

1515771/2021/Coordinator(Zone-2)

No. RW/CH/NH-344A/PB/W(New)/2020
 Government of India
 Ministry of Road Transport & Highways
 (Zone-II)
 Transport Bhawan, 1, Parliament Street, New Delhi - 110001

Dated: 28th May, 2021**TECHNICAL NOTE**

(Job No. NH-344A/PB/ 21-22/534)

| | | | |
|----|---------------------------|--|-----------------------------|
| 1. | Name of Work | Construction of Single Span(4-Laned) 135m long Steel Bridge on Phagwara-Banga-Nawanshahr-Ropar road at RD 86.900 on Sirhind Canal of NH-344A in Ropar City in the State of Punjab on EPC mode. | |
| 2. | NH No. | NH-344A | |
| 3. | No. of Bridges/structures | 1 No. of Majr Bridge with approaches | |
| 4. | State | Punjab | |
| 5. | Estimated Cost | As proposed by the State PWD | As modified in the Ministry |
| | | Rs 79.18 Cr. | Rs. 80.00 Cr. |
| 6. | Reference | State PWD memo no. 465/NH dated 03.02.2021 | |

COMMENTS

1. **Scope of Work:** Construction of Single Span(4-Laned) 135m long Steel Bridge on Phagwara-Banga-Nawanshahr-Ropar road at RD 86.900 on Sirhind Canal of NH-344A in Ropar City in the State of Punjab on EPC mode.

2. **Provisions:** The following are provisions taken in the instant proposal:

(i) **Bridge Portion:** A new bridge of overall width of 2* 13.5m (as per fig. 7.2A of IRC-SP-84-2019) has been proposed in lieu of the existing bridge and the existing structure is proposed to be dismantled. The details of the proposed structure is as under:

| Design Ch. (Km) | Detail of Existing Structure | | | Proposal | Details of Proposed structure | | |
|-----------------|------------------------------|------------------|-----------|-----------------------------|-------------------------------|------------|-----------|
| | Type | Span (m) | Width (m) | | Type | Span (m) | Width (m) |
| 86+900 | RCC Solid Slab | 6.9+(26.8*4)+6.9 | 7.4 | New Construction as 4-Laned | Steel Bridge | 18*7.5=135 | 2* 13.50 |

(ii) **Approach Portion:** The indicative typical cross sections of the approaches on two sides as under:

| Sr. No. | Chainage (Km) | | Length (m) | Proposed Dimensions | Remarks |
|---------|---------------|----------|------------|---|-----------------------------|
| | From | To | | | |
| 1 | 86+757.5 | 86+832.5 | 75 | The existing 10.0 m road has been merged into 4-Laned Bridge and again Demerged into 10.0 m road. | New Construction + Widening |
| 2 | 86+967.5 | 87+042.5 | 75 | | |

| | | |
|------------|-----|--|
| Total (Km) | 150 | |
|------------|-----|--|

The details of proposed crust composition in the widening portion is as below:

| Design Period (Years) | Calculated MSA | Adopted MSA | CBR (%) | Pavement Crust Compositions | | | | |
|-----------------------------|----------------|-------------|---------|-----------------------------|----------|----------|----------|------------|
| | | | | BC (mm) | DBM (mm) | WMM (mm) | GSB (mm) | Total (mm) |
| 15 (As per IRC SP-73: 2018) | 30 | 50.0 | 8 | 40 | 100 | 250 | 225 | 615 |

(iii) Road Furniture and Road Safety Structures:

- Road Markings i.e. Centre Line and Edge Line
- Road Signs i.e. Cautionary, Mandatory and Informatory Signs,
- Hazard markers
- Road Delineators and Road Studs(Cat Eyes)

(iv) Construction of Drain(1000m), Retaining Wall for the prevention of rain cuts and Interlocking tiles(1000m)

3. **Splitting of Work:** No splitting of work shall be allowed without prior permission of the Ministry.

