

TECHNICAL SPECIFICATION

Fabrication, Hot Dip Galvanizing, Supply, Installation, Anchoring, Testing and Handover of Gangway Landing Structures

GP-04 Berth | Gujarat Pipavav Port Limited

Tender Technical Specification and QA/QC Requirements

Important: This specification shall be read together with the tender BOQ, detailed drawings issued for Construction, GPPL HSE requirements and all tender conditions. Where requirements differ, the more stringent requirement shall apply unless otherwise directed in writing by the Engineer.

Document Control

Rev.	Date	Description	Prepared by	Reviewed by	Approved by
0	17-Jul-2026	Draft for Tender	Projects	JSY/RSP	JSY

Reference Documents

Document / Drawing	Title / Purpose
313102-00034-IN-MA-DAL-1001 to 1006 Rev. A	Detailed plan, sections, connection details and general notes
Tender BOQ	Price schedule and measured items
GPPL procedures	HSE, work permit, marine operations, security and quality requirements

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1. Purpose and Scope

This specification defines the minimum technical, workmanship, quality assurance, quality control, safety, inspection, testing and handover requirements for the fabrication, hot dip galvanizing, supply, transportation, installation, chemical anchoring, grouting, testing and commissioning of four gangway landing structures at the operational GP-04 berth. (Bollard 45 to 46, 47 to 48 and 57 to 58 & 58 to 59)

The work shall provide complete, safe, serviceable and maintainable structures in accordance with the approved drawings and BOQ. The Contractor shall include all labour, supervision, plant, temporary works, access, consumables, tools and incidental materials necessary to deliver the completed works, irrespective of whether each incidental activity is separately identified in the BOQ.

1.1 Scope Included

The Contractor shall execute the complete supply-and-installation package based on the approved drawings, BOQ and this specification. The scope shall include all materials, labour, supervision, plant, tools, access, temporary work and incidental activities required to deliver complete, safe and operational structures.

- Pre-construction site survey, dimensional verification, condition recording and coordination with GPPL.
- Preparation of shop drawings, fabrication drawings, cutting lists, bar/plate schedules, erection drawings and method statements based on the issued design drawings. Shop drawings should not alter the approved design without written approval.
- Procurement of structural steel, chequered plates, handrails/sea-edge pipes, connection plates, bolts, nuts, washers, chemical anchors, grout and all accessories.
- Fabrication, trial assembly where required, welding, drilling, dimensional inspection, surface preparation and hot dip galvanizing.
- Packing, transport, unloading, storage, lifting, erection, alignment, fixing, anchoring, grouting and repair of damaged galvanizing.
- Provision of temporary working platforms, scaffolding, access, lifting tackles, fall protection, rescue arrangements and all temporary works.
- Quality-control inspections, material traceability, coating checks, anchor installation records, proof testing as specified, final inspection and commissioning.
- Preparation of as-built drawings, certificates, test records, inspection dossiers, O&M information and handover documents.

1.2 Exclusions / Design Basis

The permanent structural arrangement shall follow the approved detailed design drawings. No change to member sizes, platform geometry, support details, anchor type, embedment, material grade or connection arrangement shall be made without written approval. This specification does not require the Contractor to redesign the permanent structure unless expressly included by BOQ amendment or written instruction. The Contractor remains responsible for the adequacy and safety of temporary works, erection methodology, lifting arrangements and workmanship.

2. Definitions, Responsibilities and Precedence

Term	Meaning
Employer	Gujarat Pipavav Port Limited (GPPL) / APM Terminals Pipavav.
Engineer	The person or consultant authorised by GPPL to administer and inspect the Works.
Contractor	The successful tenderer responsible for complete supply and execution.
Approved drawings	Latest drawings issued or accepted in writing for construction.
Hold Point (H)	Activity shall not proceed without written release by Engineer/GPPL.
Witness Point (W)	GPPL/Engineer shall be notified and may witness; work may proceed after the stated notice period if no attendance.
Review (R)	Document review or record verification.
Surveillance (S)	Random monitoring by GPPL/Engineer.

2.1 Responsibility

- The Contractor shall verify dimensions and interfaces before fabrication.
- Approval or witnessing by GPPL/Engineer shall not relieve the Contractor of contractual responsibility for quality, safety, accuracy or completeness.
- Discrepancies between BOQ, drawings, MTO and this specification shall be referred to the Engineer before procurement or execution.
- The Contractor shall coordinate with operations, engineering, HSE, security and maintenance teams.

