

National Rural Infrastructure Development Agency
Ministry of Rural Development, Government of India

Format QB Version 2021.0- Part I

Format for information to QM for Inspection of Ongoing/Completed Bridge Work

PART I- Work Information (To be filled-up by PIU)

I. GENERAL:

I. Work: (check ✓ any one box)

☐ In-Progress

☒ Completed

Maintenance

II. Date of inspection:

22-07-2024

III. Name of quality monitor (QM):

Sunil Kumar Singh

☐ NQM Code

☒ SQM Code

IV. State:

Bihar

District:

Aurangabad

Block:

Aurangabad

V. Name of bridge &
Location

Toh Raju to Banohi via Dama

VI. Package number.:

BR-02R-818

VII. Sanctioned length of the bridge.:

39.08 m

Deviation in length of the bridge (If any).:

— m

VIII. Reasons for deviation (if any):

—

IX. Estimated cost (as cleared by GOI):

Rs. 208.813 Lakh

X. Technical sanction cost:

Rs. 208.813 Lakh

XI. Awarded cost:

Rs. 208.813 Lakh

XII. Expenditure: (if work is ongoing) a. Expenditure done:

Rs. — Lakh

b. Bills pending:

Rs. — Lakh

Total expenditure = (a+b)

Rs. — Lakh

XIII. Completion cost: (if work is completed)

Rs. 187.56 Lakh

XIV. Date of award of work: (date/ month/ year)

09 08 2019

XV. Date of start of work: (date/ month/ year)

09 08 2019

XVI. Stipulated date of completion: (date/ month/ year)

08 08 2020

XVII. Actual date of completion: (date/ month/ year) (in case of completed work):

2. PHYSICAL PROGRESS: (Ongoing/Completed)

Construction programme and Physical progress (Strike off whichever not applicable):

Item of work	Units	Quantity as per DPR	Quantity executed	Completed percentage of item	Fill in start and completion dates			Delay in months
					Progress status	Start Date	Completion Date	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i) Layout					Due			
					Actual			
ii) Foundation					Due			
					Actual			
iii) Substructure					Due			
					Actual			
iv) Superstructure					Due			
					Actual			
v) Protection Works					Due			
					Actual			
vi) Approaches					Due			
					Actual			
vii) Mandatory boards/ Signage etc.					Due			
					Actual			

3. PARTICULARS OF THE BRIDGE:

3.1 Type of the bridge (according to HFL)

Submersible Non-submersible

(according to Material)

✓ RCC Steel

Composite Pre-Stress

3.2 Type of foundation

Open Raft

✓ Pile Well

3.3 Length of bridge

39.08 m

3.4 Number of spans and spans length

2 No Span 18m

3.5	Width of the bridge	5.50 m	
3.6	Footpaths provided	Yes	☒ No
	If provided, width of footpath	— m	
3.7	Formation Level (F.L.)	103.30 m	
3.8	Highest Flood Level (HFL)/Ordinary Flood Level (OFL)	100.38 m	100.18 m
3.9	Bed level (Lowest)	: 95.65 m	
3.10	Catchment area	: 30.00 km ²	
3.11	Linear waterway at HFL	: 33.20 m	
3.12	Design discharge	: 134.957 cumec	
3.13	Design velocity	: 1.486 m/s	
3.14	Foundation levels (a) Piers	: P1 75 m P2 75 m P3 m	
		P4 m P5 m P6 m	
		P7 m P8 m P9 m	
	(b) Abutments	: A1 75.34 m A2 75 m	
	(c) Returns	: R1 m R2 m	
3.15	Foundation Strata	: clay	
3.16	Safe Bearing Capacity (SBC)	: 225 tons/m ²	
3.17	River protection works provided or not	☒ Yes	☐ No
	if provided	☐ Rigid boulder apron	☒ Flexible boulder apron
3.18	Type of Substructure		
	(a) Piers –	☒ Solid circular	☐ Hollow circular
		☐ Wall type pier	
		☐ Any other type:	
	(b) Abutments –	☒ Gravity type	☐ Spill through
		☐ Box type	☐ Counter fort type
		☐ Any other type:	

(c) Returns -

3.19 Type of bearings :

3.20 Test report of bearings available or not

3.21 Type of superstructure

3.22 Type of expansion joints

3.23 Type of wearing coat

3.24 Type of drainage spouts

☐	Box type	☐	Counter fort
☐	Tied returns	☒	Cantilever type
☐	Any other type:		
☒	Elastomeric	☐	Pot PTFE
☐	Rocker & Roller		
☐	Any other type:		
☐	Yes	☐	No
☒	RCC		
☐	Solid slab	☒	T Beam slab
☐	Voided slab	☐	Box girder
☐	Any other type:		
☐	Steel		
☐	Plate girder	☐	Truss frame
☐	Arch bridges	☐	Cable stayed
☐	Suspension	☐	Bailey bridges
☐			
☐	Buried	☐	Copper plate
☐	Bituminous	☒	Strip seal
☐	Modular	☐	Finger type
☐	Any other type:		
☒	RCC	☐	Bituminous
☐	As per IRC SP 042	☒	As per Design

