



MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

DESIGN, DEVELOPMENT, SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF STANDARD GAUGE TRACKWORKS (BALLASTED AND BALLASTLESS) IN KASHELI DEPOT TRACKS FOR LINE 5 CORRIDOR OF MUMBAI METRO RAIL PROJECT OF MMRDA, MUMBAI.

TENDER DOCUMENTS

CONTRACT NO: MMRDA/MPIU/ML5/CA-303

TENDER DOCUMENTS VOLUME - 6

BILL OF QUANTITY (PRICING DOCUMENT)

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

**Metro PIU, 7th Floor, New Administrative Building,
Bandra-Kurla Complex, Bandra (E), Mumbai –400051, India**

PREAMBLE

1. GENERAL REQUIREMENTS

1.1. General:

The Tenderer's attention is drawn to the General Conditions of Contract, Special Conditions of Contract, Employer's Requirements, Technical Specifications, and drawings. This Preamble will serve as a definitive guide to the terms of payment.

- (a) For the purpose of this Contract, all unit quantities given in the **Bill of Quantities** are the estimated quantities of the Works including spare quantity and are intended in the first instance to provide a common basis for Tendering and Tender Evaluation. When a contract has been entered into, the function of the priced Bill of Quantities is to provide for the valuation of the work executed.
- (b) The **Bill of Quantities** consists of Schedule A, Schedule B and Schedule C comprising of:
 - i. Schedule "A" Kasheli depot Depot track works, (Ballastless/Special Track and Ballasted)
 - ii. Schedule "B" Supply, Transportation related works and Stacking of Rails
 - iii. Schedule "C" is comprises of Provisional Sums based on any other contingency items not covered under schedules "A" and schedule "B" items.

Tender Price shall be sum of Schedule "A", Schedule "B" and Schedule "C"

- (c) The Tenderer shall make himself completely acquainted with all conditions, obligations, specifications, drawings, etc. of the Tender Documents before giving his prices.
- (d) The Tenderer shall fill in each column with unit rate or lump sum, whichever the case may be, for each bill item of the various Bills.
- (e) The rates and prices are for completed and finished items of work and complete in all respects. It is deemed to include the cost of all plants, labour, supervision, materials, transport, all temporary works, erection, maintenance, utility identification, contractor's profit and establishment/overheads, together with preparation of design and drawings, all general risks, insurance liabilities, compliance of labour laws and obligations set out or implied in the Contract.
- (f) The Tenderer shall take regard of the actual site conditions and the estimated quantities entered in the various bills. The Tenderer shall price his tender accordingly and the unit prices entered against a bill item shall be the full and only price paid for all works performed against that item except as described in the Tender Documents. The Tenderer shall price the Bills of Quantities in Indian Rupees only.
- (g) The Schedule of Payment specified in Annexure-A, Annexure B against Schedule "A" and Schedule "B" respectively, are purely for the purpose of releasing 'On Account payments' for the work executed.
- (h) Any other items which are not mentioned but required to complete scope of Design, Construction, Supply, Installation and Testing and Commissioning are included in quoted price. No claim/variation shall be considered.
- (i) Schedule "C" comprises of Provisional Sums based on any other contingency items not covered under schedule A items. All works as required during the execution, items from latest MCGM SOR (Mumbai Construction Circle) Engineering Department, (considering

price escalation @5% per annum with simple interest) will be operated based on the prior approval of Employers representative.

For the additional items not covered under MCGM SOR (Mumbai Construction Circle) then items from PWD SSR for Maharashtra will be operated based on the prior approval of Employers representative. with all addenda and corrigenda up to the opening of the tender. And If the Items are not covered in both the MCGM & PWD SSR rates, then Latest INDIAN RAILWAYS Unified Standard Schedule of Rates, Engineering Department item rates will be operated based on the Prior approval of Employee's representative and if the items are not covered in all above, item rate analysis based on 3 Quotation basis to be considered.

