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Lampiran 1 Data Tinggi Muka Air

PENAMPANG S.0 - Q3

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P-4cm	T1	3.87	3.87	3.87	3.87	0.77
	T2	2.93	2.93	2.93	2.93	0.59
	T3	2.64	2.64	2.64	2.64	0.53
	T4	3.21	3.48	2.80	3.16	0.63
	T5	2.38	2.77	2.49	2.55	0.51
	T6	2.36	2.80	3.30	2.82	0.56
	T7	2.80	3.01	3.33	3.05	0.61
	T8	2.90	3.07	2.44	2.80	0.56
	T9	2.69	1.69	0.98	1.79	0.36

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P0cm	T1	4.02	4.02	4.02	4.02	0.80
	T2	3.02	3.02	3.02	3.02	0.60
	T3	2.82	2.82	2.82	2.82	0.56
	T4	3.16	3.44	3.05	3.21	0.64
	T5	2.42	2.33	2.41	2.39	0.48
	T6	2.30	3.06	3.36	2.91	0.58
	T7	2.87	2.78	3.20	2.95	0.59
	T8	3.09	3.02	2.61	2.90	0.58
	T9	1.83	1.69	1.86	1.80	0.36

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P2cm	T1	4.29	4.29	4.29	4.29	0.86
	T2	3.82	3.82	3.82	3.82	0.76
	T3	3.86	3.86	3.86	3.86	0.77
	T4	4.22	4.16	4.21	4.19	0.84
	T5	3.58	3.72	3.73	3.68	0.74
	T6	4.31	4.31	4.48	4.37	0.87
	T7	4.29	4.35	4.47	4.37	0.87
	T8	4.36	4.34	4.41	4.37	0.87
	T9	3.92	4.09	4.12	4.05	0.81

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P4cm	T1	5.82	5.82	5.82	5.82	1.16
	T2	5.78	5.78	5.78	5.78	1.16
	T3	5.55	5.55	5.55	5.55	1.11
	T4	6.10	5.95	5.95	6.00	1.20
	T5	5.55	5.47	5.53	5.52	1.10
	T6	6.10	6.13	6.20	6.14	1.23
	T7	6.34	6.40	6.30	6.35	1.27
	T8	6.13	6.24	6.34	6.23	1.25
	T9	6.06	5.85	5.93	5.95	1.19

PENAMPANG S.0 - Q2

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P-4cm	T1	3.49	3.49	3.49	3.49	0.70
	T2	2.62	2.62	2.62	2.62	0.52
	T3	2.46	2.46	2.46	2.46	0.49
	T4	2.75	2.76	2.36	2.62	0.52
	T5	2.12	1.77	2.02	1.97	0.39
	T6	2.38	2.78	2.76	2.64	0.53
	T7	2.53	2.30	2.81	2.55	0.51
	T8	2.72	2.58	2.30	2.53	0.51
	T9	1.49	1.49	1.53	1.51	0.30

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P0cm	T1	3.87	3.87	3.87	3.87	0.77
	T2	2.93	2.93	2.93	2.93	0.59
	T3	2.64	2.64	2.64	2.64	0.53
	T4	3.21	3.48	2.80	3.16	0.63
	T5	2.38	2.77	2.49	2.55	0.51
	T6	2.36	2.70	3.30	2.79	0.56
	T7	2.80	3.01	3.53	3.11	0.62
	T8	2.80	3.07	2.44	2.77	0.55
	T9	1.69	1.49	0.98	1.39	0.28

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P2cm	T1	4.09	4.09	4.09	4.09	0.82
	T2	3.69	3.69	3.69	3.69	0.74
	T3	3.70	3.70	3.70	3.70	0.74
	T4	3.96	3.99	3.89	3.94	0.79
	T5	3.56	3.54	3.58	3.56	0.71
	T6	4.21	4.36	4.41	4.33	0.87
	T7	4.39	4.44	4.45	4.43	0.89
	T8	4.14	4.10	4.27	4.17	0.83
	T9	3.85	3.87	4.00	3.91	0.78

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P4cm	T1	5.59	5.59	5.59	5.59	1.12
	T2	5.34	5.34	5.34	5.34	1.07
	T3	5.24	5.24	5.24	5.24	1.05
	T4	5.77	5.86	5.41	5.68	1.14
	T5	5.13	5.07	5.12	5.11	1.02
	T6	5.86	5.95	5.98	5.93	1.19
	T7	5.90	5.88	5.94	5.91	1.18
	T8	5.99	6.03	6.09	6.03	1.21
	T9	5.48	5.54	5.68	5.57	1.11

PENAMPANG S.0 - Q1

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P-4cm	T1	3.19	3.19	3.19	3.19	0.64
	T2	2.38	2.38	2.38	2.38	0.48
	T3	2.24	2.24	2.24	2.24	0.45
	T4	2.47	2.22	2.21	2.30	0.46
	T5	1.73	1.73	1.58	1.68	0.34
	T6	1.80	1.80	2.46	2.02	0.40
	T7	2.44	2.44	2.53	2.47	0.49
	T8	2.34	2.34	2.16	2.28	0.46
	T9	1.25	1.10	1.87	1.41	0.28

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P0cm	T1	3.20	3.20	3.20	3.20	0.64
	T2	2.51	2.51	2.51	2.51	0.50
	T3	2.19	2.19	2.19	2.19	0.44
	T4	2.36	2.55	2.06	2.32	0.46
	T5	1.82	1.90	1.70	1.81	0.36
	T6	2.55	2.51	2.65	2.57	0.51
	T7	1.93	2.40	2.63	2.32	0.46
	T8	2.19	2.34	2.21	2.24	0.45
	T9	1.95	2.18	1.42	1.85	0.37

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P2cm	T1	3.69	3.69	3.69	3.69	0.74
	T2	3.28	3.28	3.28	3.28	0.66
	T3	3.12	3.12	3.12	3.12	0.62
	T4	3.64	3.41	3.65	3.56	0.71
	T5	3.02	3.15	3.15	3.11	0.62
	T6	3.74	3.83	3.91	3.83	0.77
	T7	3.79	3.90	4.05	3.91	0.78
	T8	3.71	3.88	3.94	3.84	0.77
	T9	3.47	3.50	3.62	3.53	0.71

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P4cm	T1	5.43	5.43	5.43	5.43	1.09
	T2	5.21	5.21	5.21	5.21	1.04
	T3	5.23	5.23	5.23	5.23	1.05
	T4	5.46	5.38	5.36	5.40	1.08
	T5	4.99	4.97	5.01	4.99	1.00
	T6	5.64	5.60	5.58	5.61	1.12
	T7	5.65	5.64	5.65	5.65	1.13
	T8	5.65	5.69	5.67	5.67	1.13
	T9	5.31	5.34	5.41	5.36	1.07

PENAMPANG S.10 - Q3

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P-4cm	T1	3.87	3.92	3.89	3.90	0.78
	T2	3.53	3.61	3.62	3.59	0.72
	T3	2.98	3.06	3.28	3.11	0.62
	T4	3.26	3.36	3.71	3.44	0.69
	T5	2.70	2.84	2.87	2.81	0.56
	T6	3.39	3.43	3.58	3.47	0.69
	T7	3.56	3.08	2.47	3.04	0.61
	T8	2.54	2.97	3.14	2.88	0.58
	T9	1.54	1.69	1.29	1.51	0.30

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P0cm	T1	3.74	3.85	3.91	3.84	0.77
	T2	3.53	3.61	3.56	3.57	0.71
	T3	2.99	3.16	3.23	3.13	0.63
	T4	3.24	3.45	3.53	3.40	0.68
	T5	2.80	2.75	2.89	2.82	0.56
	T6	3.46	3.58	3.45	3.50	0.70
	T7	3.57	3.16	2.50	3.08	0.62
	T8	2.57	2.90	3.12	2.86	0.57
	T9	1.18	1.60	1.28	1.36	0.27

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P2cm	T1	4.39	4.44	4.58	4.47	0.89
	T2	4.14	4.13	4.13	4.14	0.83
	T3	3.89	3.86	3.91	3.89	0.78
	T4	4.07	4.27	4.22	4.18	0.84
	T5	3.69	3.82	3.79	3.77	0.75
	T6	4.56	4.39	4.29	4.41	0.88
	T7	4.47	4.36	4.30	4.38	0.88
	T8	4.27	4.33	4.33	4.31	0.86
	T9	4.05	3.97	3.79	3.94	0.79

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P4cm	T1	5.80	5.89	5.94	5.88	1.18
	T2	6.21	6.21	5.76	6.06	1.21
	T3	5.32	5.42	5.51	5.42	1.08
	T4	5.64	5.86	5.87	5.79	1.16
	T5	5.34	5.43	5.25	5.34	1.07
	T6	6.20	6.03	5.89	6.04	1.21
	T7	6.07	6.03	5.83	5.98	1.20
	T8	6.04	6.06	6.05	6.05	1.21
	T9	5.84	5.64	5.61	5.70	1.14

