REQUEST FOR INFORMATION (RFI) FOR ToT FOR CONSTRUCTION OF TWELVE MINE COUNTER MEASURE VESSELS (MCMVs) FOR INDIAN NAVY

Preamble

1. The Ministry of Defence (MoD), Government of India, intends to acquire the following from a foreign Prospective Collaborator through Transfer of Technology (ToT):-

(a) Complete Transfer of Technology (ToT) for production of Twelve MCMVs with GRP hull, in India at M/s Goa Shipyard Limited (GSL), Goa, a Defence Public Sector Undertaking (DPSU) herein referred to as the "Production Agency (PA)".

(b) Supply of 'Deliverables' for setting up of any additional production infrastructure at PA, hereinafter called 'Infrastructure Deliverables', including on the job training to the PA team that will be associated during the construction of MCMVs.

(c) The Government of India invites responses to this request only from Prospective Collaborators with capability and verifiable experience of building MCMVs with GRP hull.

2. Prospective Collaborators need to have proven capability for design and construction of similar GRP Hull MCMVs for transferring the Design & Build Technology to the PA. The design offered by the prospective Collaborator needs to be based on proven design of MCMV in active service.

3. Request for Proposal (RFP) will be issued to the qualified foreign shipyards (hereinafter referred as Collaborator) for Transfer of Technology for construction of twelve MCMVs at GSL, which would essentially include, but not limited to complete design of the ship as per *IN* specifications & other documentation including equipment specifications, delivery of specialised infrastructure deliverables, training of GSL personnel in design & production activities and specialist supervision during the production of these vessels at GSL. Any other specific requirements considered essential to meet requirements of Design & Construction of these vessels at GSL for implementation of the Project may be suggested by the Collaborator.

4. The Collaborator shall be required to aid and support new MCMV infrastructure facility and work in tandem with existing consultant & contractors by way of supply of information & know how on the processes and provision of required specialised equipment and integrate with current facilities in GSL for time bound construction of the MCMVs. The Collaborator shall be responsible for providing the complete Design and Build Technology as part of ToT for licensed construction of twelve MCMVs meeting the performance parameters as per specifications provided by *IN* with a provision for conclusion of supplementary contract between two sides for licensed production of additional ships as required in future. The successful bidder shall be responsible for the performance of the first three vessels, built at PA's Yard under the Collaborator's supervision. (Until completion of one year warranty, post delivery of the said vessels).

5. This Request for Information (RFI) consists of two parts as indicated below. Submission of incomplete response format will render the Collaborator liable for rejection:-

(a) Part I. The first part of the RFI incorporates requirement of ToT, operational characteristics and features that should be met by the proposed design of MCMVs. A few important technical parameters of the proposed MCMVs are also mentioned.

(b) Part II. The second part of the RFI states the methodology of seeking response of foreign Collaborators.

PART- I

6. The Intended Use of MCMVs (Operational Requirements). Mine Counter Measure Vessels (MCMVs) should be capable of Mine hunting, Mine neutralization, Mine sweeping with latest configuration of MCM suite consisting of Command and Control System, Hull Mounted Sonar, Side Scan Sonar, AUV, ROV, Mine Neutralisation, Mine Sweeping gear, etc as per *IN* specifications. Details are specified in the Operational/ Technical Requirements placed at Appendix A of this document.

7. Quantity Required. Twelve MCMVs are proposed to be acquired through the project. It is proposed to construct these MCMVs at M/s Goa Shipyard Limited (GSL).

8. Anticipated Broad Timeframes. The tentative schedule programme of activities is as follows:-

Sl	Activity	Date / Month
(a)	Issue of RFI	D
(b)	Submission of RFI response	D + 06 weeks
(c)	Issue of Tender Documents (RFP)	D *
(d)	Pre-bid Discussions	D * + 06 weeks
(e)	Submission of Tech-Commercial Proposal	D * + 12 weeks
(f)	Award of Contract for ToT (D_C)	D * + 21 months
(g)	Start production of first vessel at GSL	D_C + 18 months
(h)	Delivery of 1st vessel	D_C + 54 months
(j)	Delivery of 12th vessel	D_C + 120 months

The above timelines are indicative. Applicants may indicate build period and suggest most optimum timelines to meet overall schedule.

9. Important Technical Parameters. Important Technical Parameters are specified in the Operational/ Technical Requirements placed at Appendix A of this document. The following details are to be submitted as part of RFI response:-

(a) Feasibility to build the Mine Counter Measure Vessels (MCMVs) with the enclosed Operational/ Technical Requirements (Appendix A). Any modification to the specifications can be suggested by the Collaborator with suitable justification.

(b) Offer comments on feasibility of Transfer of Technology (TOT) during construction of twelve MCMVs at M/s GSL. Suggest alternative options, if any, including number of ships for which performance guarantee would be provided by the Collaborator.

(c) Budgetary quotes with breakup of cost including factors such as cost of Design & Technology (ToT), License fee, specialised equipment for building GRP hull (intended to be supplied by Collaborator or otherwise), Annual Maintenance Contract (AMC), product support package, training (with duration), supervision (with duration), MRLS (OBS, B&D Spares), trials in India, etc. Custom Duty/ Taxes are required to be factored for calculating overall cost and are to be quoted separately in the BQ.

(d) Typical Build Period of MCMVs of this class.

(e) Experience in building similar vessels along with client details.

(f) Memorandum of Understanding, if any, with respect to design aspects.

(g) Willingness for Option clause, including the duration for which the Option Clause would be valid.

(h) Willingness to offer Offsets, if proposal exceeds Rs 2000/- Crs, iaw provisions of DPP 2016.

(j) The Collaborators should submit details regarding Indigenous Content (IC) and the likely percentage of IC considered for the proposal, to aid at arriving at the Categorisation of the proposal.

(k) Whether the Collaborators would be able to comply with all provisions of DPP 2016. If not, Para/ Clause of DPP 2016 not agreed to need to be indicated with reasons.

(l) Collaborator may consider RFI as advance information to obtain requisite government clearances.

(m) The tentative delivery schedule for supply of the ToT and infrastructural deliverables (if any) after conclusion of the contract.

(n) Acceptability of terms of payment as per DPP-2016.

(p) The Firm/ Company/ Vendor shall submit an undertaking that they are currently not banned/ debarred/ suspended from undertaking business dealings with Government of India/ any other government organisation and that there is no ongoing enquiry by CBI/ ED/ any other government agencies against them. In case of ever having been banned/ debarred/ suspended from undertaking business dealings with Government of India/ any other government organisation in the past, the Firm/ Company/ Vendor shall furnish details of such ban/ debarment, alongwith a copy of the government letter under which the said ban/ debarment/ suspension has been lifted/ revoked.

10. Additional Specifications. The aim of seeking this RFI is also to finalise the specifications for the said vessels with inputs from vendors. Accordingly, the questionnaire placed at Appendix B may also be answered while responding to the RFI.

11. Responsibilities of Collaborator shall inter alia include but not be limited to:-

(a) Supply of Design including Production drawings, Calculations & Analysis, Classification approvals, Model Testing (In case identical proven hull is not delivered/ not in service), submission of results of FRP Structural Analysis, Propulsion System Integration, integration of all shipboard systems, results and analysis of underwater shock test and any other such tests or analysis that are required for getting approvals from relevant classification society or other agencies, etc.

(b) Provide details of Infrastructure Augmentation & Development along with supply of specialised infrastructural deliverables for construction of such vessels at GSL and to dovetail the same with infrastructure facility under development at GSL for this purpose, as per most optimum time line for the project. Schematic details of infrastructure available at GSL are enclosed at Appendix F for reference.

(c) Provide Training of GSL Personnel for Design, Planning, Production, QA/ QC etc., to ensure efficient “On the Job” training to GSL personnel and technology absorption, Collaborator to consider Training of GSL personnel at GSL for satisfactory implementation of the Project.

(d) Undertake Supervision of works during construction & trials of first three vessels at GSL, with a provision for increase in scope of Supervision for remaining vessels, if required, based on manday rates agreed during ToT Contract negotiations.

(e) Provide performance Guarantee till completion of warranty for three vessels to be constructed at GSL.

12. The vendor should confirm that the following process for acquisition in accordance with DPP 2016 is acceptable:-

(a) Solicitation of offers will be as per 'Single Stage-Two Bid System'. It would imply that a 'Request for Proposal' would be issued soliciting the technical and commercial offers together, but in two separate sealed envelopes. The validity of commercial offers would be at least 18 months from the last date of submitting of offers.

(b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP as per Para 55 - 57 of Chapter II of DPP 2016.