- (j) Notwithstanding any limits that may be implied by the number of items, wording of the individual items and/or the explanations in the Preamble, the rates and sums which the Tenderer enters in the Pricing Document, shall be for the work finished complete in every respect.
- (k) The price of respective items shall include all incidental and contingent expenses and risks of every kind necessary to supply, install, test and commission (including Integrated Testing and Commissioning) complete, and remedying any defects in the whole of the Works in accordance with the Contract.
- (l) If the tenderer fails to quote rates against any Schedule, the tender will be treated as incomplete and non-responsive and shall be rejected.
- (m) General directions and descriptions of work and materials are not necessarily repeated, nor summarized in the Pricing Document. Reference to the relevant sections of the contract documentation shall be made before entering prices against the Pricing Document.
- (n) All columns in the Pricing Document shall be filled in indelible ink or typewritten and the total tender amount shown at the bottom. The person authorized to sign on behalf of the Tenderer shall sign in full with the company seal and date at the bottom of all pages of Pricing Document.
- (o) Payments to the Contractor will generally be made on monthly basis, unless otherwise stipulated. The payment will be made as per % mentioned in payment schedules i.e. Annexures "A" to "B" on proportionate basis against actual work done at site.

1.2. Allowances in rates

Full allowance shall be made in the prices against the various items in the Pricing Document for all costs involved in performing the following. The list below is not exhaustive, and the Tenderers are expected to take all costs involved (Taxes, full Custom duty, etc.) while quoting the rates that will not be subject to variation on any account.

- a) Temporary access roads and bridges, fencing, watching, lighting:
- b) Paying fees and giving notices to authorities.
- c) Payment of all patent rights and royalties.
- d) Reinstatement of the Site.
- e) Safety precautions and all measures to prevent erosion and suppress fire and other hazards.
- f) Interference to the Works by persons, vehicles, and the like being legitimate users of the facilities on or in the vicinity of the Site.

- g) Supplying, maintaining, and removing on completion the Contractors own accommodation, offices, depots, stores, workshops, transport, welfare services and other facilities including telephones and facsimile machines and all charges in connection therewith.
- h) Maintaining public thoroughfares and footpaths and maintaining access upon existing recognized routes.
- i) Providing, transporting to the Site, setting to work, operating (including all fuel and consumable stores), maintaining, and removing from the Site upon completion all Construction Plant and Contractor's Equipment & machinery necessary for the execution of the Works and including the cost of all tests and other requirements in respect of such plant and equipment & machinery.
- j) Working adjacent to or across existing services and installations.
- k) Complying with the requirements of the Employer in regard to Safety and Health. Quality Assurance, Environmental, and project implementation plan.
- l) Co-ordination and interference to the works by the works of Designated Contractors and others employed by MMRDA being legitimate users of the facilities on or in the vicinity of the Site.
- m) Remedying of defects and works of amendment, reconstruction, replacement of other faults, fair wear and tear excepted, during Defects Liability Periods.
- n) Protections to be implemented against Electro- magnetic interference effects following line energization.
- o) Insurance, including all risks in supply, erection, storage, transit, third party, Workmen's Compensation, and others.
- p) All tools, equipment and other arrangements required for all tests prior and after delivery, and for testing and commissioning installed systems including for CMRS inspection.
- q) Carrying out all modifications to the given drawings, preparing detailed construction drawings and supplying originals, copies, and electronic files in accordance with Employer's Requirements.
- r) Security liability of all material supplied and put into the track lies with Contractor till handing over of track to maintenance body of MMRDA i.e., MMMOCL.

1.3. Payment of Spares:

- a) Payment for Spares will be made after handing over the same to maintenance body of MMRDA i.e., MMMOCL.
- b) Total Quantities considered in Schedule "A" & Schedule B BOQ are inclusive of Spares quantities. Refer **ANNEXURE "C"- A** for Spares details.

Bill Of Quantity Summary

Sr. NO.	Description	Quoted Price* (in figure) (Inclusive of all taxes except GST) in INR	Quoted Price In words (Inclusive of all taxes except GST) in INR
		(In figure)	(in word)
[1]	[2]	[3]	[4]
1	Schedule 'A' Depot track works, (Ballastless/Special Track and Ballasted)		
2	Schedule 'B' Supply, Transportation related works and Stacking of Rails		
3	Schedule 'C' (Provisional Sum)	2,00,00,000/-	Rupees Two Crore Only
4	*Total Quoted Amount = (Amount of Schedule A + Amount of Schedule B + Amount of Schedule C)		

Notes:

1. The 'Total Bid Price' (Inclusive of all taxes except GST) quoted for this contract shall be final, no conditional or unconditional discount can be offered on this 'Total Bid Price'. In case of non-compliance, the bid shall be treated as NULL and VOID and stand withdrawn.
2. It is certified that Pricing document annexed in technical package is a "TRUE COPY" (with prices blanked off) of the said Pricing document in the Financial Package.

