Volume – II

SCHEDULE OF COST, BILLING & VARIATION

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PREAMBLE

1. The Schedule of Cost shall be read in conjunction with the "Instructions to Bidders", "General Conditions", "Special Conditions", "Employer's Requirement", "Technical Specifications", and "Drawings".

2. The bidder shall quote **lump sum cost** in INR for the entire project from Chainage 14.108 Km (Near New Karwandiya) to Chainage119.437 Km (Near New Ganj Khawaja) *(approx. 105 kms-approx. 73 kms in parallel and balance in detour*) in schedule A. The cost shall cover all the items of the work as detailed in the "Employer's Requirement" contained in Vol I, Part II of the document as well as conforming to all specifications and stipulations laid down in the Bid Document including all addenda/corrigenda thereof till the date of submission of Bids. The lump sum cost shall be inclusive of all costs on Design, Drawings, Reports, Survey, Site Facilities, Construction Equipment, Plants, Instruments, Labour, Supervision, Materials, Erection, Testing, Maintenance, Temporary Works, Site Access, Safety, Security, Defect Rectification, Insurance, Profit, duties, Taxes, Levies, Royalties as per applicable law together with all general risks, liabilities and obligations set out or implied in the contract as on the date of opening of bid.

3. To facilitate **stage payments** during execution for which Lump sum Cost shall be quoted in Schedule A, the entire work has been divided into fourteen Cost Centers along with their respective percentages of the quoted lump sum of cost in Schedule `B'. The value of each cost centre can thus be worked out based on lump sum quote. For further facilitating stage/on account payment, each of the cost centres have been divided into cost sub centres with percentage apportionment of the cost attached to each cost centres as indicated in Annexure attached with Schedule `B'.

   On account payments would be made on prorate basis for work done against each Cost Centre/Sub-Centre. The DFCC proposes to conduct quarterly review of the progress of the work with respect to respective cost centre / sub-centres worked out on the basis of PERT CHART.

   For the purpose of stage/on account payment, the successful tenderer needs to indicate quantities assessed on the basis of preliminary designs/drawings for each Cost Centres/Sub-Centers. However, on approval of detailed designs and drawings by DFCC against, each Cost Centre/Sub Centre, the final quantities for each Cost Centre/Sub Centre would be considered and payment done will be adjusted accordingly.

4. Variations on account of Change in employer's requirement:

No variation shall be admissible in the contract **except due to *change in employer's requirem*ent**.

The variation in quantities of work in each Cost Centre/Sub-Centre due to employer's requirement shall be assessed with respect to the approved designs/drawings and (±) payment would be derived based on the rates worked out in para 3 above.

5. Unforeseen / Unchartered Utilities

For items of unforeseen/ unchartered utilities, extra payment over and above the lump sump cost shall be in accordance with **Schedule C**. PVC will be applicable on this schedule of cost *with respect to date of opening of tender as per clause 11.1.2 of Special Conditions of Contract.*

6. Filling of Bid document

The Cost shall be filled in with indelible ink or be type written. The person authorized to sign on behalf of the Bidder shall sign in full with the date at the bottom of all pages and at the end of schedules.

Schedule A			
Name of Work :-- "Design and Construction of formation including blanketing, Major Bridges, Minor Bridges, RUBs, ROBs, Supply and Spreading of Ballast and other related infrastructural works for Dedicated Freight Corridor from Chainage 14.108 Km (Near New Karwandiya) to Chainage 119.437 Km (Near New Ganj Khawaja) (Approx. 105 KMs) on Mughalsarai-Sone Nagar Section of Eastern Corridor in the states of Bihar and Uttar Pradesh in India" *('0.00' Chainage starts at Km 550.245 near Sonenagar of IR track)* .			
Sr. No.	**Description of Schedule**	**Lump Sum cost. In (INR)**	
		In Figures	In Words
1	2	3	4
1	"Design and Construction of formation including blanketing, Major Bridges, Minor Bridges, RUBs, ROBs, Supply and Spreading of Ballast and other related infrastructural works for Dedicated Freight Corridor from Chainage 14.108 Km (Near New Karwandiya) to Chainage 119.437 Km (Near New Ganj Khawaja) (Approx. 105 KMs) on Mughalsarai-Sone Nagar Section of Eastern Corridor in the states of Bihar and Uttar Pradesh in India".		
	Total Amount		

Note:-

1) The cost shall be filled in with indelible ink or be type written.

