Sl. No.	Budgetary Quote -scope of work Description -Tug Vallarpadam	Qty.	Unit	Unit cost	Total cost
1	**Painting after surface preparation as follows. To be high pressure water washed.To grit blast /power clean to standard SA 2.5 / ST-3 & make completely rust and oil free after taking all the precautions. To paint with 6 coats of epoxy paints by air less spray (2 coats primer + 2 coats anticorrosive / tie coat + 2 coats anti-fouling for under water /2 coats finish black for above water) paint used should be one of the brands only – Jotun /sigma /International / Hempel .**				
1.1	Shell plating under water- antifouling	360	SqM		
1.2	Shell plating till main deck from water line	150	SqM		
1.3	Sea chest area (port & stbd)- 12 sqm each	24	SqM		
1.4	sea suction filter casing inside (p&s)- 2sqm each	4	SqM		
1.5	Painting of draft marks ,ships name etc	1	SqM		
2	**Painting after surface preparation (as mentioned above in para1) for voith guard/ skeg**				
2.1	Voith guard plate area- antifouling	64	SqM		
2.2	Skeg area -antifouling	28	SqM		
2.3	Voith guard support frames -antifouling	30	SqM		
3	**Painting after surface preparation (moping /chemical cleaning / wire brushing /power brushing -as required –make it rust and oil free) by with 2 coats of paint . engine room bilges/ engine room tanks/ floor /shipside / bulkheads /tank tops etc.**				
3.1	Engine room bilges shell plate area	160	SqM		
3.2	Engine room bilge tank inside area	40	SqM		
3.3	Engine room floor frames area	300	SqM		
3.4	Dirty oil tank inside area	22	SqM		
3.5	Dispersant tank inside area	15	SqM		
3.6	Sewage holding tank inside area	20	SqM		
3.7	Foam tank inside area	20	SqM		
4	**Painting after surface preparation (moping/chemical cleaning/wire brushing-as required,make it rust free and oil free) with 3 coats (one coat epoxy primer, 2 coats epoxy paint) main deck /upper deck /bulwark/accommodation/Deck and super structure.*All the necessary and existing stencilling to be carried out after the painting***				
4.1	Bulwark area outside&inside including frames	200	SqM		
4.2	Main deck area ***(this area to grit blast as mentioned in para1)***	190	SqM		
4.3	Upper deck	68	SqM		
4.4	Wheel house around deck	25	SqM		
4.5	Wheel house top	32	SqM		
4.6	Mast/funnel/A frame/crane/rescue boat& its davit	120	SqM		
4.7	All deck fittings which includes Bollards/Capstan/blower/air vents/grills/hatches/ladders/mushroom hood/handrails/firehydrants/pipelines etc	85	SqM		
4.8	Accommodation& superstructure	290	SqM		
5	**Inspection of ballast and fresh water tanks and painting with 2 coats of epoxy paint, after surface preparation (moping /chemical cleaning / wire brushing /power brushing –as required –make rust and oil free). fresh water tank should be painted with special grade epoxy paint used for drinking water tanks.**				
5.1	Fore peak tank	160	SqM		
5.2	Aft peak tank	180	SqM		
5.3	Fresh water tank fwd (p) + (s),80 Sqm each	160	SqM		
5.4	Fresh water tank aft(p) + (s),50 Sqm each	100	SqM		

6	**Zinc Anode renewal for hull /voith guard /skeg /voith rotor/sea chest.(Anodes to be supplied by Yard,drawings attached).After welding all anodes, anode lugs to be painted with antifouling coat**				
6.1	Zinc anode 3.2 kg net weight for hull	30	Nos		
6.2	Zinc anode 12 kg net weight for hull (*20 nos available onboard*)	20	Nos		
6.3	Zinc anode 9.95 kg net weight for voith propeller -	20	Nos		
7	Anchor chain ranging/painting (intermediate survey). - Both anchors are to be lowered, chipped, wire Brushed and cleaned. All joining shackles are to be opened and overhauled. All anchors and chains to be painted with two coats of coaltar epoxy paints. During the last calibration, it was observed that the wear down has reached its max limits for one of the segment of port anchor chain. So all such segments may have to be renewed this time. New chain segment to be arranged by yard.Both bitter end pins to be renewed.*Chain spec – Dia- 22 mm,grade CC2, stud- link chain cable Proof load- 200 KN, breaking load -280 KN, Segment length – 27.5 m*	2	Nos		
