



**OFFSHORE CONSTRUCTION SPECIALISTS**

**PROJECT AND CONSTRUCTION MANAGEMENT  
PRE-QUALIFICATION DOCUMENT**



# **PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT**

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#### TABLE OF CONTENTS

1.	INTRODUCTION.....	3
2.	OCS KEY PERSONNEL CONTACTS .....	4
3.	TYPICAL PROJECT ORGANISATION CHART .....	6
4.	PROJECT AND CONSTRUCTION MANGEMENT ACTIVITIES.....	7
5.	OCS SINGAPORE HEADQUARTERS AND BATAM BASE .....	8
6.	PROJECTS OF SIGNIFICANCE .....	10
7.	LAUNCH BARGE RIG UP AND OFFSHORE LAUNCH MANAGEMENT .....	34
8.	OCS UTILITY BARGE AND MULTICAT MISS BEE.....	36
8.1	UB-01 BASE CONFIGURATION .....	37
8.2	UB-01 PRE-TRENCHING .....	39
8.3	UB-01 PIPELAY .....	42
8.4	UB-01 POST TRENCHING .....	43
8.5	OCS MULTICAT MISS BEE .....	44
9.	EXISTING AND PAST CLIENTS .....	50
10.	COMPLETED AND ONGOING PROJECTS OF SIGNIFICANCE.....	56
11.	ISO CERTIFICATION.....	66
12.	NATA CERTIFICATION .....	68
13.	BCA CERTIFICATION .....	69



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## 1. INTRODUCTION

Offshore Construction Specialists (OCS) was formed in 2007 to provide construction management, engineering and consulting services primarily to the offshore oil and gas sector. Changing industry dynamics have resulted in a shortage of properly qualified and motivated engineers with the right experience to deal with the range of complex issues faced by offshore operators and contractors. OCS employs a base load of personnel with extensive experience in all facets of marine construction. OCS uses this depth of experience to mentor and train new personnel and has built an organisation capable of taking on the most difficult projects.

To complement our Construction management, Operations and Field Engineering staff, we have developed a Construction Support Engineering (CSE) group equipped with the latest industry software to provide engineering analysis required for transportation studies, pipeline, flexible flowline and umbilical lay, pile driveability, mooring analyses, engineered lifts, jacket launching, float and upend, and a range of other applications. Our CSE group has also branched into the subsea pipeline and related offshore structural facility designs.

OCS also operates a strategic equipment services group controlled by our construction management team. OCS has a significant equipment portfolio with complementary technicians in the fields of Pipeline Pre-commissioning, Pipeline Pre and Post Trenching, Pipeline Free Span Corrections, Flexible Flowline and Umbilical Installations and Pile Refusal Remediation.

OCS fills the gap that often exists between design engineering and operational constructability. OCS is proactive in highlighting potential problems to OCS customers when they are still manageable and the ultimate aim is to ensure both parties win.

OCS has now completed a range of projects for many different customers. We are equipped to handle large projects or discrete project elements depending on the specific needs of our customer.

The company has grown steadily since incorporation and now employs approximately 60 personnel of whom 28 are qualified engineers and naval architects.

The company's premises at Kian Teck houses its engineering, management and workshop facilities.



## OFFSHORE CONSTRUCTION SPECIALISTS

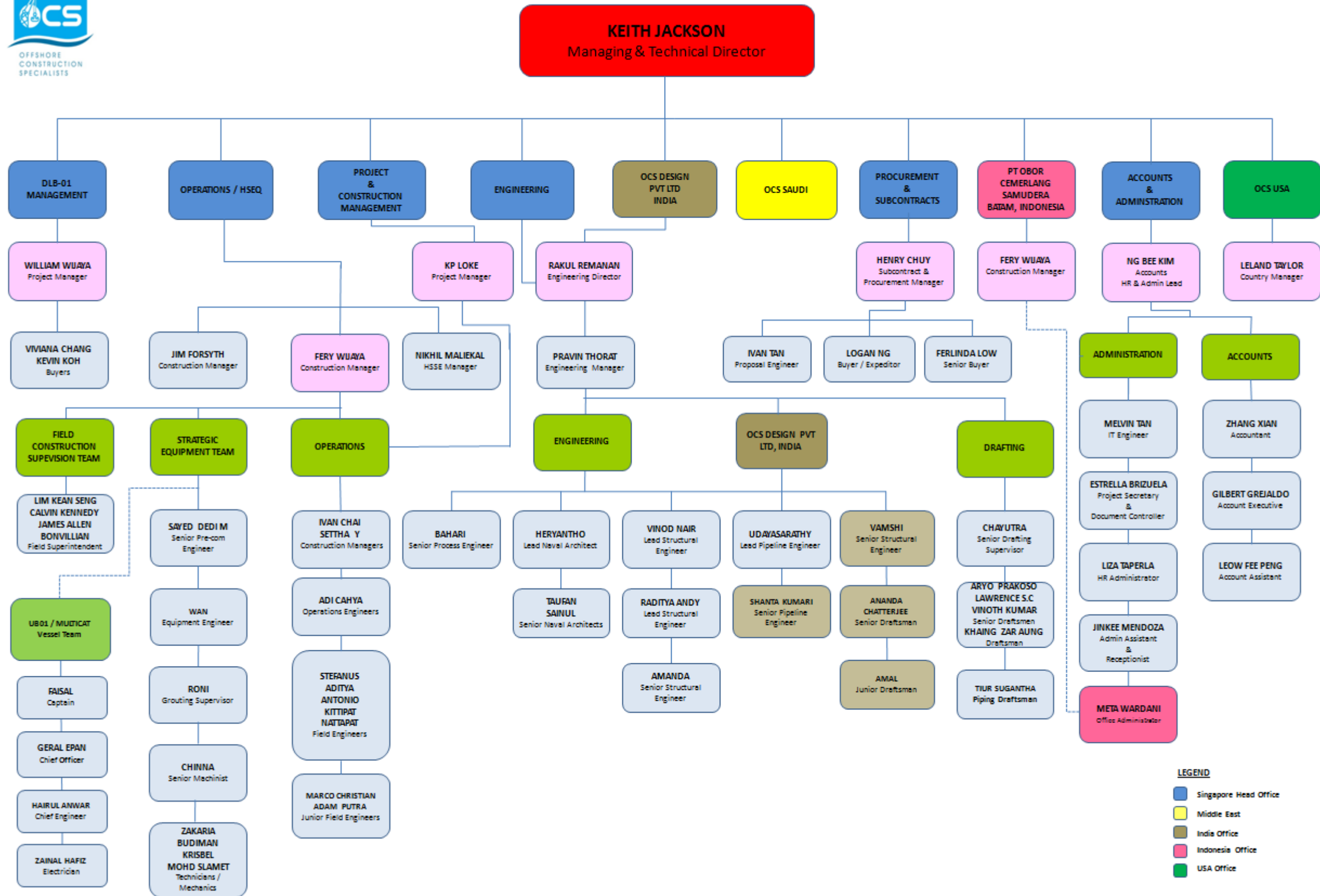
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## 2. OCS KEY PERSONNEL CONTACTS

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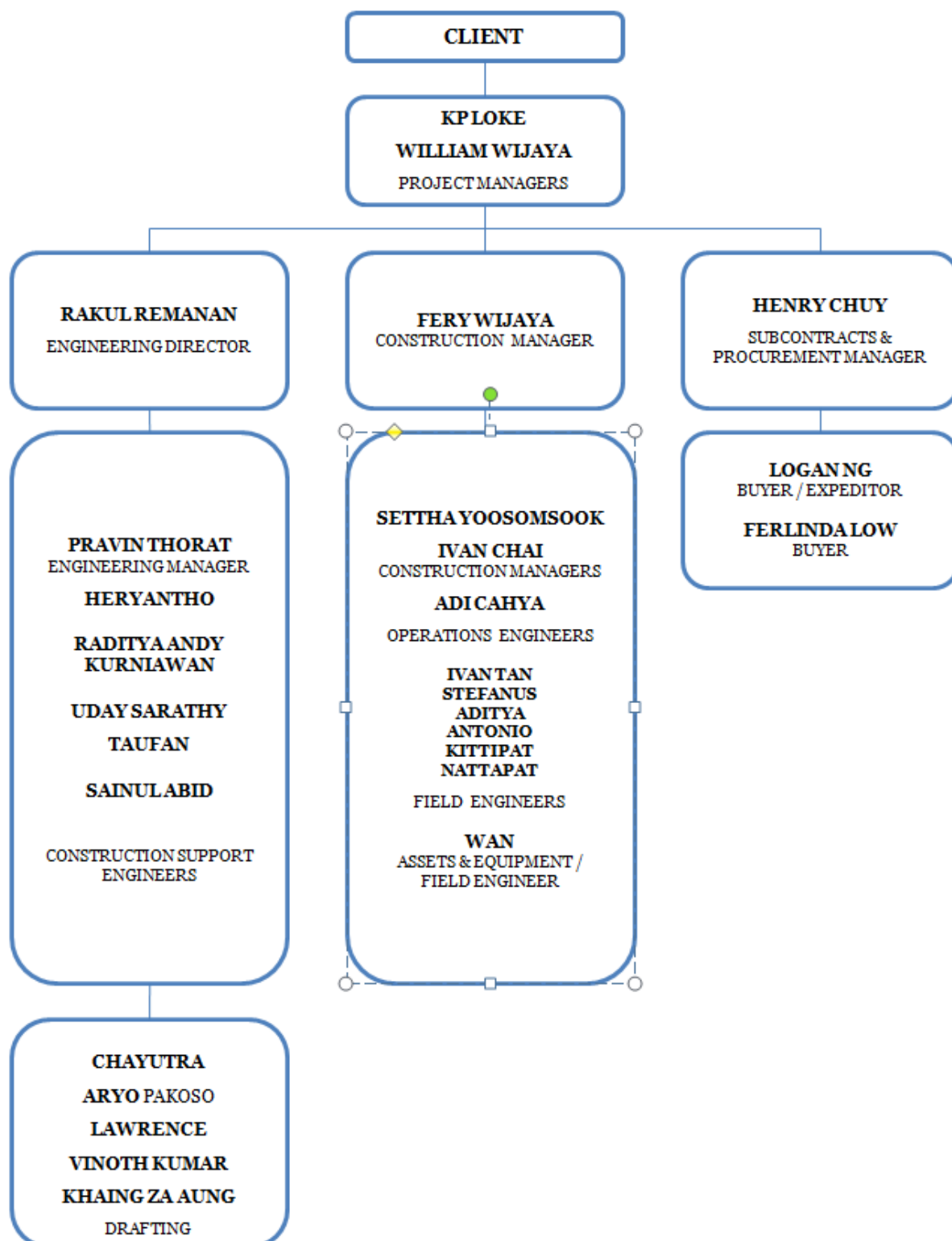
# OCS ORGANISATION CHART






## LEGEND

- Singapore Head Office
- Middle East
- India Office
- Indonesia Office
- USA Office

### 3. TYPICAL PROJECT ORGANISATION CHART



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#### **4. PROJECT AND CONSTRUCTION MANGEMENT ACTIVITIES**

OCS's experience embraces the full range of project and construction management ranging from the initial tender preparation, commercial / technical review and / or negotiations through to final project execution.

During project and construction management OCS draws upon the comprehensive operational knowledge base contained within its core team of construction Managers and senior engineers all of whom come from extensive previous careers working with experienced marine contractors such as J.Ray McDermott and Heerema. These personnel provide excellent guidance for the more junior personnel employed at other project levels.

The construction support engineering group is equipped with latest industry software which has been specifically acquired to enable OCS to undertake the engineering analysis required to support all forms of marine construction activity. Once again experienced senior personnel working for OCS provide appropriate mentoring to ensure all engineering is technically and operationally sound

OCS procurement and subcontracts group supports the organisation putting in place key subcontracts where required and supporting key procurement requirements.

Specific activities related to marine construction projects undertaken by OCS include the following:

- Constructability Studies and Field Development Options
- Preparation of cost estimates for the owners
- Concept and detailed studies for Decommissioning
- Preparation of proposals for marine construction projects.
- Technical contract reviews.
- Marine Construction project planning and execution.
- Engineering analysis to support marine construction work.
- Development of execution plans.
- Chartering of marine equipment.
- Tendering and administration of key subcontracts.
- Preparation of Installation procedures.
- Onshore and Offshore project supervision.

To complement our construction management skills OCS has acquired strategic support equipment in the key construction support areas of pipeline pre-commissioning, pipeline pre and post trenching, flexible flowline and umbilical lay and pile remediation. In-house execution of these work elements with the associated synergies of a single project management team saves projects time and money.

## 5. OCS SINGAPORE HEADQUARTERS AND BATAM BASE

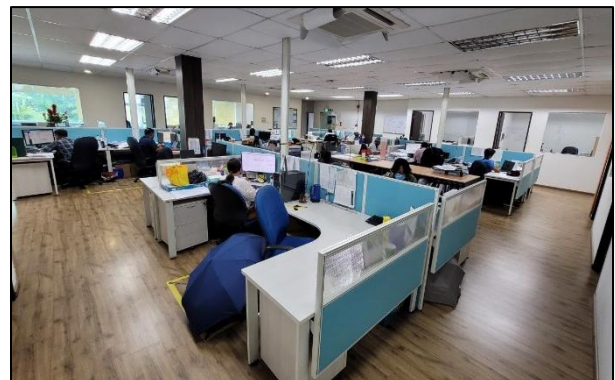
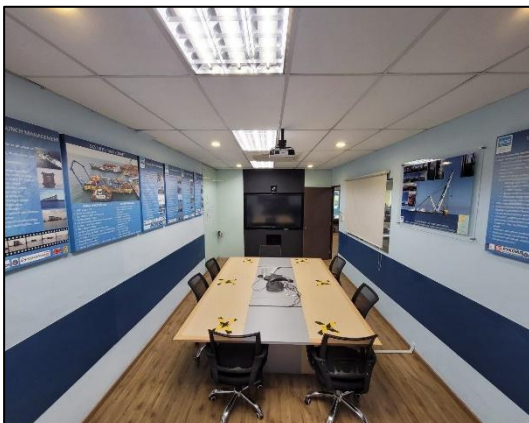
OCS has purchased premises in the Pioneer District of Singapore.