(c) Amongst the Collaborators cleared by TEC, a Contract Negotiations Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(d) The Collaborators would be bound to provide support for time period specified in the RFP, which includes design, technology related issues, essential construction modifications post delivery of vessels, spares including MRLS (OBS, B&D Spares) and maintenance tools/ jigs/ fixtures/ documentation required during construction, Tests & Trials and delivery of MCMVs.

(e) The Collaborators would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DPP 2016 placed on www.mod.nic.in.

(f) Offset (if applicable). The Vendor confirms to undertake offset Contracts amounting to 30% of the value of commercial proposals.

(g) Integrity Pact. An Integrity Pact along with IPBG is a mandatory requirement. (refer Annexure I to Appendix H of Schedule I to Chapter IV of DPP 2016).

(h) Performance-cum-Warranty Bond. A Performance-cum-Warranty Bond equal to 10% of value of contract, as per DPP 2016, is required to be submitted after signing of contract.

13. Taxation.

(a) Indirect Taxes.

(i) All Taxes and duties/ levies, cess etc on equipment, material, ToT, completed products and services as applicable in the Collaborator's country shall be paid by the collaborator and included in the Commercial Bid.

(ii) All Taxes and duties/ levies, cess etc on equipment, material, ToT, completed products and services as applicable in India shall be payable at actual by GSL.

(b) Direct Taxes. All Direct taxes applicable in India on the Contract will be borne by the Builder except the Income Tax applicable on the salaries and other payments made to the employees of the collaborator, deputed in India for the work (including training and supervision).

14. Pre-RFP Conference. A conference prior issue of RFP would be held with all qualified bidders to discuss and address issues and queries indicated in response to the RFI. Accordingly, respondents are required to indicate areas of concern on the outline of ToT collaboration, as a separate enclosure in their response to RFI.

PART- II

15. Procedure for Response.

(a) The envelope containing application for RFI together with required prequalification information, compliance for scope of work (as per enclosed Appendices) and supporting documents must be duly completed and addressed to "The Commodore (Ship Production)", and sent by Post/ Courier Service or delivered personally at the Directorate of Ship Production, Ministry of Defence (Navy), 9th Floor, Chanakya Bhawan, Chanakyapuri, New Delhi – 110021; on

or before 10 May 19 Documents received late, will not be considered and will be returned unopened. If, however, the above date happens to be a holiday, RFI shall be received up to the next working day till 1500 hours (IST).

(b) The Collaborators must fill the form of response, as given in Appendix B to Chapter II of DPP 2016 and *Appendix C of this document*. Apart from exact details about Collaborator, details about the exact vessel meeting the mentioned operational/ technical specifications (Appendix A and Appendix B of this document) should also be carefully filled. Additional literature on the vessel can also be attached with the form.

(c) The filled form should be dispatched to the under mentioned address: -

The Commodore (Ship Production)
Directorate of Ship Production
IHQ-MoD(N), 9th Floor, Chanakya Bhawan,
Chanakyapuri
New Delhi - 110021.
India.
Tele: 0091-11-26886429 : Fax : 0091-11-26886426 : E-Mail: dsp@navy.nic.in

(d) Last date of acceptance of filled forms along with details sought is 10 May 19 (Six weeks from the date of uploading of RFI on MoD website). The Collaborators short-listed for issuance of RFP would be intimated.

16. The Government of India invites responses to this request only from Foreign Collaborators who qualify the criteria specified in Appendix D. The end user of the MCMVs is the Indian Navy.

17. This information is being issued with no financial commitment and the Ministry of Defence (MoD) reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw the case should it be so necessary at any stage. The acquisition process would be carried out under the provisions of DPP 2016 available on www.mod.nic.in.

18. General Instructions/ Notes

(a) All copies of documents submitted along with RFI should be clear, legible and self certified by the Authorised representative of the Applicant.

(b) MoD reserves the right to physically check the original documents/ certificates, the copies of which are submitted along with the RFI.

(c) The applicant language of communication for all activities connected to this RFI and tasks thereof shall be in English.

(d) All documents to be submitted should be in English language. Original documents, not available in English language should be translated in English and attested by Commercial attaché or equivalent rank official in Indian Embassy in respective country or appropriate legal authority in respective country authorised to certify the true copies & endorsed by Indian Embassy official.

(e) MoD reserves the right to cancel this process of RFI at any time without any financial or otherwise liability and without assigning any reasons thereof.

(f) The Applicant should be able to obtain export clearances and such other statutory clearances from their Government for implementing the MCMV programme of GoI/ MoD as part of this bid.

(g) The Applicant must give a declaration stating that under the existing regulations of their country, there is no bar or restrictions on the Applicant for transfer of the technology.

(h) The Applicant may kindly note that they will be required to sign a Non-Disclosure Agreement (NDA) and Integrity Pact (IP) at the time of submission of RFP.

(j) The Applicant shall bear all costs associated with preparation and submission of RFI and RFP including costs and expenses related to visits to MoD in connection with the MCMV Programme. MoD will in no case be responsible or liable for those costs and expenses regardless of the outcome of the process.

(k) The Applicant must meet the minimum criteria regarding the Applicant's specific and particular experience, specified in this document, as demonstrated by the Applicant's responses provided in the Forms at Appendix D and Appendix E and other requested documentation.

(l) The applicants may note that mere meeting of the minimum criteria does not entitle any company/ firm/ organisation the right for appointment.

19. Submission of Information/ Documents: Information should be submitted in the formats specified in this document. The Prequalification documents shall be submitted as follows: -

(a) Two paper (hard) copies with all supporting documents

(b) One digital copy (on CD) of entire documentation.

(c) With covering letter duly signed by Authorised Representative of the company with company's seal. Document in support of authorisation granted to authorised representative to be submitted.

20. Failure by the Applicant to provide information/ documents, which is essential to evaluate the Applicant's qualifications, or to provide timely clarification or substantiation of the information supplied may result in disqualification of the Applicant.

21. Any information/ clarifications regarding this subject matter can be obtained from : -

Captain Pankaj Sharma, Captain (Ship Production)
Email: dsp@navy.gov.in
Telephone: +91-11-26886429
Fax : +91-11-26886426

22. Qualifying Criteria. The Applicant shall meet the minimum criteria indicated in the Appendix D. The applications for RFI without required documentary evidences will be rejected.

Appendix A
(Para 6 of RFI refers)

OPERATIONAL / TECHNICAL SPECIFICATIONS FOR MINE COUNTER MEASURE VESSELS

Operational/ Technical specifications, as envisaged by Indian Navy (IN), are enumerated below.
These specifications are indicative requirements and will be finalised based on response to this RFI and interaction with potential Collaborators.
Collaborators are requested to examine these requirements and indicate compliance.
In the eventuality of a variation in the Collaborator's proven design from IN's envisaged requirements, bidding Collaborators are to indicate fit/ value/ parameters that can be best met by the Collaborator's proven design.

Sl	Description	*IN* Requirements	Collaborator's Response
SECTION A - ROLES AND CAPABILITIES			
1.	Role	(a) Operational Roles. The Primary, Secondary and Constabulary roles that these ships are envisaged to perform are as follows:- (b) Primary Roles. To locate, classify, sweep and neutralise all types of ground, moored and drift mines. (c) Secondary Roles. (i) Channel conditioning/ route survey / sanitisation. (ii) Local Naval Defence. (iii) Search and Rescue. (d) Constabulary Role. MIO and VBSS Ops.	
2.	Capabilities	(a) Mine Hunting, Mine Neutralisation and Minesweeping capabilities with a MCM Command and Control System as follows:- (i) Mine Hunting utilising equipment capable of mine detection and mine classification using Hull Mounted Sonar (HMS) and Side Scan Sonars (SSS), Unmanned Underwater Vehicles (UUVs) such as Autonomous Underwater Vehicle (AUV) / Propelled Variable Depth Sonar (PVDS) and Mine Identification & Disposal Vehicles. (ii) Mine Neutralisation utilising Expendable Mine Identification and Disposal Vehicle. (iii) Mine Sweeping utilising equipment capable of Sweeping/ neutralising Ground, Influence and Moored mines. (iv) MCM Command and Control system to plan, execute and evaluate MCM and survey missions.	