PENAMPANG S.10 - Q2

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P-4cm	T1	3.35	3.50	3.54	3.47	0.69
	T2	3.00	3.02	2.99	3.01	0.60
	T3	2.08	2.73	2.76	2.52	0.50
	T4	2.76	2.92	2.95	2.87	0.57
	T5	2.26	2.39	2.37	2.34	0.47
	T6	3.18	3.06	3.22	3.15	0.63
	T7	3.11	3.00	2.62	2.91	0.58
	T8	2.32	2.97	2.72	2.67	0.53
	T9	1.32	1.48	1.21	1.34	0.27

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P0cm	T1	3.44	3.49	3.57	3.50	0.70
	T2	3.05	2.94	3.07	3.02	0.60
	T3	2.56	2.81	2.81	2.73	0.55
	T4	2.77	3.02	3.04	2.94	0.59
	T5	2.26	2.25	2.44	2.32	0.46
	T6	3.28	3.15	3.18	3.20	0.64
	T7	3.10	3.01	2.73	2.95	0.59
	T8	2.33	2.72	2.66	2.57	0.51
	T9	1.11	1.43	0.99	1.18	0.24

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P2cm	T1	4.00	4.19	4.29	4.16	0.83
	T2	3.90	3.92	3.79	3.87	0.77
	T3	3.48	3.64	3.66	3.59	0.72
	T4	3.84	4.05	4.08	3.99	0.80
	T5	3.48	3.52	3.47	3.49	0.70
	T6	4.17	3.59	4.20	3.99	0.80
	T7	4.25	4.17	4.11	4.18	0.84
	T8	4.33	4.22	3.97	4.17	0.83
	T9	4.03	3.76	3.75	3.85	0.77

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P4cm	T1	5.44	5.56	5.71	5.57	1.11
	T2	5.25	5.31	5.14	5.24	1.05
	T3	4.98	5.11	5.25	5.11	1.02
	T4	5.79	5.57	5.72	5.69	1.14
	T5	5.27	4.98	4.99	5.08	1.02
	T6	5.85	5.83	5.68	5.79	1.16
	T7	5.75	5.77	5.73	5.75	1.15
	T8	5.74	5.72	5.65	5.70	1.14
	T9	5.43	5.41	5.21	5.35	1.07

PENAMPANG S.10 - Q1

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P-4cm	T1	2.79	2.95	3.01	2.92	0.58
	T2	2.41	2.57	2.53	2.51	0.50
	T3	2.20	2.28	2.18	2.22	0.44
	T4	2.33	2.34	2.34	2.33	0.47
	T5	1.85	1.60	1.94	1.80	0.36
	T6	2.70	2.55	2.50	2.58	0.52
	T7	2.55	2.35	2.22	2.37	0.47
	T8	1.89	2.38	2.23	2.16	0.43
	T9	0.92	1.11	0.98	1.01	0.20

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P0cm	T1	2.82	2.94	2.95	2.91	0.58
	T2	2.51	2.52	2.55	2.53	0.51
	T3	2.19	2.25	2.22	2.22	0.44
	T4	2.24	2.32	2.53	2.36	0.47
	T5	2.24	1.75	1.84	1.95	0.39
	T6	2.86	2.75	2.50	2.70	0.54
	T7	2.54	2.34	2.27	2.38	0.48
	T8	2.50	2.49	2.15	2.38	0.48
	T9	1.23	1.18	1.18	1.20	0.24

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P2cm	T1	2.82	2.94	2.95	2.91	0.58
	T2	2.51	2.52	2.55	2.53	0.51
	T3	2.19	2.25	2.22	2.22	0.44
	T4	2.24	2.32	2.53	2.36	0.47
	T5	2.24	1.75	1.84	1.95	0.39
	T6	2.86	2.75	2.50	2.70	0.54
	T7	2.54	2.34	2.27	2.38	0.48
	T8	2.50	2.49	2.15	2.38	0.48
	T9	1.23	1.18	1.18	1.20	0.24

Variasi Penelitian	Titik	Tinggi Muka Air Peng. (cm)				Tinggi Muka Air Lap. (m)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P4cm	T1	3.60	3.57	3.79	3.66	0.73
	T2	3.28	3.38	3.36	3.34	0.67
	T3	3.17	3.13	3.16	3.15	0.63
	T4	3.31	3.53	3.52	3.45	0.69
	T5	3.12	3.08	3.04	3.08	0.62
	T6	3.80	3.70	3.76	3.75	0.75
	T7	4.04	4.14	3.64	3.94	0.79
	T8	3.83	3.73	3.92	3.82	0.76
	T9	3.65	3.41	3.41	3.49	0.70

Lampiran 2 Data Kecepatan Aliran

PENAMPANG S0 - Q3

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P-4cm	T1	21.34	27.43	24.38	24.38	1.09
	T2	24.38	27.43	27.43	26.42	1.18
	T3	36.58	39.62	33.53	36.58	1.64
	T4	15.24	36.58	30.48	27.43	1.23
	T5	30.48	36.58	15.24	27.43	1.23
	T6	33.53	39.62	9.14	27.43	1.23
	T7	27.43	39.62	18.29	28.45	1.27
	T8	42.67	51.82	48.77	47.75	2.14
	T9	42.67	54.86	51.82	49.78	2.23

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P0cm	T1	21.34	24.38	27.43	24.38	1.09
	T2	24.38	27.43	27.43	26.42	1.18
	T3	36.58	39.62	36.58	37.59	1.68
	T4	24.38	36.58	27.43	29.46	1.32
	T5	30.48	36.58	15.24	27.43	1.23
	T6	33.53	39.62	6.10	26.42	1.18
	T7	33.53	36.58	21.34	30.48	1.36
	T8	42.67	51.82	45.72	46.74	2.09
	T9	39.62	51.82	48.77	46.74	2.09

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P2cm	T1	18.29	24.38	21.34	21.34	0.86
	T2	24.38	27.43	24.38	25.40	0.98
	T3	30.48	33.53	27.43	30.48	1.11
	T4	15.24	30.48	24.38	23.37	0.91
	T5	27.43	30.48	15.24	24.38	0.86
	T6	30.48	27.43	9.14	22.35	0.84
	T7	27.43	30.48	18.29	25.40	0.91
	T8	30.48	36.58	30.48	32.51	1.14
	T9	24.38	30.48	15.24	23.37	0.91

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P4cm	T1	15.24	18.29	18.29	17.27	0.77
	T2	18.29	18.29	18.29	18.29	0.82
	T3	18.29	21.34	18.29	19.30	0.86
	T4	15.24	18.29	18.29	17.27	0.77
	T5	15.24	18.29	9.14	14.22	0.64
	T6	18.29	21.34	6.10	15.24	0.68
	T7	15.24	18.29	12.19	15.24	0.68
	T8	18.29	21.34	15.24	18.29	0.82
	T9	18.29	21.34	12.19	17.27	0.77

PENAMPANG S0 - Q2

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P-4cm	T1	18.29	21.34	21.34	20.32	0.91
	T2	21.34	24.38	24.38	23.37	1.05
	T3	36.58	39.62	33.53	36.58	1.64
	T4	15.24	33.53	27.43	25.40	1.14
	T5	21.34	36.58	12.19	23.37	1.05
	T6	33.53	30.48	6.10	23.37	1.05
	T7	30.48	36.58	15.24	27.43	1.23
	T8	45.72	48.77	42.67	45.72	2.04
	T9	36.58	45.72	42.67	41.66	1.86

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P0cm	T1	21.34	24.38	21.34	22.35	1.00
	T2	21.34	24.38	21.34	22.35	1.00
	T3	33.53	39.62	30.48	34.54	1.54
	T4	9.14	33.53	21.34	21.34	0.95
	T5	27.43	33.53	9.14	23.37	1.05
	T6	30.48	36.58	6.10	24.38	1.09
	T7	21.34	33.53	15.24	23.37	1.05
	T8	39.62	45.72	42.67	42.67	1.91
	T9	33.53	45.72	45.72	41.66	1.86

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P2cm	T1	18.29	21.34	21.34	20.32	0.91
	T2	24.38	24.38	21.34	23.37	1.05
	T3	24.38	27.43	21.34	24.38	1.09
	T4	9.14	24.38	18.29	17.27	0.77
	T5	21.34	30.48	9.14	20.32	0.91
	T6	27.43	24.38	6.10	19.30	0.86
	T7	18.29	27.43	12.19	19.30	0.86
	T8	21.34	30.48	18.29	23.37	1.05
	T9	21.34	27.43	12.19	20.32	0.91

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P4cm	T1	9.14	12.19	9.14	10.16	0.45
	T2	12.19	15.24	15.24	14.22	0.64
	T3	15.24	15.24	15.24	15.24	0.68
	T4	9.14	15.24	12.19	12.19	0.55
	T5	15.24	15.24	6.10	12.19	0.55
	T6	15.24	12.19	6.10	11.18	0.50
	T7	12.19	15.24	9.14	12.19	0.55
	T8	12.19	18.29	12.19	14.22	0.64
	T9	18.29	15.24	12.19	15.24	0.68

PENAMPANG S0 - Q1

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P-4cm	T1	12.19	18.29	15.24	15.24	0.45
	T2	18.29	21.34	18.29	19.30	0.51
	T3	30.48	36.58	9.14	25.40	0.58
	T4	9.14	30.48	18.29	19.30	0.45
	T5	24.38	33.53	12.19	23.37	0.45
	T6	27.43	30.48	3.05	20.32	0.45
	T7	24.38	33.53	9.14	22.35	0.73
	T8	36.58	45.72	33.53	38.61	1.18
	T9	24.38	30.48	33.53	29.46	0.97