These premises serve as a base for OCS Construction management and Engineering team. The premise also provides a large instrument room for the servicing and calibration of all OCS monitoring equipment.

The work shop is equipped with 2 and 5 tonne overhead gantry cranes and a 15 tonne forklift.

The premises provide the space and general facilities for the servicing and maintenance of all OCS equipment ensuring that equipment is properly prepared for OCS projects. A pump testing facility is included to provide proper flow and pressure testing for OCS pumps.

Large OCS equipment such as Jet sleds, A frame and OCS 4 stage flooding pumps is stored and serviced in Utraco, Batam in a secure dedicated concrete slab area with the necessary support services and access to a loading jetty. This facility will also serve as the base for the future OCS utility barge.





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## 6. PROJECTS OF SIGNIFICANCE

OCS personnel have extensive experience with various offshore installations. Some of the most significant offshore installation that OCS has managed for customers are described below:



### 1) Project : SBM PIPELINE REJUVENATION PHASE II PROJECT Client : SHELL/ SAPURA

The project plans to replace the 48" nearshore pipeline section starting from the midline tie-in point at approximately KP 2.79 to the landfall. The proposed pipeline section is to be laid parallel to the existing section and welded to the pipeline section that was replaced in 2013. Above water tie-in weld between the new section and the section installed in 2013 is required. The new pipeline section is to be laid in a trench & covered with armour rock, following the protection design philosophy agreed with the local authorities. The current subsea pipeline configuration is provided in Figure 2-2.

In addition to pipeline section replacement, the project plans to replace the mooring system – six anchors and mooring chains, for the existing SBM and carry out minor refurbishment works on the buoy (valve replacement and minor hot work).

OCS scope is engineering, construction management and construction of nearshore pipeline and hook up



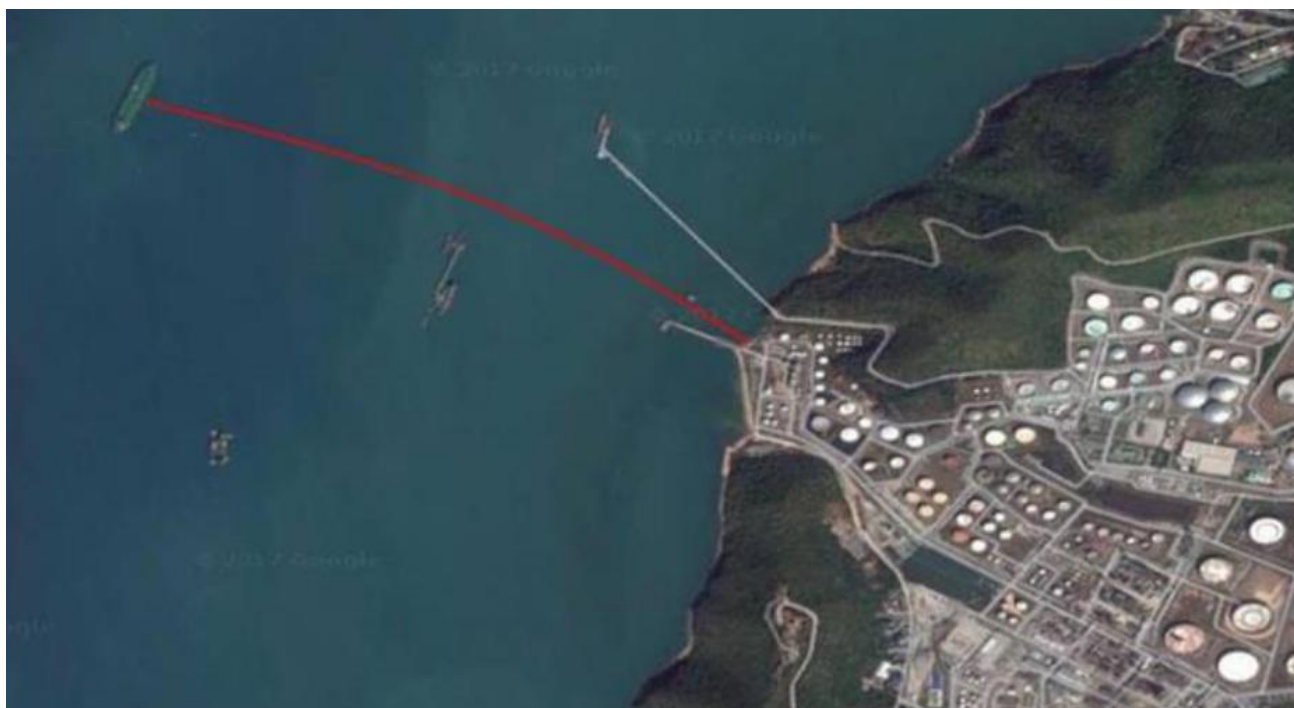
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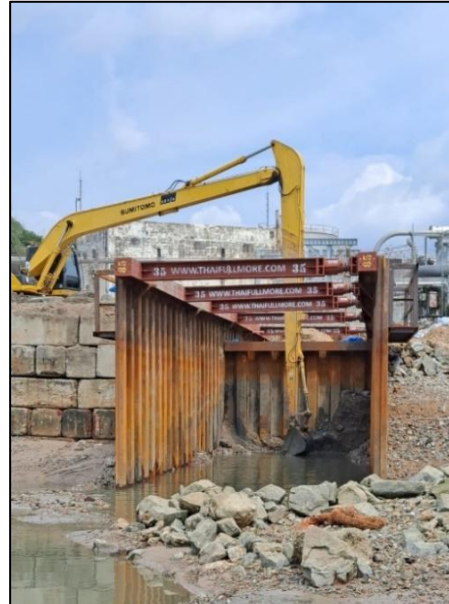
**2) Project : SRIRACHA SUBSEA CRUDE PIPELINE CAPACITY MAINTENANCE PROJECT**  
**Client : ESSO, PT TIMAS**

Esso Thailand Company (ETL) owns and operates the Sriracha Refinery, which has been processing imported crude oil since the late 1960s. The existing 32" OD subsea pipeline forms an essential infrastructure component that has served the refinery over 50 years. The current subsea loading system includes a PLEM located in 22m water depth, approximately 1.7 km offshore the refinery.

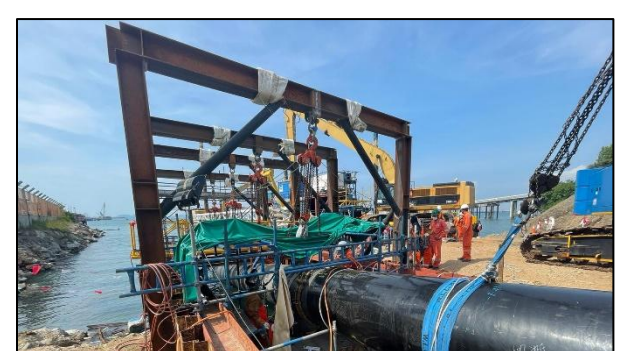
In order to sustaining a throughput capacity of 174 kbd through to year 2050, ETL plan to install a new 48" crude pipeline. This new pipeline is considered to be the most reliable long term measure over other alternatives, supplemented by an interim measure of deploying subsea repair clamps at the critical locations, during a separate installation campaign, to keep the existing pipeline operational until a new pipeline is completed and ready to be hooked on to existing system. The project scope for long-term pipeline replacement involves the design, procurement, installation, Commissioning of a new subsea crude oil pipeline system along with a new pipeline end manifold (PLEM).

OCS was responsible for the onshore preparation (cofferdam), Offshore Pre Trenching, beach pull and hook up to the onshore pipeline.





**Cofferdam**



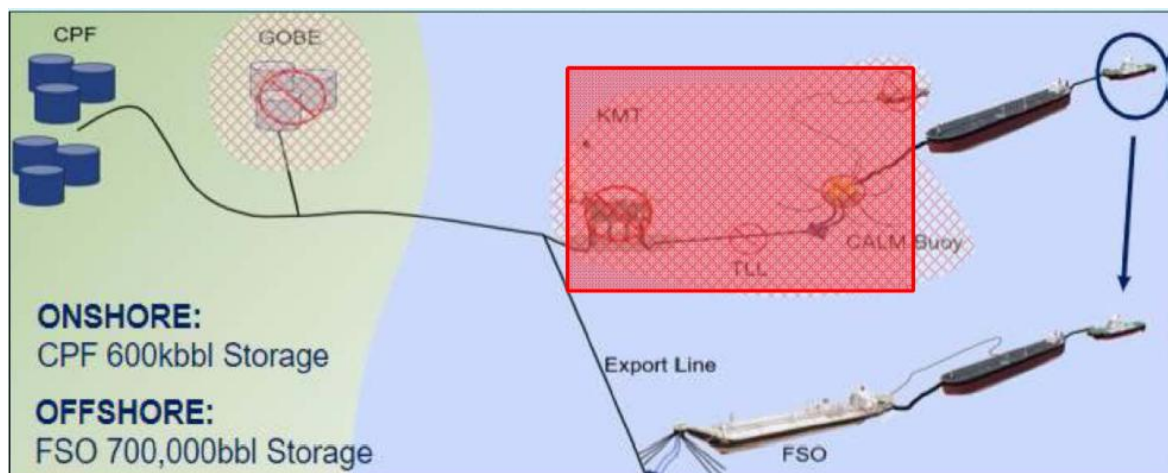
**Trenching and Hook up**

**3) Project : KPS RATIONALISATION PRE-FEED KMT DECOMMISSIONING**  
**Client : OILSEARCH**

Oil Search Limited (OSL) is currently assessing an opportunity involving the rationalisation of the existing Kutubu Pipeline System (KPS) assets with a Floating Storage and Offloading (FSO) facility. The KPS Rationalisation Project supports the OSL strategy of sustaining and optimising oil and gas assets. The project objective is to create incremental value by either optimising or replacing the existing oil export system and ensuring that future liquids production from other PNG fields can be exported reliably via the KPS infrastructure.

The KPS includes the Central Production Facility (CPF) and Gobe Production Facility (GPF) liquids storage tanks 600kbbbls and 300kbbbls (900kbbbls total) respectively, pumps, pipelines, main-line valves (MLV) and the Kumul Marine Terminal (KMT). The KPS is the only oil and condensate export facility in Western Papua New Guinea and exports all field stabilised hydrocarbon liquids from the PNG LNG and Oil Search operated Oil fields. The Oil Search Life of Asset Planning (LOAP) team identified the opportunity to optimise the KPS as it is an aging asset including GOBE facility coming to end of life.

OCS scope included the preparation of execution methodology, Cost estimate preparation, removal procedure and the required engineering for the decommissioning scope.



