TENDER DOCUMENT

FOR PUSHER TUG AND SECURITY BOATS

(Bid Ref No. Secy/PPC/BRC/03)

Inland Water Transport Development Company (IWTDC)
No. 34-A, Street 27, Valley Road, Westridge, Rawalpindi
Ph # 051-5491494-95, www.iwt.punjab.gov.pk

INLAND WATER TRANSPORT
DEVELOPMENT COMPANY

15 May 2015

Invitation for Bids/Quotations For Boats/River Crafts
(Bid Ref No. Secy/PPC/BRC/03)

A. Inland Water Transport Development Company (IWTDC) has been established by Government of the Punjab and formally registered under Section 42 of Companies Ordinance 1984 in Aug 2014.

B. Interested bidders may inspect the tender documents with complete specifications at the address of IWTDC between **0900 Hrs to 1700 Hrs** or may download tender documents from IWTDC (www.iwt.punjab.gov.pk) and PPRA (www.ppra.punjab.gov.pk) websites. The procurement shall be completed in accordance with Punjab Procurement Rules 2014.

C. **A single package containing Firm Profile & Technical and Financial Responses, in separate envelopes**, duly signed, stamped, sealed and in complete conformity with tender document should reach IWTDC office Rawalpindi, on or before **1100 Hours on 29 May, 2015** for Security Boats. Tenders will be opened at **1200 Hours on the same day** in the presence of bidders' representatives who choose to attend, at **IWTDC Office**. Late tenders will be rejected and returned unopened to bidders. In case of **Tugs,** the bid documents should reach IWTDC office Rawalpindi, on or before **1100 Hours on 29 June, 2015.** Tenders will be opened at **1200 Hours on the same day** in presence of bidder's representatives who choose to attend at **IWTDC Office.**

D. In case the bid opening date is declared a public holiday then the bids will be received and opened on the next working day or as notified.

E. Bidders must ensure that all the required documents indicated in the Bidding Documents are submitted with the bid without fail. Incomplete bids or bids received without undertakings, valid documentary evidence, supporting documents or are not sealed, signed or stamped, late or submitted by other than specified mode will not be considered.

F. Income/sales tax registration certificate and other documents as mentioned in bidding documents must accompany the bids. Taxes will be deducted as per Government of Pakistan and Government of the Punjab rules at source.

I. There will be no price negotiations with the lowest evaluated responsive bidder. Bidders are, therefore requested to submit their lowest and best prices with their bids.

Note: IWTDC may reject all bids or proposals at any time prior to the acceptance of a bid or proposal, as provided under Punjab Procurement Rules, 2014.

Chief Executive Officer
Inland Water Transport Development Company
No. 34-A, Street 27, Valley Road, Westridge, Rawalpindi
Tel: 051 5491494-5 Fax: 051-2651153

GENERAL TERMS & CONDITIONS

1. Invitation to Bid

1.1 This Bidding Process will be governed under Punjab Procurement Rules, 2014, as amended from time to time and instructions of the Government of the Punjab received during the completion of the process. PPRA Rules 2014 may be obtained from PPRA's website http://www.ppra.punjab.gov.pk. Moreover, in this document, unless otherwise mentioned to the contrary, "Rule" means a Rule under the Punjab Procurement Rules, 2014.

2. Bidding Details (Instructions to Bidders)

2.1 Queries of the Bidders (if any) for seeking clarifications regarding the services required must be received in writing to the IWTDC till 22 May, 2015 for Security Boats and 19 June, for Tugs. All queries shall be responded to within due time. Any query received after said date shall not be entertained. IWTDC may host a Q&A session, if required, at IWTDC office. All Bidders shall be informed of date/time in advance.

2.2 It may be noted that compliance of General Terms and Conditions and Specifications is mandatory. No escalation of cost except arising from increase in quantum of work by the Bidder on the demand and approval of the IWTDC will be permitted.

2.3 The Bidder is fully and completely responsible for all deliveries/deliverables to IWTDC Office.

2.4 Bidders are also required to state, in their proposals, the name, title, contact number (landline, mobile), fax number, e-mail address and registered address of the bidder's authorized representative through whom all communications shall be directed until the process has been completed or terminated.