25 Design loading

☐	Single lane IRC Class "AA" loading or double lane IRC class "A" loading which ever produces severe stresses.
☐	IRC class "B" loading
☒	Single lane IRC class "70R" loading or double lane IRC class "A" loading which ever produces severe stresses.
☐	Any other type:

3.26 Whether approaches are in cutting or in filling

☐	Cutting	☒	Filling
☐	Partly cutting and filling		

3.27 Type of pitching in approaches

☒	Boulder pitching	☐	Concrete block
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3.28 Whether bench marks and alignment are established

☒	Yes	☐	No
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near the bridge site (give locations and RLs)

Location:	RL:	m
Location:	RL:	m
Location:	RL:	m
Location:	RL:	m

3.29 Type of Railings

☒	RCC as per standard	☐	Pipe railings pitching
☐	Steel	☐	Collapsible pitching
☐	Any other type:		

4. QUALITY CONTROL:

I. Location of Field Laboratory

at Work Site

II. Geo-tagged photograph of laboratory uploaded on: (date/ month/ year):

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III. Reason for delay in establishment of field laboratory (if so):

Complete

IV. Details of contractor, executing the work:

Name of contractor	PAN number	Mobile number	E-mail ID.
M/S Shakti Const.			

Details of contractor's engineer available at site: (Responsible for maintaining quality control register part-I)

Sl. no.	Name of contractor's engineer at site	Identity number	Mobile number	Duration of posting at site	
				From	To
1	Er. Pawan K Singh		9955820765	Contd-	Full Now

VI. Details of head of PIU supervising the work:

Sl. no.	Head of PIU (Executive Engineer)	Employee number	Mobile number	Duration of posting at site	
				From	To
1.	Yogeshwar K Singh		8986915333	01-2-2020	30-06-2023
2.	Ashok Kumar		8986915333	01-7-2023	2-7-2024
3.	Rajendra Dubey		8986915333	3-7-2024	Full Now

VII. Details of assistant engineer supervising the work and maintaining quality control register Part-II:

Sl. no.	Name of assistant engineer	Employee number	Mobile number	Duration of posting at site	
				From	To
1.	Rajendra Prasad		7909014251	Contd-	25-01-2023
2.	Rajendra Kumar		7909014251	26-01-2023	15-07-2024
3.	Harekam		9955500594	16-07-2024	Full Now

VIII. Details of the junior engineer supervising the work:

Sl. no.	Name of junior engineer	Employee number	Mobile number	Duration of posting at site	
				From	To
1.	Pranod Kumar		8986915538	Contd-	23-01-2023
2.	Harekam		9955500594	24-01-2023	Full Now

IX. List of equipment available in field lab:

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Available equipment that are in working condition (1)	Available equipment that are not in working condition (2)

X. List of equipment not available in field lab:

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XI. Reasons put forth by PIU for non-availability of equipment in field lab:

XII. Details of calibrations of equipment done:

XIII. Equipment, documents and drawings ready to be made available to QM before or during the inspection:

5. DETAILS OF MIX DESIGN(s):

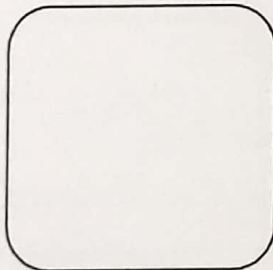
Sl. No.	Mix Design	Average Mix Design Strength	Details of Institute/ laboratory where mix design was done	Details of Mix Design approving PMGSY Authority
i.	Cement Concrete M20			
ii. ✓	Cement Concrete M25	37.20 N/mm ²	All Civil Solution Patna	
iii. ✓	Cement Concrete M30	34.5 N/mm ²	- 40 -	
iv. ✓	Cement Concrete M35	37.0 N/mm ²	- 42 -	
v.	Cement Concrete M40			
vi.	Wet Mix Macadam (WMM)			
vii.	Dense Bituminous Macadam			
viii.	Semi Dense Bituminous Concrete			
ix.	Bituminous Concrete			

EARLIER INSPECTIONS BY NQM, SQM or SENIOR DEPARTMENTAL OFFICERS (SEs & CEs) AND ACTION TAKEN STATEMENT:

(Please indicate chronologically name and designation of the officer who had inspected the work):

Date of visit	Name and Designation of inspecting officer (NQM/SQM/CE/SE)	Stage of work at the time of inspection	Major observations	Action taken by PIU with date
(1)	(2)	(3)	(4)	(5)
1.	Er Chitranayan Bhosale	Foundation	'S'	
2.	Er Rameshwar Kumar Singh SQM	Superstructure	'S'	
3.	Er Sureshwar Kumar (SQM)	Superstructure	'S'	

Seal of PIU



Signature of the Head of PIU.....