Sl	Description	*IN* Requirements	Collaborator's Response
		(b) Adequate anti-surface warfare capability for LIMO. (c) Adequate anti-air capability for self defence. (d) Endurance not less than 10 days. (e) High degree of automation to reduce manpower and improved habitability. (f) Automated weapon, sensor and machinery monitoring systems including CAAIO. (g) Suitable RIB for MIO / VBSS operations at sea. (h) NBCD and FF capability. (j) Enclosed Bridge with suitably located Ops Room. (k) Adequate NCO and communication capability. (l) Adequate redundancies in terms of equipment, viz. Emergency cabling, redundancy of networks, dispersal of switchboards, uninterrupted power supplies adequate margins of 'growth' to retrofit equipment and carryout Mid Life upgrade. (m) Incorporate very low acoustic, magnetic, electrical and pressure signatures. (n) Facilitate precise navigation and maneuvering. (p) High shock resistance against underwater explosions. (q) Capable of embarking divers with diving stores in addition to the ship's complement. (r) Dynamic Positioning System (DPS) integrated with Integrated Platform Management System (IPMS) and MCM Command and Control System. (s) Good sea keeping with no degradation in operation of Weapon and Sensors till Sea State 3, with reduced efficiency in Sea State 5. (t) High internal, impact and damage stability. (u) Conformity of equipment fit to latest IMO / MARPOL / MEPC regulations in force, wherever applicable. (v) Latest ship design concepts with ergonomic design and crew comfort.	

Sl	Description	*IN* Requirements	Collaborator's Response
SECTION B – OPERATIONAL CHARACTERISTICS			
1.	Mission Duration	The ship should be capable of sustaining its mission for at least 10 days at economical speed.	
2.	Op Cycle	The ship is to follow Ops-cum-Refit cycle of ≥ 18 months duration followed by a period of refit.	
3.	Speed	(a) Maximum sustained speed on main propulsion not less than 16 knots at 85% Maximum Continuous Rating (MCR) of the engines. (b) Economical speed not less than 11 knots. (c) Prolonged low speed running with auxiliary propulsion for MCM operations between 0 - 6 kn over 24 hr. Restriction in Engine hours should not be an over bearing consideration to enable flexibility in tasking.	
4.	Endurance and Range	The ship should have an endurance of not less than 10 days and have a range of about 2000 nm at economical speed with 25% reserve fuel.	
5.	Degaussing	The ship should have computerised tri-axial DG system catering for automatic compensation with ship's RLG. Automatic compensation for ship's heading and manual latitude correction upto 70 deg *N/S* latitude. The degaussing system should be capable of reducing both the permanent and induced magnetism.	
SECTION C- WEAPONS, SENSORS NAV AND COMMUNICATION EQUIPMENT			
1.	Weapons	(a) Self defence and LIMO armament to include the following:- (i) One light weight 30 mm anti-surface NSG with EOFCS. (ii) Two 12.7 mm SRCGs for Force Protection Measures. (iii) High power search lights with remote activation and control. (iv) Acoustic Warning Device. (b) Very Short Range Air Defence System (VSHORADS). (c) Smalls arms as per allowance list. (d) Demolition stores as required.	
2.	Sonars	The ship is to be fitted with a Hull Mounted Sonar (HMS) and a Side Scan Sonar (SSS) for mine detection and classification	

Sl	Description	*IN* Requirements	Collaborator's Response
		operating in combined or stand alone mode and integrated with the MCM Command and Control system.	
3.	MCM Command and Control System	The ship is to be fitted with a MCM Command and Control System capable of Planning, Execution and Evaluating MCM missions. The system should be capable of being interfaced with ship borne sensors and all Mine Hunting equipment onboard. The MCM Command and Control system should have suitable data recording facility.	
4.	Mine Identification and Disposal System	The ship is to be fitted with system capable of launching, Identification recovering and guiding Expendable and / or Reusable Mine Identification and Disposal Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs) / Propelled Variable Depth Sonar (PVDS) for detection, classification and identification of mines and subsequent mine disposal. All equipment for mine detection classification and identification are to be integrated with the MCM Command and Control System. The control of the vehicles is to be through a ship borne control console and a portable control unit.	
5.	Autonomous Underwater Vehicles	The MCMV should be able to operate Unmanned Underwater Vehicles like AUVs / PVDS integrated with the MCM Command and Control System. The AUVs / PVDS should be capable of operating in wide range of depth from shallow to deep waters and have extended endurance. The AUV should be able to operate in autonomous, semi-autonomous, supervised or in tethered mode.	
6.	Stowage	The stowage in a sheltered 'hangarage' space for AUVs / PVDS, ROVs, Mine Identification and Disposal vehicle is to be provided.	
7.	Mine Sweeping	The ship is to be fitted with equipment capable of undertaking minesweeping of Ground and Moored mines.	
8.	Data Compatibility	All the sensors in the MCM suite (Hull mounted sonar, AUVs / PVDS, ROVs and SSS) should have suitable data recording facility with features for filtering, stowage in portable device for transportation. The data recorded should be compatible with the requisite format for Mine Warfare Data Centre (MWDC) of the Indian Navy.	
9.	Underwater Telephone	Underwater Telephone with a flush transducer is to be provided.	
10.	XBT	Expendable Bathy Thermograph (XBT) for measurement of the sea water temperature at various depths.	
11.	Ammunition	(a) Magazine space for adequate ammunition for the guns including small arms. (b) Magazine space for stowage of VSHORADS. **Collaborator to indicate the numbers possible to stow**. (c) Magazine for storing Expendable ROVs. (d) Magazine for demolition stores.	

Sl	Description	*IN* Requirements	Collaborator's Response
12.	Situational Awareness System with Data Link	(a) The ship is to be fitted with a suitable situational awareness system with data link for network centric operations and quick response for situations at sea. (b) The ship should also have a Ship Data Network (SDN) which should form the backbone for networking all weapons, sensors, Ship's house Hold Data (SHHD) and MCM equipment and integrating the Situational awareness system with data link to enable exchange of data between ship borne systems. Networks like IPMS, IBS and ACCS are to be interfaced to SDN via suitable gateways, if required. (c) Versatile Control Console (VCS). The VCS for internal communication is to be analog and thus not interfaced with SDN. (d) Administrative LAN (ALAN). The ship is to be fitted with an integrated ALAN system for networking all offices and accommodation spaces. The ALAN is to be independent of SDN.	
13.	Navigation System	(a) All navigational aids should be available onboard the ship, viz. Integrated Bridge System (IBS), ECDIS, AIS, LRIT, DGPS, two I-band COTS radars with ARPA displays etc. The system fitted should comply with the latest IMO regulations. (b) Integrated Navigation System to collate all positional inputs and give the most accurate position. (c) Other navigational aids would include gyro, log, echo sounder, DGPS, GPS, wind speed and direction indicator, magnetic compass and GPS for boats. (d) Standard Naval IFF system (transponder only) should also be fitted. (e) Remote control of Main and auxiliary machinery is to be provided. (f) The ship is to be provided with an auto pilot with control position on bridge for navigation and in ops room for MCM role.	
14.	CCTV	(a) The CCTV camera for external surveillance is to as follows:- (i) Forward Section. One Pan Tilt Zoom (PTZ) camera each on Port and Stbd side, at a suitable location near the Bridge Wings / Bridge Top. (ii) Amidships Section. One Pan Tilt Zoom (PTZ) camera each on Port and Stbd side, in the midship section. (iii) Gangway Monitoring. Two fixed cameras each on port and stbd side, near the gangways. (iv) Aft Section. Two Pan Tilt Zoom (PTZ) cameras at a suitable location in the aft section of the ship for surveillance in rear section for monitoring minesweeping and mine hunting operations.	

Sl	Description	*IN* Requirements	Collaborator's Response
		(b) The CCTV requirement for internal compartments is as follows:- (i) Entrance to the magazines, armoury, galley, ship's canteen and main alleyways. (ii) Compartments used to store hazardous / inflammable stores. (iii) Compartments fitted with safe for Imprest.	
15.	Communication Outfit and Data Link	(a) The ship should have an Advanced Composite Communication Suite (ACCS) integrating all external communication equipment in all modes (Voice, Video and IP based data) to the communication data-bus. The number of aerials should be limited by using the concept of 'common aerial working' or similar concept. The ACCS should be fully compatible with the data link equipment. The communication equipment is to be as follows:- (i) Sufficient V/UHF sets. (Collaborator to define the number of sets offered) (ii) Software Defined Radios (SDR) covering V/UHF, HF and Data communication. (iii) SATCOM (fixed & Portable) equipment on indigenous satellite as well as INMARSAT. (iv) VLF (for reception of VLF broadcast and plot transfer) equipment. (v) HF sets for long distance two-way communication i.e receive HF digital broadcast and transmit high speed digital messages and plots. (vi) Equipment which are part of IMO regulations. (vii) Cryptographic equipment. (viii) Speech secrecy and data security equipment. (ix) Portable (HF and V/UHF). (x) Visual Signalling equipment.	
16.	Simulators	Suitable simulators for MCM suite (Hull mounted sonar, AUVs / PVDS, ROVs, SSS, Sweeps and MCM Command and Control System) are to be provided for training ashore.	
<u>SECTION D - MACHINERY AND POWER GENERATION</u>			
1.	Type of Propulsion	(a) Propulsion system should be able to provide the required power to weight ratio required for the ship. The main engine	