2.2 Order of Precedence

Unless the Contract states otherwise, written amendments/addenda shall take precedence, followed by the BOQ and contract conditions, this technical specification, approved drawings, approved feasibility report, approved method statements and applicable standards. The more stringent technical or safety requirement shall apply where no direct conflict exists.

3. Applicable Codes and Standards

Latest applicable editions, including amendments current at the tender base date, shall apply unless a specific edition is stated on the approved drawings. Equivalent standards require prior written approval.

Subject	Minimum Standard / Requirement
Structural steel design and workmanship	IS 800; approved design drawings and general notes.
Structural steel material	IS 2062, Grade E350BR as indicated on drawings.
Welding	IS 816, IS 9595 and AWS D1.1 where referenced or applicable.
Welding consumables	Compatible E70XX class or approved equivalent; approved WPS.
Bolts, nuts and washers	IS 1367 / relevant product standards; Grade 8.8 where indicated.
Hot dip galvanizing	ASTM A123/A123M for fabricated steel; associated fasteners to ASTM A153/A153M or approved equivalent.
Repair of galvanizing	ASTM A780/A780M or approved equivalent.
Chemical anchors	Approved drawing, manufacturer ETA/product approval and published installation instructions.
Non-shrink grout	Approved proprietary chloride-free, non-metallic cementitious grout; minimum 50 MPa at 28 days where specified.
Safety	Applicable Indian legislation, port/marine requirements and GPPL HSE procedures.

Clarification: Standards cited in drawings remain governing. The Contractor shall identify any obsolete, conflicting or unsuitable reference before execution and seek written direction.

4. Materials

4.1 Structural Steel

- All sections, plates and structural components shall be new, straight, free from laminations, cracks, severe pitting and detrimental defects.
- Steel grades and sections shall match the approved drawings, including UB 203x133x25, ISMC 150, ISA 50x50x6, plates and 100 NB carbon steel pipe where shown.
- Each batch shall be supported by original or traceable Material Test Certificates identifying heat number, grade, chemical composition and mechanical properties.
- Material substitutions, built-up alternatives or thickness reductions are not permitted without written approval.

4.2 Chequered Plate and Handrails

- Chequered plate shall be 10 mm thick as shown on the detailed drawings, unless revised by approved drawing.
- Deck plates shall be laid flush, stable and free from rocking, sharp projections, trip hazards or water-trapping details.
- Handrails, posts, mid-rails, sea-edge pipes, saddle plates, brackets and associated fittings shown on the drawings shall be included.

4.3 Bolts and Anchors

- Structural bolts shall be Grade 8.8, hot dip galvanized, supplied complete with compatible nuts and washers.
- Chemical anchors shall be the specified Hilti HIT-RE 500 V4 system with HAS-U Grade 8.8 galvanized threaded rod, M20 x 400 mm and 300 mm effective embedment, unless amended by approved drawing.
- Mixing nozzles, cartridges and accessories shall be within shelf life, stored at manufacturer-recommended temperature and supplied from authorised sources.
- No mixing of anchor components from different manufacturers is permitted.

4.4 Grout

Grout shall be pre-packed, chloride-free, non-metallic, non-shrink cementitious grout of approved make, suitable for marine exposure and the specified gap thickness. Site-batched CM 1:3 shall not be used where it conflicts with the proprietary grout requirement. Water addition, mixing, placement and curing shall follow the manufacturer data sheet.

5. Contractor Submittals

The Contractor shall submit documents sufficiently in advance to allow review without affecting procurement or berth operations. Review status shall not be treated as permission to commence work unless the applicable permit and hold-point release are also obtained.