Name and Designation of the Head of PIU.....

Mobile Number of the Head of PIU.....

E-mail of the Head of PIU.....

Address of the PIU.....

Date:.....

National Rural Infrastructure Development Agency
Ministry of Rural Development, Government of India

Format QB Version 2021.0- Part II

Report of National Quality Monitor (NQM)/State Quality Monitor (SQM)
PART II- Observations of NOM/SOM for Ongoing/Completed Bridge Work

(To be filled-up by QM)

Maintenance

I. GENERAL DETAILS:

I. Date of inspection:

22-07-24

II. Name of Quality Monitor (QM)
(check ✓ relevant box and fill code)

Sunil Kumar Singh

NQM

Code

✓ SQM

Code

III. State:

Bihar

District:

Aurangabad

Block:

Aurangabad

IV. Name of Bridge & Location:

Construction of RCC bridge over
Jhingra Mala at TO4 Rajai Bel
Dankhi via Dasma.

V. Package number:

BR-02R 818.

VI. Physical status of work:
(check ✓ anyone box)

Ongoing

Completed

Maintenance

VII. Present status of work: (check ✓ boxes as applicable)

Layout

Foundation

Substructure

Superstructure

Protection work

Approaches

Finishing stage

VIII. Photographic or video-graphic records (optional) of all hidden items like reinforcements of foundations/ sub structures/ super structures etc. are kept by PIU, till Defect liability period is over for bridge for any future reference or not: (Check ✓ any one box)

Yes

No

QUALITY ARRANGEMENTS-OBSERVATIONS (in case of ongoing works only):
(Geo-tagged photograph of the laboratory showing the available equipment's to be uploaded)

- I. Whether field laboratory established: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- II. Whether location of field laboratory is same as indicated by PIU in format part-I: (check ✓ any one box) ☐ Yes ☐ No
- III. Whether necessary equipment as indicated in part-I are actually available: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- IV. Whether equipment's have been used: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- V. If all necessary equipment is not available, whether you have verified them with the list of deficient equipment's provided by PIU in format Part-I: (check ✓ any one box) ☐ Yes ☐ No
- VI. Calibration of equipment done or not: (check ✓ any one box) ☐ Yes ☐ No
- VII. Whether contractor's engineer as per Part-I of this format, is available at site: (check ✓ any one box) ☐ Yes ☐ No
- VIII. If contractor's engineer as per Part-I of this report is not available, whether you are satisfied with alternative arrangement made to maintain QCR-I: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- IX. Whether lab technician and other staff is available for testing in the laboratory: (check ✓ any one box) ☐ Yes ☐ No

Guiding note: If the field laboratory is not established, overall item grading shall be U. If anyone or more sub-items are graded partly or no, overall item grading shall be SRI.

Item Grading-2:

(Check ✓ any one box)

☐ S ☐ SRI ☐ U

If this item is graded SRI/U, write clear reasons and suggestions for improvement, indicating important deficient equipments:

M. A ..

3. ATTENTION TO QUALITY (in case of ongoing works only):

I. Maintenance of Quality Control Test Registers:

- (a) Based on executed quantities, whether all mandatory tests conducted: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- (b) Whether Quality control test register maintained as per provisions: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No
- (c) Whether QC register part II maintained and test results monitored as per provisions: (check ✓ any one box) ☐ Yes ☐ Partly ☐ No

M. A

II. (a): Adequacy of quality control tests, as per quality control test register:

Item of Work (1)	Quantity as per DPR (2)	Quantity executed (3)	Name of the test (4)	Number of tests required (as per executed quantity) (5)	Number of tests actually conducted (6)	Testing adequate (Yes/No) (7)
Foundation work						
Substructure work						
Superstructure work						
Approach Slab and fixed items (Railing, kerb, Crash barrier etc.)						
Approach work						

(b) If testing found inadequate, the reason for less testing: (Check ✓ one or more box)

- ☐ Negligence
- ☐ Lack of equipment in lab
- ☐ Lack of knowledge
- ☐ Any other, please specify:

(c) Verification of test results: (C: conforming, N: non-conforming)

Quality control tests to be conducted by QM and the results to be matched with test results previously recorded in Quality control test register, at the same component of the structure.

Item of Work	Name of Test	Results of the test conducted by QM at the component of the structure. (C /N)	Test results as per Quality Control test register at the same location. (Mention the Page no. of Register)	Results of the test conducted previously by QM at defined location. (C /N)	Whether the test results recorded in Quality control test register and as conducted by QM are in conformity? (Yes /No)
(1)	(2)	(3)	(4)	(5)	(6)

- (d) *Whether non-conformities recorded in QCR-II by AE have been rectified and recorded in Quality control test register again as conformities, after conducting necessary tests:*

(Check ✓ any one box)

☐	Yes	☐	No
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- (e) *In order to assess the quality of concrete in case of doubt, if any Non Destructive Test (NDT) such as Rebound Hammer test, Ultra Sonic Pulse Velocity (UPV) etc. has been conducted:*

(Check ✓ any one box)

☐	Yes	☐	No
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Guiding note: If the QC registers are not maintained or verification of test results are not conforming, overall item grading shall be U. If anyone or more sub-items are graded partly or no, overall item grading shall be SRI.