Sl	Description	*IN* Requirements	Collaborator's Response
		should be capable of achieving the rated speed at 85% of the MCR. The propulsion system should be suitably designed to meet the stealth requirement of the ship. The ship's MCR should have automated and remote monitoring and indication and control capability for all machinery including PGD. (b) The main engine configuration could be one of the following two options:- (i) Voith Schneider propulsion for the entire range of operation so as to attain a maximum ship speed of 16 Kn along with a Bow Thruster. The propulsor for the Voith Schneider propulsion is to be the Diesel engines. OR (ii) Voith Schneider propulsion for the entire range of operation so as to attain a maximum ship speed of 16 Kn alongwith a Bow Thruster. The propulsor for the Voith Schneider propulsion is to be the Diesel engine for transit and electric motors for MCM operations.	
2.	Auxiliaries	Auxiliary systems like AC, refrigeration and ventilation, fire main, salvage, ballast and other relevant auxiliary systems as per class requirements and considered necessary for meeting operational requirements to be provided.	
3.	IPMS	The Integrated Platform Management System (IPMS) shall be dual redundant Gigabit Ethernet Network, distributed architecture system covering the ship machinery and systems. The purpose of the integrated system shall be to provide control and monitoring of the propulsion machinery, power generation and distribution, auxiliary machinery and Damage control (NBCD) machinery and systems through corresponding subsystems.	

<table>
<tr><th>Sl</th><th>Description</th><th>IN Requirements</th><th>Collaborator's Response</th></tr>
<tr><td>4.</td><td>Power Generation and Distribution</td><td>(a) An independent APMS system with switchboard should be provided to cater for 100% reserve power and redundancy vis-a-vis maximum electrical load envisaged at any operating regimes of the ship assuming an ideal loading of generators to 80% of the nominal rating. The APMS system is to be suitably interfaced with IPMS.
(b) Generators should be suitable for unattended parallel operations.
(c) The electrical system and machinery and associated equipment shall conform to naval standards over and above other classification rules.
(d) The following power supplies are to be made available onboard the ship:-

<table>
<tr><td>Ser</td><td>Voltage</td><td>Freg</td><td>Phase</td><td>Remarks</td></tr>
<tr><td>(i)</td><td>415V</td><td>50Hz</td><td>3 Phase</td><td>Main Supply</td></tr>
<tr><td>(ii)</td><td>230V AC</td><td>50 Hz</td><td>1 Phase</td><td>From 425 V, 3 ph 4 wire, system</td></tr>
<tr><td>(iii)</td><td>24V</td><td>DC</td><td>-</td><td></td></tr>
<tr><td>(iv)</td><td>Converted Supplies</td><td colspan="3">As per the requirement</td></tr>
</table>
</td><td></td></tr>
<tr><td>5.</td><td>Emergency DA</td><td>Emergency DA to be provided to cater for emergency power supply for communication and navigation equipment.</td><td></td></tr>
<tr><td>6.</td><td>Conversion Machinery</td><td>Suitable conversion machinery/equipment to provide requisite quality converted supplies to be provided as per IN policy.</td><td></td></tr>
<tr><td>7.</td><td>RO Plant</td><td>The ship should be fitted with RO plants of not less than 20 T per day capacity and water storage capacity of not less than 30 T to enable sustained operations when employed in shallow waters (upto 20 m depth).</td><td></td></tr>
<tr><td>8.</td><td>Cold and Cool room</td><td>Cold and Cool rooms to carry fresh victuals for at least 15 days and dry provision store to keep rations for at least 30 days should be provided.</td><td></td></tr>
<tr><td>9.</td><td>Material</td><td>All machinery, auxiliaries, equipment are to be made of non-ferrous material to the extent feasible.</td><td></td></tr>
<tr><td>10.</td><td>Vibration Calibration System</td><td>A suitable system to undertake online vibration monitoring of various critical equipment is to be provided. This system should be integrated with IPMS and should have features for data recording, analysis and remote monitoring ashore by a suitable shore based facility.</td><td></td></tr>
</table>

Sl	Description	*IN* Requirements	Collaborator's Response
SECTION E - DESIGN CONSIDERATIONS			
1.	Displacement	Commensurate to the draught of the ship as per design.	
2.	Dimensions	Beam and length - Commensurate with the draught and displacement of the ship.	
3.	Draught	≤ 3.5 m (in Full Load Condition).	
4.	Sea Keeping	(a) The ship should be capable of the following:- (i) Operational seaworthiness upto 3. (ii) Survivability upto Sea State 7. (iii) Transit on all headings upto Sea State 4 and most suitable heading in Sea State 5.	
5.	Stability	The vessel should satisfy the stability requirements for both intact and damaged condition, including growth margins as per NES 109 - 2000 for Naval vessels in military role.	
6.	Type of Hull Form	The ship is to be constructed of GRP hull. The hull construction should be a proven hull form based on existing minesweepers.	
7.	Shock Standards and Damage Resistance	(a) All equipment are to be mounted on shock mounts. (b) Ship should be able to perform under designer specified shock grading. Collaborator to provide details, including details of shock tests (simulation/ real time) carried out. (Collaborator may forward these details under separate sealed/ confidential envelope / password protected soft copy) (c) The ship is able to withstand underwater shock not exceeding lighting failures, electrical failures, some pipe leaks and possible pipe ruptures. This should not cause aborting of the mission. (d) The ship is able to withstand underwater shock not exceeding general machinery damage and able to return to base unaided	
8.	Habitability	Latest ship design concepts wrt ergonomics/functional aspects and crew comfort are to be adopted. Equipment is to be sited so as to cause minimum discomfort / disturbance to crew in operational compartments and messes. Modular and ergonomically designed furniture should be fitted onboard using lightweight composite (fire resistant) material. The bunks are to be provided for 110 % of the ship's complement.	

Sl	Description	*IN* Requirements	Collaborator's Response
9.	Complement	The ship would have a complement of approximately 7 officers (CO + 6) and 44 sailors (14 Senior Sailors and 30 Junior Sailors).	
10.	Stealth Features	(a) The ship should have minimal magnetic, acoustic, pressure and electrical signature as part of ship design and selection of equipment. (b) Noise Reduction. Maximum noise reduction should be achieved both in hull design and selection of machinery for minimising self and radiated nose. Shock mounts for machinery and equipment and low vibration to ensure low acoustic noise should be integral part of design. Self Noise monitoring system should be incorporated as part of the Hull mounted Sonar Suite.	
11.	Boats	(a) One RIB (4.7 m) capable of being handled by nonferrous crane. (b) One Gemini craft with wooden chocks for stowage. (c) One OBM tank for stowage/cleaning of OBMs. (d) RIB to be re-configurable for FPM role with provision for fitting LMG / MMG.	
12.	Davits / Lifting gear	At least two non-magnetic anti-shock cranes for hoisting / lowering of Mine Sweeping equipment, Mine Identification and Detection System, ROVs, AUVs /PVDS and SSS are to be provided.	
13.	Service Life	The ship should have a service life of at least 30 years.	
14.	Towing	Capability and towing arrangement for towing similar class of ships. Towing arrangement forward and aft including emergency disengaging facility.	
15.	Accommodation / Domestic arrangement	(a) One cabin for CO with attached toilet, shower and pantry. Suitable cabins for six officers, multi bunk cabins for senior and junior sailors. (b) Ward room for officers, dining halls along with recreational space for sailors, suitable galleys, laundry, adequate WCs and bathrooms.	
16	Medical	Two-bed sick bay along with other medical facilities.	
17.	Diving and EOD Equipment	The ship is to be provided with Diving and Explosive Equipment Ordnance Disposal Equipment and a Diving hyperbaric chamber for supporting four divers upto 90m depth.	
18.	NBCD	The ship should be designed to pass through an NBCD fallout area and should therefore be designed with a citadel and AFUs covering sections essential for optimum operational performance of the vessel. It should have the following in addition:-	