2.5 The IWTDC will not be responsible for any costs or expenses incurred by bidders in connection with the preparation or delivery of bids.

3. Bid Price

The quoted price shall be:

3.1 Best/final/fixed & valid until completion of all deliveries/deliverables and not subject to escalation / variation.

3.2 Pak Rupees only and mentioned both in Words & Figures

3.3 Where no prices are entered against any item(s), the price of that item shall be deemed to be free of charge, and no separate payment shall be made for that item(s).

4. Bid Validity

4.1 The Bid shall have a minimum validity period of **06 months** from the last date for submission of the Bid.

5. Opening of the Bid

5.1 The Bidder's name, modifications, withdrawal, security, attendance of the Bidder and such other details as the IWTDC may, at its exclusive discretion, consider appropriate, shall be announced and recorded.

6. Clarification of the Bid

6.1 The IWTDC shall have the right, at its sole/exclusive discretion, to require, in writing, further information or clarification of the Bid, from any or all the Bidder(s). No change in the price or substance of the Bid shall be sought, offered or permitted except as required to confirm the corrections of arithmetical errors discovered in the Bid. Acceptance of any such Correction is sole discretion of IWTDC.

7. Correction of errors / Amendment of Bid

7.1 The Bid price as determined after arithmetic corrections shall be termed as the Corrected Total Bid Price which shall be binding upon the Bidder.

8. Technical Evaluation Criteria

8.1 The Bids which do not conform to the Technical Specifications/requirements at Annex A, Annex B and Annex C, and as given below will be rejected:

a. 10 years' experience in the relevant field regarding Marine Services.
b. Should be well aware with the reverence status of river Indus.
c. Should have knowledge of the working of related Government/Autonomous Bodies
d. Should be able to review the Adequacy of River Indus to generate reliable Data, Information.
e. Should have adequate staff, with professional qualifications and experience.

8.2 Specifications for Security Boats (Steel or Aluminum) are appended as Annex 'A' alongwith IWTDC operational requirements.

8.3 Specifications for Pusher Tug are appended as Annex 'B' and Annex 'C' alongwith IWTDC operational requirements.

8.4 ELIGIBILITY MARKS: A technically eligible bidder, based on conditions listed in this document, not meeting the 70% pass marks limit will be rejected in Technical Evaluation, and its sealed/unopened Financial Proposal shall be returned back. All bidders scoring greater than or equal to 70% of the marks will be accepted in technical proposal, and their financial bids will be opened. 30% marks of Financial bid will be given to lowest prices quoted bidder and other's financial shall be rated accordingly. Total accumulated marks (tech +financial) will be considered out of 100% value.

PROVISO: Provided that if NONE or ONLY ONE (single) bidder exceeds the 70% pass mark,

then the IWTDC SHALL decrease the Pass Mark limit to 60%. In other words, if TWO or more bidders exceed 70%, then the Pass Mark will NOT be decreased to 60%.

If Pass Marks are decreased to 60%, then ALL bidders with scores greater than or equal to 60% shall be considered EQUALLY as approved in the Technical Evaluation, & their Financial Bids shall be opened.

The Bidders who have duly complied with the Eligibility/Qualification and Evaluation Criteria against all items will be eligible for further processing.

8.5 The Technical proposals shall be evaluated by the committee in the light of following evaluation criteria categorized as under:

S. No.	Attributes	Max. Marks	Score distribution	Score Obtained	Requirements
1.	Spares and Maintenance Supportability	10	10		Maintainable in Pakistan
			05		Maintenance in abroad through respective OEM/guarantee certificate
2.	Life of Vessel after Construction	18	18		Constructed less than 1 year
			15		Age more than 1 year but less than 3 years
			12		Age more than 3 years but less than 6 years
			09		Age more than 6 years but less than 9 years
			06		Age more than 9 years but less than 12 years
			03		Age more than 12 years but less than 15 years
3.	Engines HP	30	30		1200 hp or above
			25		1100 hp – 1200 hp
			20		1000 hp – 1100 hp
			15		900 hp – 1000 hp
			10		800 hp – 900 hp
			05		750 hp – 800 hp
4.	No. of Maintenance / major overhaul conducted	15	15		1 or nill
			10		3
			05		5 or more
5.	CO_2 drenching system	10	10		Yes
			0		No
6.	Electronic System Charting	05	05		Yes
			0		No
	Total Marks	**88**			

Note: Total points obtained will be converted out of 70% for technical offer and 30% for financial offer respectively.

