

Ref: LTCD/CP09/WET/WSD/VBS/20-21/27

Date: 22/05/2020

To

**The Executive Engineer
K-1 Division
Bangalore Water Supply and Sewerage Board,
Kapila Bhavan
4th T Block, Jayanagar
Bangalore-82
Karnataka**

Dear Sir,

Sub: City Trunk Main along Eastern Route, CP-09 under JICA loan Id P266 – Submission of Revised QAP, Method Statement and Other Document for MS Plate welded Pipes Fabrication, Internal Food Grade Epoxy lining and External cement coating Reg

Ref:

1. Contract Agreement No. BWSSP-III/CP-09/01/2019-2020 Dt: 03/01/2020
2. Letter of Commencement: No. BWSSB/CE (K) / ACE (K-2)/TA-11/AE-2 /2747/2019-20 dt; 22.01.2020
3. Our Letter LTCD/CP09/WET/WSD/VBS/20-21/08 Dt: 29-04-2020
4. Your letter BWSSB/EE (K-1) /AEE (K-1)-1/AE/40/2020-21 Dt: 13-05-2020

With respect to the subject and your letter cited above vide reference 4, we are hereby submitting the revised QAP and Method statement for Manufacturing of MS Plate welded pipes, internal food grade epoxy lining and external cement coating and associated WPS, PQR and formats as per the list enclosed in Annexure -1 with incorporating changes for some of observations and with our point wise reply vide Annexure II for your kind reference and approval.

This is for your information and needful action for the approval at the earliest.

Thanking you and assuring you of our best services.

Yours Faithfully,

**For LARSEN & TOUBRO LIMITED
Water and Effluent Treatment IC**



(V BALASUBRAMANIAN)
Project Manager
CP-09, City Trunk Main Along Eastern Route

Enclosed: 1) Manufacturing Procedure of MS Plate Welded pipes (Bare Pipes)
2) QAP for MS Plate Welded pipes (Bare Pipes)
3) Method Statement for MS Pipe Internal Food Grade Epoxy Lining
4) QAP for MS Pipe Internal Food Grade Epoxy Lining
5) Method Statement of MS pipe External Cement Coating
6) QAP for MS Pipe External Cement Coating
7) Other Document as per Annexure -1 (list of other associated documents)
8) Annexure 2 Point wise response on observation Annexure

CC: CC: The Chief Engineer (K), Cauvery Bhavan, Bangalore: for kind information
CC: M/s ONTB, Bangalore: for kind information

Annexure-2		
Sl.NO	BWSSB Comment	L&T Reply
1)	Both in the Method statement and QAP for MS pipes, MS plate Grade is mentioned as GR-E-250 BR, it should be of Gr-E-250 B0 confirming to IS 2062:2011 hence same may be corrected accordingly	As per the contract clause 1.4, Section VI of work requirement, the minimum and Maximum temperature of the project site is 11 and 36 degree respectively. Mechanical and chemical properties of Grade BR and B0 are same as per IS 2062 : 2011. The requirement of B0 grade steel is to conduct impact test at 0 centigrade whereas BR is at room temperature. Since, our project site temperature does not come under 11 degree centigrade, hence BR grade may be considered.
2)	In the MS pipe manufacturing and Internal epoxy coating Quality Assurance Plans (QAP) outer Dia.(OD) of bare pipe is mentioned as 1310 mm, it should be corrected as 1319mm for 9 mm thickness pipe.	Corrected
3)	In the MS pipe QAP, under BWSSB/ontb column for some of the activities it is mentioned as RC, but no abbreviation given for the same in the QAP, Abbreviation may be mentioned for RC in QAP for clear understanding.	Corrected
4)	Random witness(RW) and Random check(RC) should be around 5% to 10% minimum; same required to be mentioned in the MS pipe manufacture, internal epoxy coating and external CM guniting QAPs	Corrected and mentioned as 5% to 10%
5)	In the Method statement for manufacture of MS pipes, Metallurgical history should be included under Records of MS plate Inspections as material produced by re-rolling finished products (virgin or used or scrap) or by rolling material for which the metallurgical history is not fully documented or not known are not acceptable as per IS 2062:2011 standard.	In the records section of Pipe manufacturing procedure, MTC has been incorporated for metallurgical history of raw material
6)	In the QAP for external guniting of MS pipes, Outer Dia. Of MS pipes after guniting are mentioned wrongly, it should be corrected as below; 863mm 1065mm 1369mm 1673mm 2279mm	Corrected
7)	Compressive strength test of concrete shall be conducted on 150mm cubes in accordance with IS: 516. The number of tests shall be at least 4 cubes for each age and each water cement ratio for each day's work. The concrete mix shall have a minimum characteristic compressive strength of 25N/sq.mm at 28 days. This should be mentioned in the method statement.	The purpose of Guniting is for protection of External pipe surface only and mix proportion of Guniting is 1:3. The compressive strength may not achieve 25N/sqmm. Also, as per IS 3589, the compressive strength is required for lining only and not for Guniting works. Hence, point should be re-checked and eliminated
8)	Pipe Length is mentioned as 4 to 12.5 m in QAPs, it should be 7.5 to 12.5m as per contract to reduce no. of field joints. Hence same may be corrected.	As per contract clause 5.3.3 of Section VI, work requirement, it is mentioned that the permissible variation in the Pipe lengths shall be in accordance with IS 3589 and same has been considered as per the clause 12.4 of IS 3589:2001.
9)	MS pipe quantities mentioned in the QAPs are based on BOQ, are tentative actual quantity shall be as per approved pipeline construction drawing based on topo-survey conducted by the contractor.	Noted
10)	Manufacturing of MS pipes is critical activity, hence, specific and detailed Health and Safety Plan should be part of the MS pipe manufacturing methodology.	We have submitted the detailed Health and safety plan incorporating this activity vide letter LTCD/CP-09/WET/WSD/VBS/20-21/06 Dt: 27.04.2020
11)	To minimise the water usage during hydrotest, it is necessary to reuse the water after each hydrotest. Hence, this is required to be mentioned in the method statement.	Noted and incorporated
12)	Capacity of wire rope slings/nylon lifting belt is mentioned as a 5-10MT for lifting the MS pipes in the method statements, but weight of the 2200mm Dia- 12.5m Length MS pipe will be about 15MT, Hence proposed capacity of the wire rope slings/nylon lifting belt are not adequate, hence same required to be increased.	Noted and incorporated
13)	In the MS pipe manufacturing method statements, hydrotest activity is mentioned before Radiography Test under sequence of works, but Radiography Test should be conducted before hydrotest. Hence same may be corrected.	Noted and incorporated
14)	In the MS pipe internal food epoxy lining QAP, acceptance criteria for pull of adhesion test (SR no:5.3) is mentioned as no peeling or removal along incisions. Same may be modified as "No peeling or removal along incisions even at the minimum pull of 800 Psi".	Noted and incorporated



