

Date: 16.09.2020

Venue: Email

Sub: NEW 10000 MT DOUBLE WALL DOUBLE INTEGRITY AMMONIA STORAGE TANK AND ASSOCIATED FACILITIES FOR FACT-CD,
AMBALAMEDU ON LSTK BASIS

| Sl. No | Section No. of Bid Doc. | Page No. | Clause No. | Subject | Bidder's Query | Owner / PMC Reply | Discipline |
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| 1. | 32645-12-DA-002 | 18 of 25 | 4.9.1 | Foundation | <p>cl 4.9.1 " All foundations shall be designed to suit the existing soil conditions and all major foundations shall be on bored cast-in-situ piles."</p> <p>As per IS:1893-Part 1 and the ITB soil report the soil is liquifiable and therefore it needs ground improvement techniques to mobilize the lateral capacities of piles.</p> <p>a) Bidder consider NH3 tank and its staircase as major foundation and supported on bored cast in situ piles along with ground improvement.</p> <p>b) Bidder proposes ground improvement techniques to achieve net SBC of 150kN/sqm at a depth of 1.0m below existing ground level for structures like compressor house, compressor, substation & control room, cooling tower, etc instead of pile foundation. Please confirm our proposal.</p> | <p>Ammonia Tank and major structures should be supported on bored cast in situ pile foundations as per tender. Piling and soil improvement together is not acceptable.</p> <p>Bidder may design the pile considering the liquefaction effects if any as per the detailed soil investigation done by bidder.</p> <p>Pile should have sufficient embedment in the non-liquifiable layers to achieve fixity in order to carry moments induced by the lateral load.</p> <p>SBC for auxiliary structures generally to be considered as 5 t/m2 as per the tender. Soil improvement technique if any adopted to increase the bearing capacity by the bidder during detailed Engineering should be approved by the owner as per site conditions. Since the structures are proposed in the running plant any damage due to the soil improvement technique to the existing structures shall be rectified to the satisfaction of the owner without any additional financial implications.</p> | Civil |
| 2. | 32645-14-DA-00001 Datasheet for programmable logic controller | - | - | SIL assessment | <p>As per PLC Datasheet SIL certified PLC system is not indicated.</p> <p>However as per OWNER reply to PBQ-2, Corr-1, TQ 2 reply " if SIL requirement arises due to QRA/ SIL assessment (After award of work), a SIL certified mini PLC shall be considered in bidder's scope for executing SIL Functions, without any additional cost implications to owner/ client."</p> <p>Bidder understand SIL study is not applicable for Ammonia storage tank and associated facilities hence SIL certified PLC is not required.</p> <p>Owner to confirm Bidder's understanding</p> | <p>The Process control PLC need not be SIL certified.</p> <p>A separate ESD PLC to be provided, in the following situations:</p> <ol style="list-style-type: none"> ESD system is mandated by any of the national/ international standards/ regulations, local rules and regulations for Ammonia Handling system ESD system is recommended by any of the studies/ audits by the LSTK contractor or third parties after award of work. <p>ESD PLC if supplied shall meet assessed SIL level.</p> | C&I |
| 3. | 32645-14-DA-00001 Datasheet for programmable logic controller | 2 of 9 | - | IO cards/ modules (Only for critical IOs) and Power supply to IO cards | <p>As per referred clause "IO cards/ modules (Only for critical IOs) shall be redundant".</p> <p>As per clause 5.2.1 f) of 32645-01 -PS-001 SPL (INST), special requirements of the Project (Instruments), Servo Level transmitter and Tank pressure transmitter are critical instruments.</p> | <p>The Critical IO shall be a subject of detailed engineering and Bidder's experience in similar systems is to be explored for quoting the bid.</p> <p>Bidder's proposal at the time of detailed engineering subject to owner's approval shall only finalise the Critical IO.</p> | C&I |

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| | | | | | Based on above Bidder shall consider critical signals as per below, 1> Ammonia Tank servo level transmitter 2> Ammonia Tank Pressure Instruments 3> Ammonia Tank Isolation and vent valve Owner is requested to confirm Bidder's understanding about critical instruments and inform critical signals for existing tank IO's. | | |