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P0cm	T1	15.24	18.29	18.29	17.27	0.45
	T2	18.29	21.34	18.29	19.30	0.51
	T3	27.43	33.53	24.38	28.45	0.73
	T4	9.14	30.48	18.29	19.30	0.51
	T5	21.34	33.53	6.10	20.32	0.51
	T6	27.43	30.48	6.10	21.34	0.51
	T7	18.29	33.53	9.14	20.32	0.67
	T8	33.53	45.72	36.58	38.61	1.12
	T9	24.38	39.62	36.58	33.53	0.94

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P2cm	T1	12.19	15.24	15.24	14.22	0.42
	T2	15.24	18.29	15.24	16.26	0.45
	T3	18.29	21.34	21.34	20.32	0.58
	T4	9.14	18.29	12.19	13.21	0.45
	T5	15.24	21.34	6.10	14.22	0.45
	T6	18.29	21.34	9.14	16.26	0.45
	T7	15.24	18.29	9.14	14.22	0.58
	T8	15.24	24.38	15.24	18.29	0.73
	T9	18.29	21.34	12.19	17.27	0.55

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P4cm	T1	6.10	9.14	9.14	8.13	0.30
	T2	6.10	12.19	9.14	9.14	0.33
	T3	9.14	12.19	9.14	10.16	0.33
	T4	6.10	9.14	9.14	8.13	0.27
	T5	9.14	9.14	6.10	8.13	0.24
	T6	9.14	12.19	3.05	8.13	0.27
	T7	9.14	9.14	6.10	8.13	0.30
	T8	6.10	12.19	6.10	8.13	0.33
	T9	9.14	9.14	6.10	8.13	0.30

PENAMPANG S10 - Q3

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P-4cm	T1	21.34	24.38	24.38	23.37	1.05
	T2	24.38	27.43	24.38	25.40	1.14
	T3	30.48	33.53	30.48	31.50	1.41
	T4	21.34	27.43	24.38	24.38	1.09
	T5	30.48	27.43	15.24	24.38	1.09
	T6	30.48	30.48	6.10	22.35	1.00
	T7	30.48	36.58	30.48	32.51	1.45
	T8	48.77	48.77	51.82	49.78	2.23
	T9	48.77	57.91	54.86	53.85	2.41

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P0cm	T1	21.34	24.38	24.38	23.37	1.05
	T2	24.38	27.43	24.38	25.40	1.14
	T3	33.53	33.53	30.48	32.51	1.45
	T4	24.38	30.48	27.43	27.43	1.23
	T5	30.48	27.43	18.29	25.40	1.14
	T6	30.48	27.43	12.19	23.37	1.05
	T7	30.48	36.58	30.48	32.51	1.45
	T8	42.67	45.72	45.72	44.70	2.00
	T9	51.82	54.86	54.86	53.85	2.41

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P2cm	T1	21.34	24.38	24.38	23.37	1.05
	T2	21.34	27.43	24.38	24.38	1.09
	T3	27.43	30.48	24.38	27.43	1.23
	T4	18.29	27.43	27.43	24.38	1.09
	T5	27.43	27.43	15.24	23.37	1.05
	T6	27.43	30.48	9.14	22.35	1.00
	T7	30.48	33.53	24.38	29.46	1.32
	T8	33.53	36.58	36.58	35.56	1.59
	T9	33.53	39.62	12.19	28.45	1.27

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q3 P4cm	T1	15.24	18.29	18.29	17.27	0.77
	T2	12.19	18.29	18.29	16.26	0.73
	T3	18.29	21.34	18.29	19.30	0.86
	T4	15.24	18.29	18.29	17.27	0.77
	T5	18.29	18.29	12.19	16.26	0.73
	T6	21.34	18.29	6.10	15.24	0.68
	T7	18.29	21.34	15.24	18.29	0.82
	T8	21.34	21.34	18.29	20.32	0.91
	T9	21.34	24.38	9.14	18.29	0.82

PENAMPANG S10 - Q2

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P-4cm	T1	18.29	21.34	21.34	20.32	0.91
	T2	21.34	24.38	21.34	22.35	1.00
	T3	30.48	30.48	24.38	28.45	1.27
	T4	18.29	27.43	21.34	22.35	1.00
	T5	24.38	27.43	15.24	22.35	1.00
	T6	24.38	24.38	6.10	18.29	0.82
	T7	27.43	30.48	24.38	27.43	1.23
	T8	45.72	48.77	51.82	48.77	2.18
	T9	30.48	48.77	45.72	41.66	1.86

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P0cm	T1	18.29	21.34	21.34	20.32	0.91
	T2	21.34	24.38	21.34	22.35	1.00
	T3	30.48	30.48	24.38	28.45	1.27
	T4	18.29	27.43	21.34	22.35	1.00
	T5	27.43	24.38	18.29	23.37	1.05
	T6	30.48	27.43	9.14	22.35	1.00
	T7	30.48	30.48	24.38	28.45	1.27
	T8	42.67	48.77	45.72	45.72	2.04
	T9	36.58	48.77	42.67	42.67	1.91

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P2cm	T1	15.24	18.29	18.29	17.27	0.77
	T2	18.29	21.34	18.29	19.30	0.86
	T3	24.38	24.38	21.34	23.37	1.05
	T4	15.24	18.29	18.29	17.27	0.77
	T5	18.29	21.34	15.24	18.29	0.82
	T6	21.34	24.38	9.14	18.29	0.82
	T7	24.38	27.43	18.29	23.37	1.05
	T8	27.43	33.53	27.43	29.46	1.32
	T9	27.43	30.48	18.29	25.40	1.14

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q2 P4cm	T1	9.14	12.19	12.19	11.18	0.50
	T2	12.19	12.19	12.19	12.19	0.55
	T3	15.24	15.24	15.24	15.24	0.68
	T4	9.14	15.24	12.19	12.19	0.55
	T5	15.24	12.19	9.14	12.19	0.55
	T6	15.24	15.24	6.10	12.19	0.55
	T7	15.24	15.24	12.19	14.22	0.64
	T8	15.24	18.29	15.24	16.26	0.73
	T9	12.19	18.29	9.14	13.21	0.59

PENAMPANG S10 - Q1

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P-4cm	T1	12.19	15.24	18.29	15.24	0.68
	T2	15.24	18.29	18.29	17.27	0.86
	T3	24.38	24.38	9.14	19.30	1.14
	T4	12.19	21.34	12.19	15.24	0.86
	T5	15.24	21.34	9.14	15.24	1.05
	T6	21.34	21.34	3.05	15.24	0.91
	T7	24.38	27.43	21.34	24.38	1.00
	T8	39.62	42.67	36.58	39.62	1.73
	T9	24.38	36.58	36.58	32.51	1.32

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P0cm	T1	12.19	18.29	15.24	15.24	0.77
	T2	15.24	18.29	18.29	17.27	0.86
	T3	27.43	30.48	15.24	24.38	1.27
	T4	12.19	24.38	15.24	17.27	0.86
	T5	21.34	21.34	9.14	17.27	0.91
	T6	24.38	21.34	6.10	17.27	0.95
	T7	21.34	27.43	18.29	22.35	0.91
	T8	36.58	39.62	36.58	37.59	1.73
	T9	24.38	39.62	30.48	31.50	1.50

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P2cm	T1	12.19	15.24	15.24	14.22	0.64
	T2	15.24	15.24	15.24	15.24	0.73
	T3	21.34	21.34	15.24	19.30	0.91
	T4	9.14	18.29	18.29	15.24	0.59
	T5	18.29	18.29	9.14	15.24	0.64
	T6	21.34	18.29	6.10	15.24	0.73
	T7	21.34	21.34	15.24	19.30	0.64
	T8	24.38	27.43	21.34	24.38	0.82
	T9	21.34	24.38	9.14	18.29	0.77

Variasi Penelitian	Titik	Kecepatan Peng. (cm/s)				Kecepatan Lap. (m/s)
		Kiri	Tengah	Kanan	Rata-rata	
Q1 P4cm	T1	9.14	12.19	9.14	10.16	0.36
	T2	9.14	12.19	12.19	11.18	0.41
	T3	12.19	12.19	9.14	11.18	0.45
	T4	6.10	12.19	9.14	9.14	0.36
	T5	9.14	9.14	6.10	8.13	0.36
	T6	12.19	12.19	3.05	9.14	0.36
	T7	12.19	12.19	6.10	10.16	0.36
	T8	12.19	12.19	9.14	11.18	0.36
	T9	9.14	12.19	9.14	10.16	0.36

Lampiran 3 Data Karakteristik Sedimen



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1. Tabel rekap hasil pengujian

