

**GOVERNMENT OF GOA  
QUALITY CONTROL LABORATORY  
WATER RESOURCES DEPARTMENT**

**TEST REPORT NO.: WRD/Q.C./F.6-4/AGGR-T-9572 & 9573, SAND-T: 4995 & 4996, CEMENT-T-1148/LAB/ 464 /2019-20 DT:02/ 03//2020** Laboratory: Bicholim  
Sub Div: V (QC)/WRD/Bicholim Goa.

**Sub:** Construction of Barrage and up gradation of Raw water pumping station at Ganjem on Mhadei river for augmentation of raw water for Opa water works Part III. Construction of bank protection wall on upstream of Barrage at Ganjem

**Ref to requisition No:** SDII/WDVI/WRD /F.62/2019-20/441 Dated: 24-02-2020

**Qty. Received:** 1 bags each **Date of Receipt:** 25/02/2020 **Tested on:** 26 & 27/02/2020 **Ref to Specification:** CPWD 2009, Vol. I&IS: 4031-4-1988

**Sample:** 20mm, 12.50 mm size aggrt, M.Sand, Coarse sand, Dalmia cement, 43 grade **O.S. No.** 1821 To 1825 /AF **Lab. Sample No.** 8044 To 8048 **Tested by:** Mr. Anil R. Fadte, JE.

**R E P O R T 01 OF 01**

Sr. No.	Description of sample	Tested for	Results	Max. /Min. value permissible	Remarks
1.	<b><u>20 mm Size Aggregate:</u></b>	Particle size distribution:	It is single sized aggregate of 20 mm nominal size.	(Qty. rep. – m <sup>3</sup> )	
2.	<b><u>12.5 mm Size Aggregate:</u></b>	Particle size distribution:	It is not single sized aggregate of 12.5 mm nominal size.	(Qty. rep. – m <sup>3</sup> )	
<b><u>REMARK:</u></b> After blending 20 mm aggregate with 12.5 mm aggregates at the ratio of <u>1:2</u> by weight; it is Satisfying the required criteria for graded aggregate of 20 mm nominal size.					
3.	<b><u>M. Sand:</u></b>	i) Silt & Clay by S.A. method	: - 9.40%	<b>( Limit of Deleterious material is 15.00% for crushed sand)</b>	
		ii) Silt by sedimentation	: - 11.36%		
		iii) Fineness Modulus	: - 3.16		
		iv) Grading Zone	: - I		
<b><u>REMARK:</u></b> The observed results are within the permissible limits for crushed sand (Fine Aggregate) vide table 2 of IS 383: 2016(Clause 5.2.1).					
4.	<b><u>Coarse Sand:</u></b>	i) Silt & Clay by S.A. method	: - 4.40%		
		ii) Silt by sedimentation	: - 5.95%		
		iii) Fineness Modulus	: - 2.49		
		iv) Grading Zone	: - II		
<b><u>REMARK:</u></b> The observed results are within the permissible limits of the coarse sand.					
5.	<b><u>Cement:</u></b>	i) Fineness of Cement	: 1.30%	----- (It should not be more than 10%)	
	Dalmia cement,43grade, bearing IS:269	ii) Consistency of cement	: 31.00%	(It should be in the neighborhood of 35%)	
	CM/L =6200022577 Qty. rep. –bags	iii) Initial Setting Time	: 160 minutes	---- (It should not be less than 30 minutes)	
	Manuf. date: Week 05, Month 02, Year’2020.	iv) Final Setting Time	: 330 minutes	-- (It should not be more than 600 minutes)	
<b>REMARK:</b> The observed results are within the permissible limit for Ordinary Portland cement.					

Copy to: 1. The Assistant Engineer, SDII, WDVI, WRD, Valpoi-Sattari- Goa.

2. Copy Submitted to The Superintending Engineer, CPO, WRD, Porvorim – Goa for kind information.

3. Copy Submitted to The Executive Engineer, W.D.VI, WRD, Bicholim – Goa.

4. Q.C. Lab file

5. Bill File

**Junior Engineer**

**Assistant Engineer**

