# GOVERNMENT OF GOA QUALITY CONTROL LABORATORY WATER RESOURCES DEPARTMENT

Test Report No.: WRD/QC/F.6-2/Cube -T : 9390 To 9400, 9411 To 9416, 9418 To 9425,9434 To 9441,9456 To 9458./ Lab / **07** / 2020 - 21 Dated: 16 / 04/ 2020

Laboratory: Bicholim-Goa / Sub Division V (QC)/WRD/ Bicholim-Goa.

Name of Work: - 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 Reg. Construction of Barrage, providing and laying 1000 mm dia. D.I. pipe Rising main and Break Pressure Tank at Ganjem in Sattari Taluka.

Ref. to Reguisition No.: WRD/WDVI/SD I /F.W.215/2019-20/ 785 Dated :- 30-03-2020

Qty. Recived.: 36 Sets of cube Date of Receipt: -30/03/2020. Tested on:- 02/04/2020 To 14/04/2020 as per due dates. Ref to CPWD: 2009, Vol. I

Sample: RCC 1:1.5:3 Mix O.S No.: 721,722,729,731,732,737,738,743/SP. Lab. Sample No.: 8520 To 8555 Tested By: - Mr. S.M. Patri., A.E.

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SR.NO.	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value permissable	% above or below	REMARK
1 1	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-1, forth lift.	28th day compressive strength Average	276.36 255.97 301.28 <b>277.87</b>	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.86	Represents Qty. 13.50 Cum.
1 )	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-1, forth lift.	28th day compressive strength Average	305.81 287.69 260.51 <b>284.67</b>	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	7.42	Represents Qty. 13.50 Cum.
1 3	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-2, forth lift.	28th day compressive strength Average	269.57 310.34 292.22 <b>290.71</b>	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	9.70	Represents Qty. 13.50 Cum.
1 4	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-2, forth lift.	28th day compressive strength Average	251.44 303.55 283.16 <b>279.38</b>	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	5.43	Represents Qty. 13.50 Cum.
1 5	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-3 , forth lift.	28th day compressive strength Average	265.04 287.69 310.34 <b>287.69</b>	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.56	Represents Qty. 13.50 Cum.

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SR.NO.	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value	% above or	REMARK
JK.NO.	DISCRIPTION OF SAIVIPLE	TESTED FOR			permissable	<del>below</del>	REIVIARR
6	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 05/03/2020. RCC for Pier P-3 , forth lift.	28th day	271.83	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.85	
		compressive	294.48	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
		strength	299.01	Kg/Cm <sup>2</sup>			Represents Qty. 13.30 cum.
		Average	288.44	Kg/Cm <sup>2</sup>			
		28th day	289.95	Kg/Cm <sup>2</sup>		7.99	Represents Qty. 13.50 Cum.
7	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	283.16	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
,	cast on 06/03/2020. RCC for Pier P-4 , forth lift.	strength	285.42	Kg/Cm <sup>2</sup>	203.00 kg/cm	7.55	Represents Qty. 13.30 cam.
		Average	286.18	Kg/Cm <sup>2</sup>			
		28th day	287.69	Kg/Cm <sup>2</sup>			
8	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	301.28	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.85	Represents Qty. 13.50 Cum.
	cast on 06/03/2020. RCC for Pier P-4 , forth lift.	strength	276.36	Kg/Cm <sup>2</sup>	203.00 Kg/CIII		
		Average	288.44	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 06/03/2020. RCC for retaining wall on LHS, D/ s floor third lift.	28th day	305.81	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	7.71	Represents Qty. 20.00 Cum.
9		compressive	258.24	Kg/Cm <sup>2</sup>			
		strength	292.22	Kg/Cm <sup>2</sup>			
		Average	285.42	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 06/03/2020. RCC for retaining wall on LHS, D/ s floor third lift.	28th day	262.77	Kg/Cm <sup>2</sup>		6.85	Represents Qty. 20.00 Cum.
10		compressive	289.95	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
		strength	296.75	Kg/Cm <sup>2</sup>			
		Average	283.16	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 06/03/2020. RCC for retaining wall on LHS, D/ s floor third lift.	28th day	301.28	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	6.57	Represents Qty. 20.00 Cum.
11		compressive	276.36	Kg/Cm <sup>2</sup>			
		strength	269.57	Kg/Cm <sup>2</sup>			
	, ·	Average	282.40	Kg/Cm <sup>2</sup>			
		28th day	285.42	Kg/Cm <sup>2</sup>	  -	10.84	Represents Qty. 13.50 Cum.
12	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	289.95	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
	cast on 09/03/2020. RCC for Pier P-1 , fifth lift.	strength	305.81	Kg/Cm <sup>2</sup>			
		Average	293.73	Kg/Cm <sup>2</sup>			
13	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 09/03/2020. RCC for Pier P-1 , fifth lift.	28th day	314.87	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	10.84	Represents Qty. 13.50 Cum.
		compressive	287.69	Kg/Cm <sup>2</sup>			
		strength	278.63	Kg/Cm <sup>2</sup>			
		Average	293.73	Kg/Cm <sup>2</sup>			