Authorized signatory with Company Seal

SCHEDULE "A" BILL OF QUANTITIES
KASHELI DEPOT, TRACK WORKS, (Ballastless/Special Track and Ballasted)

Item no.	Description of Items	Unit	Approx. Quantity	Rate in Indian Rupees (INR)	Amount in Indian Rupees (INR)
G-1	General Requirements				
1	Plan submission & approval				
1.1	Quality System Assurance Plan prepared and signed by a chief quality expert	Set	1		
1.2	Health and Safety Management Plan prepared and signed by expert	Set	1		
1.3	Environmental Management Plan prepared and signed by expert	Set	1		
1.4	Project Implementation Plan prepared and signed by expert	Set	1		
1.5	Testing Procedure Plan, prepared and signed by expert.	Set	1		
1.6	Design, Development & Coordination for Complete Completion of Depot Track Works (including proof checking if required from IIT or institute of repute) as per Employer Requirement and satisfaction of Engineer in Charge. i.e., Rail Plinth/Slab for Ballasted Track, Ballastless Track and Special Track forms -Embedded, Pit, Column, Level Crossing, Sleeper etc. Track Geometry -Validation development and design, Alignment Layout Stability analysis-LWR, Track component (Material Inspection reports -FATS Third Party Testing and Document, Maintenance Manuals, Noise and Vibration Study as per RDSO/ Local Government Norms etc.	TM	16244		
2	Submission of as built drawings in 6 no's Copies	LS	All Drawings		
SPM-1	Supply of Permanent Way Material				
1	Plain line PSC sleepers Standard Gauge for UIC 60 E1 rails, including slack gauge sleeper for curves, sleeper for level crossings and sleeper with dowels provision for fixing check rail in sharp curves.	Nos	17540		

2	Supply of Standard gauge Elastic Fastening system including anti-corrosive treatment as per IRS Specifications for coastal area passing Salt Spray Test for ballasted track				
2.1	Grooved sole plate pad RDSO Drg. No. T-3711	Nos	36083		
2.2	GFN liner RDSO Drg. T 3706	Nos	72165		
2.3	ERC MK V RDSO Drg. No T-5919	Nos	72165		
2.4	Plate Screws	Nos	18118		
2.5	Joggled fishplate with 2 clamps for UIC 60 E1 Rail	SET	100		
3	Supply of Buffer stop including all fastenings and fixtures complete item				
3.1	Supply of Buffer stop (friction type) for test track in depot for coasting velocity 25 kmph for Standard Gauge 6 coach fully loaded axle load (17 Ton) , should be able to stop train within 25m sliding distance available in wet condition.	Nos	3		
3.2	Supply of Buffer stop (friction type) for depot line other than test track for 10 Kmph coasting velocity for stabling lines for Standard Gauge 6 coach empty unloaded axle load (17 Ton), should be able to stop train within 10m sliding distance available in wet condition.	Nos	50		

4	Rail Fastening System for Special Track in Depot (Embedded, Pit, Column etc): Supply of rail fastening System for straight and curve track as per approved design including cost of anticorrosive treatment/Painting as per IRS/EN/IS specification for coastal areas passing Salt Spray Test , as approved by engineer, loading, transportation to store /site, unloading, stacking, inspections, delivery of test certificates (FAT), any other documentation and activities associated with supply.	Sets	4055		
5	Supply of Wheel Stops with all fittings and fixtures as approved by Engineer.	Nos.	8		
6	Supply of Self-propelled insulated standard gauge Battery Operated Motor trolley with heavy-duty vehicle with both-side operator and seating capacity of 6+1 (including driver) as per RDSO specification and from RDSO approved vendor including all cost.	Nos	2		
7	Supply of Tool, Plants & Pway items for Maintenance store complete set as per list given in Annexure C	Set	1		
SPM-2	Design, Development and supply of cross over and turnouts				
1	Design, Development, Inspection and Supply of Standard Gauge Turnouts with 60E1 (UIC 60) 1080 HH Rails, derailing switch as per technical specifications and as per drawings approved by Employer with all cost of fittings and fastenings including all lead and lift etc complete.				
1.1	1 in 7 turnout R-190 ballasted track with back drive if required, including all fittings fastenings and fixtures complete item	Nos	53		
1.2	1 in 7 R 190/ Derailing switch (SG) including all fittings fastenings and fixtures complete item	Nos	9		