4) Project : SV DN DEVELOPMENT PROJECT

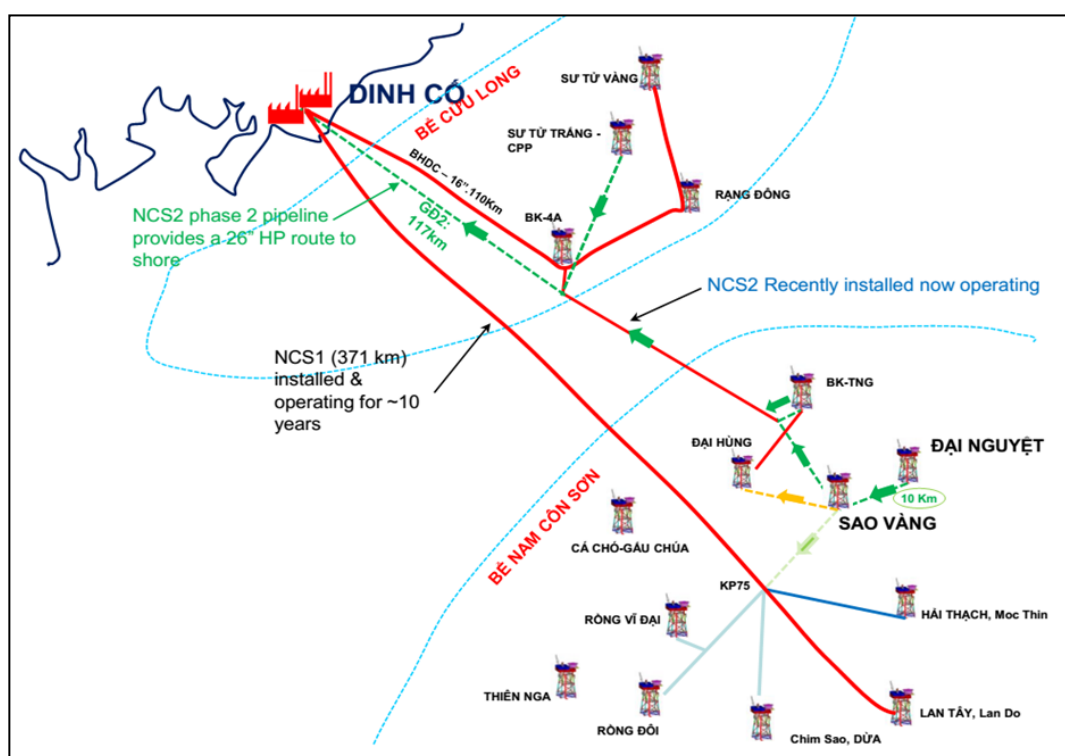
Client : IDEMITSU/ PTTEP/ MEINDO

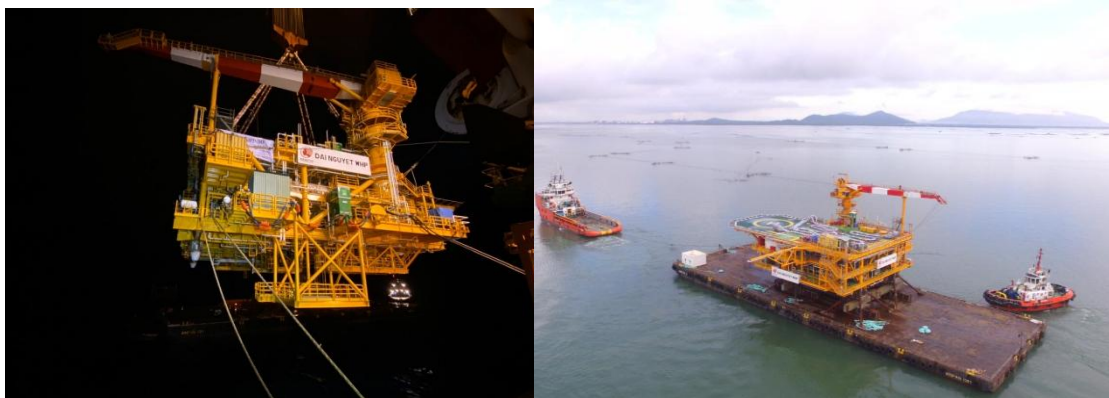
IGP envisages developing the SV & DN Project at block 05-1b & 05-1c, Nam Con Son basin, offshore Vietnam with the target for being on stream in Q3-2020 and Q3-2021. The Project comprises one (01) Central Processing Platform (CPP-SV) and one (01) un-manned Well Head Platform (DN-WHP), and subsea flexible pipeline/cable systems.

The DN-WHP substructure is a four (4) legged substructures with skirt piles on the legs. The substructure shall be launched install and supports WHP topsides which shall be lifted installed.

- DN-WHP (WP-A):
  - Jacket: Approximate 7,000 MT; Piles Approximate 5,000 MT (8 nos.); boat-landing and stair ways.
  - Topsides: Approximate 2,200 MT
- PIPELINES AND SUBSEA CABLE (WP-B):
  - Pipeline from DN to SV: FWS, 12.75" ID, Flexible, approximate 10.2Km
  - Subsea cable from DN to SV: Power Cable, Diameter 96mm, approximate 10.32km

OCS scope included project and construction management of Launch jacket and topside installation.





**5) Project : MV 12 RISER REMEDIAL PROJECT**  
**Client : MODEC**

The MV12 FSO is located in Rong Doi Field, offshore Vietnam, approximately 170nm (320km) southeast of Vung Tau, in a water depth of approximately 80 meters was designed with an external turret mooring system which consists of eight (8) anchor legs arranged symmetrically and with a thirty (30) year service life from Nov. 2006. It is connected to a WHP, approximately 3km via a 6" flexible riser (supported by a Mid Water Arch) and a PLEM manifold and to a 6" rigid pipeline to transfer condensate to the FSO.

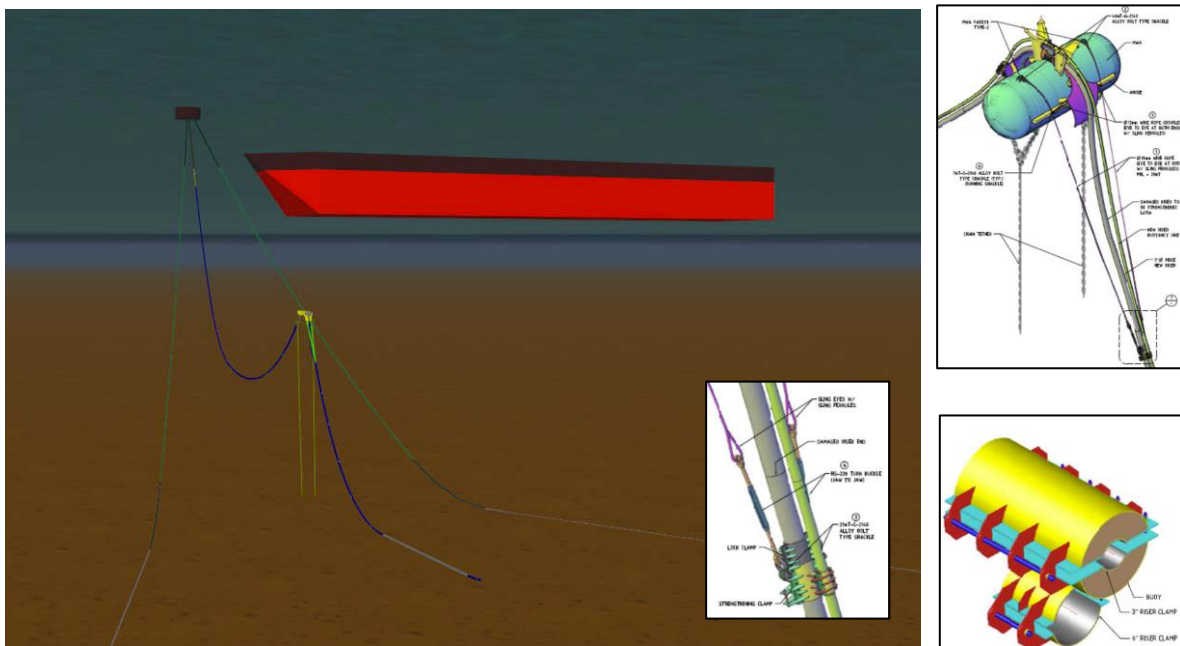
In late 2019, MV12 experienced a mooring failure when the mooring leg #3 load chain failed. An AHT was dispatched to site to assist to hold the FSO against inclement weather. During the hooking up of the tow line, the tug's towline reportedly hooked onto the MWA and PLEM and dragged and moved both the MWA and PLEM manifold approximately 20m way from its original position. The MWA is currently in close proximity of the Mooring Leg #1. The PLEM piping manifold has also been disconnected from the PLEM support clamp.

A subsequent ROV inspection survey has indicated damage to the Riser and to the PLEM piping/Flange connection where leaks have been detected.

The riser cannot be used in its current damaged state with the consequence that the condensate cannot be loaded to the FSO which in turn affects the gas production of wellhead platform.

A permanent long term repair of the mooring and riser is planned in the next 6 to 18 months but in the interim period a temporary repair is planned to enable the wellhead platform to continue production and product loading to the FSO.

OCS scope included, conceptualising the piggy back hose, analysis and design and construction management of the installation scope.



**6) Project : EM LTA-PESEK GP II LUBES STORAGE PROJECT**  
**Client : EXXON MOBIL**

Exxon Mobil Asia Pacific Pte Ltd, through PESEK Gp II Lubes Storage Project intends to execute the pull through of a 3-pipe bundle through an existing 24" subsea pipeline and has engaged Chiyoda Singapore Pte Ltd as the project managers for the Front End Engineering design.

Offshore Construction Specialists (OCS) is a Singapore based marine engineering and construction undertaking the scope of work comprising of:

- Establishing Integrity of Existing 24" Pipeline;

The existing pipeline was installed in 1992 and has been in place for approximately 25 years. It will be necessary to establish dimensional and general structural integrity of the pipeline to establish that it can be used as a conduit for the pull and to accommodate the new pipelines for their projected operational lives

- FEED engineering and preparation of engineering studies to establish proposed methodology for conducting the pipe pull operations.

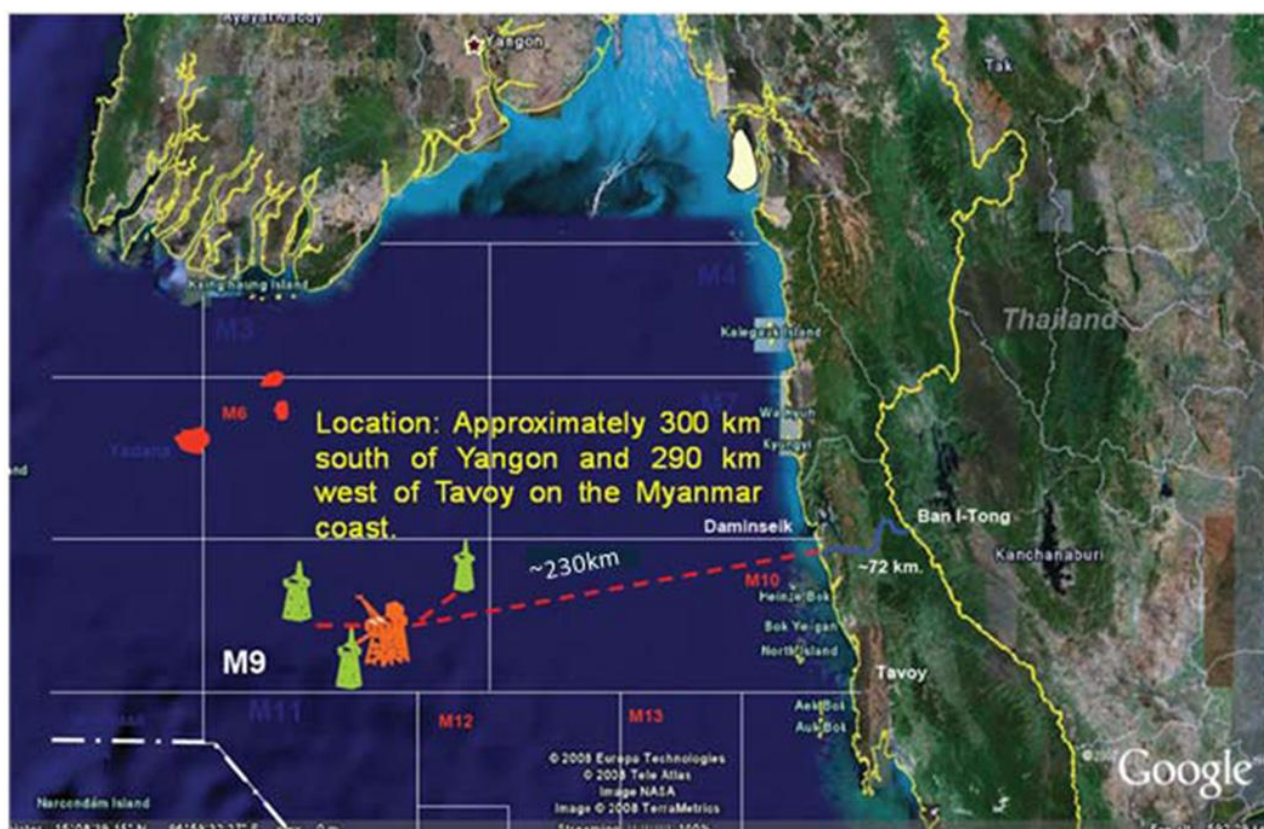


7) Project : ZAWTIKA 1A DEVELOPMENT PROJECT

Client : PTTEP, L&T

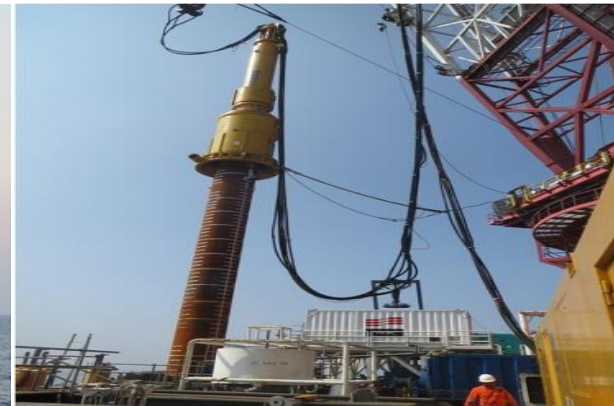
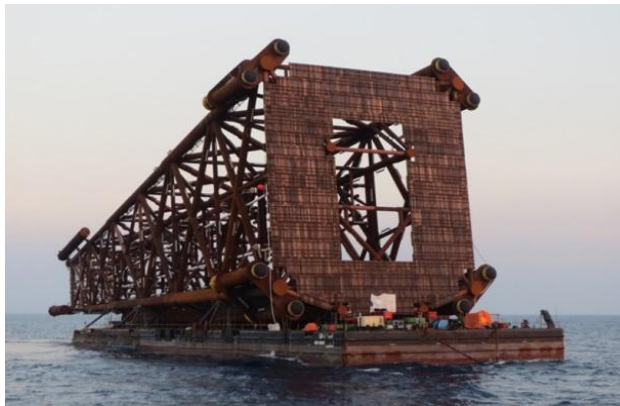
The Zawtika Project is a gas field development project located in the Gulf of Moattama, Myanmar. The development area covers Block M9 and small portion of Block M11, owned by Myanmar Oil & Gas Enterprise (MOGE). The field lies approximately 300 km south of Yangon and 290 km west of Tavoy on the Myanmar coast and the average water depth is approximately 135-160 meters. Zawtika Development Phase-1A consists of ZPQ (Processing platform integrated with Living Quarter module), a bridged-link wellhead platform WP1, two remote wellhead platforms WP2 and WP3, associated intra-field sealines, offshore and onshore gas export to connect to the PTT gas pipeline at Ban-I-Tong, Onshore Operating Center (ZOC), Block Valve #1 and #2 (ZBV1 and ZBV2), and Metering Station (ZMS).

