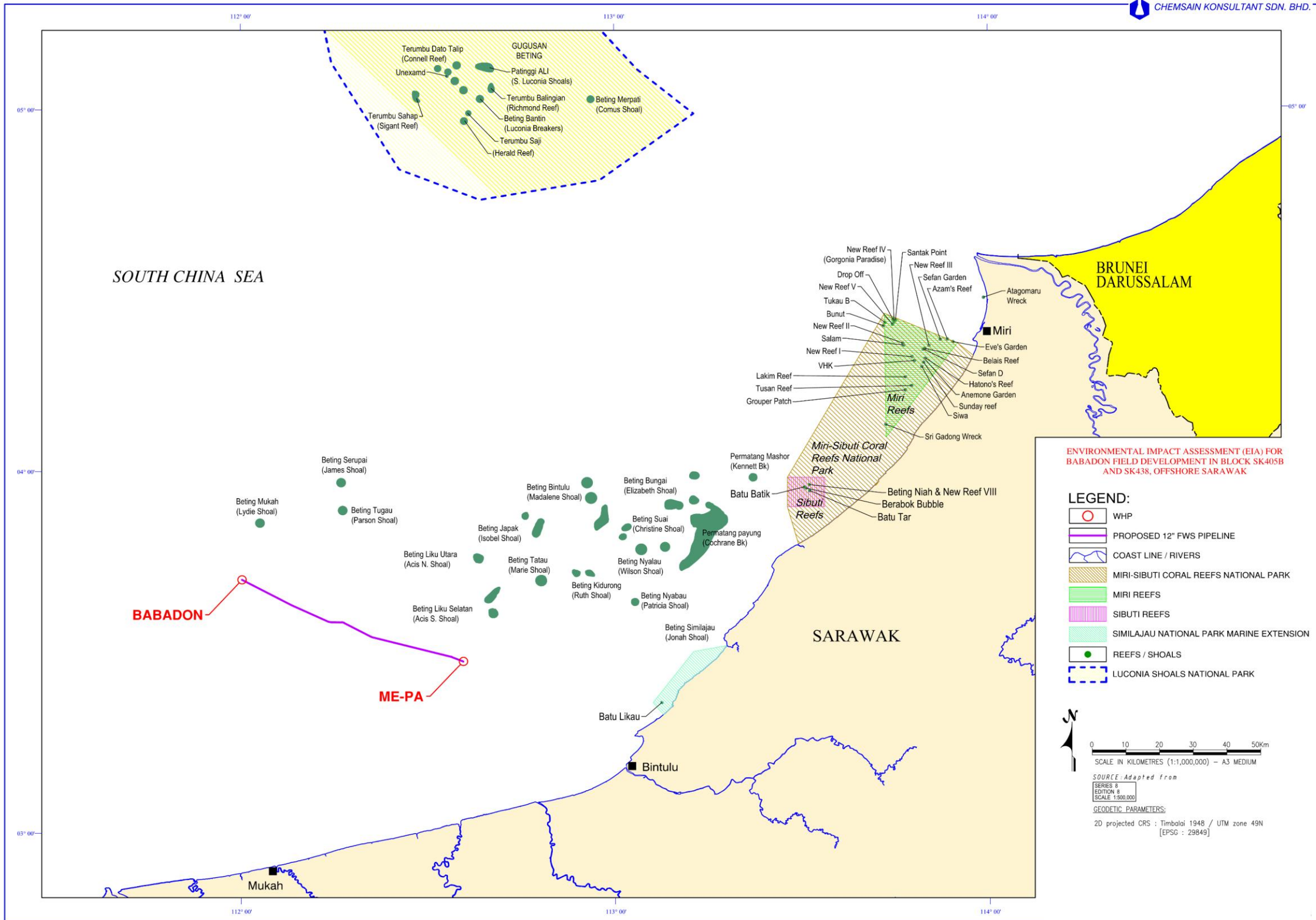
❖ **National Park:** Babadon WHP is located at least 120km away from Similajau National Park, Luconia Shoals National Park and Miri-Sibuti National Park.