2	Design, Development, Inspection and Supply of Ballasted Scissor crossover for 4.9- and 4.5-meter track centre (UIC60-1080HH- 1 in 7 R190), turnout should be of tangential entry, canted 1 in 20 on steel base plates including all slide chairs, creep anchors, canted base plate, stretcher bars, weldable leg for CMS crossing, FAT testing's etc., complete work. Payment will be made after approval by Employer / Engineer. (Actual as per approved drawing)				
2.1	1 in 7 R190 Ballasted Scissor crossover for 4.9-meter track centre (actual as per approved drawing) with all fittings and fixtures complete item	Set	1		
2.2	1 in 7 R190 Ballasted Scissor crossover for 4.5-meter track centre (actual as per approved drawing) with all fittings and fixtures complete item	Set	1		
3	Design, Development and Supply of flat-top PSC sleeper set for standard gauge Turn out including all lead and lift complete item for Ballasted track.				
3.1	1in 7 turnout R-190 ballasted track	Set	51		
3.2	1 in 7 R190 derailing switch R-190 ballasted track	Set	9		
3.3	1 in 7 R 190 Scissor X over with 4.9 m t/c ballasted track (actual as per drawing)	Set	1		
3.4	1 in 7 R 190 Scissor X over with 4.5 m t/c ballasted track (actual as per drawing)	Set	1		
BT - 1	Installation of ballasted track				
1	Supplying & Laying ballast in plain track and turnouts as per finished profile as per drawing	Cum	39315		
2	Laying on PSC sleeper, UIC 60 E1 ,1080/880/R260 Rails in track, including anticorrosive treatment/ painting for coastal areas passing Salt Sprey Test as per IRS Specifications on all iron component of track work as approved by Engineer, including supply and fixing of all signage and fouling mark, with all fittings and fastenings, including destressing after completion of work, i.e. complete work as per approved method.	TM	12720		

3	Installation of Scissor X over, Turnout and derailing switch in Ballasted track, on PSC sleepers with all fittings and fastenings including anticorrosive treatment/ painting for coastal areas passing Salt Sprey Test as per IRS Specifications on all iron component of track work as approved by Engineer, including supply and fixing of all types of signage and fouling marks, including destressing, complete work as per approved method.				
3.1	1 in 7 turnouts (SG)	Set	49		
3.2	1 in 7 type Derailing switches (SG)	Set	7		
3.3	Scissor X Over (SG)	Set	2		
4	Manual /Machine Tamping of Track as per approved Method.				
	Plain Track (SG)				
(a)	1st Through Packing	TM	12114		
(b)	2nd Through Packing	TM	12114		
(c)	3rd Through Packing	TM	12114		
4.1	1 in 7 SG Turnout				
(a)	1st Through Packing	Nos.	49		
(b)	2nd Through Packing	Nos.	49		
(c)	3rd Through Packing	Nos.	49		
4.2	1 in 7 Type Derailing Switches				
(a)	1st Through Packing	Nos.	7		
(b)	2nd Through Packing	Nos.	7		
(c)	3rd Through Packing	Nos.	7		
4.3	Scissor X Over				
(a)	1st Through Packing	Nos.	2		
(b)	2nd Through Packing	Nos.	2		
(c)	3rd Through Packing	Nos.	2		
5	Welding of UIC 60, 880 Grade Rails/R260/1080HH Rails for all types of rail including all testing used etc. complete item.				
5.1	Flash Butt Weld (SG) for all combination of rail grade.	Nos	1609		