Sl	Description	*IN* Requirements	Collaborator's Response
		(a) Addressable fire, flood, smoke and gas (in selected compartments) detection and alarm systems. (b) Magazine automatic fire fighting systems with independent sensors. (c) Compartment flood, fire and smoke monitoring and alarm systems. (d) Fixed major fire fighting systems (Water mist) in all machinery compartments along with standby fire fighting system. (e) Fire fighting system integrated with the addressable fire detection system based on new age extinguishing agents for entire ship. (f) Independent DCHQ for controlling all NBC/ DC and FF system and their monitoring and indication. (g) Automatic galley fire fighting system. (h) Ship Installed Radiac System (SIRS). (j) Battle Damage Control System (BDCS). (k) Pre-wetting system. (l) Adequate provisioning of DC and FF lockers throughout the ship for complete stowage of CNAL items. (m) Provision of fixed smoke extraction fans in each zones with multiple intake points and remotely operated from DCHQ. (n) Provisioning of emergency bulkhead connections. (p) Provision for fixed shores in all red risk zone hatches. (q) Outside the galley a lockable arrangement for switching ON/OFF all the galley equipment to be provided. (r) Remote indications of galley equipment in DCHQ to be provided. (s) Ship Installed Chemical Agent Detection System (SICADS).	
19.	Watertight and Gas tight Integrity	(a) Water tight boundaries are to be in accordance with NES 876, issue 1 regarding surface ship subdivision and NES-109-2000, issue 4 Part 1 for ships stability. All watertight boundaries should extend upto V line and all openings below the V line should be watertight. Other openings may be air/weather tight depending on design. (b) Air pressure test to be done in accordance with INBR 31 and IHQ MoD(N) guidelines. (c) Citadels to be provided and tested as per Naval standards. Ventilation is to be iaw NES 102.	
20.	Rules and	The international conventions and regulations, as listed below and as applicable, are to be applied as far as the operability of the	

Sl	Description	*IN* Requirements	Collaborator's Response
	Regulations	ship as military vessel allows it:- (a) International Convention for Safety of Life at Sea (SOLAS). (b) 1972 International Convention for Prevention of Collision at Sea. (c) International Convention for Prevention of Pollution from Ships (MARPOL) along with IMO Regulations MEPC 159/55 for sewage, galley waste, garbage disposal etc. (d) ICOS (IMO- International Code of Signals). (e) ISO 9943 - Ventilation and Air - Treatment of Galleys and Pantries with Cooking Appliances. (f) Effluent/emission treatment for overboard and underwater discharges and funnel discharges, commensurate with the International Convention for the Prevention of Pollution from ships 1973, Protocol 1978. (g) Rules of Navigation and Tonnage Regulations for Suez and Panama Canal Authorities, including Measurement. (h) International Convention on Load lines, 1966 and the International Convention on Tonnage Measurement. (j) Growth Margin to be in accordance with NES 109 criteria for warships. (k) Classification Standards. The ship is to be built as per ABS/BV/DNV-GL/LR/RINA classification society rules.	

Appendix B
(Para 10 of RFI refers)

QUESTIONNAIRE FOR MINE COUNTER MEASURE VESSELS (MCMVs)

1. What will be the displacement / dimensions of the ships?

2. What are the comments on proposed Delivery Schedule of the vessel?

3. Feasibility to build the Mine Counter Measure Vessels (MCMVs) with the indicated Operational/ Technical Requirements (Appendix A). Any modification to the specifications can be suggested by the Collaborator with suitable justification.

4. Offer comments on feasibility of Transfer of Technology (TOT) during construction of twelve MCMVs at M/s GSL. Suggest alternative options, if any, including number of ships for which performance guarantee would be provided by the Collaborator.

5. What are the capacity/ infrastructure requirements essential at PA's Yard to meet the delivery schedule?

6. What would be the approximate cost of the vessel and Collaborators financial capability to undertake the project, including providing requisite Bank Guarantees essential as per DPP-16 requirements?

7. What is the past experience of Collaborator in similar projects?

8. What are your order book status?

9. Details to be submitted for generating/ refining/ rationalizing the indicated/ envisaged requirements prior issuance of RFP (Appendix A).

10. Furnish details that go into determining the cost of the scheme, including factors such as Annual maintenance Contract (AMC), product support package, training, etc.

11. What are the applicable key technologies and materials required for manufacturing of the equipment/ system/ platform and the extent of their availability or accessibility in case they are not available in India?

12. What is the approximate cost estimation and suggestions for alternatives to meet the same objective as mentioned in RFI?

13. Availability of the special equipment (if any) for building the MCMV as per offered Technology in the Indian market, level of indigenization, delivery capability, maintenance support, life time support etc.

Appendix C
(Para 15(b) of RFI refers)

INFORMATION PROFORMA
(FOREIGN VENDORS)

1. Name of the Vendor/Company/Firm_____
_____
(Company profile, in brief, to be attached).

2. Type (Tick the relevant category)

Original Equipment Manufacturer (OEM)	-	Yes/No
Government sponsored Export Agency	-	Yes/No (Details of Registration to be provided)
Authorised Vendor of OEM	-	Yes/No (Attach details)

Others (give specific details)_____
_____

3. Contact Details
Postal Address: _____ _____
_____
City :_____ Province :_____
Country: _____ Pin/Zip Code :_____
Tele : _____ Fax : _____
URL/Web Site:_____ E-mail : _____

4. Local Branch/Liaison Office /Authorised Representatives, in India (if any).
Name & Address _____
City :_____ Province :_____
Pin Code:_____ Tele:_____ Fax:_____

5. Financial Details.
(a) Annual turnover :_____(in USD)
(b) Number of employees in firm: _____
(c) Details of manufacturing infrastructure available:_____
_____
(d) Earlier contracts with Indian Ministry of Defence/Government agencies:-

Agency	Contract Number	Equipment	Quantity	Cost

6. Certification by Quality Assurance Organisation (If Applicable).

Name of Agency	Certification	Applicable from (Date & Year)	Valid till (Date & Year)

7. Equipment/ Product Profile (to be submitted for each product separately).
(a) Name of Product: _____

(Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature): _____
_____

(c) Whether OEM or Integrator: _____

(d) Status (in service/design & development stage): _____
_____

(e) Production capacity per annum: _____

(f) Countries where equipment is in service_____

(g) Whether export clearance is required from respective Government _____

(h) Any collaboration/joint venture/co production/ authorised dealer with Indian Industry (give details):

Name &Address:

Tel: Fax:

(j) Estimated price of the equipment.

8. Alternatives for meeting the objectives of the equipment set forth in the RFI.

9. Any other relevant information: _____
_____

10. Declaration. It is certified that the above information is true and any changes will be intimated at the earliest.

Note: Para 44 and Appendix F to Chapter II of DPP 2016 may be referred.

(Authorised Signatory)

Appendix D
(Para 16 of RFI refers)

MINIMUM QUALIFYING CRITERIA FOR ISSUE OF RFP FOR TRANSFER OF TECHNOLOGY FOR TWELVE MCMVs TO M/s GSL

1. Should be a shipyard who has built GRP hull Mine Counter Measure Vessel(s) of similar specifications in the past, which has been in active service.

2. Having sound financial status to meet the requirements of DPP-16.

3. Possess adequate capacity (considering the existing and future work load) for undertaking the scope of work defined in Part I of RFI.

4. Is the Collaborator willing to undertake the Transfer of Technology to facilitate shipbuilding of 12 MCMVs in an Indian shipyard (M/s GSL)?

5. Does the Collaborator have the requisite governmental clearances from it's host country, to facilitate the Transfer of Technology and share classified data on the standards being followed?

6. Specific Experience The Applicant must demonstrate for items below of having performed the stated activities within a period of last twenty years.

(a) Minimum Criterion: Applicant should be an existing renowned foreign Collaborator which has proven design and production capability with successful track record of designing, constructing (in their own shipyard) and delivery of MCMV vessels of GRP Hull, equipped with MCM suite for any Navy of repute and presently in active service.

(b) The Collaborator should provide following details

	Vessel 1	Vessel 2	Vessel 3	Vessel 4	Vessel 5	Vessel 6
Details of GRP hull MCMVs designed, built and delivered						
Project: Vessel (name /class)						
Name & location of shipyard where the vessel was built						
Client name & reference						
Start & completion date of each vessel						
Vessel main particulars						
(a) Length						
(b) Beam						
(c) Displacement, T						
(d) Draught, Mtr						
(e) Speed, Max						
(f) Details of MCM Suit fitted						
(g) GRP hull building technology						

Appendix E
(Para 18(j) of RFI refers)

ADDITIONAL INFORMATION TO BE SUBMITTED BY THE FOREIGN COLLABORATOR

1. Summary Sheet: Organization Structure/ Legal Status/ Current Contract Commitments / Works in Progress

Name of Applicant:

The Applicant firm shall submit with RFI, the organization structure, legal status of the firm, place of Registration, principal place of business and brief on business activities undertaken by the firm, the ownership details, shareholding pattern, details of manpower viz. discipline and geographical location wise permanent manpower strength for providing support in execution of proposed MCMV project, names and addresses of the present Directors and the Senior Management and such other relevant details as the Applicant may like to share in the following format.

(i) Corporate Profile

……
……
……..

(ii) Corporate Structure:

……
……
……..

(iii) Applicant's Technical Capacity(State total number of professional staff indicating each individual's experience / qualification):

……
……
……..

(iv) Applicant's Facilities and Experience in Shipbuilding

……
……
……..

