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NE RLY HQ
Gorakhpur
W/29/O/A/PC I/W-1
September 15, 1988.

Bridge Circular No.2 of 1988

The Divl. Rly. Manager(Engg.),
N.E. Railway,
SPJ/SEE/BSB/LJN/IZN.

The Chief Workshop Manager/Bridge Workshop,
N.E. Railway,
Gorakhpur Cantt.

Re: Classification & inspection of distressed bridges.

A Sub-Committee was appointed by the Board on the Rebuilding of Bridges. Based on the accepted recommendation of this Committee, received from the Board, following instructions are issued:

2. Definition of Distressed bridges:

Distressed bridge is one which shows any physical sign of deterioration, indicating the need for rehabilitation through special repairs, strengthening or rebuilding (including replacement of girders). This definition does not include those bridges considered vulnerable due to hydrological factors.

3. Categorization of Distressed Bridges:

Distressed bridges are to be classified in two categories:

Category I: Those requiring rehabilitation to be done immediately, say within a year's time.

Category II: Those required to be kept under observation and to be rehabilitated on a programmed basis.

4. Level & Periodicity of inspection

Category	Inspection	
	Level	Frequency
I	DEN/Sr.DENs.	Once in 3 months.
II	Territorial SAG officers or CBE as decided by CBE.	Once in a year.

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5. Where distress is in steel girder, inspection shall be done by XEN/Bridges.
6. Cases referred by Divisions shall also be inspected by territorial SAG officers.

7. Speed Restriction:

Speed restrictions on distressed bridges will be decided by the sectional DEN and confirmed by the territorial CE within 4 months.

8. For general guidance, speed restrictions upto 15 KMPH is suggested for distressed bridges in Group I and generally 25 KMPH for Group II.

9. Grouping for application of para 7 & 8 above:

Group I - Where the signs of distress are any one or more:

- i) Settlement of foundations,
- ii) Tilted piers & abutments (major),
- iii) Deep scour around piers/abutments,
- iv) Cracked & shaken bed blocks,
- v) Cracks in bearings,
- vi) Cracks of serious nature in masonry below the bed blocks,
- vii) Diagonal cracks in arches,
- viii) Transverse cracks in arches,
- ix) Any observable deformation of the arch ring.
- x) Progressive loss in camber of girders,
- xi) Wide cracks in RCC/PSC members,
- xii) Cracks/heavy corrosion of load bearing members of steel girder, and
- xiii) Snapping of rivets.

Group II -Where the signs of distress are:

- i) Cracks in return walls & wing walls,
- ii) Slight tilting/slight bulging of abutments,
- iii) Bulging of return walls/wing walls,
- iv) Cracks in parapets of arch bridges,
- v) Separation of spandrel from arch barrel,
- vi) Wide longitudinal cracks of arch barrel (across alignment).
- vii) Loose rivets above 20% at any joint,
- viii) Perceptible deterioration of stone/brick masonry,
- ix) Observation of any excessive vibration in any part of the bridge structure; and
- x) Wide longitudinal cracks in abutments, piers.

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