PTTEP has awarded the contract for the Zawtika Wellhead Platform 1, 2 and 3 with Sealine to Larsen & Toubro with the contract amount over USD\$ 200 million. Larsen & Toubro has awarded the "Project and Construction Management including Installation Engineering for Offshore Installation" scope of works to OCS:





**2ea x 18" dia Pipelines**



**Structural Installations**



**Pile Handling**

**8) Project : FURIE KITCHEN LIGHTS PROJECT**  
**Client : CROWLEY MARINE SOLUTIONS**

In late summer 2015, Crowley's Marine Solutions team successfully completed the installation of Furie's Kitchen Lights Natural Gas Production Platform and underwater Pipeline in Cook Inlet, Alaska.

The project was extremely challenging with a short weather window and difficulties due to the harsh environment. The tides in Cook Inlet changed by up to 35 feet every 6 hours causing extreme currents of 7 knots. Those same fast-moving waters were saturated with glacial silt, which caused black-out conditions for divers, eliminated the opportunity to use Remote Operated Vehicles (ROVs) for underwater operations, caused higher-than-normal wear and tear on equipment and added risks for workers. Further, the sea floor in Cook Inlet was a hard bottom, uneven and littered with boulders up to six meters in diameter, which made the pile driving and pipe laying phases even more challenging.

Overall "offshore installation" scope of work is included the following:

- Installation of 1,200tons Monopod with 18ft dia external Caisson by crane tandem-lift to stab over the existing 30" Well Conductor utilizing Pile Bullet & King Pile methodology.
- Installation of 42" dia x 8ea Skirt Piles (4-Sections each) utilizing Chaser Piles and surface Octagonal Pile Driving Template methodology, including Pile Sleeve Grouting.
- Installation of Topsides Modules i.e. 300tons MSF (Intermediate Module Support Frame), 700tons Topside, and 40tons Helideck
- Installation of 10" dia x 0.625" WT Pipeline in water depths of 10ft to 158ft

OCS has been engaged by Crowley's Marine Solutions for the following scope of works.

- Provide Offshore Installation Personnel and Specialist to prepare necessary installation engineering, procedures & drawings, including managing the offshore execution at site.
- Engineering, Procuring, and Fabricating for the following:
  - a. King Pile Template
  - b. Octagonal Pile Driving Platforms
  - c. 42" Chaser Piles
  - d. 42" Welding Bear Clamps
  - e. Pipeline Installation Aids
- Supply of Contingency Pile Refusal Spread i.e. Air Lift Tools



**Template Barge alongside  
HLV – MV SVENJA**

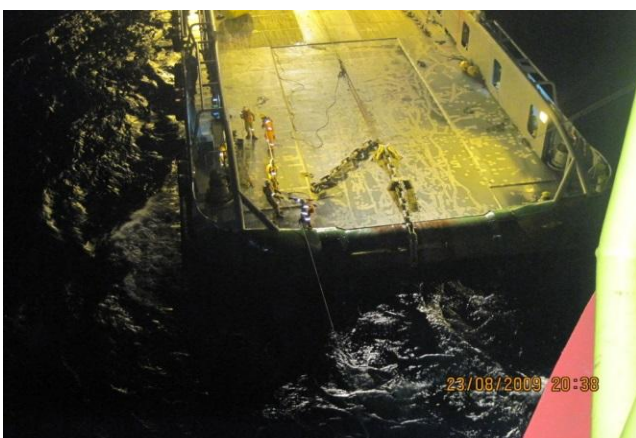


**Monopod Loadout at SSCI Yard**

**9) Project : M3ENERGY FSO FOR JDA B-17 FIELD DEVELOPMENT PROJECT**  
**Client : M3ENERGY, FRANKLIN OFFSHORE**

M3energy JDA Sdn Bhd (M3energy) awarded Franklin Offshore International Pte Ltd (FOI) the contract for the transport and offshore installation of the Puteri Songkhla FSO with its mooring and flexible riser. FOI engaged OCS to provide field engineering and construction engineering for the following work scope:

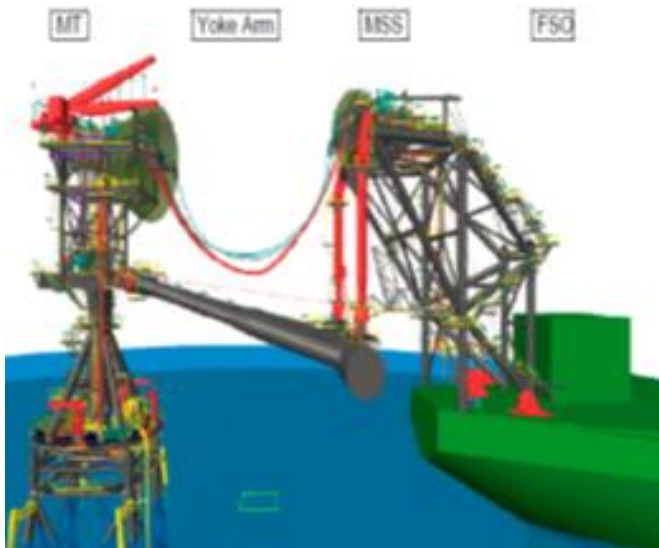
Installation of pile anchors, mooring chains including pre-tensioning of mooring lines.  
The external turret mooring system consists of a 6x1 mooring chain configuration.  
Hook-up of mooring chains to the FSO.  
Installation and hook-up of riser to the FSO including leak test.  
The leak test of the flexible riser was performed by OCS.  
The installation vessel used was the Smit Borneo.



**10) Project : BANYU URIP EPC 3 FSO HOOKUP PROJECT**  
**Client : MOBIL**

Mobil Cepu Limited (ExxonMobil) and PT Rekayasa Industri Indonesia, contracted OCS to perform installation engineering and procedure preparation for the Hookup of the Rimang Gagak FSO to the mooring tower including jumper hoses, cable and floating hose installation.

The Banyu Urip FSO is moored to a Tower Yoke System located in 33 meters water depth, located 23 Kilometres off the North Coast of Java near the City of Tuban, Indonesia. The mooring system consist of a Jacket Structure (4 Legs) with Skirt Piles (8), Upper Tower, Articulated Mooring Yoke, and a Ship-mounted Mooring Support Structure. The picture below illustrates the mooring system components. The mooring system design was by SOFFEC.



**Banyu Urip EPC 3 FSO Hookup Project**



**Mooring Tower Stacking**



**Marine Support Structure Loadout**



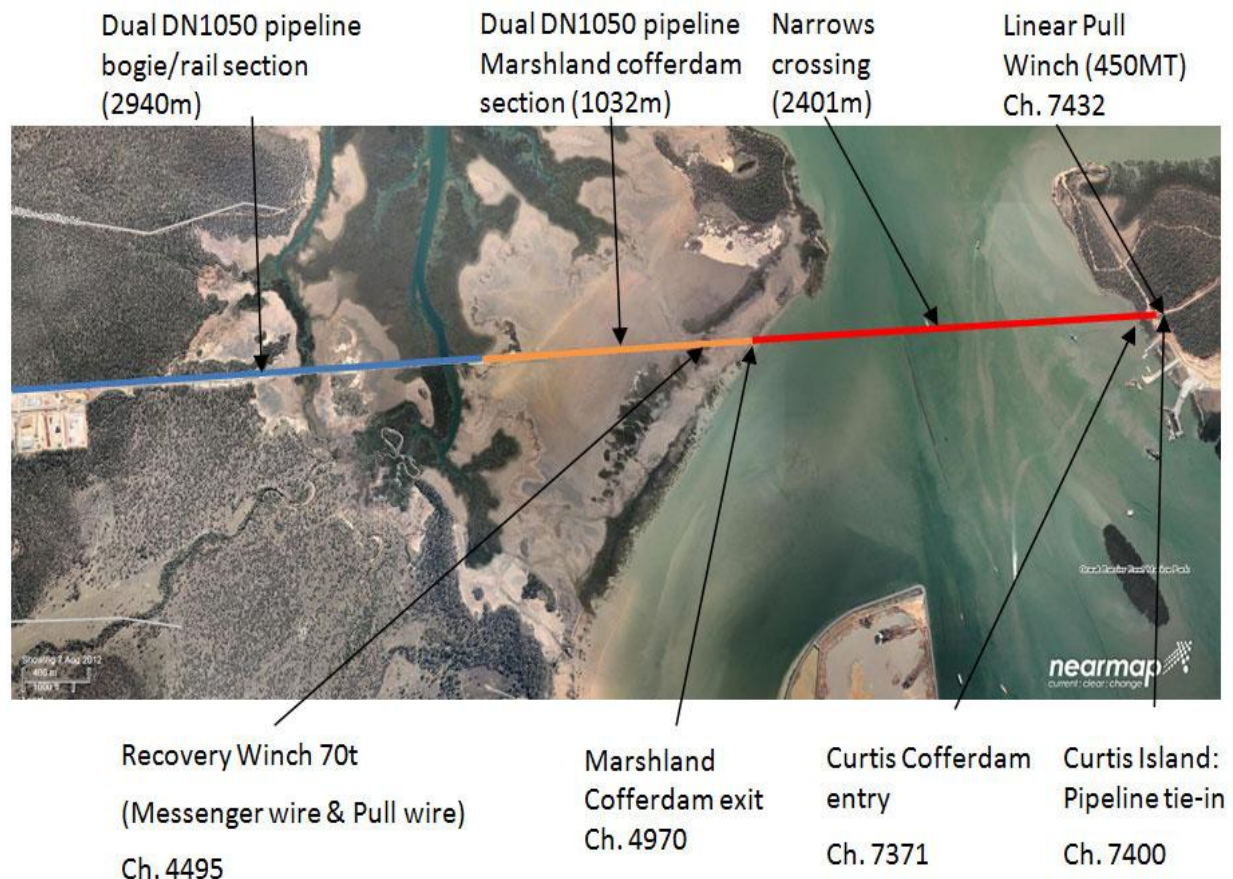
**Deck of the Rimang Gagak**

**11) Project : MCJV NARROWS PIPEPULL**  
**Client : MCCONNELL DOWEL CONSTRUCTORS**

MCJV was awarded a contract with QGC for the installation of two (2) 42" (DN1050) pipelines with 100mm concrete thickness from the Queensland coal seam gas fields in the Surat Basin to the Curtis Island LNG facility near Gladstone, Queensland. The pipelines must cross the Narrows seaway passage and adjacent marshlands between the Australian mainland and Curtis Island. The crossing construction work will be performed using pipe pull method through the Marshland cofferdam, open cut trench through the Narrows, to the Curtis Island cofferdam (shore approach). The dual 42" pipeline strings (APLNG and QCLNG) will be pulled using a 450 MT Linear Pull Winch and Ø90mm pull wire.

**MCJV awarded the following scope to OCS**

- 1) Pipepull Construction Engineering,
- 2) Pipepull Field Engineering,
- 3) Pipeline buoyancy fabrication and installation
- 4) Pipepull construction management to OCS.





**Foam Buoyancy Fabrication**





**Foam Buoyancy Installation onto pipestring**



**In hauling pipestring with Linear Winch Puller**



**Pullhead making landfall**

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**12) Project : KAMBUNA**  
**Client : ASIA PETROLEUM DEVELOPMENT**

OCS was commissioned by the main contractor PT Timas to perform the construction engineering, equipment preparation and execution supervision for the installation of a 42 km 14" gas export pipeline from the Kambuna platform offshore North Sumatera to a landfall Northeast of Medan.:

Salient features of the project included.

- 5 km beach approach
- Duplex line pipe in the platform approach area
- Pre and Post trenching of 13 km of the pipeline to a cover of 2 metres
- Pre-commissioning of pipeline
- Topsides installation and Hook up

Starting with basically a clean sheet OCS designed and supervised the rig up and the operation of the following construction spreads.

- Pre-trenching spud barge outfitted with Caterpillar 375 excavators which completed 5.0 kilometres of trenching, beach pull support, onshore tie-in and backfilling in duration of 90 days.
- Shallow water pipelay barge PL1 which had a peak layrate of 151 joints per day and an average of 110 with a spread cost under 100,000 per day.
- Pull barge rigged with linear winch and 5000 metres of 2.5" cable for a 5 km beach pull from the PL1.
- Trenching equipment for 8.5 kms of post burial work
- Deck installation and hook up equipment.

The job was a technical and financial success for both contractor and client. Client references can be provided on request.