4. **Comments and Modification:**

- The work is to be executed on EPC mode as per latest EPC Document dated 05.03.2019 and subsequent amendments.
- Construction Period has been kept as 9 months as per section 1 of latest EPC RFP dated 05.03.2019.
- The defect liability period for the work is kept as 10 years as per latest EPC document.
- The centages have been modified as per the Ministry's circular vide dated 07.03.2019 i.e. GST@12%, Contingencies @2.8%, Agency & Supervision Charges @3% on civil construction cost. Further, State PWD has not included the provision of Maintenance @3.75% for 10 years as required for standalone structure/ bridge projects as per latest standard EPC document and the maintenance @3.75% of the civil cost may be allowed in the proposal.
- As the construction period is less than 1 year, the escalation charges have not been proposed by State PWD. The same may be agreed to.
- Further, State PWD has not included the provision of Maintenance @3.75% for 10 years as required for standalone structure/ bridge projects as per latest standard EPC document. The estimate has been modified accordingly to include maintenance @3.75% of the civil cost.
- DLP for the work shall be 10 years as per the latest standard EPC agreement
- EPC schedules shall be vetted and approved by RO, Chandigarh as per approved Technical Note.
- The thickness of crust of the pavement shall not be less than the values mentioned in para 2.(i) and 2.(ii) above.
- Design of pavement will be governed by the provisions of IRC SP 84:2019 and IRC 37:2018.
- The provisions taken are for estimate purpose only.
- The work shall be executed on site as per Specification for road and Bridge Works (Fifth revision), relevant IRC guidelines and Ministry's extant circulars.

- 4.13 DBM and BC layer should be provided strictly in accordance with IRC:111-2009 after carrying proper job mix design (section 4). Further, construction operations (section 5), and quality controls (section 6) in conjunction with Ministry's specifications for Road and Bridge works (5th revision) need to be strictly adhered. The work of GSB & WMM shall be executed as per Clause 401 & 406 respectively of Ministry's specifications for Road and Bridge works (5th revision).
- 4.14 The source of procurement of bitumen / modified bitumen is always a concern from the point of view of homogeneity and quality. As such, the bitumen / modified bitumen shall be procured from the refineries only (As per Ministry Circular No.RW/NH-37072/05/2018-S&R(P&B) Dated: 24 August 2018). Modified bitumen (using polymer/crumbed rubber /natural rubber) or VG - 40 grade of bitumen has to be used. In such cases shearing mill is to be mandatory used (in case of Bitumen modified with crumbed rubber /natural rubber so as to ensure proper mixing of the bitumen and the modifier. Other measures is ensured at the time of using the modified bitumen for construction of wearing coat. (As per Ministry Circular No.RW/NH-37072/05/2018-S&R(P&B) Dated 24 August 2018.
- 4.15 RFP is proposed to be invited from fresh bidders in as per Ministry's standard RFP document (as per standard RFP vide Ministry's letter dated 05.03.2019) & Ministry's extant guidelines. The work will be executed and supervised by State PWD, Punjab.

5. Tenders:

- 5.1 The tenders for the work shall be invited adopting e-procurement/e-tendering procedure as per Ministry's guidelines vide letter no. RW/NH-24035/4/2008-P&M/PIC/EAP dated 31.03.2016 and as per Ministry's extant guidelines.
- 5.2 No work beyond the scope of the sanctioned estimate leading to increase in the scope of the work or change in specifications should be undertaken without obtaining prior approval of the Ministry. In case, the estimate needs revision due to change in rates/tender rates for any reasons, the revised estimate shall be submitted immediately for Ministry's approval. No expenditure beyond permissible limit will be committed without prior approval of Ministry.
- 5.3 It needs to be clearly mentioned in the NIT that the rates are inclusive of cost of traffic management during construction. Contractor shall provide road signage, ballads, boards, gunny bags, sheets etc. for safety of traffic during construction period, which will be incidental to work.
- 5.4 All the relevant Circulars and amendments regarding tender procedures issued from time to time by Ministry shall be followed. While finalizing the tender Central Vigilance Commission (CVC) guidelines circulated vide Circular No. 4/3/07 dated 03.03.2007 should be strictly followed.
- 5.5 If the work is not awarded within the stipulated time as per Ministry's extant guidelines, it may lead to de-sanction of the work unless Ministry's prior approval to extension of time limit is obtained.