Item Grading-3:

(Check ✓ any one box)

☐	S
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☐	SRI
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☐	U
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If this item is graded SRI/U, write clear reasons and suggestions for improvement, are to be recorded:



4. FOUNDATION:

A) Ongoing (Work in progress)

I. Foundation Piers, Abutments and Returns progress as on date of inspection-in %

Abutments: %

%

Piers: %

%

%

%

%

%

%

%

%

Returns: %

%

Location/ Item of work	Grade of concrete	Quality of material is adequate as per quality control register				Testing of concrete cubes by NQM (if any)	Grade (S/U)
		Cement	Coarse aggregate	Fine aggregate	Steel		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Location/ Item of work	Grade of concrete	Form work quality and arrangements	Reinforcement checked by competent authority	Workability Of Concrete	Compaction arrangement	Curing arrangements	Grade (S/U)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

II. Whether Cement and Steel tests (other than those provided by supplier), got conducted by independent laboratories:

(Check ✓ any one box)

☐	Yes	☐	No
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III. Whether flushing of bore before and after placement of reinforcement done in case of bored uncased cast-insitu piles.

(Check ✓ any one box)

☐	Yes	☐	No
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IV. Whether at least 600MM extra length of pile casted beyond cut off level, to be dismantled for laitance effect

(Check/any one box)

☐	Yes	☐	No
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V. Whether bottom plugging in case of well foundation carried out by using tremie method only

(Check/any one box)

☐	Yes	☐	No
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B) Completed work

Location/ Item of work	Grade of concrete	Compressive strength of Concrete cubes as per Quality Control Test Register	Testing of concrete cubes by NQM (if any)	Surface acceptability and workmanship	Size and shape as per design	Quality assessment by personal judgment	Grade (S/U)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

I. Whether Cement and Steel tests other than provided by supplier, got conducted by independent laboratories:

(Check/any one box)

☐	Yes	☐	No
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II. In order to assess the quality of concrete in case of doubt, if any, Non Destructive Test (NDT) such as Rebound hammer test, Ultra Sonic Pulse Velocity (UPV) etc. has been conducted:

(Check/any one box)

☐	Yes	☐	No
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Guiding note: If quality of either material or workmanship is U, the overall item shall be graded as "U".

Item Grading-4:

(check / any one box)

☐	S	☐	U
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(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).



5. SUBSTRUCTURE

A) Ongoing (Work in progress)

Location/ Item of work	Grade of concrete	Quality of material is adequate as per quality control register				Testing of concrete cubes by NQM (if any)	Grade (S/U)
		Cement	Coarse aggregate	Fine aggregate	Steel		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Location/ Item of work	Grade of concrete	Form work quality and arrangements	Reinforcement checked by competent authority	Workability Of Concrete	Compaction arrangement	Curing arrangements	Grade (S/U)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

- I. Whether granular/ sandy filling behind the abutments and returns done properly:
(Check/any one box) ☐ Yes ☐ No
- II. Whether marking with paint is done on bridge components with date of casting for concrete:
(Check/any one box) ☐ Yes ☐ No
- III. Whether Cement and Steel tests other than provided by supplier, got conducted by independent laboratories:
(Check/any one box) ☐ Yes ☐ No

B) Completed work

[illegible]

I. Whether Cement and Steel tests other than provided by supplier, got conducted by independent laboratories:

(Check✓any one box)

	Yes		No
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II. In order to assess the quality of concrete in case of doubt, if any Non Destructive Test (NDT) such as Rebound hammer test, Ultra Sonic Pulse Velocity (UPV) etc. has been conducted:

(Check✓any one box)

	Yes		No
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Guiding note: If quality of either material or workmanship is U, the overall item shall be graded as “U”.

Item Grading-5:

✓	S		U
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(check ✓ any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

5.

6. SUPERSTRUCTURE

(i) RCC Superstructure

A) Ongoing (Work in progress)

Location/ Item of work	Mix design/ Grade of Concrete	Quality of material				Workmanship				Camber	Drainage spouts provided as per the standards	Grade (S/ U)
		Cement	Coarse Aggregate	Fine Aggregate	Steel Reinforcement Verification of properties of lot with standard norms	Staging and Shuttering arrangements of span checked by competent authority as per the approved staging arrangements	Whether reinforcement checked by competent authority for spacing, bond length, cover etc.	Workability of Cement concrete	Compaction arrangements			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

I. Whether Cement and Steel tests other than provided by supplier, got conducted by independent laboratories:

(Check✓any one box)

☐	Yes	☐	No
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Guiding note: If quality of either material or workmanship is U, the overall item shall be graded as "U".