Submittal	Minimum Content	Timing / Status
Site survey report	Verified dimensions, photographs, access constraints, utilities, concrete condition and discrepancies.	Before shop drawings - H
Shop/fabrication drawings	Member marks, dimensions, welds, holes, plates, drainage, handrails, assembly and erection sequence.	Before fabrication - H
Method statements	Fabrication, galvanizing, transport, lifting, working over water, anchoring, grouting, installation and touch-up.	Before activity - H
ITP and checklists	Stages, acceptance criteria, records and H/W/R/S points.	Before fabrication - H
Material documents	MTCs, product data, anchor ETA, grout data, bolt and consumable certificates.	Before use - R/H
Welding dossier	WPS/PQR, welder qualification, consumable control and NDT procedure.	Before welding - H
Galvanizing procedure	Pre-treatment, vent/drain details, bath controls, thickness inspection and repair method.	Before galvanizing - H
Lift plan	Weights, crane/manlift location, radius, rigging, temporary restraint and exclusion zones.	Before lifting - H
Programme / look-ahead	Fabrication and berth-window execution plan, manpower and equipment.	Weekly and as directed - R
Completion dossier	As-built drawings, certificates, inspection/test records, NCR closure and warranties.	Before handover - H

6. Site Verification and Interface Management

- Before fabrication, jointly verify all relevant dimensions, elevations, support faces, openings, utilities, cable ducts, obstructions, access routes and marine-side conditions.
- Carry out reinforcement/utility scanning at every proposed drilling zone using calibrated equipment. Mark exclusion zones and do not drill through reinforcement, prestressing, embedded services or cable ducts.
- Record the existing condition of concrete, coatings, edges and adjacent assets with dated photographs. Report spalling, cracking, weak concrete or mismatch immediately.
- Do not scale drawings where dimensions are absent. Obtain clarification before fabrication.
- Coordinate platform identification, final locations and member-marking with GPPL for asset records.
- Protect all operating plant, cables, fenders, bollards, pavement, drainage and quay furniture from damage.

No Assumption: Any mismatch affecting approved support locations or dimensions shall be referred to the Engineer. The Contractor shall not relocate anchors or modify the permanent design on site without written approval.

7. Fabrication Requirements

7.1 General

- Fabrication shall be carried out in an approved workshop with suitable jigs, calibrated equipment, qualified supervision and traceable inspection records.
- Members shall be accurately cut and assembled without forced fit-up. Flame-cut edges shall be dressed smooth and free of notches.
- Holes shall be drilled; uncontrolled flame-cut holes are prohibited. Burrs and sharp edges shall be removed.
- All components shall carry durable member marks that remain identifiable after galvanizing without damaging the coating.
- Where practicable, trial assembly shall be completed before galvanizing to confirm fit and interfaces.

7.2 Welding

- Welding shall be performed to an approved WPS by qualified welders.
- Weld surfaces shall be clean and dry. Electrodes/consumables shall be controlled, stored and baked as required by the manufacturer and WPS.
- Fillet welds shall be continuous and minimum 6 mm unless otherwise indicated. Butt welds shall receive the preparation shown on drawings/general notes.
- Seal weld enclosed areas as required for galvanizing and corrosion protection, while providing properly engineered vent and drain holes.
- Field welding after galvanizing is prohibited unless specifically approved. Approved field welds shall be inspected and repaired with the specified zinc-rich system.
- Weld spatter, slag, sharp projections and undercut beyond acceptance limits shall be removed or repaired before galvanizing.

7.3 Dimensional Tolerances and Drainage

- Fabricated dimensions and tolerances shall comply with approved drawings, applicable standards and fit-up requirements.
- Platforms shall be level and aligned within practical erection tolerances, without creating steps or trip hazards.
- Drain holes and plate detailing shall prevent ponding and permit cleaning. The general-note and connection-drawing drainage requirements shall be maintained.
- No site cutting or new drilling of galvanized members is permitted without prior approval and subsequent coating repair.

8. Hot Dip Galvanizing and Corrosion Protection

8.1 General

- All completed structural components, plates, chequered plates, pipes, brackets, bolts, nuts, washers and accessories shall be hot dip galvanized after fabrication unless specifically stated otherwise.
- Minimum average coating thickness shall comply with the approved drawing schedule, with 100 microns applicable where specified in the BOQ/drawings.
- Fabrication shall include adequate vent and drain holes to prevent explosion, distortion, acid entrapment and uncoated pockets. Locations shall not impair structural performance or create hazards.
- Surface condition shall be suitable for galvanizing; paint, grease, weld slag and contaminants shall be fully removed.
- Galvanized surfaces shall be uniform, adherent and free from bare spots, excessive runs, sharp spikes, flux deposits, ash inclusions and defects affecting fit or serviceability.