6. General:

- 6.1 The project display boards are to be erected on the either end of the project reach as per the Ministry's letter No.RW/NH-33044/10/2001-S&R (R) dated 17.07.2001.
- 6.2 Guidelines for Road Safety vide Ministry's letter No.RW/NH-33072/04/2004-S&R(R) dated 27.04.2010 shall be followed.
- 6.3 In order to ensure that there is no slippage in achieving the targets, the progress may be closely monitored by competent authority in consultation with CE-RO, Chandigarh and

quarterly status report furnished to the Ministry in the prescribed Performa.

7. Cost of work:

- 7.1 The contractor shall be responsible to procure the material conforming to specification of the work. No provision of extra lead during execution of the work may be allowed.
- 7.2 Rate as allowed in this estimate should not be revised without prior approval of the Ministry.
- 7.3 The estimated cost of the project in view of above comments for Rs. 80.00 crore including all the centages. The brief breakup of the cost is given below:

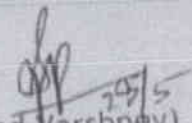
| Sr. No. | Sub Head | Cost Proposed by State PWD (Rs.) | Cost modified in Ministry (Rs.) |
|---------|--|----------------------------------|---------------------------------|
| 1 | Cost of foundation | 44842310 | 44842310 |
| 2 | Cost of Sub Structure | 6837468 | 6837468 |
| 3 | Cost of Super Structure | 559370123 | 559370123 |
| 4 | Cost of Approaches Road | 7886660 | 7886660 |
| 5 | Cost of Miscellaneous/Road Safety Items | 123111 | 123111 |
| 6 | Cost of Drain, Retaining wall, Interlocking tiles. | 13120190 | 13120190 |
| 7 | Sub Total (A) | 632179862 | 632179862 |
| 8 | Add 12% GST | 75861583 | 75861583.44 |
| 11 | Preparation of D.P.R including surveying, geotechnical investigation, design, drawing and proof checking etc(@0.75%) | 5310311 | 0 |
| 12 | Add 2.8% For Contingencies (A) | 19825160 | 17701036.14 |
| 13 | Agency Charges @ 3% of Civil Construction Cost (A) | 21241243 | 18965395.86 |
| 14 | Supervision Charges @ 3% of Civil Construction Cost (A) | 21241243 | 18965395.86 |
| 15 | Add 0.5% Quality Control Charges | 3540207 | 0 |
| 16 | Maintenance Charges @3.75% on (A) for 10 years | 0 | 23706744.83 |
| | Total Provision of Centages (B) | 71158164 | 155200156.1 |
| 17 | Utility Shifting Cost | 5000000 | 5000000 |
| 18 | Forest Diversion Cost | 7583091 | 7583091 |
| 19 | Total Provision of Preconstruction activities (C) | 12583091 | 12583091 |
| | Total project Cost (A+B+C) | 791782700 | 799963109.1 |
| 20 | Says Rs in crore | 79.18 | 80.00 |

8. Targets and phasing: Following physical and financial targets may be achieved subject to the availability of funds:

| Year | Physical Progress (%) | Financial Progress (Cumulative) in Lakhs | | Total |
|---------|-----------------------|--|--------------------|-------|
| | | Construction Period | Maintenance period | |
| 2021-22 | 100% | 77.63 | - | 77.63 |
| 2022-23 | - | - | 0.16 | 77.79 |
| 2023-24 | - | - | 0.32 | 77.95 |
| 2024-25 | - | - | 0.47 | 78.10 |
| 2025-26 | - | - | 0.63 | 78.26 |
| 2026-27 | - | - | 0.79 | 78.42 |
| 2027-28 | - | - | 1.11 | 78.74 |

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| | | | | |
|---------|---|---|------|-------|
| 2028-29 | - | - | 1.42 | 79.05 |
| 2029-30 | - | - | 1.74 | 79.37 |
| 2030-31 | - | - | 2.05 | 79.68 |
| 2031-32 | - | - | 2.37 | 80.00 |



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