SUMMARY TEST RESULTS						
PROJECT : SOIL INVESTIGATION REPORT UJI SEDIMENT RIVER MAROS LOCATION : UJI MODEL STRUCTURE GROIN FLUM LAB HIDRAULIKA UNHAS BORING DEPTH : TESTING METHOD : ASTM & AASTHO SERIES LABORATORY : HASANUDDIN UNIVERSITY REPORTED BY : ZAINAL DATE : MARET 2020						
Number Sample	-	1	2	3	Remarks	
Sample Depth	m					
Specific Gravity (Gs)	-	2.716	2.676	2.665		
Grain Size	D10	%	0.06	0.12	0.05	
	D30	%	0.18	0.35	0.31	
	D60	%	0.40	0.59	0.60	
	Cu	%	6.25	4.81	11.92	
	Cc	%	1.31	1.67	3.20	
USCS Classification						
Atterberg Limit	Liquid Limit (LL)	%	Sp	Sp	Sp	NON PLASTIS NON PLASTIS NON PLASTIS Pasir gradasi buruk, pasir kerikil, sedikit atau tidak mengandung butiran halus.
	Plastic Limit (PL)	%				
	Plasticity Index (PI)	%				
	Shrinkage Limit (SL)	%				



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2. Lampiran data

SPECIFIC GRAVITY TEST RESULTS										
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>PROJECT : SOIL INVESTIGATION REPORT UJI SEDIMENT RIVER MAROS</p> <p>LOCATION : UJI MODEL STRUCTURE GROIN FLUM LAB HIDRAULIKA UNHAS</p> <p>STASIUN : ..</p> <p>BORING DEPTH : ..</p> <p>TESTING METHOD : ASTM D 854-58(72)</p> <p>LABORATORY : HASANUDDIN UNIVERSITY</p> </div> <div style="width: 45%; text-align: right;"> <p>TESTED BY : ZAINAL</p> <p>DATE : MARET 2020</p> </div> </div>										
Bore Hole No. / Type	-	1			2			3		
Sample	-									
Sample Depth & Inclination	m									
Number of Volumetric Flask	-	A	B	A	B	A	B	A	B	
Weight of Vol. Flask + Soil (W2)	Gram	38.37	38.37	32.04	38.42	37.17	40.46			
Weight of Vol. Flask (W1)	Gram	28.37	27.17	22.04	28.42	27.17	30.5			
Weight of Dry Soil (Ws=W2-W1)	Gram	10.00	10.00	10.00	10.00	10.00	10.0			
Temperature, T (oC)	Degree	28.0	28.0	28.0	28.0	28.0	28.0			
Weight of Vol. Flask+Water at T (W4)	Gram	77.35	76.88	72.58	77.94	74.82	78.2			
Weight of Vol. Flask+Water+Soil (W3)	Gram	83.67	83.21	78.85	84.21	81.07	84.5			
Unit Weight of Water at T, γ_t	Gram/Cm ³	0.9963	0.9963	0.9963	0.9963	0.9963	0.9963			
Temp. Corr. Coefficient, $\alpha = \gamma_t / \gamma_{20}^{\circ C}$	-	0.9981	0.9981	0.9981	0.9981	0.9981	0.9981			
Weight of Soil (Wu=(Ws+W4-W3))	Gram	3.7	3.7	3.7	3.7	3.8	3.7			
Specific Gravity of Soil (Gs= $\alpha \cdot Ws / Wu$)	-	2.712	2.720	2.676	2.676	2.662	2.669			
Average of Gs	-	2.716			2.676			2.665		
Remarks:	Unit Weight of Water, $\gamma_{w,20}^{\circ C} = 0.99823$									



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SIEVE ANALYSIS

PROJECT : SOIL INVESTIGATION REPORT UJI SEDIMENT RIVER MAROS
LOCATION : UJI MODEL STRUCTURE GROIN FLUM LAB HIDRAULIKA UNHAS
QUARRY :
SAMPLE NO. : Penelitian
SAMPLING DEPTH :
TESTING METHOD : ASTM D 424-59, D 4318-(00), AASHTO T89/T90
LABORATORY : HASANUDDIN UNIVERSITY

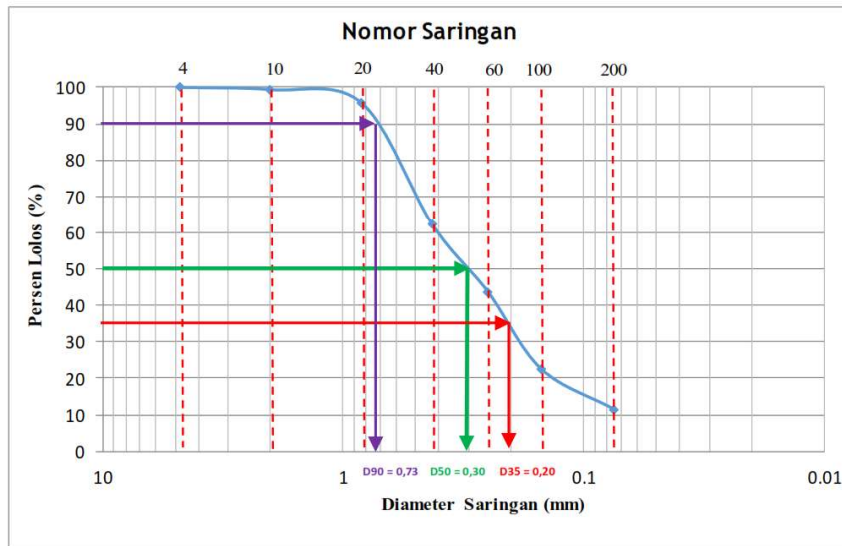
TESTED BY : ZAINAL
DATE : MARET 2020



Hasil Perhitungan Analisa Saringan

	Sebelum	Sesudah
Berat tanah kering + Container	-	
Berat Container	-	
Berat tanah Kering	500	

Saringan No.	Diameter (mm)	Berat Tertahan (gram)	Berat Kumulatif (gram)	Persen (%)	
				Tertahan	Lolos
4	4.750	0	0	0.00	100.00
10	2.000	3	3	0.60	99.40
20	0.840	18	21	4.20	95.80
40	0.425	168	189	37.80	62.20
60	0.250	92	281	56.20	43.80
100	0.150	106	387	77.40	22.60
200	0.075	55	442	88.40	11.60
Pan	0.000	58	500	100.00	0.00



REKAPITULASI

	D10	D30	D60	Cu	Cc
1	0.065	0.185	0.404	6.250	1.309



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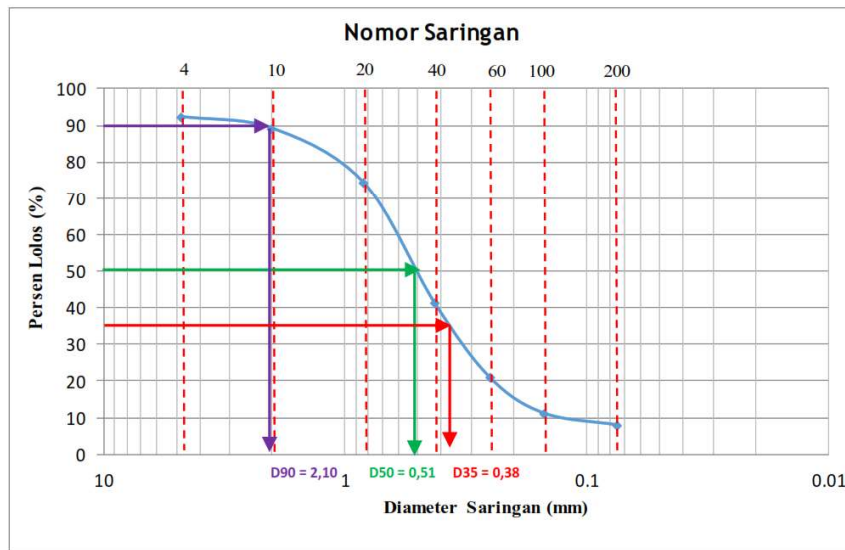
SIEVE ANALYSIS

PROJECT	: SOIL INVESTIGATION REPORT UJI SEDIMENT RIVER MAROS	
LOCATION	: UJI MODEL STRUCTURE GROIN FLUM LAB HIDRAULIKA UNHAS	
QUARRY	:	
SAMPLE NO.	: Penelitian	
SAMPLING DEPTH	:	
TESTING METHOD	: ASTM D 424-59, D 4318-(00), AASHTO T89/T90	
LABORATORY	: HASANUDDIN UNIVERSITY	TESTED BY : ZAINAL
		DATE : MARET 2020

Hasil Perhitungan Analisa Saringan

	Sebelum	Sesudah
Berat tanah kering + Container	-	-
Berat Container	-	-
Berat tanah Kering	500	-

Saringan No.	Diameter (mm)	Berat Tertahan (gram)	Berat Kumulatif (gram)	Persen (%)	
				Tertahan	Lolos
4	4.750	38	38	7.60	92.40
10	2.000	16	54	10.80	89.20
20	0.840	74	128	25.60	74.40
40	0.425	166	294	58.80	41.20
60	0.250	102	396	79.20	20.80
100	0.150	48	444	88.80	11.20
200	0.075	16	460	92.00	8.00
Pan	-	40	500	100.00	0.00