8.2 Inspection and Repair

- Coating thickness shall be measured using a calibrated magnetic gauge at representative locations on every member type and batch.
- Components shall be checked for distortion and fit after galvanizing. Straightening shall use methods that do not crack or materially damage the coating.
- Damage within permissible repair limits shall be repaired in accordance with ASTM A780/A780M using an approved zinc-rich system. Extensive damage, poor adhesion or bare areas shall be rejected and re-galvanized.
- Cold-galvanizing aerosol alone is not acceptable unless part of an approved repair system meeting the required dry film thickness and zinc content.
- Repair records shall identify member, location, area, product, preparation and final thickness.

9. Transportation, Handling and Storage

- Pack and support members to prevent distortion, abrasion, wet-storage staining and damage to galvanizing.
- Use fabric slings, padded chains or protected lifting points. Do not drag galvanized members or use unprotected wire ropes directly on finished surfaces.
- Store members off the ground on non-staining supports with drainage and air circulation.
- Segregate and label components by platform/location and erection sequence.
- Inspect all members on arrival; record and rectify transport damage before installation.

10. Installation and Anchoring

10.1 Installation Activities Included

- Setting out, survey control, reinforcement/utility scanning, drilling, hole cleaning, anchor installation, base/end plate fixing, grouting, lifting, erection, alignment, bolting, approved welding, galvanizing repair, cleaning and making good.
- All temporary works, staging, scaffolding, manlifts, access platforms, lifting appliances, rigging, tools, generators, lighting, containment and consumables.
- Protection of existing concrete and assets, debris collection and disposal, and daily restoration of the berth work area.

10.2 Concrete Surface and Drilling

- Obtain permit, approved setting-out and scan clearance before drilling.
- Use drilling method and diameter specified by the anchor manufacturer. Diamond-cored holes shall not be used unless approved for the selected resin system and properly roughened/cleaned as required.
- Drilling shall be controlled to prevent spalling, cracking, breakthrough or damage to reinforcement and utilities.
- Where unsound or deteriorated concrete is encountered, stop work and notify the Engineer. Repairs shall follow an approved repair method before anchoring.
- Drilling slurry, dust and debris shall be contained; no waste shall be discharged into the sea.

10.3 Chemical Anchor Installation

- Anchors shall be installed only by trained personnel in strict accordance with the approved manufacturer procedure.
- Record hole diameter, depth, cleaning method, concrete condition, cartridge batch/expiry, ambient/substrate temperature, gel/cure time, installer and final projection for each anchor group.
- Clean holes using the specified SafeSet automatic cleaning system or the approved blow-brush-blow sequence. Brushes and air equipment shall be suitable and serviceable.
- Discard the initial resin quantity until uniform colour is achieved. Fill from the back of the hole to avoid air pockets; insert the rod with twisting motion.
- Do not disturb, torque or load anchors before the full curing time for actual site temperature has elapsed.
- Tightening torque shall follow approved manufacturer data. Calibrated torque wrenches shall be used and torque values recorded.
- Anchors that conflict with reinforcement, fail during installation or do not meet acceptance criteria shall not be relocated without written direction.

10.4 Grouting

- Concrete and plate surfaces shall be sound, clean and prepared. Formwork shall be leak-tight.
- Place grout continuously to avoid voids, using head pressure where necessary. Do not add excess water or retemper grout.
- Provide the specified thickness and finish edges to shed water. Cure in accordance with the product data sheet.
- Do not impose service load until the grout reaches the required strength. Retain batch and cube/compressive-strength records where required by the ITP.

10.5 Erection and Final Fixing

- Verify member marks and orientation before lifting. Maintain temporary stability until all permanent connections are complete.
- Align and level the structure without forcing members or using unapproved packing.
- Bolts shall be complete with specified nuts and washers. Threads shall not be damaged; bolt tightening shall be verified and recorded.

- Completed platform surfaces shall be even, secure, non-slip, freely draining and free from sharp edges. Handrails shall be rigid and continuous as detailed.
- Any damage to existing structures or facilities shall be repaired by the Contractor to the satisfaction of GPPL at no additional cost.

11. Operational Restrictions at the Berth

Operational Priority: Vessel and terminal operations at GP-04 have absolute priority over construction activities.

