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No. CBS/DWF

Dated: 15.07.2019

The Chief Bridge Engineer:

1. Eastern Railway, Fairlie Place, Kolkata-700 001
2. East Central Railway, Hajipur - 844101
3. Northern Railway, Baroda House, New Delhi- 110 001
4. North-Central Railway, Allahabad.211 001
5. North Eastern Railway, Gorakhpur-273 001
6. North-Western Railway, Jaipur 302 001
7. Northeast Frontier Railway, Maligaon, Guwahati-781 011
8. Southern Railway, Park Town, Chennai-600 003
9. South Central Railway, Rail Nilayam, Secunderabad-500 371
10. South East Central Railway, Bilaspur 495 004
11. South Eastern Railway, Garden Reach, Kolkata-700 043
12. South-Western Railway, Hubli 580 023
13. Western Railway, Mumbai-400 020
14. West-Central Railway, Jabalpur- 482 001
15. Central Railway, Mumbai CST-400 001
16. East Coast Railway, Bhubaneswar-751 016

Sub: Centre to Centre distance of deep foundations of existing and new Bridge.

Ref.: Railway Board's letter no. 2017/37/CE-III/BR/BSC /85/Seminar dated 17.05.2019

NCR referred the issue of the minimum clear distance of deep foundations between the existing and proposed bridges vide letter no. 136-W/BR/DFCCIL dated 09.02.2017. Vide letter No. CBS/Imp./Br.427/NCR dated 14/20.03.2017, RDSO suggested criteria for distance between the existing and new foundations based on interaction of their scour regions, pressure bulb zones and other factors.

The matter was discussed as the Item No. 1074 in 85th BSC meeting held in Nov.'2018, as instructed by Board, by keeping the above letter of RDSO in abeyance. During the deliberations in the BSC, it came out that minimum/desirable distance between the well foundations of the existing and new bridge is site specific and it is difficult to lay down criteria with certainty.

Based on the recommendations of the 85th BSC, duly accepted by Board, following guidelines may be considered while finalizing the distance between the well foundations:

- a. It is a good practice to propose the piers of new bridge in the same alignment as that of the piers of the existing bridge.
- b. The desirable minimum clear distance between the existing and new foundations from the consideration of interaction of scour regions is $6D$ (where D is diameter of well).
- c. There should be no interference in the pressure bulb zone of foundations of existing and proposed bridge.
- d. There should be no reduction in passive earth pressure due to excavation of new foundation in close vicinity of the existing foundation.
- e. Sufficient space is required for easy operation of machinery and equipment for construction of proposed bridge to avoid any chance of interference to the train movement on the existing bridge.
- f. Effect of extra load of excavated material, machinery, equipment etc. on the surrounding soil mass and foundation of existing bridge.

In case, the Railway does not consider carrying out detailed technical studies, the above guidelines may be followed. CBEs should finally decide, only after detailed investigation, whether reduction in distance between the existing and new foundations from the distance as per guidelines prescribed above is required.

Accordingly, CBEs should finally decide the distance between the well foundations keeping in view the above guidelines and site specific requirements.


(V.K. Srivastava)

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Copy to: EDCE/B&S, Railway Board, Room No.-140A, Rail Bhawan, New Delhi-110 001.