(v) Applicant should provide information on their work performed in the last 5 years and also the current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued in the following format

Year	Project Name/Client	Contract No. & Date	Value of Contract US $	Stipulated Period of completion	Actual date of completion

2. Financial Capability

Name of Applicant

The Applicant shall furnish complete audited annual financial year statements for last 3 years including balance sheets, profit & loss account statement, Audit Reports and all other schedules of immediate preceding financial year, self-certification of being not under liquidation, court receivership or similar proceeding. Applicant should provide financial information to demonstrate firm's capability for assessment of the financial status by MOD. If necessary, use separate sheets to provide complete banker information.

(i)	Name of banker(s)	
(ii)	Address of banker(s)	
(iii)	Telephone	Contact name and title of Senior Bank official
(iv)	Fax	E-mail

3. Litigation / Arbitration History

Name of Applicant

Applicant should provide information on history of Court litigation or arbitration proceedings resulting from contracts executed in the last five years or currently under execution. The information should also be provided for any significant sub-contractors.

Year	Decree / Award for or against Applicant	Name of client, cause of litigation, and matter in dispute	Disputed amount (current value, USD equivalent)

4. Compliance Table (Compliance to all RFI Clauses)

Sl	Section / Para	Compliance/ Partial Compliance of para / Sub para of the Main (Yes/ No)	Reasons/ Justifications for noncompliance /Suggestions (If any)	Remarks

Name and Stamp of Company:

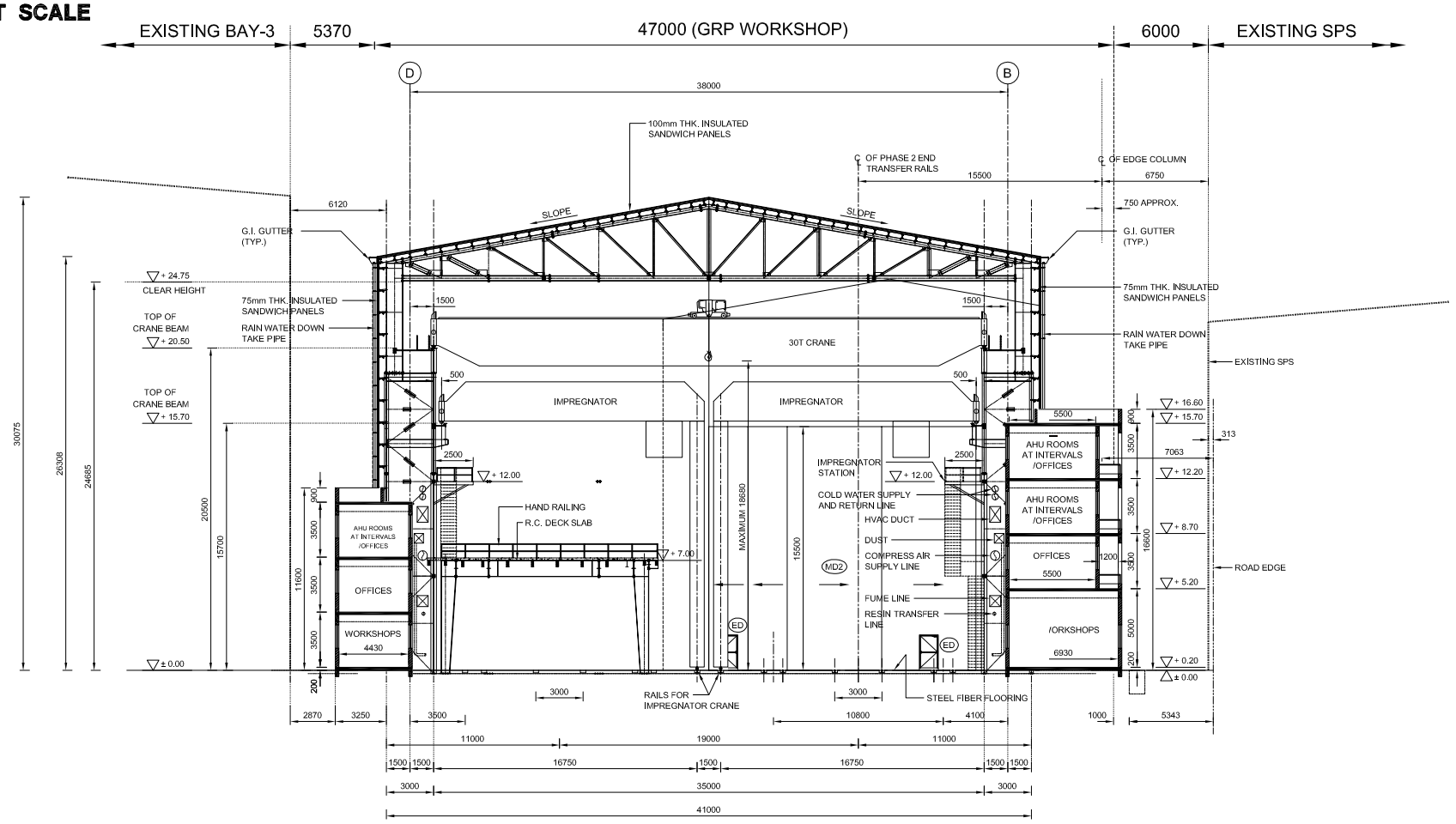
Name & Signature of authorised representative of the Applicant:

Date:

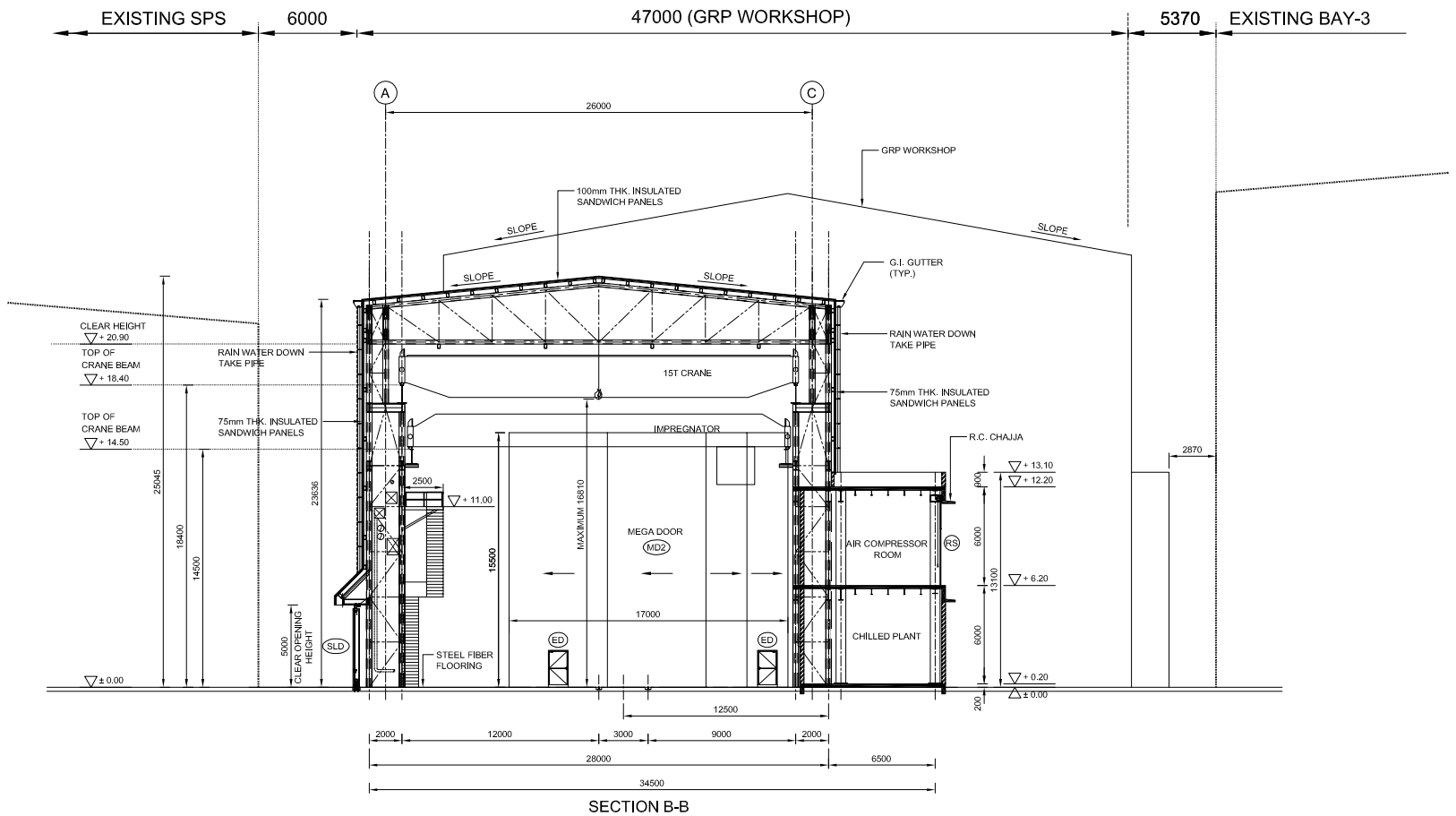
DRG No. RA1202/P4/3131

DO NOT SCALE

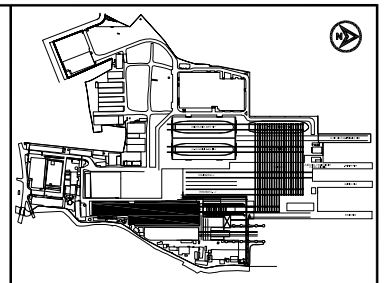
Appendix F
(Para 11b of RFI refers)



SECTION A-A



SECTION B-B
(TRUSS PROFILE IS DIFFERENT FROM CONTRACTOR'S SUBMISSION)



KEY PLAN

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES WITH RESPECT TO CHART DATUM.
3. CONTRACTOR TO VERIFY ALL SURVEY DATA.