## PULL BARGE



### Pre-Trenching Barge



### Pipelay



### Deck Installation I

### Deck Installation II

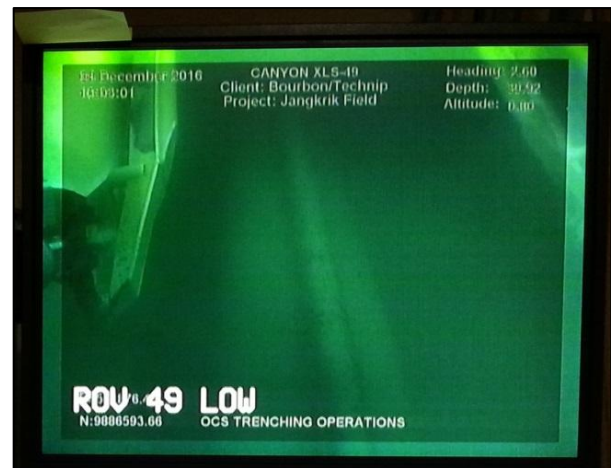
**13) Project : JANGKRIK COMPLEX PROJECT**

**Client : ENI/ TECHNIP**

ENI Muara Bakau (Operator) in joint venture with GDF Suez (45%) is developing the Jangkrik Complex Project (JKK) inclusive of Jangkrik Main (JKK Main) and Jangkrik North East (JKNE Fields). The JKK Complex is located in the Muara Bakau PSC permit area, approximately 70km off the coast of Makassar Strait, Offshore Borneo of Indonesia. Water depths in Jangkrik Complex are ranging from 200 to 500m.

ENI awarded Technip the scope of provision and installation of pipeline, risers, flowlines and onshore receiving facility (orf), installation of umbilicals, manifold, jumpers and subsea controls system, offshore hook-up and offshore commissioning for Jangkrik (JKK and Jangkrik North East (JNE) field development.

Technip awarded the burial of the Jangkrik 24"/4" (piggyback) subsea pipelines from KP 27.733 to KP 38.990 to OCS. Trenching water depth is 45m using the Bourbon vessel SURF Allamanda. The operation was performed completely diverless.



**14) Project : DOMGAS JETTING**  
**Client : COUGH SAPURA JOINT VENTURE**

CSJV was contracted by Chevron Australia Pty Ltd for the installation of the 20" x 59.4 km long offshore Domgas pipeline from Barrow Island to mainland Australia for the Gorgon Project.

In order to achieve required permanent stability of the Domgas pipeline, a combination of pre/post pipelay trenching and rock bolting were deployed. OCS was contracted by CSJV to perform post pipelay trenching for specific sections which were carried out in two phases; trenching between KP18.200 to KP34.300 (with DWLB Java Constructor), and trenching between KP 48.414 to KP 57.014 (with SWLB Kalinda).



**OCS Jet Sled and Handling A-Frame**



**Jet Sled Being Lowered onto Pipeline**



**Shallow Water Jetting in Progress**



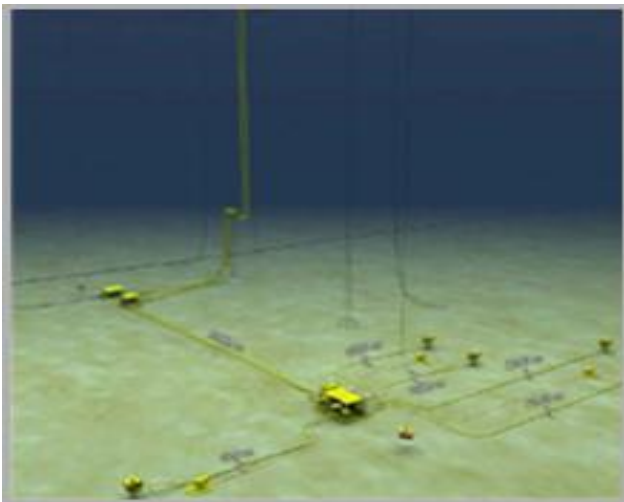
**OCS Jetting Spread**



**15) Project : TSB DEVELOPMENT PROJECT**  
**Client : KANGEAN ENERGY INDONESIA LIMITED**

## **ENGINEERING SCOPE**

Tow/ stability analysis and sea fastening design of riser base, manifold and hot tap protection.  
Installation engineering of above structures.  
Pipeline Installation Engineering included  
Static and Dynamic Pipelay Analysis  
Abandonment and Recovery Analysis  
Start-Up and Lay down Analysis  
Weld Repair Analysis  
Local Buckling Checks  
Flowline and umbilical installation engineering  
Pipe haul tow/stability analysis and sea fastening design

## **Execution Plans, Construction Management and supervision by OCS**



	<p style="text-align: center;"><b>OFFSHORE CONSTRUCTION SPECIALISTS</b></p> <hr/> <p style="text-align: center;"><b>PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT</b></p>	 <p style="font-size: small;">URS is a member of Registrar of Standards (Holdings) Ltd.</p>
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**16) Project : LIMA SUBSIDENCE PROJECT**  
**Client :PHE OWNJ/ PT TIMAS**

Lima Flow Station is a complex operated by PT. PHE ONWJ which has been experiencing subsidence resulting in a significant reduction of the safe air gap clearance of the platforms relative to MSL. The current subsidence study requires a permanent long term solution by simultaneously raising the Lima Compression, Lima Service and Lima Process Platforms as well as the associated bridges and flare by four meters to ensure continued and safe operation of the Lima Flow Station to the end of the ONWJ PSC in 2026 and beyond.

PHE OWNJ (Indonesia) awarded P.T Timas Suplindo to perform detailed design engineering, procurement, fabrication, pre-shutdown preparation, installation and construction, deck raising operation, pre-commissioning, commissioning and start-up assistance.

P.T Timas Suplindo engaged OCS Pte. Ltd. to provide installation engineering and management for platform jacking up program

The scope of offshore installation includes:

- Transportation of jacking up systems including bushing, sleeves, padeyes, HPU, HPU frame, lift frame and hydraulic rams.
- Installation leg jacking bushing, sleeves, padeyes and hydraulic rams at jacket legs
- Installation HPU frame and lift frame with HPU on top at bridges
- Installation of post-raising support and items.
- Assistance of brown field modification works
- Assistance of commissioning of reinstated piping and E&I



**LIMA FLOW STATION**



**17) Project : BD PROJECT  
Client : HCML/ PT TIMAS**

**project Details:-**

Husky-CNOOC Madura Ltd. (HCML), plans to develop the Madura Strait Block BD gas reserves for sales gas to buyers in Java Island. This field is located offshore in the Madura Strait East Java, about 65 km east of Surabaya and about 16km south of Madura Island. The project includes development of a wellhead platform; an offshore spread moored Floating, Production, Storage and Offloading (FPSO) with gas processing facilities; Gas metering Station (GMS); flexible risers from wellhead platform to FPSO; and a 16" x 52.924km export gas pipeline from WHP to GMS.

OCS scope for this project is to provide management, engineering services and suitable equipment and personnel to prepare, plan and manage and execute the 16" Gas Pipeline shore approach with 4.8km pre-trenching, hold back design and installation, 4.8km beach pull and a 1km post trench section. Project was completed in August 2016.





## 7. LAUNCH BARGE RIG UP AND OFFSHORE LAUNCH MANAGEMENT

### Project Details:-

Since 2011 OCS has provided launch barge rig up and offshore launch management for the following successful jacket launches:

- 1) VietSovPetro (VSP) - Dai Hung 2 Jacket Launch – 4100 mT (2011)
- 2) VietSovPetro (VSP) – Thang Long - 2000 mT (2012)
- 3) VietSovPetro (VSP) – Dang Do Jacket - 1900 mT (2012)
- 4) PTTEP / Larsen Toubro – Zawtika 1A WP1 - 7000 mT (2012)
- 5) PTTEP / Larsen Toubro – Zawtika 1A WP2 - 6900 mT (2012)
- 6) PTTEP / Larsen Toubro – Zawtika 1A WP3 - 7000 mT (2012)
- 7) VietSovPetro (VSP) – Thien Ung jacket launch – 6400 mT (2015)
- 8) PTSC – Su Tu Trang PIP jacket launch – 2500 mT (2015)

OCS provided launch engineering, procedure preparation, physical barge rig up and site supervision and management of the launch operation.

### **VietSovPetro (VSP) - Dai Hung 2 Jacket Launch**





**DH2 jacket being loaded out**



**DH2 jacket launched coming off launch barge VSP05**



**BK Thien Ung Jacket**

	<p style="text-align: center;"><b>OFFSHORE CONSTRUCTION SPECIALISTS</b></p> <hr/> <p style="text-align: center;"><b>PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT</b></p>	 <p style="font-size: small;">URS is a member of Registrar of Standards (Holdings) Ltd.</p>
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## 8. OCS UTILITY BARGE AND MULTICAT MISS BEE

The UB-01 “Miss Pennie” has been conceived based around a basic design that enables the vessel to be configured to different operating modes without significant effort.

The different operational modes considered are:

- i) Pipeline pre-trenching or general trenching work.
- ii) Pipelay Operations.
- iii) Pipeline Post Trenching.
- iv) Miscellaneous Marine Construction support work.

The attendant Multicat “Miss Bee” is designed to perform shallow water anchor handling for the “Miss Pennie” and provide other general support services. Her extreme shallow draft, anchor handling winch and

A frame and knuckle boom crane make her an extremely complementary vessel for the Miss Pennie with the two vessels working in tandem on shallow water projects.

In general, clients will be pleasantly surprised at the level and standard of equipment available on the UB 01. For most vessels of this type support the support facilities are of a temporary nature but in the case of this vessel these facilities are incorporated as permanent features. This has been made possible because the whole spread has been conceived, designed and built from the keel up.




OCS has designed and built the vessel with a primary configuration capable of being easily adapted to the selected mode of operations without significant effort.

OCS operates in-house long boom 90 tonne excavators for pre-trenching operations and a full suite of pipelay equipment including a tension machine and stinger plus post trenching pumps and jet sleds that can be added to the vessel where these applications are required.

The robust 10 tonne mooring winches are air powered with large pressurised receiver tanks in the below deck machinery space providing an ample supply of air to power the winches.

The 60 tonne (DAF 2.0) stern A frame can be installed to support the stinger for pipelay or the jet sled for post trenching or for special purpose applications.

In short with the UB 01 Miss Pennie and Multicat Miss Bee clients have access to a vessel spread that is capable of operating to a high level of efficiency in minimum water depths on a multiplicity of different applications.

	<p style="text-align: center;"><b>OFFSHORE CONSTRUCTION SPECIALISTS</b></p> <hr/> <p style="text-align: center;"><b>PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT</b></p>	  <p style="font-size: small;">URS is a member of Registrar of Standards (Holdings) Ltd.</p>
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## 8.1 UB-01 BASE CONFIGURATION

The basic configuration of the barge incorporates the features that are essential (or at least highly desirable) in each of the designated operating modes.

### i) Hull Design and Structural Features

- Basic Dimensions : 160 ft x 45 ft x 10 ft ( 48.8 m x 13.7 m x 3.28 m)
- Hull and side shell strengthening on Keel and Sides for Grounding (16 mm plate)
- Deck strengthening to accommodate 90 tonne excavators for Pre-trenching and Crawler cranes up to 250 tonne for support lifting work and anchor handling etc.
- Specific Strengthening for Davit points for pipe lifting.
- Stern strengthening for Stinger, A frame, and other stern attachments.
- Integrated spud well structures.
- Integrated padeyes to enable barge to be lifted by HLV or derrick crane with all equipment on board.
- Integrated water and air piping to distribute feed water and air for post trenching and utility applications.
- Large below deck machinery space to accommodate air receivers and mooring winches.
- Welding machines and cutting equipment included as part of the barge inventory.

### ii) Deck Timbers

Heavy duty deck timbering is provided where required to facilitate tracking of excavators and crane.

### iii) Air and Water Distribution Systems

The “Miss Pennie” uses large volumes of air to power the mooring winches and other support systems. Two large 22 m<sup>3</sup> air receivers located in the below deck machinery room are charged using large 1080 cfm x 350 psi two stage air compressors. Pressure regulators distribute the air at the desired pressure to the mooring system, post trenching air lifts, air driven ballast pumps etc.

Integrated water distribution pipe work makes it possible to control the large volumes of water used in water jetting without taking up unnecessary deck space.

### iv) Mooring System and Spud Piles

8 x 10 ton air driven mooring winches each with a capacity for 1000 metres of 1 1/8” ( 28 mm) wire rope are located in the below deck machinery room. The winches can be configured to drive an eight (8) point mooring system with two (2) fairleads located at each corner. In addition the starboard winches can be configured to control two 18-metre spud piles when the barge is used for pre-trenching or for mooring in tight areas where shallow water restricts anchoring options.

The mooring system is equipped with centralised control and load cells. A central panel is provided in the above deck control room.

### v) Ballast Tanks

Ballast tanks are located at the side of the vessel for use with trimming where required.

vi) **Fresh Water and Fuel Storage**

Below deck Freshwater and Diesel fuel tanks are provided with liquid transfer pumps. Diesel day tanks are also provided.

vii) **Control Tower and Office Accommodation**

Control tower and office for field personnel are provided including messing facilities.

viii) **Power Generation**

Barge switchboard for 500 Kva of input power at 50 Hz.

ix) **Pedestal Crane**

Pedestal crane with 32 tonne – metre capacity.

x) **Dive Support Boat**

A twin engine dive support vessel is provided with the barge as part of the base inventory.