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SR.NO.	DISCRIPTION OF SAMPLE	TESTED FOR	RES	SULTS	Max./Min.Value permissable	% above or below	REMARK
		28th day	310.34	Kg/Cm <sup>2</sup>			
14	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	283.16	Kg/Cm <sup>2</sup>	265 00 K = /6 m <sup>2</sup>	0.05	Poprocents Oty 12 FO Cum
	cast on 09/03/2020. RCC for Pier P-2, fifth lift.	strength	271.83	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.85	Represents Qty. 13.50 Cum.
		Average	288.44	Kg/Cm <sup>2</sup>			
		28th day	299.01	Kg/Cm <sup>2</sup>			
15	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	287.69	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	10.27	Poprocents Oty 12 FO Cum
15	cast on 09/03/2020. RCC for Pier P-2 , fifth lift.	strength	289.95	Kg/Cm <sup>2</sup>	265.00 kg/Cm	10.27	Represents Qty. 13.50 Cum.
		Average	292.22	Kg/Cm <sup>2</sup>			
		28th day	289.95	Kg/Cm <sup>2</sup>			
16	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	280.89	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.85	Represents Qty. 13.50 Cum.
10	cast on 09/03/2020. RCC for Pier P-3 , fifth lift.	strength	294.48	Kg/Cm <sup>2</sup>	265.00 kg/Cm		
		Average	288.44	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 09/03/2020. RCC for Pier P-3 , fifth lift.	28th day	285.42	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
17		compressive	280.89	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	9.70	
1/		strength	305.81	Kg/Cm <sup>2</sup>			
		Average	290.71	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 11/03/2020. RCC for Pier P-4 , fifth lift.	28th day	255.97	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.29	Represents Qty. 13.50 Cum.
18		compressive	296.75	Kg/Cm <sup>2</sup>			
		strength	276.36	Kg/Cm <sup>2</sup>			
		Average	276.36	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 11/03/2020. RCC for Pier P-4 , fifth lift.	28th day	301.28	Kg/Cm <sup>2</sup>		5.43	Represents Qty. 13.50 Cum.
19		compressive	249.18	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
		strength	287.69	Kg/Cm <sup>2</sup>			
		Average	279.38	Kg/Cm <sup>2</sup>			
		28th day	258.24	Kg/Cm <sup>2</sup>			
20	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	294.48	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	5.43	Represents Qty. 13.50 Cum.
20	cast on 12/03/2020. RCC for Pier P-1 , Sixth lift.	strength	285.42	Kg/Cm <sup>2</sup>	205.00 kg/Cili		
		Average	279.38	Kg/Cm <sup>2</sup>			
		28th day	262.77	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	6.85	Represents Qty. 13.50 Cum.
21	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 12/03/2020. RCC for Pier P-1 , Sixth lift.	compressive	294.48	Kg/Cm <sup>2</sup>			
		strength	292.22	Kg/Cm <sup>2</sup>			
		Average	283.16	Kg/Cm <sup>2</sup>			