REV	DATE	DESCRIPTION	BY	CHK	APP
C2	JUL '17	CONTRACT AWARD	SPK	KK	SRD
C1	JAN '17	CONTRACT AWARD	AK	KK	SRD

REVISIONS

CLIENT
GOA SHIPYARD LIMITED

PROJECT
GOA SHIPYARD
MODERNISATION PLAN
PHASE - 4

TITLE
GRP WORKSHOP
SECTION A & B

HASKONINGDHV NEDERLAND B.V
502-505, 5th Floor, Platinum Techno Park
Plot 17 & 18, Sector 30 A, Vashi
Navi Mumbai - 400 703, INDIA
Tel +91 (0) 22 61395000
E-mail info.india@rhdhv.com
www.royalhaskoningdhv.com

DRAWN	ZR	CHECKED BVD	PASSED BVD
DATE	JAN'17	CLIENT'S REF.	
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DRAWING No. RA1202/P4/3131

REVISION C2

DRG No: RA1202/P4/3101

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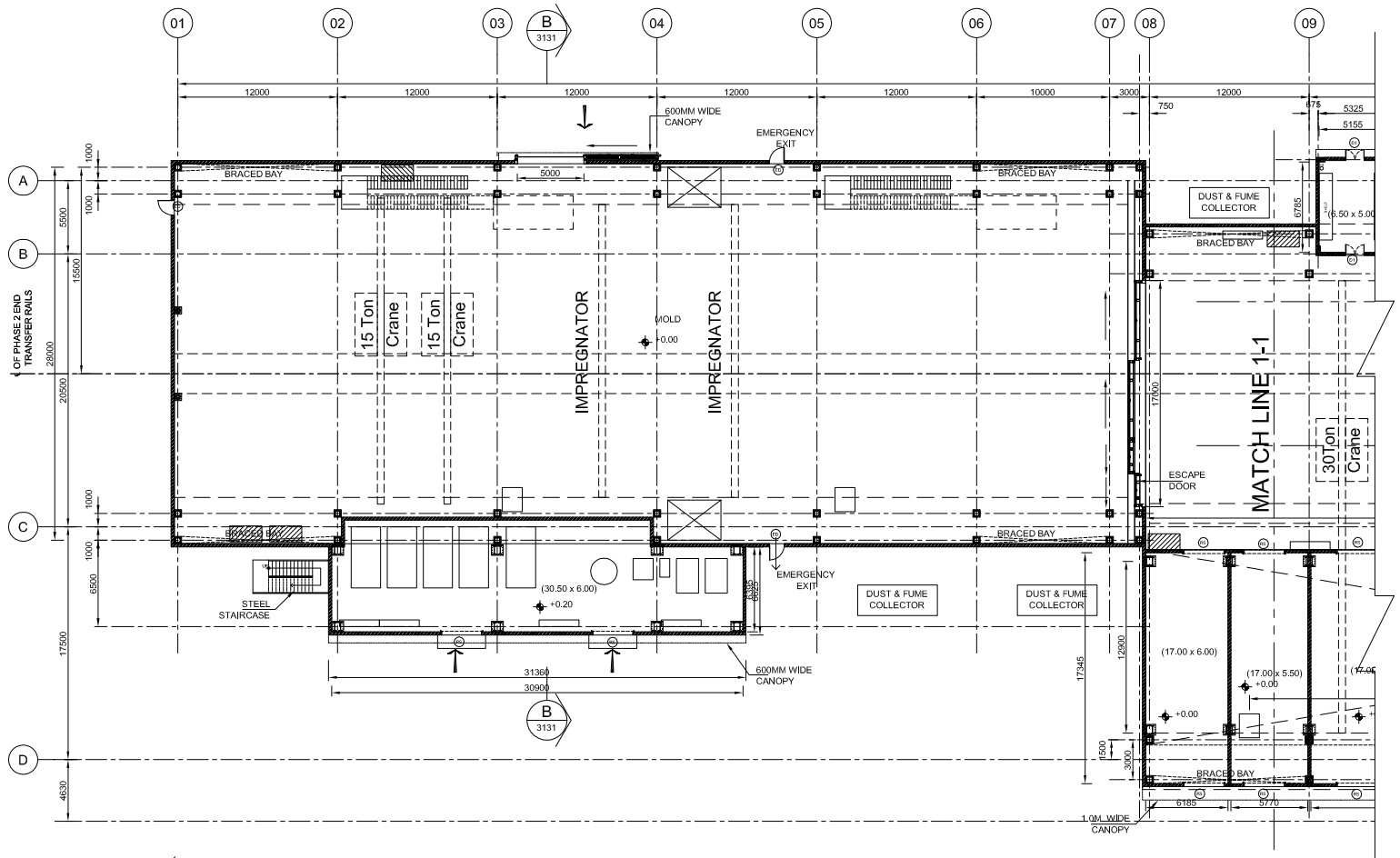

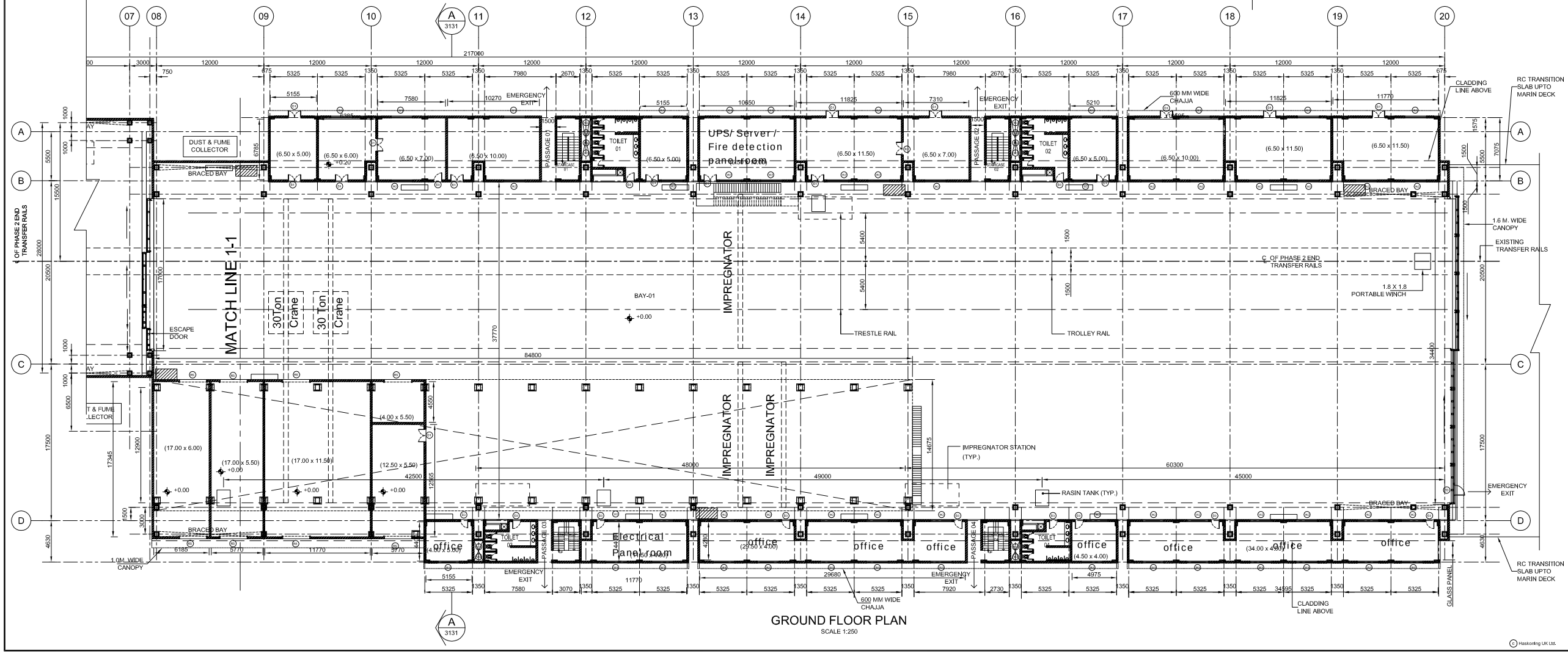

GROUND FLOOR PLAN

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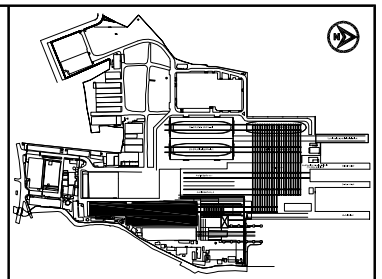