General Terms & Conditions

1. All standard equipment and optional equipment to be listed, along with delivery time and price delivered to Daudkhel.

2. Delivery of Security Boats (Steel or Aluminum), manufactured in Pakistan to be within 90 days.
3. Delivery of Pusher Tug, if imported, is to be Daudkhel with all taxes, custom duties etc paid, within 120 days. Delivery period for Pusher Tug to be constructed in Pakistan is 120 days as well.
4. Pusher Tug(s) are to be in class, with all surveys current, age up to 15 years, preferably with recent SS and dry docking completed.
5. Vessels must be in condition transportable on 40 ft truck or low bed trailer or be containerized in sections for assembly at Daudkhel by the Suppliers.
6. Vessels may be offered FOB load port from where direct service to Pakistan is available.

LETTER OF OFFER

Bid Reference No. _____

Bid/Quotation for _____

To:

Chief Executive Officer
Inland Water Transport Development Company,
No. 34-A, Street 27, Valley Road, Westridge, Rawalpindi.

Dear Sir,

1. Having examined the Bidding Documents, Conditions, Specifications, etc. we, the undersigned, being a company/firm/individual doing business under the name and address given below
_____
_____
hereby offer to provide required services/items in conformity with the bidding documents at following price(s):-

BOQ / BID PRICE / FINANCIAL COST SHEET

Item #	Item Description	Total Cost (Incl. all Taxes) Rs.
1 (Add appropriate heading)		
2 (Add appropriate heading)		
3 (Add appropriate heading)		
4 (Add appropriate heading)		
Total Bid Price (including custom duties, taxes)		
Total Cost (in words) Rs. _____		

Optional Equipment

Item #	Item Description	Total Cost (Incl. all Taxes) Rs.
1		
2		
3		
Total Bid Price (including custom duties, taxes)		
Total Cost (in words) Rs. _____		

Notes to Price Table:

1. IWTDC reserves the exclusive rights to increase/decrease the quantum of work/services/items mentioned in this bidding document.
2. We undertake, if our Bid is accepted, to deliver and complete the consignment.
3. We understand that IWTDC is not bound to accept the lowest or any bid received.
4. We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other person or persons making a bid for the required items.
5. We undertake, to be bound by all Bid Conditions dated this _____ day of May/June, 2015 in the capacity of _____duly authorized to sign bid for and on behalf of _____

Signature _____
(Name of Bidder in Block Capitals)

(**Company Seal/Stamp**)

Note: No cutting or overwriting is allowed. Any cutting or overwriting may lead to rejection of the financial bid.

IWTDC OPERATING ENVIRONMENT AND REQUIREMENTS - SECURITY BOAT (STEEL ALUMINUM)

Purpose/Role:

1. The boat should be capable to undertake the following operations in confined water/river, where mobility is restricted:

a. Marine services for transportation IWTDC personnel and material between base/camp and Ships or other vessels at Indus River.
b. Security cover to vessels/ships.
c. Emergency pull/push role for small units.
d. Marine services for other companies ships/vessels requesting the support.
e. Emergency support in distress to vessels of IWTDC or any other company/institution requesting it.
f. Search and Rescue as Primary role.
g. To carry out are reconnaissance as secondary role.

2. Following **operating environment/requirements** need to be adhered/complied with for the security boats being offered:

a. Considering the relatively strong river flow and sharp bends, security boat is required to withstand the harsh environment of the river with ease through engines performance/ controls (reach Daudkhel to Attock).

b. Security boat should be able to cater Indus River water velocity/flow upto average 8 kts at various places and have positive stability with empty and max load.

c. Boats with single marine engine should be capable of making cruising speed of 15 Kts (75% of total engines power) fully loaded (8 -10 person) and max speed as 12 kts.

d. Boats with Twin OMB engines should be capable of making cruising speed of 15 Kts (75% of total engines power) fully loaded (8 -10 person) and max speed as 20 kts.

e. Security boat should have all standard fittings/items/accessories, life supportability stores, communication & navigation equipment etc for efficient and safe operations.