8	**Chain locker inspection/painting**. The Chain Locker to be cleaned, surface prepared (moping /chemical cleaning / wire brushing /power brushing –as required) make rust and oil free ,painted with two coats of paints by airless spray. (2 coats primer + 2 coats finish). *(surface area 40 sqm)*	2	Nos		
9	**Voith guard/skeg inspection /pressure testing**.(with 2.5m water column pressure).Voith guard to be pit welded if required.Protective float coating with lub oil of voith guard /skeg	1 each	No		
10	**Sea chest grid cleaning.** Sea chest grid has to be removed for inspection, cleaned anode renewal, painted(with same procedure /scheme as underwater surface in para 1) and boxed back. *Approx surface area 4 sqm.*	2	Nos		
11	Inspection of Drain plugs of DB tanks	10	Nos		
12	Cleaning and overhaul of main sea suction valve before and after filter, both port and stbd sides. We have total 4 no's of gate valves of 300mm NB. Two no's valves are of gunmetal body (before filter). Other 2 valves (after filter) are of cast steel.	4	Nos		
13	Cleaning and overhaul of main fire pump suction valve.We have 2 no's of butterfly valves of 250NB.	2	Nos		
14	**Sea chest air blow valve overhaul.**				
14.1	4 no's 15mm NB globe valves for blowing air in sea chest.	4	Nos		
14.2	4 no's of 65mm NB globe valves for air vent.	4	Nos		
15	**All overboard valves in engine room overhaul.**				
15.1	Sea Water overboard valves for main engine (2 no's 100mm NB angle valve)	2	Nos		
15.2	Sea Water overboard valves for generator				
15.2.1	Overhauling 40 MM Globe valve	1	Nos		
15.2.2	Overhauling 50 MM Globe valve	2	Nos		
15.3	Sea Water overboard valves for voith cooling (2 no's 50mm NB angle valve)	2	Nos		
15.4	Fire pump (2 no's 80mm NB angle valve).	2	Nos		
15.5	Sewage overboard (2 no's 100mm NB check valve with gate	2	Nos		
15.6	Oily bilge separator overboard (25mm NB angle valve).	1	Nos		
	If any of the above valves needs to be renewed , same to be supplied by yard				
16	**The following valves in engine room to be overhauled .**				
16.1	Fresh water line valves from tanks to pump SDSL32 NB -8 nos(4 Nos near tank and 4 nos in change over chest)	8	Nos		
16.2	Sea water line valves in hydrophore system				
16.2.1	32NB SDSL valve	1	Nos		

16.2.2	25 NB SDSL valve	4	Nos		
16.2.3	25 NB SDNR valve	2	Nos		
	If any of the above valves needs to be renewed , same to be supplied by yard				
17	**SW strainer casing inside cleaning, inspection and painting** ***(*** *same to repair /renew if any damage noticed during inspection)*				
17.1	100 NB, MS galvanised	2	Nos		
17.2	80 NB, MS galvanised	3	Nos		
17.3	50 NB, MS galvanised	2	Nos		
17.4	40 NB, MS galvanised	1	Nos		
18	**Standard Checks of voith to be done during docking.(for intermediate survey)**				
18.1	Measuring torsional clearance and theoretical zero position of every blade to know the condition of actuating gear.	2	Nos		
18.2	Checking for leaks on the propeller blade seals.When checking for leaks,strain on the shaft seal is simulated (rope test).	2	Nos		
18.3	Inspection of propeller blades for cracks etc.	2	Nos		
18.4	Checking of propeller blade end play.	2	Nos		
18.5	Checking of rotor casing for cracks etc.	2	Nos		
18.6	Checking /replacement of reactive anodes by grinding off and welding anodes, subsequent painting of the weld *(Covered in Para. 5)*				
18.7	Inspection of waterspace of voith, surface prepared (moping /chemical cleaning /wire brushing /power brushing –as required) and painting with 3 coats of epoxy .Note:This job to be carried out before undocking	2	Nos		
	Note: bottom surface of voith rotor casing is coated with ceramic. The surface should not be sand blasted or painted.				