Item Grading-6 A:

(check ✓ any one box)

☐	S	☐	U
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(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

B) Completed work

Location/ Item of work	Mix design / Grade of Concrete	Compressive strength of concrete cubes as per Quality Control Test	Testing of concrete cubes by NQM (if	Surface acceptability	Size & Shape as per	Camber	Bearing	Kerbs	Crash Barrier	Wearing coat	Railing	Exp Joints	Drainage Spouts	Approach slab	Stopper	Protection work	Grade awarded
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)

Since the bridge is under maintenance
 the Super Structure is not maintained.
 - wearing course is damaged.
 - there is no work over drainage Spout.
 - expansion joints were not cleaned.

I. Whether Cement and Steel tests other than provided by supplier, got conducted by independent laboratories:

(Check✓any one box)

☐	Yes	☐	No
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II. In order to assess the quality of concrete in case of doubt, Non Destructive Test (NDT) such as Rebound hammer test, Ultra Sonic Pulse Velocity (UPV) etc. has been conducted if any:

(Check✓any one box)

☐	Yes	☐	No
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Item Grading-6 B:

(check ✓ any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

☐	S	☒	U
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U

(ii) **Steel Superstructure**

A) Ongoing (Work in progress)

Location/ Item of Work	Grade of Steel	Tensile strength as per QC	Quality of Material						Workmanship	Clearance between the lowest point of the bridge and HFL is adequate (Yes / No)
			Yield stress as per QC	Elongation percentage as per QC	Chemical Analysis Done (Yes/ No)	If Chemical Analysis is done, is it adequate	NDT of welding is done (Yes/No/ NA)	Testing of steel bolts or rivets done (Yes/No)	Painting is proper and no sign of rust stain (Yes/No)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

I. Presence of water spray or moisture in the vicinity of bridge such as waterfall or marshy wet land?
(Check/any one box)

☐	Yes	☐	No
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II. Presence of industrial units nearby, which emit corrosive fumes or discharge chemical effluents?
(Check/any one box)

☐	Yes	☐	No
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III. Presence of salinity in the atmosphere? (Check/any one box)

☐	Yes	☐	No
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Guiding note: If quality of either material or workmanship is U, the overall item shall be graded as "U".

Item Grading-6A:

(check / any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

☐	S	☐	U
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B) Completed Work

Location/ Item of Work	Grade of steel	Welding		Material					Any change in load classification (Yes/ No)
		Presence of Lamellar Tearing (Yes/ No)	Presence of Fatigue Cracking (Yes/ No)	Presence of Corrosion (Yes/ No) If Yes, type of corrosion and specific location			Presence of Brittle Fracture (Yes/ No)	Presence of Buckling (Yes/ No)	
				Atmosphere Corrosion	Chemical Corrosion	Stress Corrosion			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

I. Presence of water spray or moisture in the vicinity of bridge such as waterfall or marshy wet land?
(Check/any one box)

☐	Yes	☐	No
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II. Presence of industrial units nearby, which emit corrosive fumes or discharge chemical effluents?
(Check/any one box)

☐	Yes	☐	No
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III. Presence of salinity in the atmosphere? (Check/any one box)

☐	Yes	☐	No
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Item Grading-6B:

☐	S
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☐	U
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(check ✓ any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

(iii) Bailey Bridge Superstructure

A) Ongoing (Work in progress)

Location/ Item of Work	Type of Bailey Bridge (Single-Single, Single-Double, Double-Double etc.)	Quality of Material			All panel PINs are placed in male-female joints properly with safety pin (Yes/ No)	Workmanship	Clearance between the lowest point of the bridge and HFL is adequate (Yes / No)
		All components are available (Yes/ No)	All component are corrosion free (Yes/ No)	Launching Roller are available (Yes/ No)		Painting is proper and no sign of rust stain (Yes/No)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

I. Any bolt and/ or rakers and tie plates are missing or loose?(Check/any one box) ☐ Yes ☐ No

II. Any sway braces and/ or transom clamps are missing or loose?
(Check/any one box) ☐ Yes ☐ No

III. Presence of any cracking in the Bailey bridge? (Check/any one box) ☐ Yes ☐ No

IV. Presence of any bends in bridge members? (Check/any one box) ☐ Yes ☐ No

Guiding note: If any of panel PIN is missing or loose, the overall item shall be graded as "U".