IWTDC REQUIREMENTS/SPECIFICATIONS – SECURITY BOAT (STEEL/ALUMINUM)

S. No.	DESCRIPTION	REMARKS
1.	Quantity/Type	6 x Steel/aluminum hull boats (3 x single engine and 3 x twin engines).
2.	Built/Classification	As per applicable international construction standards
3.	Dimensions	Length overall (LOA) – upto 30 ft (max) Beam – upto 12 ft (max)
4.	Draught	5 ft (feet)
5.	Range/Endurance	50 NM /3 days
6.	Propulsion	Fixed pitch - propellers should be above the keel line
7.	Marine Engines and speed	3 x one marine engine with appropriate power to make cruising speed of 12 kts (75% of total engine power) and max speed as 15 kts. 3 x Twin marine engines with appropriate power to make cruising speed of 15 kts (75% of total engines power) and max speed as 20 kts.
8.	Tonnage/Boat Weight	As appropriate corresponding Indus river environment and as per International Construction Standards
9.	Hull Thickness	As appropriate corresponding Indus river environment and as per International Construction Standards
10.	Water tight integrity and Paint scheme	Water tight integrity/floatability should give stability/bouncy in case of flooding condition. Should be neutrally buoyant when flooded. De-flooding arrangements are to be provided. Standardized paint scheme above and below water is to be applied and life expectancy should be 5 years.
11.	Towing and Deck Equipment and Fendring Arrangement	2 x Anchor 20 Kgs along with appropriate length & size of rope for lowering/hoisting anchor. Rope Nylon for berthing - as appropriate (length and dia) Fixed fendring arrangement – all around rubber. Potable fenders – 2 x pneumatic (each boat)
12.	Steering System	Powered/hydraulic – as appropriate wrt marine engines. 1 rudder in front of each propeller
13.	Fuel/tank capacities	Fuel - As appropriate Fresh water - As appropriate
14.	Auxiliary Equipment	1 x Electrical bilge pump 1 x Heavy Duty Trolley and Wooden Cradle 1 x Fixed and portable emergency lights (each) at appropriate position 2 x Boat hook

		1x collapsible commode 1x Loud Hailer 1 x Fixed Horn high power Suitable power sockets/points (12 and 24 volts DC) 1 x Tool box – Mechanical 1 x Tool Box – Electrical Cross bit Brass casting - as appropriate Fairlead Brass casting - as appropriate Bollard - as appropriate Bow handrail - Stainless steel Grab rail Stainless steel - as appropriate Stanchions/awning stands - as appropriate Inspection hatch cover - as appropriate All marine engines associated standard controls, alarms and gauges on main console. Engines should also be fitted with gauges for temperature, lub oil etc as well Backup arrangement for critical equipment like GPS, navigation lights and communication equipment
15.	Fire fighting	2 x Fire extinguishers portable (CO2 and Foam type) cylinders appropriate weight
16.	Life saving eqpt	10 x hazardous life jackets, 2 x ring type life buoy
17.	Navigation/Comm. equipment	1 x Magnetic Compass, 1 x Chart display with built in GPS and echo sounder 1 x Fixed high power Motorola, Navigation lights (appropriate illumination)
18.	Spares and supportability	Spares as per running hours maintenance routines and spare supportably for next 15 years
19.	Construction/ Inspection	Construction at OEM/supplier site and inspections through mile stones. Deliver period 3 months and delivery at Daudkhel
20.	Trials and acceptance conditions	Trials at Daudkhel with application of LDs and acceptance after satisfactory trials

IWTDC OPERATING ENVIRONMENT AND REQUIREMENTS - PUSHER TUG (FOR PROCUREMENT ABROAD)

Primary Role:

1. The Tug is a purpose built prime mover which is primarily required to tow the hatch/dump barge/barges in pull or push or composite mode in different water flow conditions and associated river bends in River Indus. Tug area of operation will be in River Indus from Attock to Daudkhel.

Secondary Role:

2. a. Tug will be utilized for towing the hatch/dump barges of other existing companies along the river bank requesting its services.

b. Besides normal towing operations, Tug will be required to tow different vessels/barges in distress/machinery breakdowns as well.