5.2	Alumino-thermic Weld (SG) for all combination of rail grades.	Nos	593		
6	Installation of Buffer stop				
6.1	Installation of Buffer stop (friction type) for test track in depot for coasting velocity 25 kmph for Standard Gauge 6 Coach axle load (17 Ton), should be able to stop train within sliding distance available in wet condition.	Nos	2		
6.2	Installation of Buffer stop (friction type) 10 kmph coasting velocity for all other depot lines for Standard Gauge 6 Coach axle load (17 Ton) , should be able to stop train within sliding distance available in wet condition.	Nos	45		
7	Installation of Wheel Stop with all fittings and fixtures	Nos	7		
8	USFD of all rails, turnouts, welds, etc complete track work, after completion of Track works as per latest IR USFD Manual with RDSO certified Third Party Agency and sharing of all digital records such as graph	TM	16244		
BT-2	Installation of Ballastless track				
1	Supply and Installation of different type of Special track forms in different plants and Building in Depot as per drawings including all cost of structural steel section viz: plates, column; Concrete, reinforcement steel with FBEC coating, all materials as per specification, anticorrosive treatment /painting for coastal areas passing Salt Sprey Test on all iron component of track work as approved by Engineer; supply & fixing all type of Signage board and fouling marks, fixtures required for signalling & OHE; Destressing as per approved CWR plan & methodology, etc. complete work.				
1.1	Supply and Installation of Level Crossing/Walkway with UIC 60 IRS-T-12-2009.880 Grade Rails with Special PSC Sleepers of Level Crossing including supply or all fittings. fasteners, brackets. blocks, check rail (52 kg Rail), bolts etc. complete. Slabs/blocks are to be provided at level crossing within the track and up to a maximum distance of 5 m from the centre line of the track.	TM	381		

1.2	Supply and Installation of Track work with Steel Column in Depot with UIC 60 IRS-T-12-2009, R260/880 Grade Rails Including cost of all Fittings and Fastenings anticorrosive treatment/ painting for coastal areas passing Salt Sprey Test as per IRS Specifications on all iron component of track work as approved by Engineer. supply & fixing all type of Signage board and fouling marks, fixtures required for signalling & OHE; Destressing as per approved CWR plan & methodology, etc. complete work. Note: - All fitting and fastening provided by Employer's except anchor bolt.	TM	787		
1.3	Supply & Installation of Track work with RCC Column in Depot with UIC 60 IRS-T-12-2009, R260/880 Grade Rails Including cost of all Fittings and Fastenings anticorrosive treatment/ painting for coastal areas passing Salt Sprey Test as per IRS Specifications on all iron component of track work as approved by Engineer. Supply & fixing all type of Signage board and fouling marks, fixtures required for signalling & OHE; Destressing as per approved CWR plan & methodology, etc. complete work.	TM	334		
1.4	Supply and Installation of Embedded Track + Pit Track with all fixtures and fastenings as per approved drawings with UIC 60 IRS-T-12- 2009 with all correction slips, 880 /R 260 Grade Rails with all cost of Fittings, Fastenings, and fixtures, grouting, including isolation required for CWR track sheet/box etc. as per methodology approved by Engineer, Complete work.	TM	1441		
	Total Amount Part (I) Depot track work (Ballastless and Ballasted)				

SCHEDULE "B" BILL OF QUANTITIES

Supply, Transportation related works and Stacking of Rails 1080 HH GRADE and R260/880.

Item no.	Description of Items	Unit	Approx. Qty	Rate in Indian Rupees (INR)	Amount in Indian Rupees (INR)
SR-1	PART (II) ' Rails Supply, Transportation and Stacking of Rails at Depot				
B-1	Supply of 1080 Grade HH UIC 60E1 Prime Rails class A rails of 18-meter length, As per IRS T 12-2009 with latest correction slips, including cost of custom clearance (if required), transportation, loading and unloading, lead and lift, stacking in yard, rehandling etc, all complete.	MT	547.00		
B-2	Supply of R260/880 Grade UIC 60E1 Prime Rails Prime class A rails of 18-meter length, as per IRS T 12-2009 with latest correction slips, including custom clearance (if required), cost of transportation, loading and unloading, lead and lift, stacking in yard, rehandling etc, all complete.	MT	1712.00		
B-3	Development of stacking yard at designated location (contractor to arrange space if not provided by Employer) As per IRS T 12-2009 with latest correction slips, for total Rail quantity and P. Way Material.	SQM	600.0		
	Sub Total Amount Depot Rails Supply, Transportation and Stacking of Rails				

SCHEDULE C

Item No.	Description of items	Unit	Amount
C-1	<p>All works as required during the execution, items from latest MCGM SOR (Mumbai Construction Circle) Engineering Department, (considering price escalation @ 5% per annum with simple interest) will be operated based on the prior approval of Employers representative.</p> <p>For the additional items not covered under MCGM SOR (Mumbai Construction Circle) then items from PWD SSR for Maharashtra will be operated based on the prior approval of Employers representative. with all addenda and corrigenda up to the opening of tender.</p> <p>If the Items are not covered in both the MCGM & PWD SSR rates, then Latest INDIAN RAILWAYS Unified Standard Schedule of Rates, Engineering Department item rates will be operated based on the Prior approval of Employer's representative.</p> <p>If the item are not covered in all above, item rate analysis based on 3 Quotation basis to be considered.</p>	LS	Rs. 2,00,00,000/-