# ENVIRONMENTAL BASELINE SAMPLING LOCATIONS





D:\ACAD\DRAWINGS\EV103\0048\FIG-62.DWG



# ENVIRONMENTALLY SENSITIVE AREA





## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts	Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
 <p>Marine water quality at all phases</p> <ul style="list-style-type: none"> <li>➤ Sewage</li> <li>➤ Food waste</li> <li>➤ Ballast water from vessels</li> <li>➤ Bilge water from machinery spaces.</li> <li>➤ Deck drainage</li> <li>➤ Improper discharge of wastewater from vessels and rig operations</li> <li>➤ Discharge of drilling fluids and cuttings</li> <li>➤ Resuspension of seabed sediment during drilling and installation activities.</li> <li>➤ Improper disposal of solids and scheduled wastes.</li> </ul>	Low	<ul style="list-style-type: none"> <li>➤ Develop and implement Waste Management Plan for all Project activities.</li> <li>➤ All vessels, rigs, and barges shall comply to MARPOL requirements for discharge into the sea.</li> <li>➤ Do not discharge spent Synthetic-Based Mud (SBM) overboard.</li> <li>➤ Treat oily bilge water to below 15 ppm oil content before discharge.</li> <li>➤ Solids control system on the rig shall be designed and operated to ensure synthetic base oil retention on cuttings is less than 6.9% wet weight, in compliance with PETRONAS Guidelines on MES Rev. 5.</li> <li>➤ Use only water-based mud (WBM) for riserless drilling sections to minimise hydrocarbon introduction to the marine environment.</li> <li>➤ Collect and retain all hazardous/scheduled wastes onboard for disposal at licensed onshore reception facilities in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005.</li> <li>➤ Macerate food waste to not bigger than 25 mm mesh size before discharge into the sea in compliance with MARPOL Annex V; discharges shall only occur when more than 12 nm from shore.</li> <li>➤ Minimise chemical use during hydrotesting by reducing water holding time in systems.</li> <li>➤ Select chemical additives based on low toxicity, high biodegradability, and minimal bioaccumulation potential.</li> <li>➤ Provide spill prevention kits on all vessels, rigs, and platform, with trained crew ready for immediate deployment.</li> </ul>	Section 8.2.1, Page C8-1 to C8-5
 <p>Waste management at all phases</p> <ul style="list-style-type: none"> <li>➤ Improper handling, storage and disposal of non-hazardous and scheduled wastes.</li> </ul>	Low	<ul style="list-style-type: none"> <li>➤ Implement a comprehensive Waste Management Plan.</li> <li>➤ Manage all scheduled waste as per EQ (Scheduled Wastes) Regulations, 2005.</li> <li>➤ Comply with MARPOL Annex V for garbage management.</li> </ul>	Section 8.2.2, Page C8-5 to C8-7



## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts		Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
			<ul style="list-style-type: none"> <li>➤ Segregate, contain, and offload waste to licensed onshore facilities.</li> <li>➤ Prohibit overboard disposal of plastics, hazardous waste, or untreated food waste.</li> <li>➤ Equip all vessels, rigs, and barges with IMO-certified sewage treatment systems per MARPOL 73/78.</li> <li>➤ Discharge sewage only per MARPOL rules, with no visible solids or discolouration.</li> <li>➤ Treat hydrotest water prior to discharge.</li> </ul>	
	<p>Ambient air quality at all phases</p> <ul style="list-style-type: none"> <li>➤ Exhaust gas from engines of vessel, drilling rigs etc.</li> <li>➤ Temporary flaring may occur for routine safety measure or emergency response to gas releases.</li> </ul>	Low	<p><u>Installation and Drilling Phase</u></p> <ul style="list-style-type: none"> <li>➤ Plan and optimise installation and drilling schedules to reduce vessel and equipment time.</li> <li>➤ Deploy anchor at pre-determined surveyed locations.</li> <li>➤ Flare only when necessary, ensuring controlled, complete combustion.</li> <li>➤ All third-party vessels must be serviced regularly and use MARPOL Annex VI-compliant low-sulphur fuel to reduce emissions.</li> </ul> <p><u>Operation and Maintenance Phase</u></p> <ul style="list-style-type: none"> <li>➤ No routine flaring during normal operations.</li> <li>➤ Inspect, tune, and maintain combustion and mechanical equipment regularly to optimise efficiency and reduce emissions.</li> <li>➤ Ensure all third-party vessels are serviced regularly and use MARPOL Annex VI-compliant low-sulphur fuel to reduce emissions</li> </ul>	Section 8.2.3, Page C8-7 to C8-9
	<p>Noise impact during installation and drilling phases</p> <ul style="list-style-type: none"> <li>➤ Underwater noise may cause behavioural changes and adverse impact on marine fauna.</li> </ul>	Low	<ul style="list-style-type: none"> <li>➤ Building up power slowly (soft-start) over at least 20 minutes to allow adequate time for any cetaceans to move away from the area before full power is reached.</li> <li>➤ Avoid sudden loud noises, such as from moving and putting down of heavy equipment.</li> <li>➤ Maintain the vessel and all noise generating equipment in good working order.</li> </ul>	Section 8.2.4, Page C8-9 to C8-12



## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts	Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
 <p>Impact to the seabed during installation and drilling phase</p> <ul style="list-style-type: none"> <li>➤ Subsea pipeline and drilling activities may disturb seabed, causing sediment resuspension.</li> <li>➤ Jack up rig's leg placement and anchoring may cause localized seabed disturbance, causing surface scarring.</li> <li>➤ Discharge of drilling fluids and cutting may lead to sediment resuspension and possible residual contamination.</li> </ul>	<p>Low</p>	<p><u>Installation and Commissioning Phase</u></p> <ul style="list-style-type: none"> <li>➤ Plan and execute installation efficiently to minimise seabed disturbance and allow faster natural recovery.</li> <li>➤ Deploy anchors only at pre-determined, surveyed locations to avoid unnecessary seabed damage.</li> <li>➤ Use low-toxicity, biodegradable, and low-bioaccumulation chemicals for pipeline cleaning, conditioning, and hydrotesting.</li> <li>➤ Treat hydrotest water to remove contaminants and ensure discharge meets DOE effluent standards.</li> </ul> <p><u>Drilling Phase</u></p> <ul style="list-style-type: none"> <li>➤ Use WBM where feasible, especially for top-hole and riserless sections, and if SBM is needed, choose low-toxicity, biodegradable, low-bioaccumulation base fluids and additives.</li> <li>➤ Choose drilling fluid additives with minimal marine toxicity, high biodegradability, and low bioaccumulation.</li> <li>➤ Discharge drill cuttings 3-5 m below the sea surface to aid dispersion.</li> <li>➤ Operate solids control equipment to maximise drilling fluid recovery and minimise the volume of contaminated solids discharged.</li> </ul>	<p>Section 8.2.4, Page C8-8 to C8-10</p>
 <p>Marine ecology for all phases</p> <ul style="list-style-type: none"> <li>➤ Drilling, piling, substructure placement and pipeline installation may disturb the local seabed habitat and marine fauna.</li> <li>➤ During operation and maintenance phase, it will have minimal and short-term impact as impact will be confined during the routine maintenance and visit. The platform will be normally unmanned, which implies that there is no significant discharges.</li> </ul>	<p>Low</p>	<p>Besides those mitigation measures addressed for Marine Water Quality, others include:</p> <ul style="list-style-type: none"> <li>➤ Optimise pipeline routing to minimise direct seabed disturbance and habitat fragmentation.</li> <li>➤ Restrict the footprint of seabed-disturbing activities (e.g., anchoring, trenching, pipeline installation) to the smallest practicable area.</li> </ul>	<p>Section 8.2.8, Page C8-17</p>



## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts		Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
	<p>Marine navigation and fishing community during all phases</p> <ul style="list-style-type: none"> <li>➤ Increase in marine traffic will create short-term navigational risk and potential disruption to other marine users.</li> <li>➤ Vessel activity may temporarily disrupt local fishing as collision risk may increase and potential degradation of marine water quality may affect fish abundance and catch near the area.</li> </ul>	Low	<ul style="list-style-type: none"> <li>➤ Engage with the Marine Department and MMEA to confirm and communicate drilling rig, platform, and subsea pipeline locations.</li> <li>➤ Coordinate with the DOF to issue notices to local fishermen on restricted areas and activity schedules.</li> <li>➤ Implement a 500 m safety exclusion zone around platform, drilling rigs, and pipelaying vessels during operations.</li> <li>➤ Register and mark the physical presence of the new platform and pipeline on the Admiralty Chart to ensure visibility to mariners.</li> <li>➤ Communicate offshore work details, including timelines and exclusion zones, via Notices to Mariners, marine radio, and other standard maritime channels.</li> <li>➤ Regularly inspect, test, and maintain all navigational and communication equipment on rigs, platform, and support vessels.</li> </ul>	Section 8.2.6, Page C8-12 to Page C8-14
	<p>Health and safety during all phases</p> <ul style="list-style-type: none"> <li>➤ Personnel involved in offshore activities face health and safety risks from Project activities.</li> </ul>	Low	<ul style="list-style-type: none"> <li>➤ Incorporate safety into the design of all offshore facilities, wells, and systems to minimise hazards.</li> <li>➤ Ensure all offshore personnel pass a PETRONAS AME medical exam before deployment and complete TBOSIET and any role-specific training to maintain competency.</li> <li>➤ Implement and enforce JSA and PTW systems for all activities to identify hazards and control risks.</li> <li>➤ Maintain and periodically review an offshore-specific ERP covering fire, explosion, medical emergencies, oil spills, and extreme weather.</li> <li>➤ Conduct regular emergency drills (e.g., man-overboard, abandon-ship, fire-fighting) followed by debriefing and lessons learned.</li> <li>➤ Conduct regular inspection, testing, and maintenance of process equipment per manufacturer and statutory requirements.</li> <li>➤ Perform routine inspections and tests of all fire safety equipment, including extinguishers, blankets, detectors, sprinklers, emergency lighting, and fire-rated doors.</li> </ul>	Section 8.2.7, Page C8-14 to C8-17

## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts		Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
			<ul style="list-style-type: none"> <li>➤ Implement a Safety Observation and Intervention Programme to encourage reporting and correction of unsafe acts or conditions.</li> </ul>	
	<p><b>Accidental/Emergency Events</b></p> <p>Hydrocarbon spill (vessel collision)</p> <ul style="list-style-type: none"> <li>➤ Accidental hydrocarbon spill due to vessel collision, adverse weather and improper fuel transfer near Babadon WHP could release significant volumes of hydrocarbon into the marine environment.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>➤ Ensure all contracted vessels meet PETRONAS and PTTEP minimum HSE standards and hold valid statutory certification.</li> <li>➤ Conduct pre-mobilisation audits on all vessels, covering equipment, spill prevention systems, and crew readiness, and verify procedures meeting Project and regulatory requirements.</li> <li>➤ Develop and implement a site-specific Oil Spill Contingency Plan (OSCP) for Babadon operations aligned with the National Oil Spill Contingency Plan (NOSCP).</li> <li>➤ Ensure every vessel carries a Shipboard Oil Pollution Emergency Plan (SOPEP) in line with IMO requirements.</li> <li>➤ Equip all vessels with spill response materials (e.g., pads, booms, bags) for immediate minor spill containment and cleanup.</li> </ul>	Section 8.2.9, Page C8-18 to C8-23
	<p>Drilling fluid/chemical spill</p> <ul style="list-style-type: none"> <li>➤ Accidental discharge of drilling fluids or chemical during drilling may cause short term and localised impacts on marine water quality and marine life.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>➤ Place chemical spill kits, absorbents, neutralisers, and booms at strategic points such as storage areas, injection points, and transfer stations.</li> <li>➤ Ensure spill kits are clearly labelled, accessible, and routinely inspected for readiness.</li> <li>➤ Provide training to all installation and supply vessel personnel on chemical spill prevention, safe handling, and emergency response.</li> <li>➤ Equip injection areas with secondary containment and leak detection where practicable.</li> </ul>	

## POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Potential Impacts	Significance of Potential Impacts	Mitigation Measures	Reference in EIA report
 <p>Pipeline rupture and leakage</p> <ul style="list-style-type: none"> <li>➤ Hydrocarbon leaks from pipeline ruptures caused by corrosion or damage from impact may degrade marine water quality.</li> </ul>	<p style="text-align: center;">Medium</p>	<ul style="list-style-type: none"> <li>➤ Apply corrosion inhibitors in pipelines to reduce internal corrosion risk.</li> <li>➤ Implement external corrosion protection, such as coatings and cathodic systems, and monitor performance regularly.</li> <li>➤ Conduct routine integrity checks at high-risk pipeline areas such as connections, flanges, and valves.</li> <li>➤ Continuously monitor pressure profiles along the pipeline.</li> <li>➤ Implement a regular inspection schedule.</li> <li>➤ Maintain a preventive maintenance programme to ensure pipeline safety and reliable.</li> </ul>	
 <p>Well blowout</p> <ul style="list-style-type: none"> <li>➤ In a well blowout, uncontrolled release of gas from simultaneous failure of primary and secondary barriers. This will pose significant safety and environmental risks.</li> </ul>	<p style="text-align: center;">Medium</p>	<ul style="list-style-type: none"> <li>➤ Deploy a suitably rated blowout preventer (BOP) for all drilling activities with well control risks.</li> <li>➤ Verify the BOP control system, components, and pressure barriers through pre-operational and regular function tests.</li> <li>➤ If a surface blowout occurs and all control methods fail, PTTEP may authorise drilling a relief well to contain and kill it.</li> <li>➤ Ensure the drilling rig complies with IMO oil pollution prevention codes and maintains a SOPEP, and develop an OSCP for the drilling phase aligned with Petroleum Industry of Malaysia Mutual Aid Group (PIMMAG) and NOSCP requirements.</li> <li>➤ Conduct regular well control and spill response drills to keep emergency teams prepared for blowouts and hydrocarbon releases.</li> <li>➤ Maintain oil spill kits with absorbents, booms, and neutralisers on rigs and support vessels for immediate minor spill response.</li> <li>➤ Rig crew shall monitor mud return flow sensors to detect hydrocarbon influx during drilling.</li> </ul>	

## Compliance Monitoring

### Segregation, Storage and Transport of Wastes

- **Plan:**
  - ❖ monitor handling, storage and disposal of scheduled wastes in compliance with the Environmental Quality (Scheduled Wastes) Regulations 2005.
  - ❖ Maintain updated records of waste categories and quantities
  - ❖ Monitor garbage and food waste disposal in accordance with MARPOL 73/78 Annex V.
- **Frequency:** Ongoing throughout Project life.

### Spills

- **Plan:**
  - ❖ Report and investigate all leaks and spills, record type and quantity of substances released.
- **Frequency:** Ongoing throughout Project life.

## Impact Monitoring

### Impacts on Marine Water, Seabed Sediment and Biological Components

- **Plan:**
  - ❖ Monitor marine water, seabed sediment and biological components (macrobenthos, phytoplankton and zooplankton) to assess potential Project impacts on the marine environment.
- **Frequency:** Once every six (6) months during installation and throughout the operation and maintenance stage of the Project.

## STUDY FINDINGS

The EIA concludes that the Babadon Development Project can be implemented in an environmentally responsible manner, with no significant residual impacts anticipated, provided the proposed environmental control are applied throughout all Project phases