- Installation shall be undertaken only during non-vessel operation periods, subject to berth availability and written daily permission from GPPL/Operations.
- The Contractor shall maintain a flexible work plan and mobilise/demobilise resources to suit short and intermittent berth windows.
- GPPL may suspend, restrict, resequence or stop the works at any time for vessel, cargo, safety, emergency, security or operational reasons.
- No idle labour or equipment charges, standby charges, loss-of-productivity claims, disruption costs, waiting charges, remobilisation costs or other compensation shall be payable due to vessel occupancy, berth non-availability, operational restrictions or interrupted work windows.
- Tendered rates and programme shall be deemed to include all such constraints, multiple work fronts, split shifts, night/day windows where permitted, repeated access arrangements and coordination.
- The Contractor shall provide daily and weekly look-ahead plans and shall commence work only after work permit, berth release and HSE clearance.
- All tools, loose materials and temporary works shall be removed or secured before vessel berthing or when instructed. The berth shall be left immediately safe and operational.

12. HSE and Marine-Side Working

- Comply with GPPL/APMT HSE, permit-to-work, security, traffic and marine operation requirements.
- Submit task risk assessments/JSA and method statements for fabrication, lifting, work at height, work over water, drilling, chemical handling, hot work and electrical tools.
- Provide approved full-body harnesses, double lanyards/SRLs, certified anchor points, guardrails and fall-prevention systems.
- Personnel working over or adjacent to water shall wear approved lifejackets. Lifebuoys with lines and a documented water-rescue arrangement shall be available.
- Provide barricades, exclusion zones, banksmen, certified lifting tools/tackles, competent operators and lift supervision.
- Hot work requires permit, gas cylinders secured upright, fire extinguishers, fire watch and post-work monitoring.
- Provide containment for drilling dust/slurry, welding sparks, tools and small parts. Nothing shall be allowed to fall into the sea or onto operating areas.
- Chemical products shall have current SDS, suitable storage, spill kits and trained users.
- Maintain safe access, lighting, housekeeping and emergency routes throughout each work period.
- All safety measures, rescue provisions and compliance costs are included in the Contractor rates.

13. QA/QC Requirements

13.1 Quality System

- The Contractor shall operate a documented quality system with an appointed QA/QC engineer and discipline inspectors.
- The approved ITP, drawings, checklists and procedures shall be available at the workplace.
- Measuring and test equipment shall have valid calibration traceable to recognised standards.
- Materials and fabricated members shall be traceable from MTC through fabrication, galvanizing, delivery and final location.
- No work shall be concealed or passed beyond a Hold Point without release.

13.2 Minimum Inspection Requirements

Activity	Minimum Verification / Acceptance
Incoming steel	Grade, section, thickness, heat number, MTC, condition and dimensions.
Fit-up and fabrication	Member mark, dimensions, hole locations, plate sizes, squareness, camber/straightness and drainage features.
Welding	Approved WPS/welder, visual inspection of 100% welds; additional NDT where shown, required by standard or directed based on defect concerns.
Pre-galvanizing	Weld completion, edge dressing, vent/drain holes, cleanliness, member marking and trial fit where applicable.
Galvanizing	Certificate, visual condition, coating thickness, adhesion where required, distortion and repair areas.
Anchor installation	Approved location, scan clearance, hole depth/diameter, cleaning, resin batch/expiry, temperature, cure time, projection and torque.
Grouting	Product/batch, substrate preparation, mixing water, placement, thickness, curing and strength evidence.
Erection	Location, level, alignment, bolt completion/torque, deck stability, handrail, drainage, touch-up and housekeeping.
Final acceptance	Dimensions, functionality, finish, records, punch list closure, as-built drawings and completion dossier.

13.3 Welding Inspection and NDT

All welds shall receive 100% visual inspection. Surface or volumetric NDT, if indicated on drawings, required by the applicable code, or instructed following visual defects, shall be performed by qualified personnel to an approved procedure. Repaired welds shall be re-inspected by the same method. NDT costs required by the approved ITP shall be included in the tender rates.