Authorized signatory with Company Seal

Explanatory Note

1. The tenderer is not required to quote above / below / at par rates against Schedule 'C'.

SCHEDULE OF ON ACCOUNT PAYMENT

ANNEXURE "A" TO SCHEDULE "A"

Item No.	Description of items	Percentage for Part Payment
G-1 General Requirement – All Items, subitems (Payment will be made 30% on submission and 70% on approval)		
1	Submission and approval of Quality System Assurance Plan, Health and Safety Management Plan, Environmental Management Plan, Testing Procedure Plan and Project Implementation Plan	10%
2	Design, Development & Coordination for Complete Completion of Depot Track Works (including proof checking if required from IIT or institute of repute) as per Employer Requirement and satisfaction of Engineer in Charge. i.e., Rail Plinth/Slab for Ballasted Track, Ballastless Track and Special Track forms -Embedded, Pit, Column, Level Crossing, Sleeper etc. Track Geometry -Validation development and design, Alignment Layout Stability analysis - LWR, Track component (Material Inspection reports -FATS Third Party Testing and Document, Maintenance Manuals, Noise and Vibration Study as per RDSO/ Local Government Norms etc.	80%
3	Submission of as-built drawings 6 nos Copies	10%
Bill No.SPM-1 & SPM 2 – All Items		
1	Design and Supply of P. Way materials at work site in Kasheli depot /Mumbai in undamaged condition including FAT, warranty, insurance, submission of Inspection Report and indemnity Bond etc.,	80%
2	Testing and Commissioning of Corridors	5%
3	Handover of balance P. Way materials +5% spares for maintenance, to MMRDA stores as directed by Engineer including handling / rehandling, transportation and stacking complete Item	15%
Bill No.BT-1 - Item No.1		
Supplying & Laying ballast in plain track and turnouts as per finished profile		
1	Surveying /stacking center, reference line etc.	3%
2	Suppling, loading, transporting, dumping, testing as per RDSO spreading, ballasting, Rolling, compaction, etc.	72%
3	Submission of all records, making final profile after tamping. Checks List for compliance of all items and employer's other requirement.	25%

Bill No.BT-1 - Item No.2		
Laying of PSC sleepers with all fittings and fastenings etc. on ballast etc. complete item including all lead and lift.		
1	Surveying, stacking centerline reference line etc.	5%
2	Loading, handling, transporting, unloading rails Sleepers etc.	10%
Item No.	Description of items	Percentage for Part Payment
3	Linking track etc. (On RCC plinth in case of Ballast less)	40%
4	Lining Levelling, profiling as per drawing, stabilizing, Final tamping etc.	25%
5	Destressing, measuring stress level of rails after destressing fastening down of track cutting jointing etc.	10%
6	submission of all records, checklists for compliance of all, parameters items and employer's other requirement.	10%
Bill No.BT-1 - Item No.3		
Installation of Scissor X over, Turnout and derailing switch in of Ballasted track on PSC sleepers and all fittings & fastenings etc. (interface with system contractor for fixings witch operating machine motor, back drive etc. complete) on ballast including approach track etc. complete.		
1	Surveying, marking, stacking, reference etc.	5%
2	Loading, handling, transporting, unloading rails Sleepers etc.	10%
3	Linking track etc. (on RCC Plinth in case of Ballastless)	40%
4	Lining Levelling, stabilizing, Final tamping destressing, interface with system contractor for fixing machine etc.	25%
5	Destressing, measuring stress level of rails after destressing fastening down of track cutting jointing etc.	10%
6	submission of all records, check lists for compliance of all items and employer's other requirement.	10%
Bill No.BT-1 - Item No.5.1		
Welding of UIC 60 E1, 880 Grade Rails/R260/1080HH Rails for all type of rail including all testing used etc. complete item - Flash Butt Weld.		
1	Flash butt welding by mobile flash butt welding plant, residual stress test, marking etc, as per RDSO/EN specifications.	60%
2	Submission of results of test weld.	10%
3	Profile grinding	20%
4	Submission of weld record, USFD, Tolerances and employer's other requirement etc.	10%
Bill No.BT-1 - Item No.5.2		
Welding of UIC 60 E1, 880 Grade Rails/R260/1080HH Rails for all type of rail including all testing used etc. complete item – AT Weld.		
1	Alumino-thermic (AT) welding as per specifications	60%
2	Submission of results of test weld.	10%