3. Following operating environment/requirements need to be adhered/complied with for the Tug being offered:

a. Considering the relatively strong river flow and sharp bends, Tug is required to be in ship shaped bows including below water-line structure for performing Push, Pull & Composite role.

b. Tug should be able to manage sharp turns in the river (90 to 120 degrees) and channel width 30 meters with ease through engines performance/ controls (reach Daudkhel to Attock).

c. Tug should also be able to cater Indus River water velocity/flow upto average 7 kts at various places.

d. Tug should be capable of making cruising speed of 11 Kts (75% of total engines power) and max speed of 13-15 Kts.

e. Tug's Engines should be capable of quick responses while transiting upward or downstream especially around river bends.

IWTDC REQUIREMENTS/SPECIFICATIONS – PUSHER TUG (ABROAD)

S. No.	DESCRIPTION	REMARKS
1.	Type	TUG for pull and push role capable to operate as composite and independent unit in River Indus
2.	Built/Classification	Design, construction and material as per classification society specification. Must hold class or National Certificate for Operations valid for 12 months. Age Max. 15 years preferred; but older vessels can be considered depending on their physical condition and status of their Operational Certification by national authorities or by Recognized Classification Societies.
3.	Dimensions	Length overall (LOA) – 52 ft (max) Beam – 20 ft (max)
4.	Draught	5 ft (feet)
5.	Propulsion	Two propeller with dia appropriate to obtain desired towing and cruising speeds.
6.	Main Engines	2 engines. Caterpillar and Yanmar are preferred but all recognized international brands are acceptable.
7.	Output	**750 to 1000 hp** (combined) for two engines to attain speeds as mentioned in Para 9 below.
8.	Gearboxes	As appropriate. (1:3 or higher is preferred)
9.	Speed	Cruising speed - 11 kts with two engines (75% of total engines power) as independent unit Max speed with two engines - 13 Kts
10.	Bollard Pull	Forward 20 tons. Aft appropriate to towing requirement. Tensile test and other associated certificates are required for new construction tugs.
11.	Push Knee	Pusher Knee with appropriate strength to push the dump/hatch barge. All associated certificates are required for new construction tugs.
12.	Tonnage	As appropriate
13.	Plates Thickness	Mild Steel. All finished welding are to be sound, uniform and free from slag, porosity, under cutting and other defects and good engineering practices should be ensure. NDT (Non Destructive Test like DPT, X-ray, ultrasonic) Test and results certificates are required. Plates thickness for abroad – as appropriate
14.	Water tight integrity and compartmentation,	Water tight integrity and compartmentation should give stability parameters in case flooding condition. Deflooding arrangements are to be provided

15.	Towing and Deck Equipment and Fendring Arrangement	2 x Anchor along with appropriate length & size of chain cable and winch/windlass for securing and heaving towing rope. 1 X Towing hook capable of towing upto 600 tons hatch barge. Towing gear must have disengaging capability in case of emergency. Rope Nylon for berthing and towing alongside – 4 inch x 4 in number (total 250 meters) Rope Nylon for astern towing – 6 inch x 1 in number (125 meters)
16.	Aux. Machinery	Main and standby Generators - as appropriate (70 % of total Tug load). And meant for steering system, navigation, anchor winch, air conditioning, etc Open/split air conditioning system as appropriate to environment temperature.
17.	Steering System	2 x rudders with hydraulic steering system of appropriate power with quick response. Emergency/ manual steering system in case of main steering system failure.
18.	Tank capacities	Fuel oil as appropriate Fresh water as appropriate Ballast tanks as appropriate Sewage as appropriate
19.	Auxiliary Equipment	As appropriate Alarms of lub oil pressure and temperature, cooling system and gauges for engines rpm, gear boxes, steering gear e.t.c at respective locations and bridge(control room). Fixed and portable emergency lights at appropriate position. Backup arrangement for critical equipment like echo sounder, navigation lights and communication equipment
20.	Fire fighting	Fire extinguishers/Firefighting equipment portable appropriate quantity. CO2 drenching system for unmanned engine room will be preferred in new construction tugs. Fire hydrants inclusive fire hoses on upper deck and machinery/lower compartment as appropriate. Foam throwing through heavy duty nozzles/ options for fire fighting on other ship on fire.
21.	Life saving eqpt	2 x life raft (each 6-8 men),6 x hazardous life jackets, 3 x ring type life buoy, Small boat with OBM with hoisting/lowering mechanism as appropriate
22.	Navigation/Comm. Equipment	Magnetic Compass, Chart display with built in GPS and echo sounder/Electronic Navigational