REKAPITULASI

	D10	D30	D60	Cu	Cc
1	0.122	0.346	0.586	4.810	1.674



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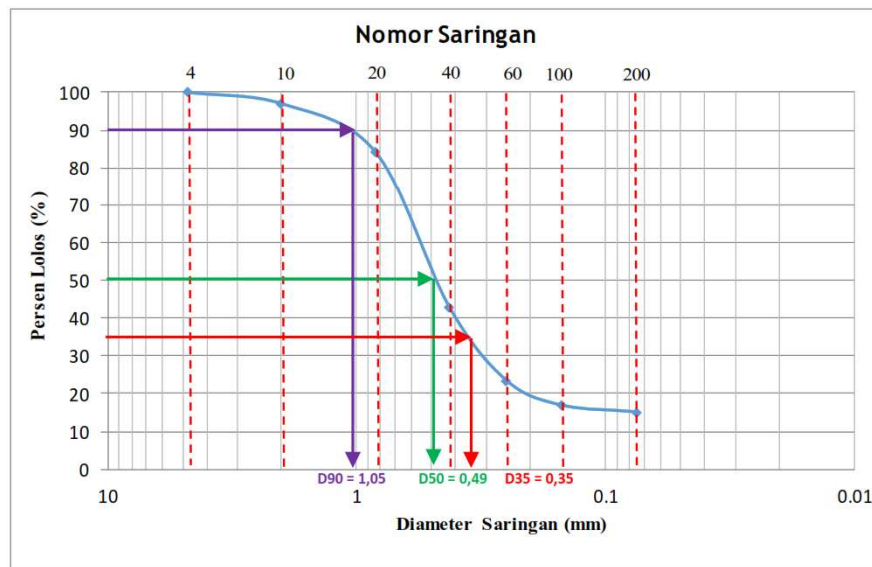
SIEVE ANALYSIS

PROJECT	: SOIL INVESTIGATION REPORT UJI SEDIMENT RIVER MAROS	
LOCATION	: UJI MODEL STRUCTURE GROIN FLUM LAB HIDRAULIKA UNHAS	
QUARRY	:	
SAMPLE	: Penelitian	
SAMPLING DEPTH	:	
TESTING METHOD	: ASTM D 424-59, D 4318-(00), AASHTO T89/T90	
LABORATORY	: HASANUDDIN UNIVERSITY	TESTED BY : ZAINAL DATE : MARET 2020

Hasil Perhitungan Analisa Saringan

	Sebelum	Sesudah
Berat tanah kering + Container	-	
Berat Container	-	
Berat tanah Kering	500	

Saringan No.	Diameter (mm)	Berat Tertahan (gram)	Berat Kumulatif (gram)	Persen (%)	
				Tertahan	Lolos
4	4.750	0	0	0.00	100.00
10	2.000	15	15	3.00	97.00
20	0.840	64	79	15.80	84.20
40	0.425	206	285	57.00	43.00
60	0.250	98	383	76.60	23.40
100	0.150	33	416	83.20	16.80
200	0.075	9	425	85.00	15.00
Pan	0.000	75	500	100.00	0.00



REKAPITULASI

	D10	D30	D60	Cu	Cc
1	0.050	0.309	0.596	11.925	3.201

Lampiran 4 Perhitungan Angka Froud Dan Angka Reynold

PENAMPANG S0 - Q3

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P-4cm	T1	0.77	1.09	0.77	0.40	sub kritis	845	Transisi	
	T2	0.59	1.18	0.59	0.49	sub kritis	693	Transisi	
	T3	0.53	1.64	0.53	0.72	sub kritis	864	Transisi	
	T4	0.63	1.23	0.63	0.49	sub kritis	775	Transisi	
	T5	0.51	1.23	0.51	0.55	sub kritis	626	Transisi	
	T6	0.56	1.23	0.56	0.52	sub kritis	692	Transisi	
	T7	0.61	1.27	0.61	0.52	sub kritis	775	Transisi	
	T8	0.56	2.14	0.56	0.91	sub kritis	1,196	Turbulen	
	T9	0.36	2.23	0.36	1.19	super kritis	797	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P0cm	T1	0.80	1.09	0.80	0.39	sub kritis	877	Transisi	
	T2	0.60	1.18	0.60	0.49	sub kritis	714	Transisi	
	T3	0.56	1.68	0.56	0.71	sub kritis	948	Transisi	
	T4	0.64	1.32	0.64	0.52	sub kritis	847	Transisi	
	T5	0.48	1.23	0.48	0.57	sub kritis	586	Transisi	
	T6	0.58	1.18	0.58	0.49	sub kritis	687	Transisi	
	T7	0.59	1.36	0.59	0.57	sub kritis	804	Transisi	
	T8	0.58	2.09	0.58	0.88	sub kritis	1,214	Turbulen	
	T9	0.36	2.09	0.36	1.11	super kritis	751	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P2cm	T1	0.86	0.86	0.86	0.30	sub kritis	741	Transisi	
	T2	0.76	0.98	0.76	0.36	sub kritis	747	Transisi	
	T3	0.77	1.11	0.77	0.40	sub kritis	859	Transisi	
	T4	0.84	0.91	0.84	0.32	sub kritis	762	Transisi	
	T5	0.74	0.86	0.74	0.32	sub kritis	635	Transisi	
	T6	0.87	0.84	0.87	0.29	sub kritis	734	Transisi	
	T7	0.87	0.91	0.87	0.31	sub kritis	794	Transisi	
	T8	0.87	1.14	0.87	0.39	sub kritis	992	Transisi	
	T9	0.81	0.91	0.81	0.32	sub kritis	735	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P4cm	T1	1.16	0.77	1.16	0.23	sub kritis	900	Transisi	
	T2	1.16	0.82	1.16	0.24	sub kritis	946	Transisi	
	T3	1.11	0.86	1.11	0.26	sub kritis	958	Transisi	
	T4	1.20	0.77	1.20	0.23	sub kritis	926	Transisi	
	T5	1.10	0.64	1.10	0.19	sub kritis	702	Transisi	
	T6	1.23	0.68	1.23	0.20	sub kritis	837	Transisi	
	T7	1.27	0.68	1.27	0.19	sub kritis	865	Transisi	
	T8	1.25	0.82	1.25	0.23	sub kritis	1,020	Turbulen	
	T9	1.19	0.77	1.19	0.23	sub kritis	919	Transisi	

PENAMPANG S0 - Q2

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q2 P-4cm	T1	0.70	0.91	0.70	0.35	sub kritis	635	Transisi	
	T2	0.52	1.05	0.52	0.46	sub kritis	548	Transisi	
	T3	0.49	1.64	0.49	0.74	sub kritis	805	Transisi	
	T4	0.52	1.14	0.52	0.50	sub kritis	595	Transisi	
	T5	0.39	1.05	0.39	0.53	sub kritis	412	laminar	
	T6	0.53	1.05	0.53	0.46	sub kritis	552	Transisi	
	T7	0.51	1.23	0.51	0.55	sub kritis	625	Transisi	
	T8	0.51	2.04	0.51	0.92	sub kritis	1,035	Turbulen	
	T9	0.30	1.86	0.30	1.08	super kritis	561	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q2 P0cm	T1	0.77	1.00	0.77	0.36	sub kritis	774	Transisi	
	T2	0.59	1.00	0.59	0.42	sub kritis	586	Transisi	
	T3	0.53	1.54	0.53	0.68	sub kritis	816	Transisi	
	T4	0.63	0.95	0.63	0.38	sub kritis	603	Transisi	
	T5	0.51	1.05	0.51	0.47	sub kritis	533	Transisi	
	T6	0.56	1.09	0.56	0.47	sub kritis	608	Transisi	
	T7	0.62	1.05	0.62	0.42	sub kritis	651	Transisi	
	T8	0.55	1.91	0.55	0.82	sub kritis	1,056	Turbulen	
	T9	0.28	1.86	0.28	1.13	super kritis	518	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q2 P2cm	T1	0.82	0.91	0.79	0.32	sub kritis	718	Transisi	
	T2	0.74	1.05	0.72	0.39	sub kritis	747	Transisi	
	T3	0.74	1.09	0.72	0.40	sub kritis	781	Transisi	
	T4	0.79	0.77	0.76	0.28	sub kritis	589	Transisi	
	T5	0.71	0.91	0.69	0.34	sub kritis	628	Transisi	
	T6	0.87	0.86	0.83	0.30	sub kritis	719	Transisi	
	T7	0.89	0.86	0.85	0.29	sub kritis	735	Transisi	
	T8	0.83	1.05	0.80	0.37	sub kritis	840	Transisi	
	T9	0.78	0.91	0.76	0.33	sub kritis	687	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q2 P4cm	T1	1.12	0.45	1.12	0.14	sub kritis	508	Transisi	
	T2	1.07	0.64	1.07	0.20	sub kritis	680	Transisi	
	T3	1.05	0.68	1.05	0.21	sub kritis	714	Transisi	
	T4	1.14	0.55	1.14	0.16	sub kritis	619	Transisi	
	T5	1.02	0.55	1.02	0.17	sub kritis	557	Transisi	
	T6	1.19	0.50	1.19	0.15	sub kritis	593	Transisi	
	T7	1.18	0.55	1.18	0.16	sub kritis	644	Transisi	
	T8	1.21	0.64	1.21	0.18	sub kritis	768	Transisi	
	T9	1.11	0.68	1.11	0.21	sub kritis	759	Transisi	