13.4 Anchor Proof Testing

Proof testing shall be carried out where included in the BOQ, approved ITP or directed by the Engineer. Unless otherwise stated, tenderers shall allow for proof testing of at least 5% of installed anchors, with a minimum of one anchor per representative support type/location. Test load, hold duration and acceptance criteria shall be agreed with

the Engineer and anchor manufacturer before testing. Testing shall not damage the permanent installation. Failed tests shall trigger investigation, an agreed increased test frequency and corrective action at the Contractor cost.

Tender Clarification: If anchor proof testing is not intended to be a separate payable BOQ item, the BOQ shall expressly state that testing is deemed included in the anchor rate.

14. Inspection and Test Plan

The minimum ITP below shall be expanded by the Contractor to suit its procedures. GPPL/Engineer shall receive at least 48 hours notice for Hold/Witness points unless the Contract specifies otherwise.

No .	Stage	Inspection / Test	Acceptance Criteria	Point	Record
1	Document review	Drawings, MTO, specification, site survey	Approved / accepted documents	H	Approved submittal
2	Material receipt	Steel, plates, bolts, anchors, grout	Correct grade, size, certificates, shelf life	R/W	MTC and receipt inspection
3	Shop drawings	Dimensions, interfaces and member marks	Approved before fabrication	H	Approved drawings
4	WPS / welders	Procedure and qualification validity	Compliant and current	H	Welding dossier
5	Fit-up	Dimensions, weld prep, holes and plates	Within drawing tolerances	W	Fit-up checklist
6	Welding	Parameters and visual quality	WPS/code compliant	S/W	Weld log and VT report
7	Pre-galvanizing	Completion, dressing, vent/drain, marking	Accepted before dispatch to galvanizer	H	Release note
8	Galvanizing	Process, visual quality and thickness	Drawing/standard and 100 micron where specified	W	Certificate and DFT report
9	Delivery	Damage, distortion, identification	Accepted at site	W	Delivery inspection
10	Setting out / scan	Dimensions, utility/rebar clearance	Approved locations clear for drilling	H	Survey and scan record
11	Anchor drilling	Diameter, depth, condition and cleaning	Manufacturer procedure	W	Anchor checklist
12	Anchor curing / torque	Batch, temperature, cure time, torque	Manufacturer procedure	W	Anchor installation log
13	Proof test	Selected anchors	Approved load/hold/acceptance	H/W	Test certificate
14	Grouting	Preparation, mixing, placing and curing	Approved product/procedure	W	Grout checklist / test
15	Erection	Alignment, bolts, deck, handrail, drainage	Approved drawings	W	Erection checklist

No .	Stage	Inspection / Test	Acceptance Criteria	Point	Record
16	Coating repair	Damage preparation and repair thickness	ASTM A780 / approved procedure	W	Repair log
17	Final inspection	Complete structure and records	Punch free / accepted	H	Completion certificate

15. Testing, Completion and Commissioning

- Complete all inspection and testing required by the approved ITP and close NCRs before commissioning.
- Carry out a final joint inspection for structural completeness, alignment, deck stability, safe access, handrail rigidity, drainage, sharp edges, coating damage, anchor/bolt completion and cleanliness.
- Where directed, demonstrate that the intended gangway landing zone is unobstructed and suitable for operational use, without subjecting the structure to unapproved test loads.
- Commissioning shall include removal of temporary works, tools, debris and barricades; reinstatement of affected surfaces; and formal release of the berth area to Operations.
- Any unresolved safety-critical or operational punch item shall prevent handover.

16. Documentation and Handover

The Contractor shall submit an indexed completion dossier in searchable PDF and editable/native formats where applicable. Handover is not complete until the dossier is accepted.

Dossier Section	Required Records
A. General	Approved drawings, specification, BOQ, method statements, ITP, organisation and approved deviations.
B. Materials	MTCs, bolt/fastener certificates, anchor ETA/product data, grout certificates and SDS.
C. Fabrication	Shop drawings, cutting/material traceability, dimensional records, WPS/PQR, welder certificates, weld map/log and NDT reports.
D. Galvanizing	Galvanizer certificate, batch details, visual and coating thickness reports, repair logs.
E. Installation	Survey, scan records, anchor logs, torque records, proof-test reports, grout records and erection checklists.
F. HSE	Permits summary, lifting certificates and closure of incidents/observations where applicable.
G. Completion	As-built drawings, photographs, punch-list closure, warranties, maintenance recommendations and completion certificate.