2) The above quoted cost covers all items of the work as detailed in the "Employer's Requirement" contained in Vol.I, Part II as well as conforming to all specifications and stipulations laid down in the Bid Document including all addenda/corrigenda thereof till the date of submission of Bids. It is inclusive of all costs on Design, Drawings, Reports, Survey, Site Facilities, Construction, Equipment, Plants, Instruments, Labour, Supervision, Materials, Erection, Testing, Maintenance, Temporary Works, Site Access, Safety, Security, Defect Rectification, Insurance, Profit duties, Taxes, Levies, Royalties as per applicable law together with all general risks, liabilities and obligations set out or implied in the contract as on the date of opening of bid.

SIGNATURE OF TENDERER

Schedule - B
Percentage Break up of total Amount Payable under Each Cost Centre

Name of Work "Design and Construction of formation including blanketing, Major Bridges, Minor Bridges, RUBs, ROBs, Supply and Spreading of Ballast and other related infrastructural works for Dedicated Freight Corridor from Chainage 14.108 Km (Near New Karwandiya) to Chainage 119.437 Km (Near New Ganj Khawaja) (Approx. 105 KMs) on Mughalsarai-Sone Nagar Section of Eastern Corridor in the states of Bihar and Uttar Pradesh in India" *('0.00' Chainage starts at Km 550.245 near Sonenagar of IR track)*

Sr. No.	Description of Cost Centers	Percentage of Break up quoted lump sum cost for individual cost centers
1	2	3
1	Earthwork , Blanketing, side drains, retaining walls *and all ancillary works for making complete formation*	51.2%
2	*Complete Supply and Stacking of Ballast at nominated locations*	*5%*
3	*Spreading, Levelling and Rolling of part quantity of Ballast to provide 150 mm Cushion to facilitate laying of track over the ballast layer*	*3%*
4	Construction of Minor Bridges (182 No.,)	8%
5	Construction of Road Under Bridges(28 Nos.)	4%
6	Construction of Major Bridges(23 Nos.)	12%
7	*Modification of ROB at Bhabhua Road*	0.5%
7A	*Rebuilding of ROB at Sasaram*	1%
8	*Construction of One FOB at Sasaram.*	0.1%
9	Construction Of High Level Platform at Sasaram	0.1%
10	Service Buildings & Related Works	1%
11	Residential Buildings & Related Works	1%
12	*Utility Shifting Works and construction of Service Roads*	3%
13	*Construction of Site Facilities*	0.1%
14	Final Testing ,Certification ,maintenance & Defect Removal and any other items of work not covered above	10%

Note:-

The above percentages refer to the apportionment of total cost as quoted by the tenderer in Schedule A for completion of the work corresponding to each cost centre. The percentages are fixed and not negotiable.

SIGNATURE OF TENDERER

Schedule – C

Schedule of payment for shifting of underground utility services termed as unchartered utilities not covered under the list provided in the document, if required and would mean complete work including excavation, filling, connection etc. required for the job.

Name of Work :-- "Design and Construction of formation including blanketing, Major Bridges, Minor Bridges, RUBs, ROBs, Supply and Spreading of Ballast and other related infrastructural works for Dedicated Freight Corridor from Chainage 14.108 Km (Near New Karwandiya) to Chainage 119.437 Km (Near New Ganj Khawaja) (Approx. 105 KMs) on Mughalsarai-Sone Nagar Section of Eastern Corridor in the states of Bihar and Uttar Pradesh in India" *('0.00' Chainage starts at Km 550.245 near Sonenagar of IR track)*.

