GOVERNMENT OF ANDHRA PRADESH
Office of the Engineer-in-Chief RWS&S, Gollapudi, Vijayawada

Circular Memo.No.AEE (Designs)/DEE-(Designs)/Type designs-RWS/2021-22, dated 07.6.2021

Sub: RWS&S-Type Designs of OHSRs, OHBRs and sumps relating to RWS&S Department-Approved-Communicated for execution-Reg.

Ref: T/o Circular Memo. No. AEE (Designs)/DEE-(T)/Type designs-RWS/2018-19, Dated 25.03.2019.

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The attention of the Superintending Engineers, RWS&S in the State is invited reference cited, where in the approved copies of type designs and drawings for OHSRs from 10 Kl to 250 Kl for particular staging and sumps of capacities from 20 Kl to 1000 Kl were communicated to all the Superintending Engineers for execution. Now, the field Engineers are requesting to communicate the approved drawings for OHSRs/OHBRs for staging up to 25m and different capacities of sumps up to 5000 Kl, so as to utilize the same for major MVS schemes to be sanctioned under JJM/Water Grid projects.

Based on the requisition of the field Engineers, the type designs for OHSRs/OHBRs of capacities from 10 Kl to 500 Kl for staging from 6m to 25m and sumps of capacities from 10 Kl to 5000 Kl have been prepared by the Designs Section of this office and the same are approved by the Chief Engineer-II, RWS&S. The approved copies of the designs and drawings are here with communicated to all the Superintending Engineers, RWS&S in the State for execution and taking further necessary action. The details of the conditions and specifications followed while approving the designs and drawings are as below:

- The stability of all sumps are verified for SBC>= 5.0 KN/m2, as in case of all capacities of sumps, maximum downward bearing pressure will be <= 5.0 0 KN/m2.
- The sumps are designed for normal condition and also for uplift condition by assuming average water table depth as 1.0m below GL.
- The stability of all OHSRs/OHBRs is verified for SBC>= 5.0, 10 and >=15 t/m2, with wind speed of 150 KMPH and 200 KMPH for staging

ranging from 6m to 25m. The OHSRs/OHBRs are also designed for seismic forces.

- The above verified parameters for all the structures would satisfy for most of the cases. If any variation is found in the soil strata/water table levels, the designs shall be verified and approved by the competent authority before grounding the work.
- M30 concrete mix conforming to IS:456-2000 and grade of Steel–Fe-415 shall be used. Concrete laid in the form work shall be vibrated to obtain maximum density and compaction.
- Provisions made in IS:456-2000, IS:3370-2009, SP-34, SP-16 and other relevant codes shall be followed during execution.
- Laps shall be staggered and lap length should be Ld-50D (Diameter of the bar). Not more than 50% of reinforcement shall be lapped at a particular location (cross section).
- Clear covers shall be: footings-50mm, columns-40mm, beams-25mm, slabs-20mm.
- Extra bars at top for beam shall be extended up to 0.25 L on either side from the face of the support and curtail bottom bars at 0.1L from the discontinuous edge and 0.15L from continuous edge measured from center of support, where 'L' is c/c of support.
- Slab bars are to be cranked at 0.25L from center of support near continuous edge and 0.15L from center of support near discontinuous edges.
- In slab, extra bars over continuous support should be taken up to 0.30L from the face of beam. Crank bars at continuous support should not be terminated on beam and should be extended up to 0.3L from face of support into the adjacent span.
- In beams and slabs, overlapping shall not be provided over supports for top bars and at mid span for bottom bars.
- All drawings are not to scale. Figured dimensions shall only be followed. All the dimensions are in mm only.
- Curing should be done at least for 21 days.
- Wherever reinforcement is provided in two layers in beams, spacer bars shall be provided to maintain 25mm gap or maximum diameter of main bar, whichever is more, between two layers.

- Provide food grade epoxy painting and ensure proper construction using potable water and also maintain regular registers for recording cube strength and other tests results.
- After placing the concrete in every lift of side wall of water retaining structure, continuous circular groove at the top of the concrete shall be provided so as to avoid leakages.
- 4"X4"x4" groove at top of the each lift of the column shall be provided so as to improve the effective bonding in between lifts.
- The structure of OHSRs & OHBRs is designed for seismic forces.
- Any discrepancy from the drawings shall be brought to the notice of the approving authority.
- Necessary provisions shall be provided for providing lightening arrester inside the spiral staircase column.

The above designs are prepared based on the above assumptions. All the Superintending Engineers/Executive Engineers, RWS&S in the State are requested to verify the stability of structures before grounding the works once again as per site conditions and satisfy.

Encl: Type Designs and Drawings

Sd/-R V Krishna Reddy
Engineer-in-Chief, RWS&S,
Gollapudi, Vijayawada.

To
All the Superintending Engineer, RWS&S in the State.
Copy to the Chief Engineer-II, III and Chief Engineer-IV O/o ENC, RWS&S, Vijayawada

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P Vaakley 7/6/2021
Dy. Executive Engineer, RWS&S (Designs)
O/o Engineer-in-Chief, Vijayawada