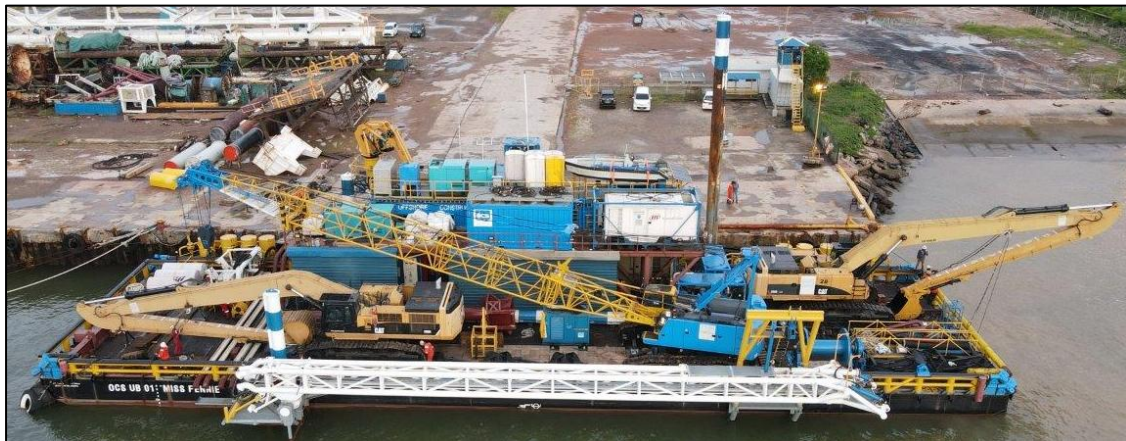
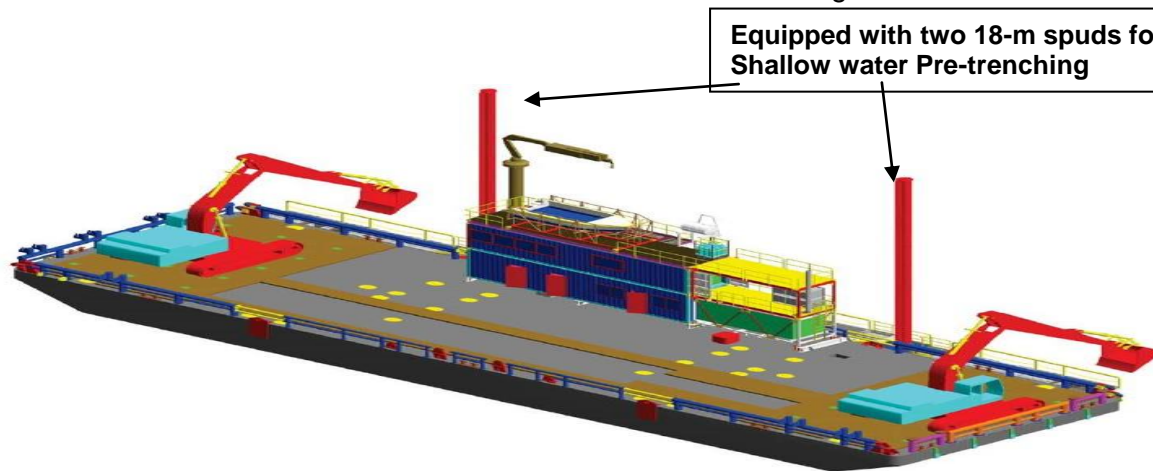


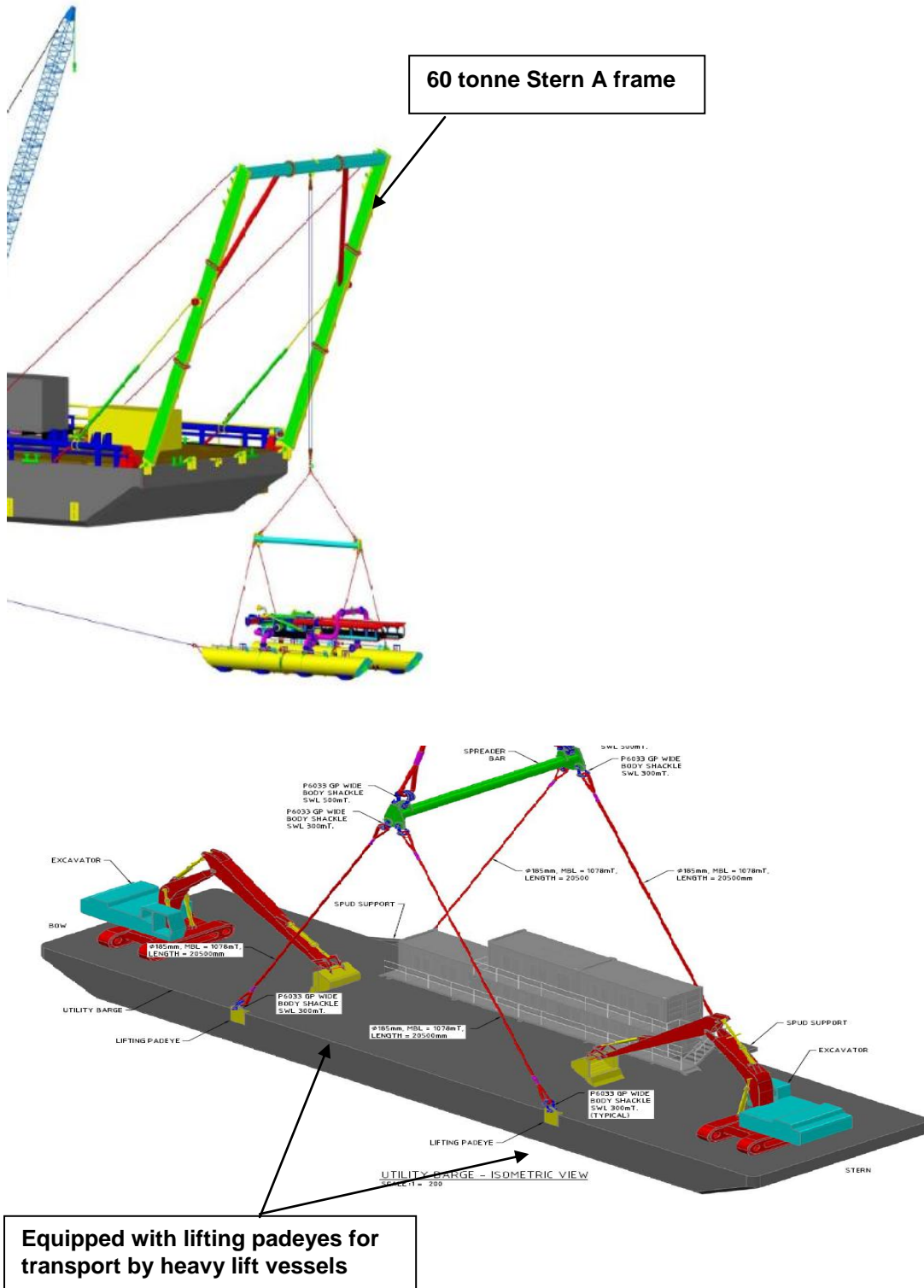
**GENERAL VIEW OF MISS PENNIE CONFIGURED FOR PIPELAY**

## 8.2 UB-01 PRE-TRENCHING

For pre-trenching the UB-01 operates with the mooring system rigged to two x 18.0 metre spud piles controlled x 4 part handling blocks located on the starboard side of the vessel.

OCS operates in-house equipment consisting of two (2) units of long arm CAT 390 excavators with 2.0 cubic metre buckets and at a down reach of 17 metres below the barge deck.







### OCS IN-HOUSE CAT 390 LONG REACH EXCAVATORS

The excavator reach and capacity curve is included with the appendices.  
OCS prequalification document for pipeline shore approaches can be referenced for further information.

### 8.3 UB-01 PIPELAY

The UB01 capacity for pipelay needs to be assessed on a case by case basis. The barge can only handle lighter pipe with a limited submerged weight. For pipelay the 60 tonne stern A frame is installed and the OCS stinger is suspended from the A frame and a portable pipe ramp is installed.

The following is a list of key equipment items owned in house by OCS to support pipelay operations :

- 15 tonne tension machine.
- Ladder Stinger.
- 60 tonne stern A frame.
- Portable pipe ramp and rollers with 3 welding stations and one field joint station.
- Ready rack and line up station.
- A & R Winch.
- Air Diving system.
- 90 ton Deck Crawler Crane.
- In-house survey and positioning equipment.



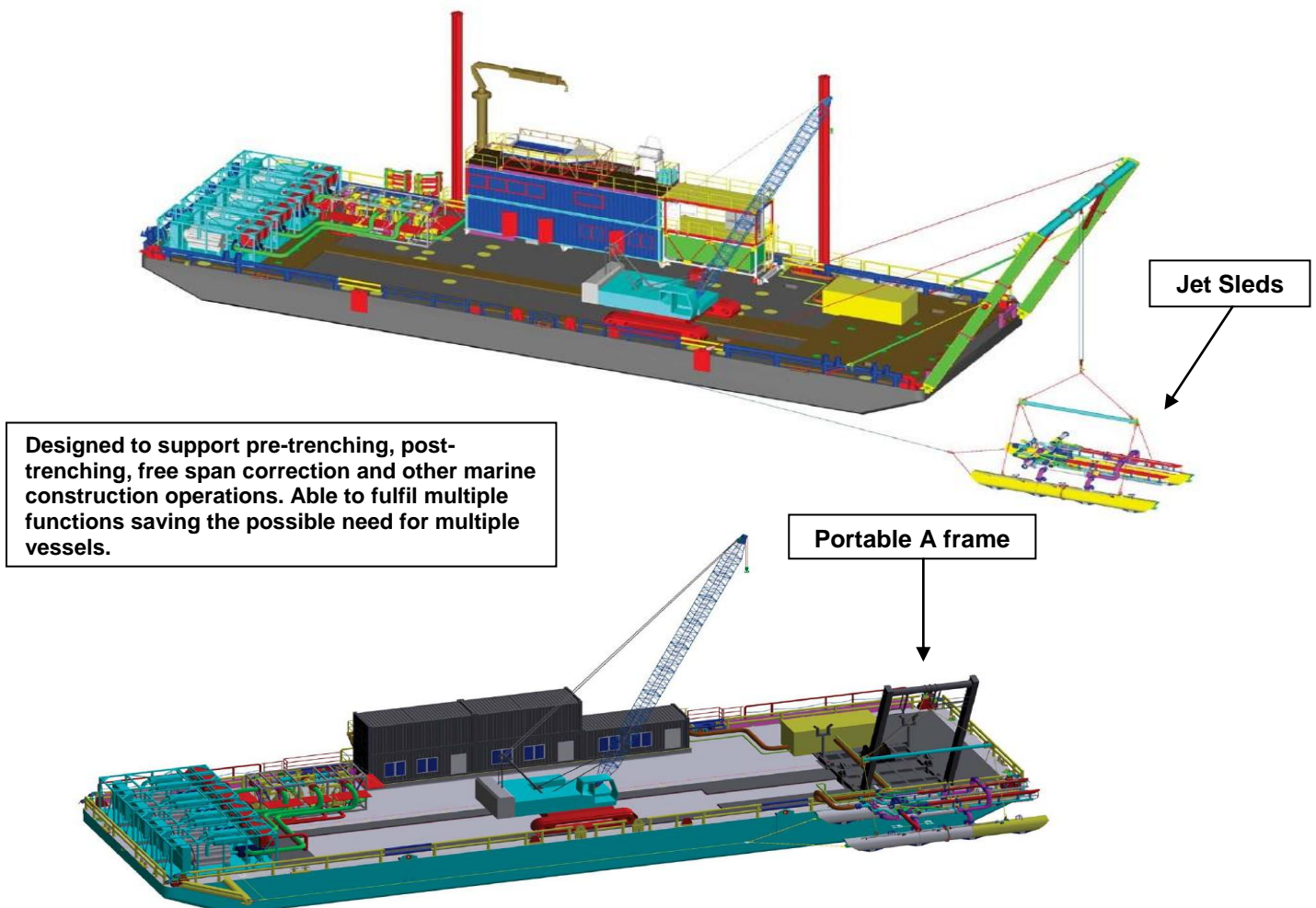
#### 8.4 UB-01 POST TRENCHING

The UB01 has been designed with specific features for post trenching. The 8 point mooring with centralized control can be used with the well proven OCS suite of post trenching equipment. Integrated pipe work is included with the vessel to facilitate hook up of jetting and airlifting systems.

The following is a list of key equipment items owned in house by OCS to support post trenching operations:

- 90 tonne deck crane
- 60 tonne stern A frame
- High volume feed pumps.
- High Volume pressure pumps.
- Large volumes of compressed air
- Well proven pontoon and pipe riding jet sleds.
- Air Diving system.

OCS pre-qualification document for post trenching can be referenced for further information.



## 8.5 OCS MULTICAT MISS BEE

The OCS Multicat Miss Bee has been designed to complement the operations of the Miss Pennie and is designed to handle anchors in shallow water. The vessel is twin engine and equipped with a knuckle boom crane, anchor handling winch and A frame.

Engine Specification: 2 x 380 HP Iveco Engines.  
Anchor Handling: 15 ton winch and a frame.  
Knuckle Boom: 22 ton-metres  
Operating Draft: 1.5 metres.