S. No.	Description of Schedule	Rate of Individual Cost Centers	
		Unit	Rate
1.*	Supply of Signalling Cables Unscreened PVC insulated, Armoured with high conductivity annealed copper conductor conforming to IRS-S-63/2007 with latest amendments with Inspection by RDSO		
a.	6x1.5 Sq. mm	Km.	88159.00
b.	12x1.5 Sq. mm	Km.	135675.00
c.	19x1.5 Sq. mm	Km.	218791.00
d.	24x1.5 Sq. mm	Km.	244206.00
e.	30x1.5 Sq. mm	Km.	319111.00
2.*	Supply of underground railway jelly field 6 quad axle counter cable to TC-30/05 or latest for RE area having 0.9 mm dia with Inspection by RDSO	Km.	227946.00
3.	Supply of 24 fiber armoured Optical Fiber Cable as per IRS:TC-55/2006 (Rev.-1) with fiber as per ITU G 652D specs with Inspection by RDSO.	Km.	57415.00
4.*	Supply of underground railway signaling power cable, PVC insulated heavy duty Armoured, 2x25 Sq. mm, aluminum conductor as per IRS:S-63/2007 with latest amendments and IS 1554 (Part-1) with Inspection by RDSO	Km.	125033.00
5.	Laying of cables including excavation/re-filling of trench, protection of cables by provision of bricks/HDPE pipe/GI pipe etc. as required, provision of cable markers as per detailed specifications	Km.	70626 .00
6.	Supply and erection of apparatus cases including supply preparation and fixing of all materials and termination of cables in the apparatus case.	Nos.	32000.00

*** Price variation clause shall be applicable to items 1.2 and 4 as per provisions contained in Special Conditions of the Contract, Section-3 of Volume-I of the tender document.**

Note:-

1) The bidder shall note that they shall have to carry out shifting of such unchartered and unforeseen utilities also. However, extra payments would be admissible for such job as per above rates.

2) *The Bidder shall also note that the rates quoted by DFCCIL above are fixed and not negotiable.*

SIGNATURE OF TENDERER

Annexure
(for Schedule `B')

Cost of Sub Centres and % attached to them

For further facilitating stage/on account payments, various cost centers have been sub-divided into cost sub centres with % as under. These % are percentage of the total cost attached to each cost centre and account payment shall be regulated accordingly.

Cost center 1
Earthwork , Blanketing, Provisions of side drains, retaining walls and all ancillary works for complete formation ***(51.2% of lump sum quoted cost)***
Total cost assigned to this cost centre will get apportioned under various cost sub centres as under:

(i)	Design of formation	= 5%
(ii)	Earth Work with (Embankment fill CBR >5)	= 25%
(iii)	Earth Work with (Subgrade CBR >8)	= 24%
(v)	Blanketting (CBR > 25%)	= 26%
(vi)	Side Drains	= 07%
(vii)	Retaining Walls/Pitching etc.	= 01%
(viii)	Turfing and final taking Over	= 02%
(ix)	Testing & Defect Removal if any and any other items of work not covered above	= 10%

The above percentages refer to completion of works under above cost sub-centres. On account payment shall be based on actual measurement of work done as under:-

i) For earthwork and blanketing - payment shall be on volumetric basis.
ii) For side drains, retaining wall, pitching work and turfing etc payment shall be on the basis of linear meter.

Cost Centre 2:
Complete Supply of Ballast (5% of lump sum quoted cost)
The stage payment under this cost centre shall be regulated based on pro rata volumemetric.
measurement of ballast supply.