3	Profile grinding	20%
4	Submission of weld record, USFD, Tolerances and employer's other requirement etc.	10%

Item No.	Description of items	Percentage for Part Payment
Bill No.BT-1 - Item No.6 & 7		
Installation of Buffer stop 25 kmph ,10 Kmph speed potential and wheel stop		
1	Surveying Loading, transporting, fixing at final location including commissioning, testing and submission of test certificate.	90%
2	Submission of all Results, records, Check list for compliance of all items and employer's other requirement.	10%
Bill No.BT-1 - Item No.8		
USFD of all rails, turnouts, welds etc complete track work, after completion of Track works		
1	USFD testing as per IR specifications and submission of reports, records etc.	70%
2	After Compliance as per specifications	30%
Bill No.BT-2 - Item No1.1 and 1.2		
Supply and Installation of Level Crossing, Pathway		
1	Surveying and Location of check rails etc.	5%
2	Fabrication of check rails and provision of check rails at site.	15%
3	Compaction and levelling of ballast between Track rail and on approaches including laying/compaction of sand on top etc.	25%
4	laying Concrete slab/Blocks between the track rails and on top etc.	50%
5	Submission of all records, Check list for compliance of all items and employer's other requirement.	5%
Bill No.BT-2 - Item No.1.3		
Supply and Installation of Track work on Steel Column in Depot with UIC 60 IRS-T-12- 2009, R260/880 Grade Rails with all Fittings and Fastenings etc Complete.		
1	Surveying etc.	5%
2	Supply of steel Column, Rail setting with all fittings and fastenings etc. Cleaning as per employer's requirement.	80%

Item No.	Description of items	Percentage for Part Payment
3	Destressing, acceptance tests, measurement of parameters final tolerances, submission of all records check list for compliance of all items etc. and employers' other requirements.	15%
Bill No.BT-2 - Item No.1.4		
Supply and Installation of Track work on RCC Column in Depot with UIC 60 IRS-T-12- 2009, 880/R260 Grade Rails with all Fittings and Fastenings etc Complete.		
1	Surveying etc.	5%
2	Supply of Fastening, fixtures, Rail setting with all fittings and fastenings etc. Cleaning as per employer's requirement.	80%
3	Destressing, acceptance tests, measurement of parameters final tolerances, submission of all records, check list for compliance of all items etc. and employers' other requirements.	15%
Bill No.BT-2 - Item No .1.5		
Supply and Installation of Embedded Track + Pit Track in workshop with UIC 60 IRS-T- 12-2009, 880 Grade Rails with all Fittings and Fastenings etc., complete		
1	Surveying etc.	5%
2	Rail setting with all fittings and fastenings Plinth construction or fixing of columns etc. cleaning as per employer's requirement.	85%
3	Destressing, acceptance tests, measurement of parameters final tolerances, submission of all records check list for compliance of all items etc. and employers' other requirements.	10%

SCHEDULE OF ON ACCOUNT PAYMENT

ANNEXURE "B" TO SCHEDULE 'B'

SUPPLY TRANSPORTATION & STACKING OF RAILS 1080 HH GRADE and R260 /880 GRADE

SUPPLY TRANSPORTATION & STACKING OF RAILS 1080 HH GRADE and R260 /880 GRADE – All Items			
Item No.	Description of items	Percentage for Part Payment	Cumulative Percentage
1	<p>Supply, Transportation & Stacking of 18-meter long UIC 60 E1 Rails as per IRS-T- 12-2009 up to all correction slip, including obtaining clearance and transportation of imported rails if any, from CIF, Port in India to storage area at site in Mumbai including FAT, Loading, Unloading & stacking etc. all complete.</p> <p>Supply of Rails shall be as per the approved construction programme and procurement schedule approved by Engineer.</p>	Proportionate to Total supply quantity	100%