19	Polishing of propeller blades.25 sqm	25	SqM		
20	Thickness gauging.(intermediate survey) – 1000 points	1000	Points		
	Subsequent plate renewal. The quantity required is not known. Plate renewal is one major item which will depend on thickness gauging report /surveyor's recommendation .ship building steel of 8mm, 10mm,and 16mm is used for construction of hull/ shell plating.6 mm plate is used for deck plating				
	Assume approximately 15 tons of steel renewal for initial reference and budgetary allowance	15	TONS		
21	Docking survey related works(for intermediate survey)need to be carried out (General recomm from IRS for all drydocks). Most of the jobs are covered in other sections .				
	~ Thickness measurement to be carried out on SUSPECTED AREAS (covered in para 20)				
	~ All water ballast tanks general examination to be offered (para				
	~ Aft peak and fore peak tanks to be offered. (para 5)				
	~ Floor plates in engine rooms to be lifted for examination of bottom plating (para 3)				
	~ Anchors and cables to be cleaned and offer for examination. If suspected (para 7)				
	~cables to be calibrated. If worn out more than 12%, chain cables to be renewed. (para 7)				
	~ All sea chest and overboard valves to be opened for examination (para 12,13,14, 15)				
	~ Sea chest gratings to be opened. (para 10)				
	~ Gears to be examined through inspection holes. Rope test to be carried out for blade oil tightness. If leaking, seals to be renewed. (para 18)				

	~ Skeg to be air pressure tested if suspected. (para 9)				
	~ Voith guard to be pit welded if required and air tested . (para 9)				
22	**All recommendations by IRS surveyor to be carried out as per the Additional Works request which will be raised accordingly after IRS inspection. (Survey recommendation jobs)**				
23	Following jobs to be carried out on Main Engine, **(All spares required for this job to be procured by the yard.OEM spares cost to be shown seperately)**				
	Engine Spec: Make- Wartsila 9L20 marine diesel engine Nominal output- 1800KW; Nominal speed (rpm)- 1000 ,Sl Nos- PAAE068700 & PAAE068701				
23.1	Overhauling of engine attached sea water pump of stbd main engine.(mechanical seal of sea water side is presently leaking for stbd engine). Pump to be removed from engine,overhaul and fit back. If any other spare parts found to damaged upon dismantling of the pump same to be renewed and *spare parts (Wartsila)to be arranged by yard* . Engine Sl no-stbd engine: PAAE068701(Clock Wise rotation) Anticipated spares (Wartsila) are the following:	2	Nos		
	i) Sealing set for sea water pump; Wartsila part no.191114	2	Nos		
	ii) Housing ; wartsila part no.191067	2	Nos		
23.2	Plate type FW cooler for main engine to be cleaned (both SW &FW cleaning is reqd). – 2 nos (Spare rubber gaskets available onboard-10 nos),Specification of cooler:-Make- Alfa Laval (plate type);Type – M10- BFM; Sl.Nos – 30105,49925; No of plates -81	2	Nos		
24	Rectify the following faults with instrumentation & alarm panel In ECR.All *spares (wartsila) to be procured by Yard.Spare part Nos provided*				
24.1	Fault with remote data reading of Fuel oil pressure for port main engine.Pressure switch defective same require to procure from wartsila Pr switch Spec:Wartsila Part No- PT 101; 0~16 bar	1	Nos		
24.2	Voith cooling pump fail alarm in ECR alarm panel while the pump pump is operating.Alarm fault to rectify.	1	Nos		
24.3	Port M/E No.4 unit exh gas temp remote reading error. Alarm panel showing higher temp compared to local reading.	1	Nos		
24.4	Port M/E turbo charger inlet temp #1 reading is erratic. Sensor details: Wartsilapart No.TE 511; 0 ~ 600 deg	1	Nos		