Cost Center 3:
Spreading and Rolling of part quantity of Ballast to provide 150 mm Cushion to facilitate laying of track over the ballast layer (3% of lump sum quoted cost)

The stage payment under this Cost Centre shall be regulated on linear basis *for ballast spreading, leveling and rolling.*

Cost Centre 4:
Construction of Minor Bridges (8% of lump sum quoted cost)
Total cost of this cost center shall be apportioned for various minor bridges on prorata basis based on their linear water way and its proportion out of total linear

water way for all minor bridges to be built under the contract. Thereafter, stage payment under each bridge shall be regulated as under:

(i)	On confirmation of employer's GAD and drawings and submission of GAD designs	=	2%
(ii)	On approval of Construction reference Drawings	=	3%
	For Boxes		
(iii)	(a) On casting of precast segments substructures}	=	35%
	(b) On transporting of precast segment to location and laying} to alignment and level}	=	35%

or

For 6.1m (4 span, 3 bridges) & 9.1m (3 span 3 bridges) PSC Bridges

(a)	Foundation of bridge	=	30%
(b)	Substructure of bridge	=	20%
(c)	Precasting and launching of superstructure of bridges	=	20%
(iv)	Completion of drop/curtain wall /returns and Protection works	=	10%
(v)	Final completion in all respect	=	05%
(vi)	Testing & Defect Removal if any and any other item of work not Covered above.	=	10%

Cost Centre 5:
Construction of Road Under Bridges (4 % of lump sum quoted cost)

Total cost under this cost center shall be apportioned for various Road Under bridges on prorata basis based on the total length of opening, out of the total opening length for all the RUBs proposed to be constructed.

The stage payment under these RUBs shall further be regulated as here under:

(i)	*On submission of Contractors GADs, Calculations etc*	=	*2%*
(ii)	*On approval of Construction stage Drawings*	=	*3%*
(iii)	*On casting of the box*	=	*35%*
(iv)	*On completing return walls*	=	*20%*
(v)	*On completion of side drains and footpaths*	=	*10%*
(vi)	*On completion of road work and road sign boards*	=	*10%*
(vii)	*Final Completion of Road Under Bridge*	=	*10%*
(viii)	*Testing & Defect Removal if any* and any other item of work not not covered above	=	10%

Cost Center 6:
Major Bridges (12% of lump sum quoted cost)

Total cost under this cost center shall be apportioned for various major bridges on prorata basis based on the linear water way of each bridge in proportion to the total linear waterway for all major bridges required to be built under this contract. Thereafter for each bridge, stage payment shall be regulated as under:-

(i)	On submission of Contractors GADs, Calculations etc	=	2%
(ii)	On approval of Construction stage Drawings	=	3%
(iii)	Completion of Foundations including testing as required	=	25%
(iv)	Completion of piers	=	15%
(v)	Completion of abutments and wing walls	=	10%
(vi)	Completion of drop curtain walls and flooring	=	05%
(vii)	Completion of Super Structure including testing as required	=	25%
(viii)	Final Completion	=	05%
(ix)	Testing & defect removal if any and any other item of work not covered above	=	10%

Note :

(1) In case of single span bridges, items iv and v will be combined.
(2) In case of multiple piers/spans, interim payment if due for each foundation/pier/abutment/
span can be considered on pro rata basis out of the above % wherever applicable.

Cost Center 7:
Modification of existing ROB at Bhabhua (0.5% of lumpsum quoted cost)

Total cost under this cost center shall be apportioned here under:

(i)	On submission of Contractors GADs, Calculations etc	=	2%
(ii)	On approval of Construction stage Drawings	=	3%
(iii)	On completion of diversion & shifting of obstructions	=	10%
(iv)	Completion of Foundations including testing	=	20%
(v)	Completion of Sub-Structure	=	20%
(vi)	Completion of Super Structure including load testing	=	25%
(vii)	Completion of approach road works and commissioning	=	10%
(viii)	Testing & defect removal if any and any other item of work not covered above	=	10%

Cost Center 7A:
Design and reconstruction of ROB at Sasaram (1.0% of lump sum quoted cost)

Total cost under this cost center shall be apportioned and the stage payment shall be regulated as here under:

i.	On submission of Contractors GADs, Calculations etc	=	2%
ii.	On approval of Construction stage Drawings	=	3%
iii.	On completion of diversion & shifting of obstructions	=	5%
iv.	On completion of temporary arrangement	=	5%
v.	Completion of Foundations including testing	=	20%
vi.	Completion of Sub-Structure	=	20%
vii.	Completion of Super Structure	=	25%
viii.	Completion of approach road works and commissioning	=	10%
ix.	Testing & defect removal if any and any other item of work not covered above.	=	10%

Cost Centre 8:
Construction of a FOB at Sasaram (0.1% of lumpsum quoted cost).