Item Grading-6A:

(check / any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

☐	S	☐	U
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B) Completed Work

Location/ Item of Work	Type of Bailey Bridge (Single-Single, Single-Double, Double-Double etc.)	Welding		Material			Any change in load classification (Yes/ No)	
		Presence of Lamellar Tearing (Yes/ No)	Presence of Fatigue Cracking (Yes/ No)	Presence of Corrosion (Yes/ No) If Yes, type of corrosion and specific location				
				Atmosphere Corrosion	Chemical Corrosion	Stress Corrosion		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				</				

I. Any bolt and/ or rakers and tie plates are missing or loose?(Check✓any one box) ☐ Yes ☐ No

II. Any sway braces and/ or transom clamps are missing or loose?
(Check✓any one box) ☐ Yes ☐ No

III. Presence of any cracking in the Bailey bridge? (Check✓any one box) ☐ Yes ☐ No

IV. Presence of any bends in bridge members? (Check✓any one box) ☐ Yes ☐ No

Guiding note: If any of panel PIN is missing or loose, the overall item shall be graded as "U".

Item Grading-6B:

(check ✓ any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

☐ S ☐ U

LOAD TEST

1. Results of Load Test attached or not (check ✓ any one box)

☐	Yes	☐	No
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If yes, comments required and copy of test results shall be enclosed.

Guiding note: If load test is not done or not satisfactory, overall item grading shall be U.

Item Grading-7:

(Check ✓ any one box)

☐	S	☐	U
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If this item is graded U, write clear reasons and suggestions for improvement:

/

8. BEARINGS

A) Types of Bearing (Tick ✓ appropriate)

Roller and Rocker Bearing	☒
Elastomeric Bearing	☒
Pot cum PTFE Bearing	☐
Spherical Bearing	☐
Cylindrical Bearing	☐
Any other type	☐

B) Condition of Bearings

(a) Metallic Bearings

- General Condition- any rusting / ceasing of plates/ cleanliness or not
- Functioning –any excessive movement/ tilting/ jumping off guides
- Greasing/ oil bath required to be redone or not
- Cracks in supporting member- Abutment cap, Pier cap, Pedestal, if any
- Effectiveness of anchor bolts, whether in position and tight or not
- Report any other defect or observation found

☐	S	☐	U
☐	S	☐	U
☐	S	☐	U
☐	S	☐	U
☐	S	☐	U

(b) Elastomeric Bearings

i. Report condition of pads – Oxidation, Creep, Flattening,

Bulging, Splitting, Displacement if any

☒	S	☐	U
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ii. Report – Bearings are clean and free or not

☒	S	☐	U
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iii. Report any other defect or observation found

(c) Any type other than 'a' and 'b' above

Report - Any other defect or observation found

I. Whether test results of bearings are available or not:

(Check ✓ any one box)

☐	Yes	☐	No
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Guiding note: If anyone of the sub-items are graded as U, overall item grading shall be U.

Item Grading-8:

(check ✓ any one box)

☒	S	☐	U
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(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

§

9. EXPANSION JOINTS

A) Types of Expansion joint (tick ✓ appropriate)

Buried Expansion joint	
Filler Joint with Copper Plate	
Asphaltic Plug Joint	
Compression Seal Joint	
Single Strip / Box Seal Joint	✓
Reinforced Elastomeric Joint	
Modular Strip / Box Seal joint	
Finger Joint	
Reinforced Coupled Elastomeric Joint	

B) Condition of Expansion joints

i. Is there any crack in the wearing coat

✓ Yes	No
-------	----

ii. Whether existing gap is improper

Yes	✓ No
-----	------

iii. Any hardening / cracking observed in bitumen filler

Yes	No
-----	----

Not visible.

iv. Any splitting/ oxidation/ creep/ bulging observed in neoprene sealing material

Yes	No
-----	----

Not visible

v. Corrosion/ damage to welds is visible

Yes	✓ No
-----	------

vi. Presence of debris in the joint

✓ Yes	No
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vii. Report - any other defect or observation found

Yes	No
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Guiding note: If any response of questions in sub item 9 B is 'Yes', the overall item shall be graded as "U".

Item Grading-9:

(check ✓ any one box)

(If this item is graded as U, clear reasons and suggestions for improvement are to be recorded).

	S	✓ U
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U

10. APPROACHES

10.1 Embankment

Location	Suitability of soil	Compaction	Side slopes	Shoulders	Grade (S/ SRI/ U)
(1)	(2)	(3)	(4)	(5)	(6)
	At the Joints of approach slab end approach road in both side there is erosion erosion on embankment. to be rectified. Reinforcement also to be rectified.				