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SR.NO.	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value	% above or	REMARK
SK.NO.					permissable	<del>below</del>	KLIVIAKK
22	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 12/03/2020. RCC for Pier P-2, Sixth lift.	28th day	269.57	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.57	
		compressive	274.10	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
		strength	287.69	Kg/Cm <sup>2</sup>			represents Qty. 15.50 cum.
		Average	277.12	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix 1:1.5:3,	28th day	292.22	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
23		compressive	265.04	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	7.99	
23	cast on 12/03/2020. RCC for Pier P-2, Sixth lift.	strength	301.28	Kg/Cm <sup>2</sup>	203.00 Ng/CIII		
		Average	286.18	Kg/Cm <sup>2</sup>			
		28th day	296.75	Kg/Cm <sup>2</sup>			
24	Reinforced Cement concrete cube of mix 1:1.5:3,	compressive	251.44	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.00	Represents Qty. 13.50 Cum.
24	cast on 12/03/2020. RCC for Pier P-3, Sixth lift.	strength	278.63	Kg/Cm <sup>2</sup>	265.00 kg/Cm	4.00	Represents Qty. 13.50 Cum.
		Average	275.61	Kg/Cm <sup>2</sup>			
		28th day	267.30	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
25	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 12/03/2020. RCC for Pier P-3 , Sixth lift.	compressive	276.36	Kg/Cm <sup>2</sup>	265 00 Kg/cm <sup>2</sup>	4.86	
23		strength	289.95	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
		Average	277.87	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 13/03/2020. RCC for Pier P-4 , Sixth lift.	28th day	249.18	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.86	Represents Qty. 13.50 Cum.
26		compressive	280.89	Kg/Cm <sup>2</sup>			
20		strength	303.55	Kg/Cm <sup>2</sup>			
		Average	277.87	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 13/03/2020. RCC for Pier P-4 , Sixth lift.	28th day	305.81	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	8.28	Represents Qty. 13.50 Cum.
27		compressive	301.28	Kg/Cm <sup>2</sup>			
2/		strength	253.71	Kg/Cm <sup>2</sup>			
		Average	286.93	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-1 , Seventh lift.	28th day	267.30	Kg/Cm <sup>2</sup>	265 00 K /0 - 2		Represents Qty. 13.50 Cum.
28		compressive	276.36	Kg/Cm <sup>2</sup>		4.29	
20		strength	285.42	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		
		Average	276.36	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-1 , Seventh lift.	28th day	287.69	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	7.14	Represents Qty. 13.50 Cum.
29		compressive	274.10	Kg/Cm <sup>2</sup>			
		strength	289.95	Kg/Cm <sup>2</sup>			
		Average	283.91	Kg/Cm <sup>2</sup>			
30	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-2 , Seventh lift.	28th day	269.57	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>		Represents Qty. 13.50 Cum.
		compressive	280.89	Kg/Cm <sup>2</sup>		6.00	
		strength	292.22	Kg/Cm <sup>2</sup>			
		Average	280.89	Kg/Cm <sup>2</sup>			

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SR.NO.	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value permissable	% above or below	REMARK
31	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-2 , Seventh lift.	28th day compressive strength	267.30 278.63 301.28	Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup> Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	6.57	Represents Qty. 13.50 Cum.
		Average	282.40	Kg/Cm <sup>2</sup>			
		28th day	299.01	Kg/Cm <sup>2</sup>			Represents Qty. 13.50 Cum.
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-3, Seventh	compressive	319.40	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	10.84	
	lift.	strength	262.77	Kg/Cm <sup>2</sup>	265.00 kg/Ciii		
		Average	293.73	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2020. RCC for Pier P-3 , Seventh lift.	28th day	317.14	Kg/Cm <sup>2</sup>		9.42	Represents Qty. 13.50 Cum.
		compressive	299.01	Kg/Cm <sup>2</sup>	265 00 K-/6 <sup>2</sup>		
		strength	th 253.71 Kg/Cm <sup>2</sup> 265.00 Kg/Cm <sup>2</sup>	9.42	Represents Qty. 13.30 cum.		
		Average	289.95	Kg/Cm <sup>2</sup>			
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 17/03/2020. RCC for retaining wall on LHS, D/ s floor Forth lift.	28th day	269.57	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	6.85	Represents Qty. 20.00 Cum.
		compressive	278.63	Kg/Cm <sup>2</sup>			
		strength	301.28	Kg/Cm <sup>2</sup>			
		Average	283.16	Kg/Cm <sup>2</sup>	1		
	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 17/03/2020. RCC for retaining wall on LHS, D/s floor Forth lift.	28th day	303.55	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	4.86	Represents Qty. 20.00 Cum.
		compressive	276.36	Kg/Cm <sup>2</sup>			
35		strength	253.71	Kg/Cm <sup>2</sup>			
		Average	277.87	Kg/Cm <sup>2</sup>			
36	Reinforced Cement concrete cube of mix <b>1:1.5:3</b> , cast on 17/03/2020. RCC for retaining wall on LHS, D/s floor Forth lift.	28th day	267.30	Kg/Cm <sup>2</sup>	265.00 Kg/Cm <sup>2</sup>	6.00	Represents Qty. 20.00 Cum.
		compressive	294.48	Kg/Cm <sup>2</sup>			
		strength	280.89	Kg/Cm <sup>2</sup>			
		Average	280.89	Kg/Cm <sup>2</sup>			

- 1.Copy to: The Assistant Engineer SD I, WD VI, WRD, Bicholim Goa.
- 2. Copy submitted to:The Superintending Engineer ,CPO,WRD, Sinchai Bhavan, Porvorim Goa. For kind Information.
- 3. Copy submitted to:The Executive Engineer ,WDVI,WRD, Bicholim-Goa.
- 4. QC Lab File. 5. Bill File.

Junior Engineer

**Assistant Engineer**