The Total cost under this cost center shall be apportioned for stage payment as here under each foot over bridge shall be regulated as hereunder:

I.	*On submission of Contractors GADs, Calculations etc*	=	*4%*
II.	*On approval of above*	=	*6%*
III.	*On submission of temporary arrangement and erection Methodology*	=	*10%*
IV.	*On completion of Foundations for FOB*	=	*5%*
V.	*On Completion of Columns*	=	*15%*
VI.	*On Completion of Super structure/ erection of girders*	=	*30%*
VII.	*On completion of flooring*	=	*10%*
VIII.	*On painting of structure and finishing*	=	*10%*
IX.	*Testing & Defect removal if any and any other item of work Not covered above.*	=	*10%*

Cost Center 9:
Construction of HL platform at Sasaram (0.1 % of lump sum quoted cost)

The stage payment under this item shall be regulated as here under:

I.	*On completion of work of platform wall & coping*	=	*30%*
II.	*On completion of earth work of platform*	=	*30%*
III.	*On completion of platform surfacing*	=	*30%*
IV.	*Testing & Defect Removal if any and any other item of work not covered above.*	=	*10%*

Notes.:

On account interim payments can be considered on pro rata basis as:

a. *Per linear Mt. for wall and coping*
b. *Per cum basis for earthwork*
c. *Per Sq. Mt. for PF surfacing*

Cost Center 10:
Service Building & Related Works (1 % of lump sum quoted cost)

Total cost under this cost centre shall be divided into cost of various structures based on their plinth area as a proportion of total plinth area of all.

The stage payment under this item shall then be regulated for each structures as here under:

I.	*On completion of Work up to plinth*	=	*10%*
II.	*On completion of flooring and Brickwork up to Lintel Level*	=	*10%*
III.	*On completion of Plastering*	=	*5%*
IV.	*On casting of roof slabs and beams*	=	*10%*
V.	*On completion of water supply arrangement*	=	*10%*
VI.	*On completion of Sanitary works*	=	*5%*
VII.	*On completion of development works of roads,*		
VIII.	*On completion of doors windows*	=	*10%*
IX.	*On completion of finishing work, painting,, distemper etc.*	=	*10%*
X.	*Boundary walls*	=	*20%*
XI.	*Testing & Defect removal if any and any other item of work not covered above.*	=	*10%*

Payment can further be sub-divided into smaller groups as per mutual agreement between the employer and the contractor.

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Cost Center 11:
Residential Buildings & Related Works (1 % of lump sum quoted cost)

Payment can further be sub-divided into smaller groups as per mutual agreement between the employer and the contractor.

Cost Center 12:
Utility Shifting Works and construction of Service Roads (3 % of lump sum quoted cost)

The contractor would be indicating the percentage of shifting various utilities and construction of service road as a percentage of total cost against this cost centre. The percentage will be finalized with mutual agreement between the employer and the contractor and stage payment will be made accordingly.

Cost Center 13:
***Construction of Site Facilities* (0.1 % of lump sum quoted cost)**

The contractor would be indicating the percentage for various facilities out of total cost for this cost centre. The percentage will be finalized subsequently with mutual agreement between the employer and the contractor and stage payment will be made accordingly.

Cost Center 14:
Final Testing, Certification, maintenance & Defect Removal (10% of lump sum quoted cost)

The percentage will be finalized subsequently with mutual agreement between the employer and the contractor and stage payment will be made accordingly.