PENAMPANG S0 - Q1

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q1 P-4cm	T1	0.64	0.45	0.64	0.18	sub kritis	290	laminar	
	T2	0.48	0.51	0.48	0.24	sub kritis	245	laminar	
	T3	0.45	0.58	0.45	0.27	sub kritis	258	laminar	
	T4	0.46	0.45	0.46	0.21	sub kritis	209	laminar	
	T5	0.34	0.45	0.34	0.25	sub kritis	153	laminar	
	T6	0.40	0.45	0.40	0.23	sub kritis	184	laminar	
	T7	0.49	0.73	0.49	0.33	sub kritis	359	laminar	
	T8	0.46	1.18	0.46	0.56	sub kritis	538	Transisi	
	T9	0.28	0.97	0.28	0.58	sub kritis	273	laminar	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q1 P0cm	T1	0.64	0.45	0.64	0.18	sub kritis	291	laminar	
	T2	0.50	0.51	0.50	0.23	sub kritis	259	laminar	
	T3	0.44	0.73	0.44	0.35	sub kritis	318	laminar	
	T4	0.46	0.51	0.46	0.24	sub kritis	239	laminar	
	T5	0.36	0.51	0.36	0.27	sub kritis	186	laminar	
	T6	0.51	0.51	0.51	0.23	sub kritis	265	laminar	
	T7	0.46	0.67	0.46	0.31	sub kritis	309	laminar	
	T8	0.45	1.12	0.45	0.53	sub kritis	503	Transisi	
	T9	0.37	0.94	0.37	0.49	sub kritis	348	laminar	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q1 P2cm	T1	0.74	0.42	0.74	0.16	sub kritis	313	laminar	
	T2	0.66	0.45	0.66	0.18	sub kritis	298	laminar	
	T3	0.62	0.58	0.62	0.23	sub kritis	359	laminar	
	T4	0.71	0.45	0.71	0.17	sub kritis	324	laminar	
	T5	0.62	0.45	0.62	0.18	sub kritis	283	laminar	
	T6	0.77	0.45	0.77	0.17	sub kritis	348	laminar	
	T7	0.78	0.58	0.78	0.21	sub kritis	450	laminar	
	T8	0.77	0.73	0.77	0.26	sub kritis	558	Transisi	
	T9	0.71	0.55	0.71	0.21	sub kritis	385	laminar	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q1 P4cm	T1	1.09	0.30	1.09	0.09	sub kritis	329	laminar	
	T2	1.04	0.33	1.04	0.10	sub kritis	347	laminar	
	T3	1.05	0.33	1.05	0.10	sub kritis	349	laminar	
	T4	1.08	0.27	1.08	0.08	sub kritis	294	laminar	
	T5	1.00	0.24	1.00	0.08	sub kritis	242	laminar	
	T6	1.12	0.27	1.12	0.08	sub kritis	306	laminar	
	T7	1.13	0.30	1.13	0.09	sub kritis	342	laminar	
	T8	1.13	0.33	1.13	0.10	sub kritis	378	laminar	
	T9	1.07	0.30	1.07	0.09	sub kritis	325	laminar	

PENAMPANG S10 - Q3

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P-4cm	T1	0.78	1.05	0.78	0.38	sub kritis	814	Transisi	
	T2	0.72	1.14	0.72	0.43	sub kritis	816	Transisi	
	T3	0.62	1.41	0.62	0.57	sub kritis	875	Transisi	
	T4	0.69	1.09	0.69	0.42	sub kritis	750	Transisi	
	T5	0.56	1.09	0.56	0.46	sub kritis	612	Transisi	
	T6	0.69	1.00	0.69	0.38	sub kritis	693	Transisi	
	T7	0.61	1.45	0.61	0.60	sub kritis	883	Transisi	
	T8	0.58	2.23	0.58	0.94	sub kritis	1,282	Turbulen	
	T9	0.30	2.41	0.30	1.40	super kritis	727	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P0cm	T1	0.77	1.05	0.77	0.38	sub kritis	802	Transisi	
	T2	0.71	1.14	0.71	0.43	sub kritis	811	Transisi	
	T3	0.63	1.45	0.63	0.59	sub kritis	909	Transisi	
	T4	0.68	1.23	0.68	0.47	sub kritis	835	Transisi	
	T5	0.56	1.14	0.56	0.48	sub kritis	640	Transisi	
	T6	0.70	1.05	0.70	0.40	sub kritis	731	Transisi	
	T7	0.62	1.45	0.62	0.59	sub kritis	895	Transisi	
	T8	0.57	2.00	0.57	0.84	sub kritis	1,144	Turbulen	
	T9	0.27	2.41	0.27	1.48	super kritis	653	Transisi	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P2cm	T1	0.89	1.05	0.89	0.35	sub kritis	935	Transisi	
	T2	0.83	1.09	0.83	0.38	sub kritis	902	Transisi	
	T3	0.78	1.23	0.78	0.44	sub kritis	954	Transisi	
	T4	0.84	1.09	0.84	0.38	sub kritis	912	Transisi	
	T5	0.75	1.05	0.75	0.38	sub kritis	788	Transisi	
	T6	0.88	1.00	0.88	0.34	sub kritis	882	Transisi	
	T7	0.88	1.32	0.88	0.45	sub kritis	1,153	Turbulen	
	T8	0.86	1.59	0.86	0.55	sub kritis	1,370	Turbulen	
	T9	0.79	1.27	0.79	0.46	sub kritis	1,003	Turbulen	

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =		Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen	
Q3 P4cm	T1	1.18	0.77	1.18	0.23	sub kritis	908	Transisi	
	T2	1.21	0.73	1.21	0.21	sub kritis	882	Transisi	
	T3	1.08	0.86	1.08	0.26	sub kritis	935	Transisi	
	T4	1.16	0.77	1.16	0.23	sub kritis	894	Transisi	
	T5	1.07	0.73	1.07	0.22	sub kritis	777	Transisi	
	T6	1.21	0.68	1.21	0.20	sub kritis	823	Transisi	
	T7	1.20	0.82	1.20	0.24	sub kritis	978	Transisi	
	T8	1.21	0.91	1.21	0.26	sub kritis	1,099	Turbulen	
	T9	1.14	0.82	1.14	0.24	sub kritis	932	Transisi	

PENAMPANG S10 - Q2

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q2 P-4cm	T1	0.69	0.91	0.69	0.35	sub kritis	630	Transisi
	T2	0.60	1.00	0.60	0.41	sub kritis	601	Transisi
	T3	0.50	1.27	0.50	0.57	sub kritis	642	Transisi
	T4	0.57	1.00	0.57	0.42	sub kritis	574	Transisi
	T5	0.47	1.00	0.47	0.47	sub kritis	468	laminar
	T6	0.63	0.82	0.63	0.33	sub kritis	516	Transisi
	T7	0.58	1.23	0.58	0.51	sub kritis	714	Transisi
	T8	0.53	2.18	0.53	0.95	sub kritis	1,163	Turbulen
	T9	0.27	1.86	0.27	1.15	super kritis	499	laminar

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q2 P0cm	T1	0.70	0.91	0.70	0.35	sub kritis	637	Transisi
	T2	0.60	1.00	0.60	0.41	sub kritis	604	Transisi
	T3	0.55	1.27	0.55	0.55	sub kritis	694	Transisi
	T4	0.59	1.00	0.59	0.42	sub kritis	588	Transisi
	T5	0.46	1.05	0.46	0.49	sub kritis	485	laminar
	T6	0.64	1.00	0.64	0.40	sub kritis	640	Transisi
	T7	0.59	1.27	0.59	0.53	sub kritis	750	Transisi
	T8	0.51	2.04	0.51	0.91	sub kritis	1,050	Turbulen
	T9	0.24	1.91	0.24	1.25	super kritis	450	laminar

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q2 P2cm	T1	0.83	0.77	0.83	0.27	sub kritis	643	Transisi
	T2	0.77	0.86	0.77	0.31	sub kritis	669	Transisi
	T3	0.72	1.05	0.72	0.39	sub kritis	751	Transisi
	T4	0.80	0.77	0.80	0.28	sub kritis	616	Transisi
	T5	0.70	0.82	0.70	0.31	sub kritis	571	Transisi
	T6	0.80	0.82	0.80	0.29	sub kritis	652	Transisi
	T7	0.84	1.05	0.84	0.37	sub kritis	873	Transisi
	T8	0.83	1.32	0.83	0.46	sub kritis	1,099	Turbulen
	T9	0.77	1.14	0.77	0.41	sub kritis	875	Transisi

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q2 P4cm	T1	1.11	0.50	1.11	0.15	sub kritis	557	Transisi
	T2	1.05	0.55	1.05	0.17	sub kritis	571	Transisi
	T3	1.02	0.68	1.02	0.22	sub kritis	697	Transisi
	T4	1.14	0.55	1.14	0.16	sub kritis	620	Transisi
	T5	1.02	0.55	1.02	0.17	sub kritis	554	Transisi
	T6	1.16	0.55	1.16	0.16	sub kritis	631	Transisi
	T7	1.15	0.64	1.15	0.19	sub kritis	732	Transisi
	T8	1.14	0.73	1.14	0.22	sub kritis	829	Transisi
	T9	1.07	0.59	1.07	0.18	sub kritis	632	Transisi