10.2 Sub Base (G.S.B.)

Location (RD)	Conforms to Grading (Y/N)	Material Suitable from plasticity angle (Y/N) (3)	Dry density kN/m ³	% Comp- action	Whether compaction is adequate (Y/N)	Thickness as per DPR (in mm)	Measured Thickness (in mm)	Prescribed Thickness provided (Y/N)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

10.3 Base Course (Non Bituminous (WMM) and Bituminous Macadam (BM))

Location (RD)	Grading of Aggregates (S/U)	Plasticity of Filler material (S/U)	Volume of filler material percent of coarse Aggregate	Compaction based on volumetric analysis/ sand replacement method (S/U) (5)	Design thickness as per DPR (mm)	Thickness of each layer of WBM/ WMM (mm)	Thickness adequate (S/U)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

10.4 Wearing Course

Location (RD)	Grading of Coarse Aggregate (S/U)	Laying Temperature of the mix as per QCR-I (3)	Bitumen content %, as per QCR-I (4)	Bitumen content % (S/U) (5)	Observed thickness of layer		Surface un-evenness (S/U) (8)
					As measured by NQM/SQM (6)	S/U (7)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	on	thin	is few pots and cracks on the surface to be rectified.				

10.5 Protection Work:

I. Whether sanctioned DPR has the provision of protection works: (check ✓ any one box)

☐	Yes	☐	No
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II. Type of protection work: (check ✓ boxes as applicable)

☐	Retaining wall	☐	Breast wall	☐	Parapet wall
☐	Any other type of Protection work				
	a.				
	b.				

III. Quality of Materials:

Location / RD (1)	Structure Type (Retaining Wall/ Breast Wall/ Parapets) (2)	Type of Protection work (RCC/CC/ Masonry/ wire crate) (3)	General quality of material conforms to specifications (Yes/No) (4)	Size and shape as per design (Yes/No) (5)	Quality assessment by personal judgement (6)

IV. Workmanship of Retaining structures:

Location / RD (1)	Workmanship of retaining structures (2)	Whether honeycombing/any other defects are observed (Y/N) (3)	Have weep holes been provided (Yes/No) (4)	Adequacy of weep holes (if provided) (Yes/No) (5)

V. In case, Stone masonry is used in retaining structure:

- a) Workmanship of stone masonry is acceptable:
(check ✓ any one box)
- ☐ Yes ☐ No
- b) Bond stone has been provided in stone masonry:
(check ✓ any one box)
- ☐ Yes ☐ No

Guiding note: If sub item 10.2, 10.3, 10.4 are graded as U, the overall item shall be U.

Item Grading-10:

(check ✓ any one box)

☐ S

☐ SRI

☒ U

(If this item is graded SRI/U, write clear reasons and suggestions for improvement).

U .

11. BRIDGE FURNITURE AND MARKINGS:

11.1 Observations: Quality of Bridge Furniture and Markings : (Ongoing / Completed works)

- (i) Main Information Board
Fixed :

☒	S	☐	SRI	☐	U
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- (ii) Citizen Information Board
Fixed :

☐	S	☐	SRI	☐	U
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(iii) Maintenance Board. — Not available at site.

Item Grading-11.1: (Check ✓ any one box)

☐	S	☐	SRI	☒	U
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If this item is graded SRI/U, write clear reasons and suggestions for improvement:

U

11.2 Observations: Quality of Bridge Furniture and Markings:

- (iii) Guard stones fixed on
approaches :

☐	S	☐	SRI	☐	U
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- (iv) Mandatory and caution
signage :

☐	S	☐	SRI	☐	U
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Item Grading-11.2: (Check ✓ any one box)

☐	S	☐	SRI	☐	U
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If this item is graded SRI/U, write clear reasons and suggestions for improvement:

U

12. General Observations of QM, (including the observations made during the interaction with PIU staff and Contractor/Consultant Engineers):

A. Observations about deficiency in project preparation: (Give detailed observations about deficiencies in general and items which have been left but are required as per site conditions):

(check ✓ I or II)

☐

I. No deficiency in project preparation noticed during the interaction with PIU Staff and Contractor/Consultant engineers:

☐

II. Deficiencies Observed: (check ✓ one or multiple box)

- ☐ Nomenclature of BOQ Items is not clearly stated such as what type of binder (VG Grade/Emulsion) has to be used and the quantity of such items.
- ☐ Number of spans are insufficient as per the site's hydrological condition.
- ☐ No provision of protective work in DPR but as per site conditions it is required.
- ☐ Hydraulic Design & calculation for bridge design not provisioned in DPR.
- ☐ Guard stone/ Crash barrier/ Road studs on approaches are required to be provisioned in DPR.
- ☐ Deviation from proposed Alignment.

• Any other comment:

H. 7...

B. Whether the work has been completed/is in progress as per work programme or the delay has occurred. If delay has occurred, whether the liquidated damages have been withhold or recovered: (check ✓ relevant box and fill details)

☐ Completed

☐ In progress

Whether there was delay

☐ Yes

☐ No

If yes, fill below details

Period of delay (in months)

Amount is ☐ Withhold ☐ Recovered

Amount (in lakh)

Reason for delay/any other comment:

Work progress is

☐ As per schedule

☐ Extension of last date completion

If extension of last date, fill below details

Period of extension (in months)

Withhold amount refunded ☐ Yes ☐ No

Amount (in lakh)

Amount of penalty on contractor :

Reason for delay/any other comment :

C. Whether the work has been completed within the sanctioned cost, if not, what is the action taken by the PIU (in case of complete works): (check ✓ relevant box and fill details)

Whether the work is completed within the sanctioned cost ☐ Yes ☐ No

M.A.