		Chart in new construction tugs, 2 x searchlights(Rotatable and powerful), 1 x Fixed high power Motorola, 2 x VHF (portable), Navigation lights (appropriate illumination), Fixed Horn high power 1 x Clinometers at bridge centerline
23.	Accommodation/ Living	Wheel house fitted with settees attached Kitchen Living/bedding room of appropriate Sanitary facilities and storeroom - below deck or as appropriate Windows in aluminum frames and marine standards Small kitchenette beside the bridge with refrigerator, microwave, heating plates, fresh water, water purifier/filter, stowing places for utensils,
24.	Construction/ Inspection	Must have relevant certification for restricted water especially Riverine operations (delivery at user site Daudkhael – four months). After technical scrutiny/analysis of offered Tug, the Unit will be physically inspected and trialed at OEM/supplier premises abroad, prior final acceptance.
25.	Trials and acceptance conditions	Trials conditions / speeds at para 9 above and acceptance after satisfactory trials at OEM/supplier premises as mentioned in Para 23.

ANNEX 'C'

IWTDC OPERATING ENVIRONMENT AND REQUIREMENTS - PUSHER TUG (CONSTRUCTION IN PAKISTAN)

Primary Role:

1. The Tug is a purpose built prime mover which is primarily required to tow the hatch/dump barge/barges in pull or push or composite mode in different water flow conditions and associated river bends in River Indus. Tug area of operation will be in River Indus from Attock to Daudkhel.

Secondary Role:

2. a. Tug will be utilized for towing the hatch/dump barges of other existing companies along the river bank requesting its services.

b. Besides normal towing operations, Tug will be required to tow different vessels/barges in distress/machinery breakdowns as well.

3. Following operating environment/requirements need to be adhered/complied with for the Tug being offered:

a. Considering the relatively strong river flow and sharp bends, Tug is required to be in ship shaped bows including below water-line structure for performing Push, Pull & Composite role.

b. Tug should be able to manage sharp turns in the river (90 to 120 degrees) and channel width 30 meters with ease through engines performance/ controls (reach Daudkhel to Attock).

c. Tug should also be able to cater Indus River water velocity/flow upto average 7 kts at various places.

d. Tug should be capable of making cruising speed of 11 Kts (75% of total engines power) and max speed of 13-15 Kts.

e. Tug should be capable of making good speed of atleast 4 Kts against river water velocity/flow upto 7 Kts at various places when towing (pull/push condition) hatch/ dumb barges of upto 600 tons (while moving upstream)

f. Tug's Engines should be capable of quick responses while transiting upward or downstream especially around river bends.

g. Firm is to demonstrate Software Simulation of proposed Tug wrt towing and

other navigational aspects.

IWTDC REQUIREMENTS/SPECIFICATIONS – PUSHER TUG (PAKISTAN)

S. No.	DESCRIPTION	REMARKS
1.	Type	TUG for pull and push role capable to operate as composite and independent unit in River Indus.
2.	Built/Classification	Design, construction and material as per classification society specification. Existing Tug design of already approved classification society by BV/Lloyds/ABS or equivalent can be considered.
3.	Dimensions	Length overall (LOA) – 45 ft (max) Beam – 20 ft (max)
4.	Draught	5 ft (feet)
5.	Propulsion	Two propeller with dia appropriate to obtain desired towing and cruising speeds.
6.	Main Engines	2 engines x Caterpillar/Yanmar (Marinized preferred).
7.	Output	**1000 hp or above** (combined) for two engines to attain speeds as mentioned in Para 9 below.
8.	Gearboxes	As appropriate. (1:3 or higher is preferred)
9.	Speed	Cruising speed - 11 kts with two engines (75% of total engines power) as independent unit Max speed with two engines - 13 Kts
10.	Bollard Pull	Forward 20 tons. Aft appropriate to towing requirement. Tensile test and other associated certificates are required
11.	Push Knee	Pusher Knee with appropriate strength to push the dump/hatch barge. All associated certificates are required
12.	Tonnage	As appropriate
13.	Plates Thickness	Mild Steel. All finished welding are to be sound, uniform and free from slag, porosity, under cutting and other defects and good engineering practices should be ensure. NDT (Non Destructive Test like DPT, X-ray, ultrasonic) Test and results certificates are required. Plates thickness for inland pusher tug construction as under: Bottom 10 mm Sides 10mm Deck 8 mm
14.	Water tight integrity and compartmentation, Paint scheme and Anodes	Water tight integrity and compartmentation should give stability parameters in case flooding condition. Deflooding arrangements are to be provided. Standardized paint scheme above and below