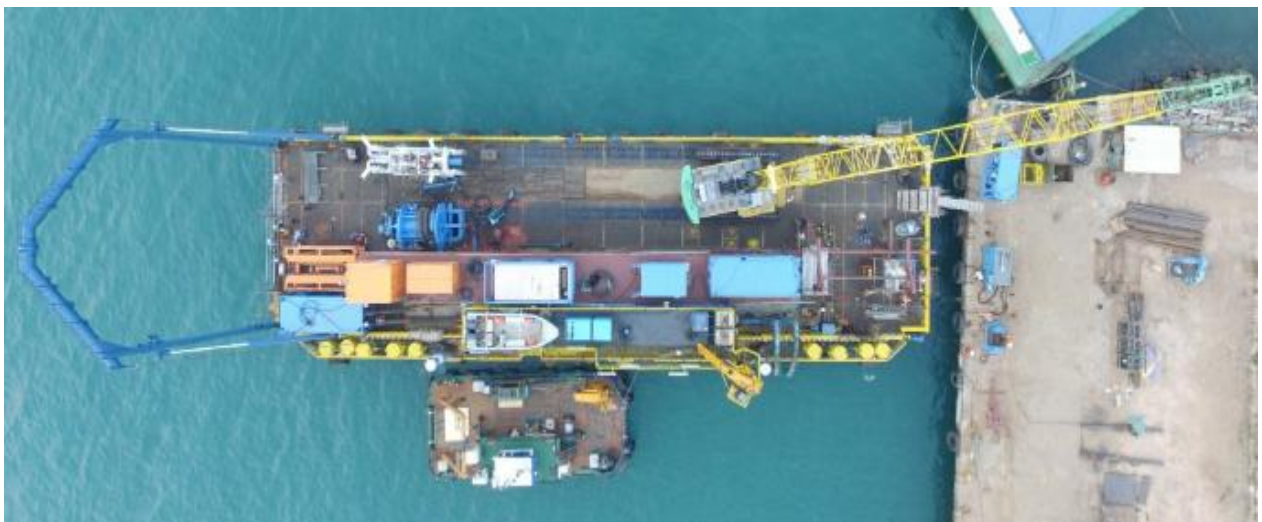


**MISS BEE MOORED ON STARBOARD SIDE OF MISS PENNIE**

## 8.6 Photo log of UB-01 Miss Pennie



**MISS PENNIE / MISS BEE FROM STARBOARD QUARTER**



**AERIAL PHOTO OF MISS PENNIE / MISS BEE**



**MISS PENNIE FROM STERN**



**MISS PENNIE FROM PORT SIDE**

## 8.7 Photo log of Multicat Miss Bee



**MISS BEE FROM PORTSIDE**



**MISS BEE FROM BOW**

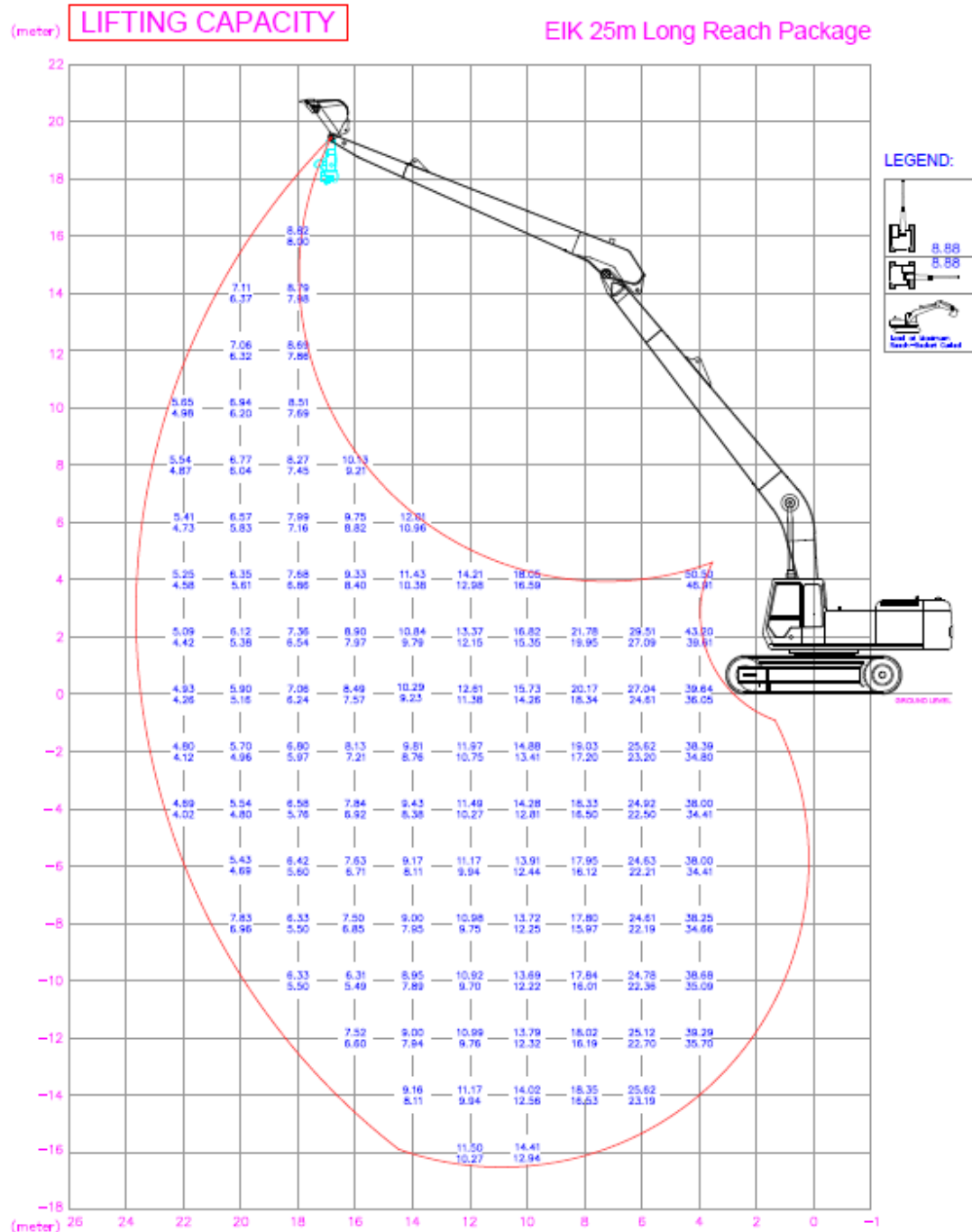


**MISS BEE A FRAME TEST**



**MISS BEE KNUCKLE BOOM CRANE TEST**

## 8.8 Pre-trenching Excavator Curves













**NOTE:**

- 1) The above loads do not exceed 75% of tipping capacity and not limited by hydraulic capacity.
- 2) The loads only valid when the machine is on the firm and flat ground.
- 3) The loads point is at the stick end is the net material weight it can lift. Bucket weight is 2150kg.
- 4) Excavator model is CAT 390D with 650mm track shoes and 3510mm track gauge.
- 5) Without Additional counterweight.













## 9. EXISTING AND PAST CLIENTS













OCS has built up a significant customer base during fourteen (14) years of operations. OCS past and present clients are listed below. References can be provided on request.

No	Client Name	
1	Allseas	
2	Asia Petroleum Developments (Salamander) (Indonesia)	
3	Baker Hughes	
4	BE & R Consulting	
5	Boskalis	
6	BW Offshore	
7	Caspian Hydra Technologies (Russia)	
8	Chemi-Link Corporation (Dubai)	
9	Chevron (Thailand)	
10	Chiyoda Singapore	

No	Client Name	
11	CNOOC Offshore Oil Engineering Company (China)	
12	COPI ( Conoco Phillips Indonesia)	
13	Crowley maritime Corporation (USA)	
14	EMAS (Singapore)	
15	Exxon Mobil (Singapore)	
16	ESSO	
17	Franklin Offshore (Singapore)	
18	Hako Offshore (Singapore)	
19	Heerema (Holland)	
20	HESS (Indonesia)	
21	HPCL (India)	
22	IKM Testing (Australia)	

No	Client Name	
23	Idemitsu	
24	Jawar Al Khaleej Shipping LLC (UAE)	
25	JGCS (Japan)	
26	Kangean Energy (Indonesia)	
27	Kris Energy (Singapore)	
28	Kuwait Gulf Oil Company	
29	L&T Sapura (Malaysia/ India)	
30	Larsen & Toubro (India)	
31	LUKOIL-Nizhnevolzhsk (Russia)	
32	M3 Energy (Malaysia)	
33	McConnell Dowell - Consolidated Contracting Company	

No	Client Name	
34	Meindo	
35	Mobil Cepu Ltd	
36	Mezhregiontruboprovodstroy JSC (Russia)	
37	Modec	
38	Newfield Peninsula Malaysia (Malaysia)	
39	Nippon Steel	
40	NorCe / Solstad Offshore (Singapore)	
41	NuCoastal (Thailand)	
42	Oceanic Marine Contractors	
43	OilSearch	
44	ONGC (India)	
45	Origin Energy (Australia)	





No	Client Name	
46	Petronas (Malaysia)	
47	PTTEP (Thailand)	
48	PTSC	
49	Rekayasa (Indonesia)	
50	Saipem	
51	SapuraAcergy (Malaysia)	
52	Sarku (Malaysia)	
53	Sea Drill (Singapore)	
54	SK E & C (Malaysia)	
55	Southern Oil Company of Iraq	
56	Star Petroleum (Indonesia)	
57	Technip	



## OFFSHORE CONSTRUCTION SPECIALISTS

### DETAILED AND CONSTRUCTION SUPPORT ENGINEERING PRE-QUALIFICATION DOCUMENT



No	Client Name	
58	Timas Suplindo (Indonesia)	
59	TLO Sapura Crest (Malaysia)	
60	Vestas	
61	Vietsovpetro (VSP) (Vietnam)	



## OFFSHORE CONSTRUCTION SPECIALISTS

### PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT



## 10.COMPLETED AND ONGOING PROJECTS OF SIGNIFICANCE

Year	Project Title	Client	Scope of Work	Location
2022	SBM Pipeline Rejuvenation Phase II	Shell, Sapura	Pipeline near shore construction- Engineering and Construction Management	Singapore
2022	KPS Rationalisation-Decommissioning	OilSearch	Decommissioning Pre FEED	Papua New Guinea
2021	SVDN Development Project	MEINDO/Idemitsu	Engineering and Construction Management	Vietnam
2020	Sriracha Subsea Crude Pipeline – Maintenance Project	Wood/Esso Thailand	Engineering and Construction Management	Vietnam
2020	Tra Vinh Wind Farm	Vestas Asia Pacific	Engineering and Construction Management	Vietnam
2020	MODEC Inc	Korea National Oil Corporation	Engineering, Fabrication and Construction Management	Vietnam
2020	EM-LTA – Pesek GP II Lubes Storage Project	Exxon Mobil	Pipe in Pipe Construction-Construction Management and Engineering and Execution	Singapore
2019	MTC Engineering Sdn Bhd	Petron	Engineering and Construction Management	Malaysia
2018	KrisEnergy Production Barge	KrisEnergy	Detailed Design Services for Production Barge	Singapore
2018	Bahrain LNG Project	Asia Pacific Marine Contractor	Cable & Mooring lay analyses, Cable installation procedure	Bahrain
2018	T&I FSO Mekar Bergading	Franklin Offshore	Providing offshore construction management and consulting services	North Malay Basin
2018	ExxonMobil Pesek	Chiyoda	Subsea Pipeline Services	Singapore
2018	BD3WPP	L&T India	Engineering Services	India
2018	Krisenergy In house	KrisEnergy	Provision of design services on production barge	Singapore
2018	Peninsula Malaysia	Antares Energy Solutions	Provision of Leak Testing Spread and Personnel for Commissioning Work on Flexible Installation	Malaysia



## OFFSHORE CONSTRUCTION SPECIALISTS

### PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT



Year	Project Title	Client	Scope of Work	Location
2018	Recirculation of Chemicals for IW Heater Cleaning	Scale Solution Pte Ltd	Provision of Pumping Skid	Singapore
2018	RLP development project	Eastern Navigation Pte Ltd	Provision of Engineering Service	Singapore
2017	Bison, Iguana and Gajah Puteri (BIGP) development project	PT Timas Suplindo	Provision EPCI services	Indonesia
2017	FSO MV17 mooring legs replacement work project	PTSC (Modec)	Provision of engineering services for offshore installation	Vietnam
2017	KNDW-D REPSOL Y2017	SapuraKencana TL Offshore Sdn Bhd	Provision of Air Lifting Equipment & manpower services	Malaysia
2017	NRD 2 Project	L&T Hydrocarbon Engineering Limited	Installation Engineering Services	India
2017	HK Offshore LNG Terminal Project	CLP Holding (HK)	Consultancy support to CLP's technical solutions (subsea pipeline route work)	Hongkong
2017	PHE ONWJ project	PT Timas Suplindo	Construction Management/Provision of manpower / Engineering Services	Indonesia
2017	Filanovsky Floatover	Caspian Hydra / Lukoil	Construction Management/Provision of manpower / Engineering Services	Caspian
2016	Jangkrik project	PT Technip Indonesia	Provision post trenching services	Indonesia
2016	Hail Field Development Project	Tecnicas Reunidas	Design & Analysis	Abu Dhabi
2016	Coastal KBM (PMT, Function Test, 'Precom Svcs)	Antares Energy Solutions Pte Ltd	Provision of Flooding & Testing services onshore, KSB Malaysia for	Malaysia
2016	SSIV Replacement Project	Thien Nam Subsea Services JSC	Provision of Construction Supervisors	Vietnam
2016	Jurong Project	McConnell Dowell South East Asia Pte Ltd	ANALYSIS FOR SETTLED 6" GAE MAIN AT PP2A-CS2	Singapore