24.5	Port M/E turbo charger inlet temp #3 reading is erratic. Sensor details: Wartsilapart No.TE 513; 0 ~ 600 deg	1	Nos		
24.6	Stbd Voith bearing temp T2 is erratic in alarm panel ,spare thermometer available onboard.	1	Nos		
24.7	Port voith control oil pressure reading error on remote control panel.Local reading is correct.	1	Nos		
25	**General overhauling of VSP system(port) including main seals renewal under the supervision of OEM .*(Voith spares will be procured by CPT) OEM service cost to be shown seperately .(the yard must ensure machining / and other facility available for this kind of repair in consultation with OEM)***				
	VSP system spec: Make – Voith Turbo Schneider Propulsion Gmbh & Co KG,Germany ; Type –VSP GANESH 28R5/210-2 ; Serial No 3887 clockwise rotation and serial no 3888 counter clockwise rotation ; Blade length – 2.1.meter ; Gland ring dia – 300 mm ; Blade weight – 1013 kg ; 5 blades with a circle diameter of 2800				

	All recommendations of the service engineer during the last docking to be carried out. The recommendations for Propeller No 3887, port side during the last drydocking were:				
	i) Blade no 1,3,4& 5 is near to max allowed clearance.It is recommended to renew upper bearing bush (client part no 1115) of all blades during next repair maintenance schedule)				
	ii)Blade no 1,3,&4 blade upper blade brg(client part no 1107) is loosening on shaft and the clearance is 0.05mm .It should be interference (0.05 mm ~ 0.07 mm) .It is recommended to carry out the repair procedure during upcoming dry docking/next possible blade shaft seals renewal				
26	Voith system lub oil cooler sw side to be cleaned - 2 nos. Sacrificial anodes to be renewed. (anode size:- dia 16mm,length 50 mm -2nos).Anodes to be supplied by yard	2	Nos		
	Cooler spec: Make- HS Cooler,Gmbh Wittenburg;Cooler type – shell and tube (KS20-BTN-421B L890.2) ; Total length including endcovers- 1092.5 mm;Shell outside dia – 219.1mm				
27	Diesel generator alternator complete overhauling and insulation testing.Alternators to be removed from place,overhaul,bearings to be renewed,filter elements to be renewed. insulation to be improved & fitted back and aligned,satisfactory trials to be given. foundation to be chipped and painted before placing alternator All spares required to be supplied by yard				
27.1	125 KVA	2	Nos		
27.2	82.5 KVA	1	No		
	Alternator spec:Make: Crompton Greaves 125 kva (2 nos) and 62.5 kva (1 no),Insulation class H.Engine Make – Kirloskar; 6R1080TA (156 BHP) - 2 nos , Rhrs 11500 hrs;6R1040T (83 BHP) - 1 No,Rhrs 6800 hrs				
28	To clean and pressure test the inter cooler tube stack of D/G (port and stbd)and repair if required - 2 Nos	2	Nos		
	Cooler spec:-No of copper tubes – 80;Cu tube ID – 10mm;Tube thickness- 2 mm;Tube length – 400 mm;Shell thickness in general - 12 mm;Sea water side pr – 4 bar;Air side pr – 1.5 bar				
29	E/R pipelines renewal and all other jobs associated with it				
29.1	Thickness gauging of the cross over pipe connecting high sea chest and low sea chest to be carried out , pipe sections to be renewed if thinning observed beyond limits.The specification of this pipeline is as follows:- Pipe inside area -4 sq m Pipe length – 7m Pipe dia – 300 NB *In case the above pipe line to be renewed ,the adjacent pipe lines/ floor plate and its supports may have to be cut removed to make access*				
29.2	Renewal of SCH 80 ,100NB GI pipe below floor plate	15	Mtrs		
29.3	Renewal of SCH 80, 50NB GI pipe below floor plate	20	Mtrs		
29.4	Renewal of SCH 80, 25 NB GI pipe below floor plate.	10	Mtrs		
	For the renewal of the above pipelines (29.2,29.3 &29.4) , other pipelines may also need to be removed to make access.				