		water is to be applied and life expectancy should be 5 years. Anodes to be fixed at relevant places.
15.	Towing and Deck Equipment and Fendring Arrangement	2 x Anchor 150 Kgs along with appropriate length & size of chain cable and winch/windlass for lowering/hoisting anchor and heaving towing rope. 1 X Towing hook capable of towing upto 600 tons hatch barge. Towing gear must have disengaging capability in case of emergency. Rope Nylon for berthing and towing alongside – 4 inch x 4 in number (total 250 meters) Rope Nylon for astern towing – 6 inch x 1 in number (125 meters)
16.	Aux. Machinery	Main and standby Generators for power generation (70 % of total Tug load). And meant for steering system, navigation, anchor winch, air conditioning, etc, ect Open/split air conditioning system as appropriate to environment temperature.
17.	Steering System	2 x rudders with hydraulic steering system of appropriate power with quick response. Emergency/ manual steering system in case of main steering system failure.
18.	Tank capacities	Fuel oil 3000 ltrs Fresh water 1000 ltrs Ballast tanks as appropriate Sewage as appropriate
19.	Auxiliary Equipment	1 x Fire pump (120 psi) 1 x Bilge pump (120 psi) 1 x fresh pump Fire Pump must have the backup in case of failure. Fire pump/machinery must with higher output for firefighting/foaming the other vessels on fire. Alarms of lub oil pressure and temperature, cooling system and gauges for engines rpm, gear boxes, steering gear e.t.c at respective locations and bridge(control room). Fixed and portable emergency lights at appropriate position. Backup arrangement for critical equipment like echo sounder, navigation lights and communication equipment
20.	Fire fighting	Fire extinguishers/Firefighting equipment portable (CO_2 and Foam type cylinders of 7 Kgs) appropriate quantity. CO_2 drenching system for unmanned engine

		room. 4 x Fire hydrants inclusive fire hoses on upper deck and machinery/lower compartment as appropriate. Foam throwing through heavy duty nozzles/ options for fire fighting on other ship on fire.
21.	Life saving eqpt	2 x life raft (each 6-8 men),6 x hazardous life jackets, 3 x ring type life buoy, Small boat with OBM with hoisting/lowering mechanism as appropriate
22.	Navigation/Comm. Equipment	Magnetic Compass, Chart display with built in GPS and echo sounder/Electronic Navigational Chart, 2 x searchlights(Rotatable and powerful), 1 x Fixed high power Motorola, 2 x VHF (portable), Navigation lights (appropriate illumination), Fixed Horn high power 1 x Clinometers at bridge centerline
23.	Accommodation/ Living	Wheel house fitted with settees attached Kitchen Living/bedding room of appropriate size with 4 beds of Sanitary facilities and storeroom - below deck or as appropriate Windows in aluminum frames and marine standards Small kitchenette beside the bridge with refrigerator, microwave, heating plates, fresh water, water purifier/filter, stowing places for utensils,
24.	Construction/ Inspection	Tug is to be fabricated/constructed at Daudkhel in four months.
25.	Trials and acceptance conditions	Trials for Tug constructed inland will at Daudkhel inclusive transit to Attock while in tow. Trials conditions / speeds at para 9 above and acceptance as under: Speed 0.5 kts less than desired will reduce 10% of engines cost. Speed 1 kts less than desired will reduce 30% of engines cost. Speed 1.5 kts less than desired will cause rejection of engines and supplier/firm to provide appropriate engines (mentioned type) with desired speed at no cost to the Buyer.