



**GOVERNMENT OF INDIA**  
**MINISTRY OF ROAD TRANSPORT & HIGHWAYS**

IAHE Campus,  
A-5, Sector-62  
Noida-201301

**F. No. RW/NH- 35075/09/2006-S&R (B)**

**Dated: the 14<sup>th</sup> February, 2017**

**To,**

1. All Engineers-in-Chief and Chief Engineers of Public Works Department of States/ UTs dealing with National Highways, other centrally sponsored schemes.
2. The Director General (Border Roads), Seema Sadak Bhawan, Ring Road, New Delhi-110 010.

**Subject: IRC B1 Committee General Design Features (Bridges & Grade Separated Structures) – Data Collection – Scour around bridge piers in bouldery river bed- reg**

Indian Roads Congress (IRC) is in the process of evolving a proper system of assessment of scour depth in bouldery river beds. As you all may be aware, the Lacey's formula for calculation of scour depth is mainly applicable for alluvial rivers and its direct application for rivers with bouldery beds does not give proper scour depth. As numerous bridges in India have been constructed on bouldery river bed, a proper understanding of the phenomena of scour of these river beds could provide a live model for study of general and local scour pattern and help in proper assessment of scour depth.

2. In pursuance to this, the Indian Roads Congress (IRC) has constituted a Special Group for finalizing recommendation for calculation of scour in boulder data, for which some data on scour patterns of rivers having bouldery beds before monsoon and immediately after monsoon is required as per enclosed proforma (**Annexure**). The minimum number of bridges state wise for data collection and summary of action plan is as follows:

S. No.	State	No. of bridges for data collection	Remarks
1	HP	10	<u>Action programme</u> i. Only multi-span bridges on bouldery beds to be selected ii. Data may be forwarded as per proforma iii. Based on the proforma, bridges may be selected for study iv. Construction history if available should be sent v. Original x-section and as on date x-section needs to be plotted to observe
2	Uttarakhand	10	
3	UP	10	
4	J&K	3	
5	Sikkim	5	
6	Arunachal Pradesh	5	
7	Assam	10	

8	Meghalaya	5	actual scour pattern vi. Bridges with longer life should be selected vii. Officers may regularly visit these bridge sites to understand the effect of scour if any viii. Photographic record should also be sent for each bridge as per following: (a) U/s and D/s view (b) Closer view to the piers
9	BRO	10	
10	Manipur	5	

3. It is therefore requested to furnish the requisite data in the enclosed proforma to the Ministry at the earliest.

4. This issues with the approval of Competent Authority.

*Amiyanshu*

(Amiyanshu)

Asst. Executive Engineer, S&R (Bridges)  
For Director General (Road Development) & SS

**Copy to:**

1. CE(P-1)/ CE(P-2)/ CE(P-3)/ CE(P-4)/ CE(P-5)/ CE(P-6)/ CE(P-7)/ CE(NER)/ CE(NHDP-IV)/ CE(LWE)
2. All ROs and ELOs of the Ministry
3. NIC-for uploading on Ministry's website under "What's new"

## DATA COLLECTION FOR BOULDARY BED BRIDGES

1	Name of Project	
2	Name of Bridge	
3	Year of construction	
4	Total length (span)	
5	Deck level	
6	RL of HFL (in meter)	
7	LWL	
8	MSL	
9	Foundation Level	
10	Type of Foundation	
11	Soil Strata	
12	Silt factor taken for design	
13	Q/Discharge	
14	Date of observations for Hydraulic data	
15	RL of actual river bed at HFL at Pier loc/Piers	
16	Actual Scour depth below HFL during flood at Pier loc/piers	
17	Velocity as calculated theoretically	
18	Actual velocity during flood	
19	Bed Slope	
20(i)	Maximum scour at abutments	
20(ii)	Theoretical	

Details to be attached

1. Brief history of construction indicating major bottlenecks
2. Indicate briefly method used for making actual observations
3. Brief sketch indicating location of piers
4. Photographs of scour observed
5. GAD of Bridge