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Sr.DEE/Tr/GNT , Sr.DEE/TR/HYB, Sr.DEE/M/NED.

Sub: Policy guidelines and practices for casting of OHE Foundations and Cube test for foundations.

Ref: Policy letter on Testing of foundation test cubes was issued by this Office vide letter No. E.219/TRD/EIG Sanc/Vol.XXIX dated 3.9.2020.

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Vigilance Organisation during the routine checks of TrD works has brought out many deficiencies in testing procedure being followed for Cube test of OHE foundation samples. For system improvement during execution of OHE mast foiundation works, the folowing guidelines are issued:

1. To standardize the practice of Cube test of OHE foundations, the following points should be incorporated in the tender schedule for Civil works:

i) The foundations will be cast as per IS: 456-2000 (code for plain and reinforced concrete) and IS:516-1959 (Methods of tests for strength of concrete). However, the frequency of sampling will be as per the points mentioned below.

ii) Frequency of sample collection for cube test will be 2 samples for the first 50 cu.m of concrete. Further, one sample shall be tested for every 50 cu.m of concrete used for OHE foundation work. The size of each cube will be 15x15x15 cm.

iii) 1 sample (consisting of 3 cubes) will be subjected to compression test after 7 days and another sample will be subjected to compression test after 28 days. The samples should be collected and subjected to cube test well before completion of 50 cu.m of concrete work. Location from where the concrete for cube test is collected should be inscribed on the test cube.

iv) Construction agencies/divisions will not have to wait for the test results of 28 days sample, and can continue with the mast erection and grouting works.

v) The test cubes should be placed in the core of the foundation till test is carried out or till grouting of mast is done. Contractor should ensure that the foundation with test cubes is covered properly to prevent falling of foreign material into the pit. If test cubes have to be removed from the foundation before 7 days or 28 days for erection of mast, same should be preserved with the concerned SSE/TrD and contractor should ensure that regular curing of the test cubes is done.

vi) However, if the sample fails in the cube test, the foundations will have to be discarded and new foundations will have to be re-cast in their place (all foundations cast prior to cube test). 20

vii) After completion of 50 cu.m concrete work one more sample (consisting of 3 cubes) should be tested after 28 days.

viii) Testing of the concrete cubes should be done at NABL accredited private laboratories or Government technical Institutions like Government ITI/ Government Polytechnic/ Government Engineering colleges or any other Government Institutions/Universities.

ix) Foundation dimensions (A-along the track, B- along the track at bottom of the foundation, C- across the track & H- height), No. of bags of cement used, quantity of fine aggregate, coarse aggregates and water used for each location along with volume of the foundation, should be available in the Daily progress report, duly signed by TrD representative at site and Contractor supervisor at site.

x) The Daily progress report should be a bound book serially numbered and details of contractor printed on it, with 2 sheets containing the same number. The original copy of DPR will be submitted to the concerned OHE in-charge on the same day of execution of work and the duplicate copy will be preserved in the DPR book itself for record at site.

xi) The contractor's representative should be in possession of sieve analysis report and details of Cement procurement.

xii) Details of mast erection, grouting and finishing of foundation should also be recorded in the DPR book.

xiii) Site order book should be maintained and any discrepancies noticed on contractors part or reason for not following procedure should be recorded.

xiv) The nominated SSE/Depot in-charge will maintain a separate ledger for material received/issued to the contractor for work. Any material issued to the contractor on loan should also be recorded in the ledger, and return of the same from the contractor should be ensured, before clearing the bills.

xv) Record of the foundation cube test, with locations of the samples collected should be maintained for the entire volume of concrete work.

Further, the following guidelines highlighted by Vigilance department should be followed during execution of work by the executing agencies

i) The required grade (ex M-10, M15, M20 etc.) for foundation concrete and core concrete of the masts, should be ensured by the in-charge official at site.

ii) Qualification of contractor's supervisor should be ensured, as stated in the LOA.

iii) All the released material from replacement/modification work should also be accounted.

iv) Ambush checks by Field Officials should be ensured.

This has the approval of Competent Authority.

31-3-17

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