PENAMPANG S10 - Q1

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q1 P-4cm	T1	0.58	0.68	0.58	0.28	sub kritis	398	laminar
	T2	0.50	0.86	0.50	0.39	sub kritis	433	laminar
	T3	0.44	1.14	0.44	0.54	sub kritis	504	Transisi
	T4	0.47	0.86	0.47	0.40	sub kritis	403	laminar
	T5	0.36	1.05	0.36	0.56	sub kritis	376	laminar
	T6	0.52	0.91	0.52	0.40	sub kritis	470	laminar
	T7	0.47	1.00	0.47	0.46	sub kritis	474	laminar
	T8	0.43	1.73	0.43	0.84	sub kritis	747	Transisi
	T9	0.20	1.32	0.20	0.94	sub kritis	265	laminar

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q1 P0cm	T1	0.58	0.77	0.58	0.32	sub kritis	449	laminar
	T2	0.51	0.86	0.51	0.39	sub kritis	437	laminar
	T3	0.44	1.27	0.44	0.61	sub kritis	565	Transisi
	T4	0.47	0.86	0.47	0.40	sub kritis	407	laminar
	T5	0.39	0.91	0.39	0.46	sub kritis	354	laminar
	T6	0.54	0.95	0.54	0.41	sub kritis	516	Transisi
	T7	0.48	0.91	0.48	0.42	sub kritis	433	laminar
	T8	0.48	1.73	0.48	0.80	sub kritis	821	Transisi
	T9	0.24	1.50	0.24	0.98	sub kritis	360	laminar

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q1 P2cm	T1	0.58	0.64	0.58	0.27	sub kritis	370	laminar
	T2	0.51	0.73	0.51	0.33	sub kritis	368	laminar
	T3	0.44	0.91	0.44	0.44	sub kritis	403	laminar
	T4	0.47	0.59	0.47	0.27	sub kritis	279	laminar
	T5	0.39	0.64	0.39	0.33	sub kritis	248	laminar
	T6	0.54	0.73	0.54	0.32	sub kritis	393	laminar
	T7	0.48	0.64	0.48	0.29	sub kritis	303	laminar
	T8	0.48	0.82	0.48	0.38	sub kritis	389	laminar
	T9	0.24	0.77	0.24	0.50	sub kritis	185	laminar

Variasi Penelitian	Titik	Tinggi Muka Air Lap. (m)	Kecepatan Lap. (m/s)	R =	Angka Froud		Angka Renold	
				A/ P	Fr	sub kritis/ kritis / super kritis	Re	Laminar/ Tansisi/ Turbulen
Q1 P4cm	T1	0.73	0.36	0.73	0.14	sub kritis	266	laminar
	T2	0.67	0.41	0.67	0.16	sub kritis	273	laminar
	T3	0.63	0.45	0.63	0.18	sub kritis	287	laminar
	T4	0.69	0.36	0.69	0.14	sub kritis	251	laminar
	T5	0.62	0.36	0.62	0.15	sub kritis	224	laminar
	T6	0.75	0.36	0.75	0.13	sub kritis	273	laminar
	T7	0.79	0.36	0.79	0.13	sub kritis	286	laminar
	T8	0.76	0.36	0.76	0.13	sub kritis	278	laminar
	T9	0.70	0.36	0.70	0.14	sub kritis	254	laminar

Lampiran 5 Analisa SPSS

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.952744
R Square	0.91
Adjusted R Square	0.845488
Standard Error	0.000428
Observations	27

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	3.96E-05	7.92E-06	43.28121	2.33E-10
Residual	22	4.02E-06	1.83E-07		
Total	27	4.36E-05			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	-0.000037	0.001196	-0.0313	0.975316	-0.00252	0.002444	-0.00252	0.002444
X Variable 2	-0.000238	0.000345	-0.68756	0.498913	-0.00095	0.000479	-0.00095	0.000479
X Variable 3	0.000002	4.23E-07	5.406174	1.98E-05	1.41E-06	3.16E-06	1.41E-06	3.16E-06
X Variable 4	0.001725	0.000612	2.816981	0.01004	0.000455	0.002995	0.000455	0.002995
X Variable 5	-0.002812	0.00107	-2.62725	0.015387	-0.00503	-0.00059	-0.00503	-0.00059

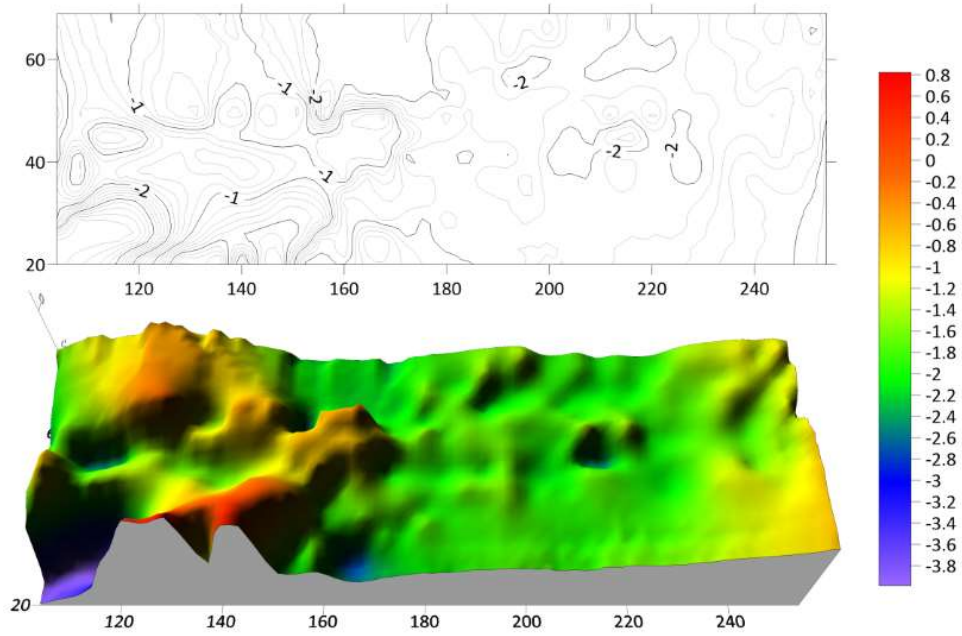
RESIDUAL OUTPUT

<i>Observation</i>	<i>Predicted Y</i>	<i>Residuals</i>	<i>Standard Residuals</i>
1	-0.00043	0.000558	1.445432
2	6.6E-05	7.97E-05	0.206408
3	0.000307	-4.3E-05	-0.11171
4	0.000442	-0.00029	-0.75187
5	0.000335	-0.00018	-0.46004
6	0.000749	-0.00045	-1.16686
7	0.000371	-0.00019	-0.49503
8	0.000583	-0.00042	-1.0769
9	0.001178	-0.00087	-2.2547
10	0.000896	8.17E-05	0.211756
11	0.001181	0.000238	0.615828
12	0.001601	0.000149	0.386301
13	0.001166	1.71E-05	0.044283
14	0.001743	-0.00021	-0.53178
15	0.0019	0.000405	1.048223
16	0.000747	0.000315	0.81524
17	0.001372	0.000413	1.070389
18	0.001919	0.000117	0.303554
19	0.000714	0.000445	1.151887
20	0.001483	0.000174	0.450652
21	0.001468	0.000542	1.404103
22	0.001135	-0.00048	-1.25143
23	0.001742	-0.00082	-2.11609
24	0.002179	-3E-05	-0.077
25	0.000788	-0.00033	-0.85383
26	0.000939	0.000297	0.770027
27	0.001495	0.000472	1.223157

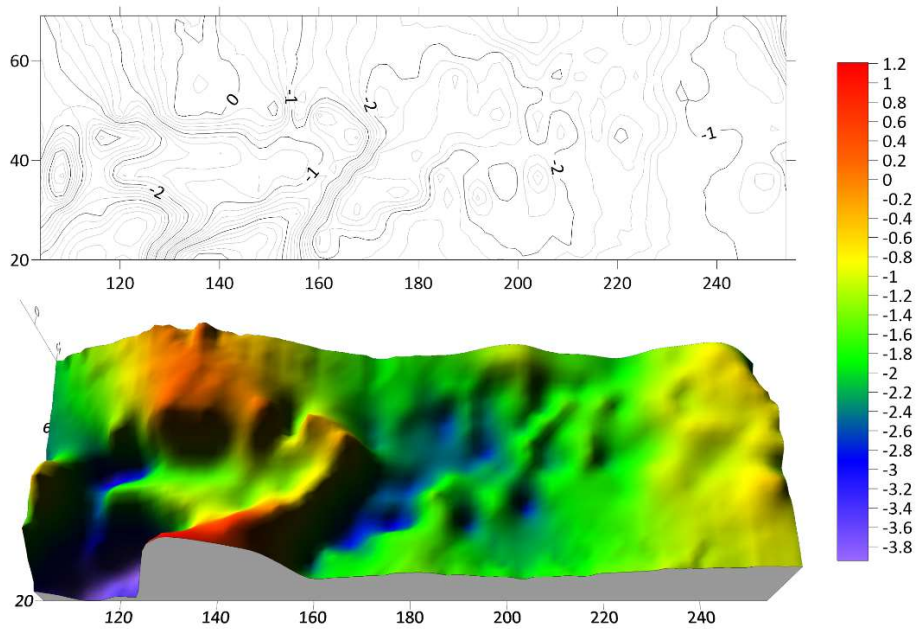
PROBABILITY OUTPUT

<i>Percentile</i>	<i>Y</i>
1.851852	0.000128
5.555556	0.000146
9.259259	0.000152
12.96296	0.000158
16.66667	0.000167
20.37037	0.00018
24.07407	0.000264
27.77778	0.000299
31.48148	0.000307
35.18519	0.000459
38.88889	0.000652
42.59259	0.000925
46.2963	0.000978
50	0.001062
53.7037	0.001159
57.40741	0.001183
61.11111	0.001236
64.81481	0.001419
68.51852	0.001538
72.22222	0.001657
75.92593	0.00175
79.62963	0.001785
83.33333	0.001967
87.03704	0.00201
90.74074	0.002036
94.44444	0.002149
98.14815	0.002305