30	Removal and fitment of tube & tyre fenders for painting prior docking /after docking respectively. Repair /renewal of associated fixtures/fittings if required. No. of tyre fenders (tyre size, dia 145 cm ,45cm wide) – 17 nos	1	LS		
	The following works also may be associated with the above :-				

30.1	Cropping & renewal of corroded/damaged tube fender guard coaming 10 mm thick plate (Actual area not known, to be evaluated after removal of tube fender.For calculation purpose approx. weight may be taken as 500kg)				
30.2	Renewal of damaged keyhole type rubber fender and its associated fittings (if found damaged after tube fender removal).Keyhole type fender to be procured as per sample by				
30.3	Repair/renewal of tube fender holding chain 100 x80 x20 mm -15 mtr	1	No		
30.4	Crop/renew ship side plates underneath tube fender if found bent beyond limits				
30.5	Renewal of bow shackle – 30 nos	30	Nos		
30.6	Renewal of damaged tyre fender tying hooks- 10 nos	10	Nos		
30.7	Renewal of tube fender if found damged on dismantling; Tube fender size : OD -460,ID-260mm , 3 pieces of 7m,3m & 3m length.Tube fender to be supplied by yard if require	1	LS		
31	Cropping and renewal of railing pipes at various locations: Pipe dia- 32NB , MS pipe galvanised	25	Mtrs		
32	Dismantling,Inspection & Servicing of towing hook. (1 No) -Load test of hook to be carried out after servicing & visual examination -Monitoring of hook release- manual -Greasing & oiling as required Towing hook spec: Mampaey quick release disc type,Type DCX 30/45 Capacity- 50T, SWL- Test load- 100 T	1	No		
33	Inspection & Servicing of fire monitors of Fi Fi system – 2nos Port side monitor gearbox is damaged,same to renew.Stbd side also may have to be renewed depending on the condition. Both sides remote control operations not functioning Monitor Spec: Make: Svenska Skum AB FJM 100/K EL ; Electrical remote controlled; Electric motors : 400 V /50 Hz ,3ph,IP 66,make :Allied centrifugal pumps Ltd,Kolkatta Nozzle:Adjustable from jet to fog in bronze material.	2	Nos		
34	Scuttle repair /renewal				
34.1	Shipside scuttles for under deck crew accommodation, welded portion and scuttle frame in corroded condition ,same to repair ,if repair not feasible renew it. - 4 nos Side scuttle spec: Fixed type; 250 mm nominal dia; Glass thickness -12mm ISO type A heavy series with deadlight, in weldable with frame GM glass holder & MS dead light	4	Nos		

34.2	skylight scuttle : frame corroded ,same to repair;1 no glass broken – 6 nos scuttle spec: Fixed type; 200 mm nominal dia; Glass thickness -8mm; ISO type B medium series , in weldable with frame GM glass holder; flame proof glass on skylight;fixed with protection rods & means of covering with deadlight	6	Nos		
35	Retrofitting & alignment of 2nos sea water pumps for generator engines port & stbd Remove the existing pump.Modify the foundation.Fit & align 2 nos belt driven sea water pumps (pumps will be supplied by owner), fabricate its drain trays, align with engine driven pulley and its suction and discharge lines(dia 1 inch and 2 m length with 180 deg bend(2 nos)	2	Nos		
36	Repair/renewal of 2 nos door frames(MS) of wheel house. Repair/renew the corroded/wasted portion of door frame in wheel house (2 nos) .Spec:168cm L X 68cm W X 12.5 cm thick	2	Nos		
37	Calibration of main & spare magnetic compass.(1 no each) Main Compass spec: Make -CASSENS & PLATH GmbH, GERMANY;type-REFLECTOR TYPE;COMPASS DISC -180 MM Spare compass - Make: Cassens & Plath GmbH,Germany Type11 Reflector compass.	2	Nos		