ANNEXURE “C” A) SPARES DETAILS

A) SPARE- KASHELI

DEPOT

Part (I) Spares: Kasheli Depot

S.NO.	Section	Description	Unit	Spare Qty for depot
1	SPM-1	Plain line PSC sleepers Standard Gauge for UIC 60 E1 rails, including slack gauge sleeper for curves, sleeper for level crossings and sleeper with dowels provision for fixing check rail in sharp curves.	Nos	500
2	SPM-1	Grooved sole plate pad RDSO Drg. No. T- 3711	Nos	1000
3	SPM-1	GFN liner T 3706	Nos	2000
4	SPM-1	ERC MK V RDSO Drg. No -T5919	Nos	2000
5	SPM-1	Plate Screws	Nos	200
6	SPM-1	Supply Buffer stop (friction type) for test track in depot for coasting velocity 25 kmph for Standard Gauge 6 coach fully loaded axle load (17 Ton) , should be able to stop train within 25m sliding distance available in wet condition.	Nos	1
7	SPM-1	Supply Buffer stop (friction type) for depot line other than test track for 10 Kmph coasting velocity for stabling lines for Standard Gauge 6 coach empty unloaded axle load (17 Ton), should be able to stop train within 10m sliding distance available in wet condition.	Nos	5
8	SPM-1	Supply of Wheel Stops with all fittings and fixtures as approved by Engineer.	Nos.	1
9	SPM-2	1 in 7 turnout R-190 with extendable crossing and switch. ballasted track with back drive if required, including all fittings fastenings and fixtures complete item	Nos	5
10	SPM-2	1 in 7 R 190/ Derailing switch (SG) extended length including all fitting's fastenings and fixtures complete item	Nos	2
11	SPM-2	Design, Development and Supply of flat top PSC sleeper set for standard gauge Turn out including all lead and lift complete item for Ballasted track.		
		1in 7 turnout R-190 ballasted track	Set	2
		1 in 7 R190 derailing switch R-190 ballasted track	Set	2
12	SR-1	Supply of 1080 Grade HH UIC 60E1 Prime Rails class A rails of 18 meter length, As per IRS T 12-2009 with latest correction slips, Including cost of custom clearance (if required), transportation, loading and unloading, lead and lift, stacking in yard, rehandling etc, all complete.	MT	47
13	SR-1	Supply of R260/880 Grade UIC 60E1 Prime Rails Prime class A rails of 18-meter length, as per IRS T 12-2009 with latest correction slips, including custom clearance (if required), cost of transportation, loading and unloading, lead and lift, stacking in yard, rehandling etc, all complete.	MT	153

ANNEXURE “C” B) EQUIPMENT

Part (II) Equipment: Kasheli Depot

Sr. NO.	NAME OF EQUIPMENT	UNIT	QUANTITY
1	Gauge cum cross level (1435 mm) by approved vendor-2”	NOS	1
2	Gauge cum cross level (1435 mm) by approved vendor-4”	NOS	1
3	Cant Gauge (1 in 201) inclination checking gauge	NOS	1
4	Versine kit 25 mm	NOS	1
5	Versine kit 50 mm	NOS	1
6	T-square (small)	NOS	1
7	Feeler gauge 0.050 mm to 1.0 mm	NOS	1
8	Straight Edge 10 cm	NOS	1
9	Straight Edge 1M with feeler gauge 0.05 to 0.8 mm	NOS	1
10	Standard gauge (1433 mm) 8”	NOS	1
11	Centre gauge (1435 mm) 8”/centre line gauge model CLG-1	NOS	1
12	E-clip fixing equipment	NOS	1
13	Hand signal torches	NOS	2
14	Hand flags (Reg & Green)	NOS	2
15	Spanners for bolted ballastless track 41 mm	NOS	1
16	Hammer with handle 5 kg.	NOS	1
17	Rail jacks (15 ton)	NOS	2
18	Crow bars 1-1/2”X5’	NOS	2
19	Torque Wrench (300 NM)	NOS	1
20	Torque Wrench (1000 NM)	NOS	1
21	Rubber Mallet hammer	NOS	1
22	Steel measuring tape 3 m	NOS	1
23	Steel measuring tape 15 m	NOS	1
24	Steel measuring tape 30 m	NOS	1
25	Rail tongs	NOS	5
26	Rail Thermometer	NOS	2
27	Rail Dolly (adequately insulated)	NOS	2
28	Crossing reference point feeler gauge	NOS	2
29	Spanner for sleeper screw	NOS	3
30	Small track trolleys for transporting small parts and components	NOS	2
31	Sleeper carrying tong	NOS	2
32	Ballast fork	NOS	5
33	Dip Lorry for Ballast spreading	NOS	2