## OFFSHORE CONSTRUCTION SPECIALISTS

### PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT



Year	Project Title	Client	Scope of Work	Location
2016	Star Energy Project	PT Timas Suplindo	Construction Management/Provision of manpower / Engineering Services	Indonesia
2016	BD Project	PT Timas Suplindo	Provision of manpower / Engineering Services	Indonesia
2016	Madura Bd Field Development EPCI Project	PT Timas Suplindo	Provision of Shore Approach Services For Husky	Indonesia
2016	PTSC Vietnam	PTSC Offshore Services Joint Stock Company	Provision of Technical Feasibility Study & Conceptual Design for Converting Accommodation Barge "POS01" to Pipelay Barge	Vietnam
2016	Vietnam FPSO Decommissioning	Modec	Provision of Consultation services /Engineering Assistance	Vietnam
2016	HCML Precommissioning	PTTimas Suplindo	Operation/ Construction Management	Indonesia
2016	Filanovsky Floatover	Caspian Hydra / Lukoil	Floatover Contractor	Caspian
2015	Zawtika 1B Field Development	COOEC / PTTEP	Construction Management	China / Myanmar
2015	Malikai	Technip / Shell Sendirian Berhad	Construction Management Free span correction Spool hydrotest	Malaysia
2015	Jangkrik Complex Project	Technip / ENI Muara Bakau	Construction Management Post Trenching	Indonesia
2015	Hai Phong	Sapura Kencana / PTSC	Post Trenching Services	Vietnam
2015	Thien Ung and STT Jacket launch	VSP	Jacket Launch Services	Vietnam
2014	Novoportovskye oil field project	MRTS - Engineering LLC	Fatigue analysis of the 28" Pipeline - Novoportovskye oil field	Russia
2014	Kitchen Light Project	Crowley Solutions Pte Ltd	Project and Construction Management and Installation Engineering for the Offshore Installation of the Kitchen Light PDDD	Alaska, USA



## OFFSHORE CONSTRUCTION SPECIALISTS

### PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT



Year	Project Title	Client	Scope of Work	Location
2014	Mobil Cepu Limited Banyu Urip EPC 3 FSO Hookup Project	ExxonMobil / PT Rekayasa Industri	Installation engineering and procedure preparation for the Hookup of the Rimang Gagak FSO to the mooring tower, jumper hoses, cable and floating hose installation	Indonesia
2014	Julimar Development Project	Baker Hughes Australia Pty Ltd	Sea fastening design & calculation for Julimar dev project	Australia
2014	Lampung – Bulan Pipeline	PT Timas Suplindo	Project and Construction Management and Installation Engineering for the Offshore Installation of Lampung pipeline and risers	Java Sea
2014	EVA Pipeline	GOM Resources Sdn Bhd	Pipeline Installation Analysis and Field Data Book	West Malaysia
2014	EMAS Liwan Pipelay	EMAS	Provision of construction management personnel for the Liwan deepwater pipelay 2014 using the Lewek Centurion	South China
2014	WASSANA Jacket & Deck	Krisenergy (Gulf Of Thailand) Ltd	FEED Engrg on the proposed WASSANA jacket & deck	Gulf of Thailand
2014	LAMSON FPSO	DOF Subsea	Provision of Precommissioning services for the flowlines from the FPSO to the infield wellheads	Vietnam
2014	NSRP Complex Project	Zentech Engineering	Pipeline Engineering including the development of the Pipeline Corrosion Management Plan, Pipeline Operations and Maintenance Manual, Emergency Manual.	Nghi Son, Vietnam
2013	Banyu Urip EPC 3 offshore pipeline mooring tower project	Rekayasa Industri	Construction management and Offshore Supervision for the pipeline installation using the Hafar Neptune	Java Sea
2013	13" main oil line	Leighton Offshore	Provision of Post	Java Sea



## OFFSHORE CONSTRUCTION SPECIALISTS

### PROJECT AND CONSTRUCTION MANAGEMENT PRE-QUALIFICATION DOCUMENT



Year	Project Title	Client	Scope of Work	Location
	(MOL) from X-ray field to Balongan plant pipeline project	Pte Ltd	Trenching, Pre-Commissioning and Free Span Correction Services	
2013	Petronas Ketapang	PT Timas Suplindo / Petronas	Project and Construction Management and Installation Engineering for the Offshore Installation of Bukit Tua platform and pipelines	Java Sea
2013	PHE UL	PT Timas Suplindo / Pertamina Hulu Energi	Construction Management and Installation Engineering for the Offshore Installation of UL Platform and Pipeline	Java Sea
2013	Pertamina EP - Parigi Hot Tap	PT Timas Suplindo / Pertamina EP	Project and Construction Management and Installation Engineering for the Offshore Installation of LIMA Hot Tap and pipelay	Java Sea
2013	EHMR	PT Timas Suplindo / COPI	Construction Management and Installation Engineering for the EHMR pipeline	Java Sea
2013	PHE LIMA Subsidence	PT Timas Suplindo / Pertamina Hulu Energi	Construction Management and Installation Engineering for the jacking up of the LIMA platform	Java Sea
2013	Gorgon Project - Barrow Island LNG Jetty And Marine Structure	NorCE Offshore	Installation engineering the 113 lifts for the LNG Jetty Construction	North West Shelf, Western Australia
2012	Narrows Crossing	MCJV	1) Pipepull Construction Engineering, 2) Pipepull Field Engineering, 3) Pipeline buoyancy fabrication and installation 4) Pipepull construction management to OCS.	Gladstone, Queensland, Australia
2012	Zawtika Phase 1A	Larsen & Toubro / PTTEP	Project and Construction Management including Installation Engineering for the Offshore Installation of WP1 / WP2 / WP3 and interconnecting pipelines.	Andaman Sea, Myanmar



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Year	Project Title	Client	Scope of Work	Location
2012	DOMGAS Jetting	SapuraClough	Provision of Engineering and Jetting Spread for the post-lay burial of 20" x 59.4 km long offshore Domgas pipeline from Barrow Island to mainland Australia for the Gorgon Project.	North West Shelf, Western Australia
2011	Kodeco Project	PT Timas Suplindo	Provision of Engineering , Procurement, Fabrication and Installation of Gas Lift Pipeline For Poleng CW-DW Platform	Java Sea
2011/ 2012	Kangean Energy Indonesia Limited – TSB Development	PT Timas Suplindo	Tow/ stability analysis and sea fastening design of riser base, manifold and hot tap protection. Installation engineering of above structures Pipeline Installation Engineering included: Static and Dynamic Pipelay Analysis Abandonment and Recovery Analysis Start-Up and Lay down Analysis Weld Repair Analysis Local Buckling Checks Flowline and umbilical installation engineering Pipe haul tow/stability analysis and sea fastening design	Bali Sea, approximately 120km from Pagerubgan Island
2011/ 2012	Yolla MLE Project	Origin Energy	Engineering and Management of the loadout, transportation and execution of the heavy lifts for the project.	Bass Strait Australia
2011	VietSovPetro (VSP) - Dai Hung 2 Jacket Launch	VietSovPetro	OCS provided consultancy for launch engineering, procedure preparation, physical barge rig up and site supervision and	South China Sea, Vietnam



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Year	Project Title	Client	Scope of Work	Location
			management of the launch operation, while Asian Energy performed the launch and transportation engineering.  Jacket was launched on 10th May 2011.	
2011	PTTEP Module Installation onto the existing PRP platform	NorCE Offshore	<b>Installation Engineering :</b> Conceptualise Guide and bumpers layout Final Design Guide and Bumpers Rigging design and selection Mooring analysis Installation Procedure preparation  <b>Field Engineering:</b> Load out coordination Site coordination during offshore execution	Gulf Of Thailand
2011	Chevron Project	EOCP EMAS offshore Construction and Production	Detailed installation engineering and field engineering for the Chevron 2011 campaign	Gulf Of Thailand
2010	Shell & Petronas Cable Lay project	TLO Sapura	Laying of umbilicals and Power cables in the St Joseph and Bokor Fields	East Malaysia
2009 /2010	HESS Ujung Pangkah Development Phase 1 & 2	PT Timas Suplindo	Detail engineering for three Flowlines (approximately 5.5 km long each) - 16" Gas line, 12" Liquid Line and 6" Gas Lift line. From WHP-A (existing) to new WHP-B. Management of pipeline coating for FBE, Neoprene and concrete weight coat. Construction Engineering for the Transportation and Installation of the three	Java Sea, Surabaya.



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Year	Project Title	Client	Scope of Work	Location
			<p>Flowlines and WHP-B platform.</p> <p>Transportation and Installation of three Flowlines (including post trenching burial, pigging and hydrotesting, dewatering, drying and nitrogen packing).</p> <p>Transportation of WHP-B platform comprising one 370mT, eight-legged jacket, three section piles and 1500mT Topside.</p> <p>Installation of WHP-B platform comprising one 370mT, eight-legged jacket, three section piles and 1500mT Topside.</p> <p>Transport of CPP Deck, AUP Deck and LQ, Compression module, Bridges and flare boom.</p> <p>Installation of CPP Deck (2173 mT).</p> <p>Installation of AUP Deck (2069 mT).</p> <p>Installation of LQ module (655 mT).</p> <p>Installation of Compression module (1800 mT).</p> <p>Installation of CPP/AUP bridge (155 mT).</p> <p>Installation of CPP/WHP-B bridge (105 mT).</p> <p>Installation of CPP Flare boom (58 mT).</p>	
2009	Conoco Phillips – North Belut	PT Timas Suplindo	Installation of Platform complex connecting bridget and 9.4 km Umbilical	Natuna Sea Indonesia.
2009	M3nergy JDA Sdn Bhd/ Carigali-PTTEPI-JDA Block	Franklin Offshore	Installation of pile anchors, mooring chains including pre-tensioning of mooring	Offshore Malaysia



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Year	Project Title	Client	Scope of Work	Location
	B-17		<p>lines.</p> <p>The external turret mooring system consists of a 6x1 mooring chain configuration.</p> <p>Hook-up of mooring chains to the FSO.</p> <p>Installation and hook-up of riser to the FSO including leak test.</p> <p>The leak test of the flexible riser was performed by OCS.</p> <p>The installation vessel used was the Smit Borneo.</p>	
2009/ 2010	Star Petroleum Kakap Field Redevelopment	PT Timas Suplindo	<p>Detailed installation engineering for installation of the subsea pipelines, platform risers and I tubes and subsea umbilicals.</p> <p>Chartering of pipelay installation vessel and dive support vessel.</p> <p>Prefabrication and offshore installation.</p> <p>Pipeline pre-commissioning using in-house personnel and equipment.</p>	Kakap Field located in the Indonesian West Natuna Sea
2008 /2009	Asia Petroleum Development (APD) – Glagah Kambuna Field Development	PT Timas Suplindo	<p>5 km beach approach.</p> <p>Duplex line pipe in the platform approach area.</p> <p>Chartering, pre-engineering and planning and management of pre-trenching, pipelay, hook up and post trenching marine equipment spreads.</p> <p>Pre and Post trenching of 13 km of the pipeline to a cover of 2 metres.</p> <p>Pre-commissioning and</p>	From the Kambuna platform offshore North Sumatera to a landfall Northeast of Medan



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Year	Project Title	Client	Scope of Work	Location
			post trenching of pipeline using in-house equipment. Topsides installation and Hook up.	
2008	Galoc Development Project	EOCP EMAS offshore Construction and Production	Pipeline Testing	65km off North West Coast of Palawan Island
2007/ 2008	GFI	EOCP EMAS offshore Construction and Production	Pipeline and Structural Installation	Gulf of Thailand

## 11. ISO CERTIFICATION



# Certificate of Registration

This certificate has been awarded to

**Offshore Construction Specialists Pte Ltd**

36 Kian Teck Road, Singapore 628781, Singapore

in recognition of the organization's Quality Management System which complies with

**ISO 9001:2015**

The scope of activities covered by this certificate is defined below

**Provision of Project Management and Consultancy Services for Oil and Gas Construction Facilities**

Certificate Number:

41578/B/0001/SA/En

Date of Issue: (Original)

04 November 2016

Date of Issue:

04 November 2019

Issue No:

2

Expiry Date:

03 November 2022

Issued by:



On behalf of the Director



If there is any doubt as to authenticity of this certificate, please do not hesitate to contact the Head Office of the Group on info@urs-certification.com  
URS is a member of United Registrar of Systems (Holdings) Ltd, United House, 4 Hinton Road, Bournemouth, BH1 2EE, UK. Company Registration no. 5296466  
URS Far East Pte Ltd, 7500A Beach Road #06-323, The Plaza, Singapore 199591

Page 1 of 1



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The scope of activities covered by this certificate is defined below

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Certificate Number:

41578/C/0001/UK/En

Date of Issue: (Original)

06 November 2016

Date of Issue:

06 November 2019

Issue No:

3

Expiry Date:

05 November 2022

Issued by:

On behalf of the Schemes Manager



If there is any doubt as to the authenticity of this certificate, please do not hesitate to contact the Head Office of the Group on info@urs-certification.com.  
URS is a member of United Registrar of Systems (Holdings) Ltd, United House, 4 Hinton Road, Bournemouth, BH1 2EE, UK. Company Registration no. 5298466

Page 1 of 1

## 12. NATA CERTIFICATION



NATA is Australia's government-endorsed accreditor of laboratories, and a leader in accreditation internationally. NATA is a signatory to the international mutual recognition arrangements of the International Laboratory Accreditation Cooperation (ILAC) and the Asia Pacific Accreditation Cooperation (APAC).  
AP8-1-0 / Issue 5 / May 2019

### 13. BCA CERTIFICATION