KEY PLAN

MASONRY OPENING

S.NO.	TYPES	SIZE	DESCRIPTION
1.	RS	3000X3000	ROLLING SHUTTER
2.	D1	1500X2400	-
3.	ED	1200X2400	EMERGENCY EXIT
4.	D3	1000X2100	-
5.	D4	750X2100	TOILET AREA
6.	W1	2400X1500	SLIDING WINDOW
7.	W2	2400X1500	FIXED GLASS
8.	W3	600X900	TOILET AREA
9.	W4	1500X1500	-

REV	DATE	DESCRIPTION	BY	CHK	APP
C1	JAN '17	CONTRACT AWARD	AK	BVD	KK

REVISIONS

CLIENT

GOA SHIPYARD LIMITED

PROJECT

GOA SHIPYARD
MODERNISATION PLAN
PHASE - 4

TITLE

GRP WORKSHOP
GROUND FLOOR PLAN

HASKONINGDHV NEDERLAND B.V
502-505, 5th Floor, Platinum Techno Park
Plot 17 & 18, Sector 30 A, Vashi
Navi Mumbai • 400 703, INDIA
Tel +91 (0) 22 61395000
Email info.india@mdhv.com
www.royalhaskoningdhv.com

DRAWN	SPK	CHECKED	BVD
PASSED	KK		
DATE	JAN'17	CLIENT'S REF.	
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DRAWING No. RA1202/P4/3101

REVISION C1

DRG No. RA1202/P4/1051

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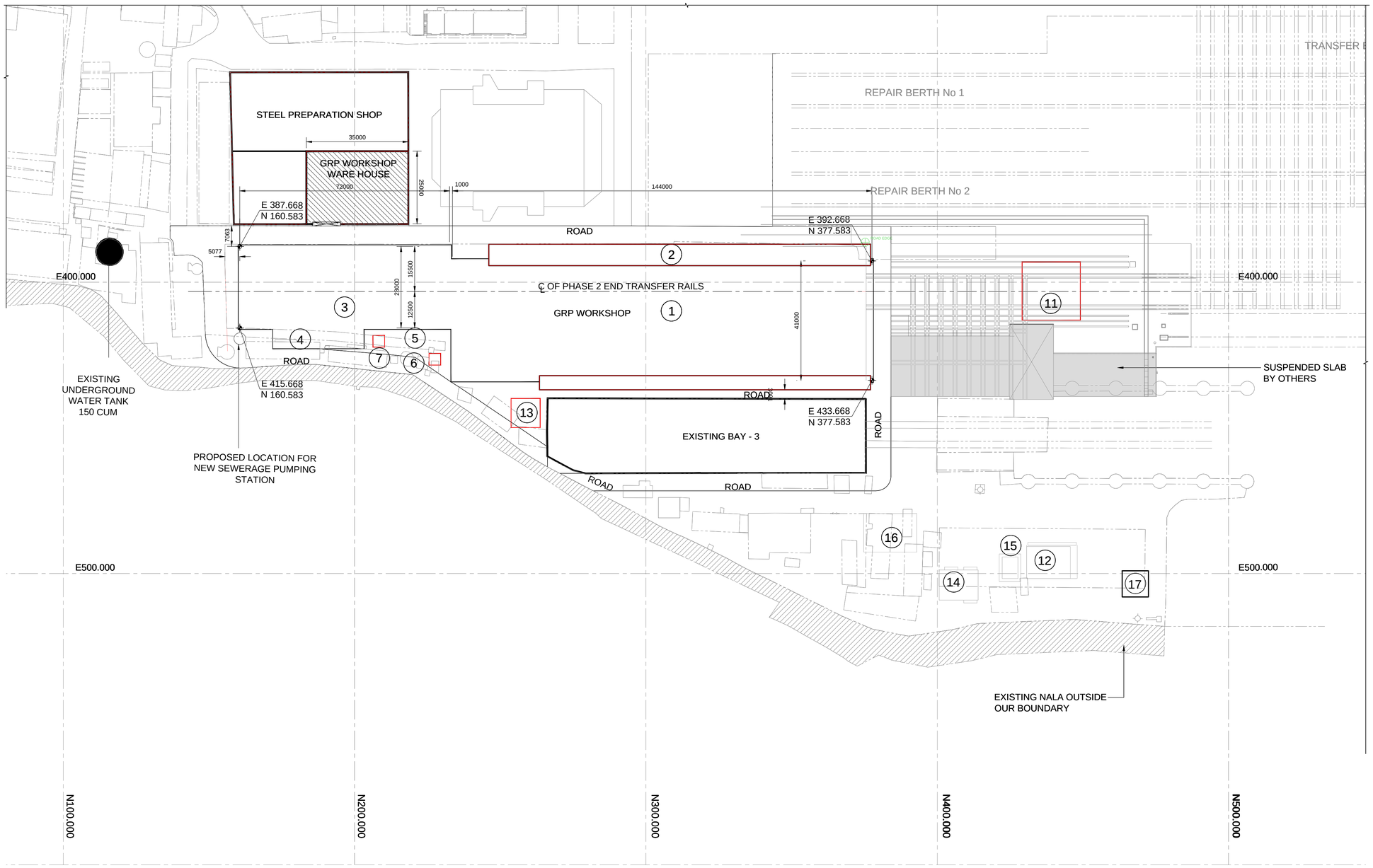
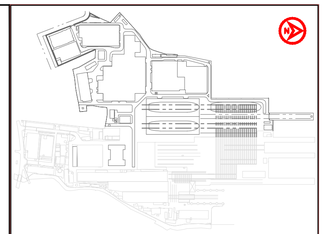


BUILDING REFERENCES PHASE - 4

NO.	BUILDING /STRUCTURE NAME
1	GRP WORKSHOP 144m(L) x 41.0 m (B)
2	OFFICE, CHANGE ROOMS, ETC. (1st, 2nd, 3rd FLOOR)
3	MOLD BAY 72.00m(L) x 28.0m (B)
4	CHILLED PLANT, AIR COMPRESSOR ROOM, (36m x 8m)
5	DUST & FUME COLLECTOR (20m x 6m)
6	TEMPORARILY SEGREGATION SPACE FOR WET TYPE GRP WASTE (4m x4m)
7	COOLING TOWER FOR CHILLED PLANT (4m x 4m)
11	SHELTER 60m(L) x20m (B) x 21m (H) TELESCOPING
12	WASTE TREATMENT AREA (15m x 11m)
13	RESIN STORE
14	ACETONE & PAINT STORE
15	ACETONE DISPENSER ROOM (5m x 7m)
16	PROPOSED SUBSTATION
17	DE-PERMING FACILITY



KEY PLAN

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES WITH RESPECT TO CHART DATUM.
3. CONTRACTOR TO VERIFY ALL SURVEY DATA.

FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APP
C1	APR ' 17	FOR CONSTRUCTION	SPK	BVD	BVD

REVISIONS

CLIENT

GOA SHIPYARD LIMITED

PROJECT

GOA SHIPYARD
MODERNISATION PLAN
PHASE - 4

TITLE

SITE LAYOUT
GRP WORKSHOP

HASKONINGDHV NEDERLAND B.V

Royal HaskoningDHV
Enhancing Society Together

502-505, 5th Floor, Platinum Techno Park
Plot 17 & 18, Sector 30 A, Vashi
Navi Mumbai - 400 703, INDIA
Tel +91 (0) 22 61395000
Email info.india@rhdhv.com
www.royalhaskoningdhv.com

DRAWN	CHECKED	PASSED
SPK	BVD	BVD
DATE	CLIENT'S REF.	
DEC'16		
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DRAWING No. RA1202/P4/1051

REVISION C1