17. Measurement and Payment

- Structural-steel tonnage shall be measured and paid only in accordance with the BOQ basis. The stated tender quantity shall be deemed to include the specified fabrication and installation wastage allowance where expressly stated in the BOQ.
- Rates shall include cutting losses, off-cuts, laps, cleats, minor connection plates, packing, temporary fabrication aids, welding consumables, handling losses and all incidental materials required for complete installation, unless separately measured in the BOQ.
- No separate payment shall be made for shop drawings, site verification, temporary works, access, lifting, scaffolding, repeated mobilisation within the site, berth-window interruptions, HSE compliance, QA/QC, testing, galvanizing repairs, debris disposal, as-built drawings or handover documentation unless expressly provided as a separate BOQ item.
- Bolts, nuts, washers, chemical anchors and grout shall be measured as defined in the BOQ. Tenderers shall clearly identify any item not included; post-award exclusions will not be accepted.
- No idle or standby charges shall apply due to operational or berth restrictions as stated in Section 11.

18. Non-Conformance, Repair and Acceptance

- Non-conforming work shall be identified, segregated where practicable, documented and not incorporated without approved disposition.
- Repair proposals shall state cause, extent, method, inspection and prevention of recurrence. Use-as-is or design deviation requires written engineering approval.
- Rework and retesting arising from Contractor non-conformance shall be at no additional cost.
- Repeated defects may result in increased inspection/testing frequency at Contractor cost.
- Final acceptance does not waive latent defects, warranty obligations or the requirement to correct defects identified during the contractual defect-liability period.

Annexure A - Minimum Contractor Submittal Register

Ref.	Submittal	Due	Status
A1	Site survey and condition report	Before fabrication	H
A2	Shop/fabrication and erection drawings	Before fabrication	H
A3	Project quality plan and ITP	Before work	H
A4	Fabrication/welding method and WPS/PQR	Before welding	H
A5	Welder qualifications	Before welding	H
A6	Galvanizing procedure and inspection plan	Before galvanizing	H
A7	Anchor installation method and installer training	Before drilling	H
A8	Grouting method and product data	Before grouting	H
A9	Lift plan, JSA and temporary works	Before installation	H
A10	Material certificates and traceability register	Before use	R
A11	Weekly look-ahead and berth-window plan	Weekly	R
A12	As-built drawings and completion dossier	Before handover	H

Annexure B - Minimum QA/QC Checklists**B1. Fabrication Release**

- ☐ Approved drawing revision available
- ☐ Material grade/heat traceability verified
- ☐ Dimensions and hole locations checked
- ☐ Welds visually accepted and NDT complete
- ☐ Sharp edges/spatter removed
- ☐ Vent/drain holes verified
- ☐ Member marks applied
- ☐ Released for galvanizing

B2. Anchor Installation

- ☐ Setting-out and scan clearance approved
- ☐ Hole diameter/depth recorded
- ☐ Hole cleaning verified
- ☐ Resin batch and expiry recorded
- ☐ Temperature and cure time recorded
- ☐ Rod projection and orientation checked
- ☐ Final torque recorded
- ☐ Proof-test status recorded

B3. Final Completion

- ☐ All members installed and aligned
- ☐ Bolts/nuts/washers complete
- ☐ Deck firm, flush and draining
- ☐ Handrails complete and rigid
- ☐ Galvanizing damage repaired
- ☐ Temporary works and debris removed
- ☐ As-built photos/drawings complete
- ☐ Punch items closed

Annexure C - Tenderer Confirmation Schedule

No.	Tenderer Confirmation	Yes / No	Remarks / Deviation
1	All four gangway landing structures and associated handrails/accessories included.		
2	Structural steel quantity includes stated fabrication and installation wastage.		
3	Bolts, nuts, washers, chemical anchor accessories and consumables included.		
4	Hot dip galvanizing, coating inspection and repair included.		
5	Temporary access, lifting, scaffolding and work-over-water arrangements included.		
6	Berth-window restrictions and no-idle-charge condition accepted.		
7	Anchor installation records and specified proof testing included.		
8	QA/QC records, as-built drawings and completion dossier included.		
9	All deviations from this specification listed separately.		

END OF TECHNICAL SPECIFICATION