38	Repair/renewal of piping section adjescent to deck penetration.				
38.1	Renewal of corroded section of bunker filling line (stbd side)along with main deck penetration. Pipe dimensions: 80NB mm dia (rated for 3Kg/cm2,seamless carbon steel), 300mm length; Deck penetration pad may have to be renewed;pipe flange to be reused; F.O tank to be gas freed to carryout this job.	1	No		
38.2	Renewal of corroded section of main engine expansion tank fresh water vent line (port side)along with deck penetration on funnel deck Pipe dimensions:15 NB(mm) dia (rated for 2Kg/cm2),Seamless steel SCH 40 ,70 mm length; Deck penetration pad may have to be renewed;pipe flange to be reused. To carry out this job it may be required to remove/refit the insulation lagging underneath the penetration.	1	No		
39	Accomodation fan motors overhauling.Removal,overhauling and refitting of the motor- 2 nos . Motors to be removed from place, overhauled by renewing bearing. Insulation to be improved & fitted back by aligning and satisfactory trials to be given. Motor Foundation to be chipped and painted before placing motor. (Spares yard supply) Fan motor spec:Make :Kirloskar; 2.2 kw;1400 rpm; 415v	2	Nos		

40	Galley supply and exh fan motor overhauling.Removal ,overhauling and refitting of motor. 2 nos Motors to be removed from place, overhauled by renewing bearing. Insulation to be improved & fitted back by aligning and satisfactory trials to be given. Motor Foundation to be chipped and painted before placing motor. (Spares yard supply) Fan motor spec – Make:Kirloskar; 0.55 kw;1390 rpm;415 v	2	Nos		
41	Inspection of transformers ,insulation test and repairs if any defect is noticed. All terminal connections to be checked. Spares				
41.1	6 KVA 415v/230v, 1 ph,dry type	2	Nos		
41.2	15 KVA 415v/230v, 3 ph,dry type	2	Nos		
42	Inspection of main and emergency switch boards and repairs if any defect is noticed. All terminal connections to be checked .Spares yard supply	1	No		
	Spec: *Switch board consists of 5 sections of panels,* *Section 1 – Harbour gen.80kw ,415v,* *section 2-Gen.no1- 100 kw,415v,* *section3- shore supply -130 A.415v,* *Section4- Generator no.2-100 kw,415v,* *section5- Distribution section -230v 3ph*				
43	Internal inspection of both air bottles and overhauling of its valve block.Valves suspected to be leaking- 2 nos Air bottle spec: Design pr-33 bar; Volume- 250 ltrs; Setting pr. for relief valve-33 bar	2	Nos		
45	Overhauling of voith pump motor Motors to be removed from place, overhauled by renewing bearing. Insulation to be improved & fitted back by aligning and satisfactory trials to be given. Motor Foundation to be chipped and painted before placing motor. (Spares yard supply) Motor Spec: Make-Crompton, ND132S; 5.5KW; 1450 rpm; 415V;50 Hz, 10.1 Amps	1	No		
46	Renewal of brake lining of anchor windlass brake drum-approx. dimensions of lining: width 6.0cm, thickness 7mm, Length 115cm -2nos	2	Nos		
47	Repair/renew watt meter on MSB for Port Generator- Spec: 150KW,415 V,50 Hz, 250/5A .Dial size-9.5cm X 9.5cm (4"X 4")	1	No		
48	Renewal of distance piece of stbd main engine sea water pump discharge.Diameter of Pipe115mm, Length 15cm, small bend	1	No		
49	Supply of drinking water if required- 50T	50	Tons		
50	Supply of fresh water for ballasting aft peak tank prior undocking if required	50	Tons		
51	Repair/renewal of corroded section of overboard discharge piping which ends at ship side shell .Pipe size-100NB-2nos; 50 NB -2nos	4	Nos		

52	Vessel to be dry-docked , provide dry dock facility , vessel to be inspected and surveyed by classification society (IRS) as per regulation. Vessel to be undocked and afloat repairs to be carried out if any. IRS survey fees will be on CPT account Docking charges Undocking charges Drydock Charges Afloat berth charges Support facility charges such as electricity , compressed air, fire prevention etc Note: assume 30 days exclusively for voith overhaul inside D/Dock + 15 days for other drydock works + 15 days afloat repairs				