If **no**, fill the below details

Sanctioned cost (in lakh)

Completion cost (in lakh)

Reason for extra cost

Action taken by PIU

D. Observations about the action taken by the PIU on the observations of inspecting officers including SQMs and NQMs. (clearly offer comments about the action taken on the observations of Departmental Officers, State Quality Monitors and National Quality Monitors).

Previous QM's Designation /NQM /SQM DO	Previous QM's observation	Action taken by PIU	Your observation about PIU's action
Er. Chitmayan Mavadi	At (S, Khet)	—	—
Er. R. K. Singh	At - Suby - (S, Khet)	—	—
Er. Sunanda Gunnar	At Super Struck (S)	—	—

- E. Comments about difference in observations made by NQMs/SQMs in earlier inspections (the NQM/SQM shall study the earlier inspection reports of NQMs/SQMs, if any and offer his clear comments about the differences in observations, if any). (check ☒ relevant box and fill details)

Whether any difference found in previous observations of QMs ☐ Yes

☐ No

If yes, your comment on difference in observation

- F. Other observations, if any:

13. OVERALL GRADING OF BRIDGE WORK

Item No.	Items Description	Awardable Grade	Awarded Grade
1	General Details		
2	Quality Arrangements	S/SRI/U	—
3	Attention to Quality	S/SRI/U	—
4	Foundation (Stage I)	S/U	—
5	Sub-Structure (Stage II)	S/U	S
6	Super-structure (Stage III)	S/U	U
7	Load Test	S/U	—
8	Bearing - (Grading to be same as for condition of Bearing)		
	A. Type of Bearing- Roller and Rocker Bearing, Elastomeric Bearing, Pot cum PTFE Bearing, Spherical Bearing, Cylindrical Bearing Any other Bearing)	—	
	B. Condition of bearing	S/U	S
9	Expansion Joint (Grading to be same as for condition of Expansion joints)	S/U	U
	Type of Expansion Joint- Buried Expansion joint, Filler Joint with Copper Plate, Asphaltic Plug Joint, Compression Seal Joint, Single Strip / Box Seal Joint, Reinforced Elastomeric Joint, Modular Strip / Box Seal joint, Finger Joint, Reinforced Coupled Elastomeric Joint.	—	
	B. Condition of Expansion Joint	S/U	U
10	Approaches (To be U, if any of the sub items (ii), (iii), (iv) are SRI or U)	S/SRI/U	U
	(i) Embankment	S/SRI/U	U
	(ii) Sub Base (G.S.B)	S/SRI/U	S
	(iii) Base Course (Non Bituminous (WBM) and Bituminous(BM))	S/SRI/U	—
	(iv) Wearing Course	S/SRI/U	U
	(v) Protection Work	S/SRI/U	—

11	Bridge Furniture and Markings (to be U, if any of the sub items are U)	S/SRI/U	
	(i) Main information Board	S/SRI/U	S
	(ii) Citizen Information Board / <i>Maintenance board</i>	S/SRI/U	U
	(iii) Guard stone on approaches	S/SRI/U	-
	(iv) Mandatory and Caution signage	S/SRI/U	-
	Overall Grading	S/SRI/U	U

Guiding notes for overall grading:

- If all work items are "S", the overall quality of work shall be "S"
- If items at sl. nos. 4, 5, 6, 7 and 8 are "S" and other items are either "SRI" or "U", the overall quality of work shall be "SRI"
- If any item at sr. nos. 4, 5, 6, 7 and 8 are "U", the overall quality of work shall be "U", irrespective of the quality grading of other items.

Signature of QM

Name of QM

Date

Sunil Kumar Singh
SQM
24/7/24

14. QUALITY GRADING OF ITEMS OF BRIDGE WORKS:

Item No.	Item for observation	Awardable Grade	Awarded Grade
Item No. 1	General Details		
Item No. 2	Quality Control Arrangements	S / SRI / U	—
Item No. 3	Attention to Quality	S / SRI / U	—
Item No. 4	Foundation	S / U	—
Item No. 5	Sub structure	S / U	S
Item No. 6	Super structure	S / U	U
Item No. 7	Load Test	S / U	—
Item No. 8B	Condition of Bearing	S / U	S
Item No. 9	Expansion Joint	S / U	U
Item No. 10	Approaches (Stage II and III)	S / SRI / U	U
Item No. 11	Bridge furniture & marking	S / SRI / U	U
	Overall Grading	S / SRI / U	U

Signature of QM

.....*Sunil Kumar Singh*.....

Name of QM

.....*Sunil Kumar Singh*.....

Date

.....*22/7/24*.....