Government of India
Ministry of Road Transport &Highways
(Zone-4)
Transport Bhawan, 1, Parliament Street, New Delhi-110001

RW/NH-12014/3/2015-Goa/P-6 (Zone-IV) Dated:20th June, 2019.

To:

1. The Chief Secretaries of all the State Governments / UTs.
2. The Principal Secretaries / Secretaries of all States / UTs Public Works Department dealing with National Highways, other Centrally sponsored schemes.
3. The Engineers-in-Chief and Chief Engineers of Public Works Department of States / UTs dealing with National Highways, other Centrally sponsored schemes.
4. The Director General (Border Roads), Seema Sadak Bhavan, Ring Road, Delhi 110 010.
5. The Chairman, National Highways Authority of India, Plot G-5 & 6, Sector-10, Dwarka, New Delhi 110 075.
6. The Managing Director, NHIDCL, PTI Building, Sansad Marg, New Delhi 110001.
7. All CE-ROs, SE-ROs and ELOs of the Ministry

Sub: SOP for the provision of falseworks (or scaffolding or temporary structures) as required for safe construction of any permanent concrete/steel structures on National Highways in the country - reg.

Sir,

Safe and economical construction of any permanent concrete/steel structures on highways essentially require proper design, fabrication and erection of the falseworks (or scaffolding or temporary structures). All such falseworks should be able to support different types of permanent concrete/steel bridge structures during construction till they attain sufficient and desirable structural strength, capacity and stability.

2. The safety of the workers and passing traffic are of paramount importance. Instances have come to the notice of the Ministry that all stakeholders namely contractors/concessionaire and Authority/Independent Engineers are not adhering to stipulated specifications/guidelines. Generally, negligence such as using pipes with thickness less than specified, using corroded elements and not installing lateral & diagonal bracings etc. in formwork, falsework and temporary structures are observed during construction. Such negligence in implementation becomes oblivious cause of man-made disaster sometimes, resulting even in fall of super-structures, posing danger to human lives in addition to economic loss.

3. All relevant specifications/guidelines as set forth in schedule D including IRC:87 shall be strictly followed by all Contractors/Concessionaire and Authority/Independent Engineers (AEs/IEs). Following Standard Operating Procedures needs to be essentially adhered by the Contractors/ Concessionaire and Authority/Independent Engineers (AEs/IEs) as a good engineering practice for preventing the cases of collapse of falseworks.

3.1 For Contractors/concessionaire:

3.1.1 As per clause 10.2.4 of Contract Agreement, it is the obligation of the contractor to submit design and drawings details for each component of the falseworks constructed on Project Highway, duly certified by Proof Check Consultant. Construction of permanent concrete/steel structures on highways in safe and stable manner is the prime responsibility of the contractor.

3.1.2 The contractor is responsible to collect all relevant data, specific to project requirements, subject to collection of the following minimum data-

- **a.** Topographical, geographical and climatic data relevant for the design of falseworks,
- **b.** Hydraulic and Hydrological investigations/data,
- **c.** Geotechnical investigation shall be carried out to ascertain the allowable bearing capacity of soil, ground conditions, earth slope characteristics, ground water data etc. for ensuring adequate support system to falseworks,
- **d.** Geometric/dimensional details including space and movement restraints, headroom or clearances required for serving the intended purposes of falseworks,
- **e.** Details of all underground or overhead utility facility,
- **f.** Traffic regulation/diversion details,
- **g.** Lighting and road-signages deatils,
- **h.** Regulation details for noise control and vibration etc.
- **i.** Impact of environmental issues such as air, soil or water pollution etc.
- **j.** Material specification details,
- **k.** Design brief consisting of (i) relevant data required for design of false works, (ii) design philosophy and (iii) construction methodology etc.,
- **l.** Assessment of loads and load combinations,
- **m.** Design details for lateral and diagonal bracings for ensuring adequate strength and stability requirements of falsework,
- **n.** Analysis details for ensuring the structural behaviour of falseworks within permissible stresses and deformations, and
- **o.** Design details of foundation and footing of falseworks,

3.1.3 For proper planning, implementation, monitoring, co-ordination and supervision of Temporary works of all major bridge projects (having total length more than 60 m), the Contractor should identify/appoint a Temporary Work Co-ordinator (TWC) and wherever necessary, he should be supplemented by Temporary Work Supervisors (TWS) as already stated in IRC: 87.

3.1.4 Experienced design engineers should be appointed by the contractors for the preparation of design drawings, material specifications and standards, erection details (especially connections), method of erection, sequence of erection, workmanship requirement, and the method statement of dismantling etc.

3.1.5 Safe access and egress for workmen should be clearly indicated in the drawings.

3.1.6 Safe operation of all relevant machines shall also be ensured during construction.

3.1.7 Section 8 of IRC:87 should be strictly followed by contractors and AEs/IEs specially w.r.t. site operations, procedural controls & precautions (e.g. lacing, bracing, wedging, loading application rates, loading sequence & patterns, loading placements, unloading sequence & patterns etc.), dismantling stage and inspections activities.

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3.1.8 The person/ engineer to be deployed by the Contractor/ Concessionaire for erection of falsework/ temporary work and their supervisor should be well equipped and knowledgeable and should have obtained a training from some reputed institute on this matter/ subject.

3.1.9 Adequate gap/ space and barricading should be provided to separate the traffic from such construction site so that eventuality could be avoided in case of any untoward/ errant run-off of the motor vehicle particularly in urban area.

3.2 For Authority Engineers/Independent Engineers (AEs/IEs):

3.1 AEs/IEs need to ensure strict conformity of all data/ details described above with respect to relevant specifications/guidelines as set forth in schedule D including IRC:87.

3.2 AEs/IEs needs to approve, supervise and monitor all stages involved in design, fabrication, erection and stripping of the falseworks.

3.3 AEs/IEs need to monitor the execution of the construction work to confirm that the construction methods employed on the project are in accordance with sound engineering practice/IRC guidelines and are not likely to endanger permanent works or members of the public.

4. Basic requirement such as falsework materials, foundation preparation, erection of falsework etc., need to be ensured by the contractor/concessionaire as per the checklist given at Appendix-2 of IRC:87. The same also need to be confirmed by Authority's Engineers/Independent Engineers (AEs/IEs).

5. Any failure on the part of any stakeholder will attract penal action and debarment from future works.

Yours faithfully,

(Naresh Kumar Chopra)
Executive Engineer (Zone-IV)
For Director General (Road Development) & SS.

Copy to:

1. All Technical Officers in the Ministry of Road Transport & Highways.
2. All Joint Secretaries in the Ministry of Road Transport & Highways.
3. All ROs & ELOs of the Ministry of Road Transport & Highways.
4 The Secretary General, Indian Roads Congress.
5. The Director, IAHE.
6. Technical circular file of S, R&T (B) Section.
7. NIC for uploading on Ministry's website under "what's new".

Copy for kind information to:

1. PS to Hon'ble Minister (SRT&H) / PS to Hon'ble MOS (SRT&H).
2. Sr. PPS to Secretary (RT&H).
3. PPS to DG (RD) & SS.
4. PPS to SS & FA.
5. PPS to ADG-I / AD-II / Coordinators - I/II/III.