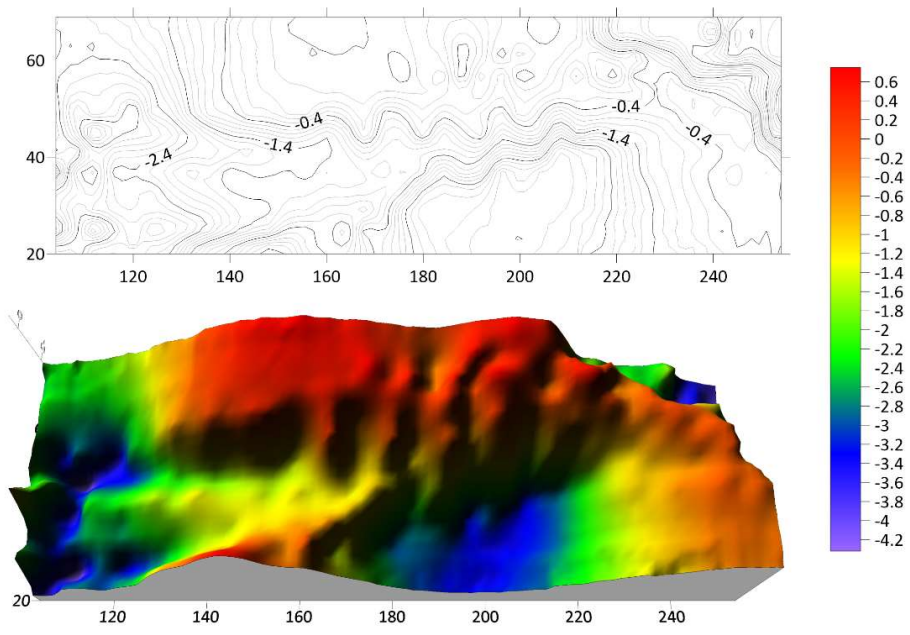
Lampiran 6 Pola Penggelontoran Untuk Berbagai Variasi Penelitian



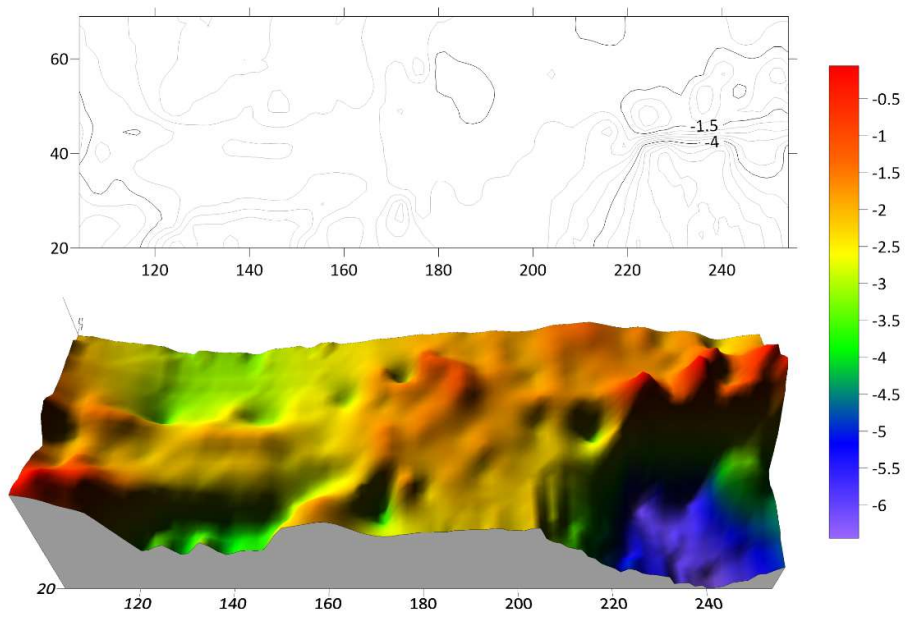
Penampang $b^*/b = 1, Q1$



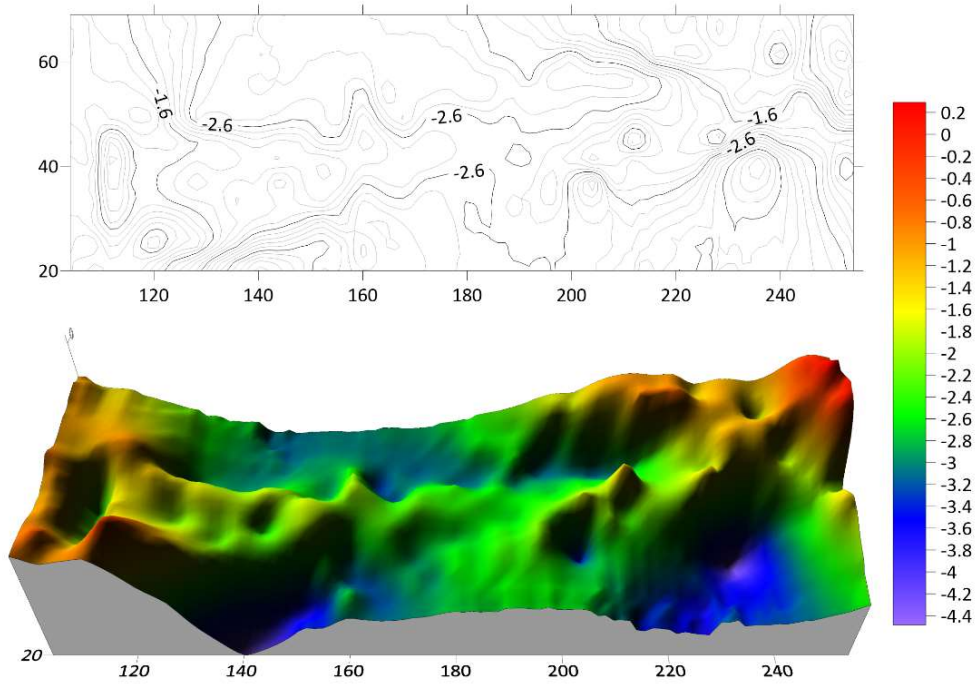
Penampang $b^*/b = 1, Q2$



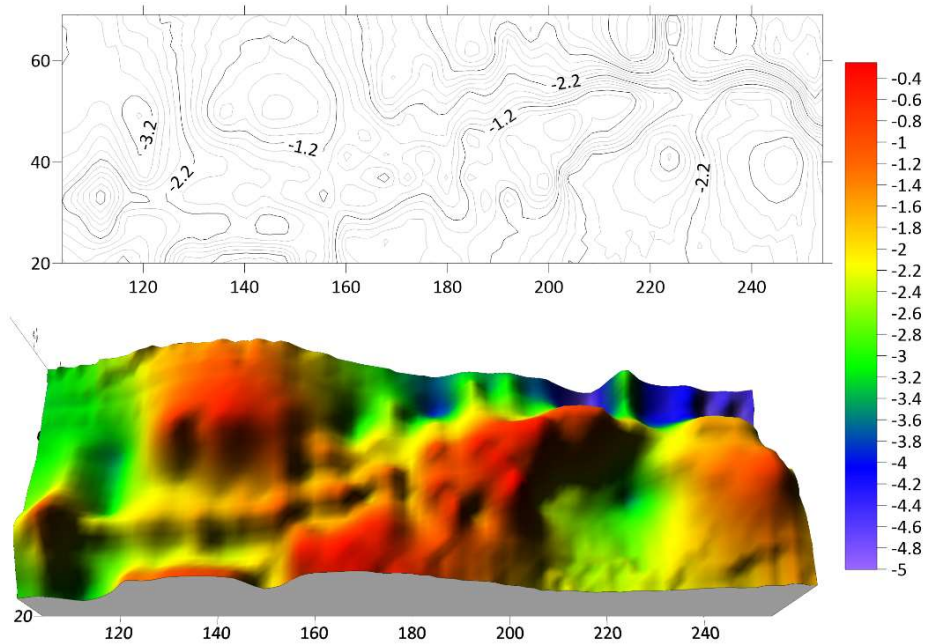
Penampang $b^*/b = 1, Q3$



Penampang $b^*/b = 0.9, Q1$



Penampang $b^*/b = 0.9, Q2$



Penampang $b^*/b = 0.9, Q3$

Lampiran 7 Dokumentasi Penelitian



Dokumentasi Pengambilan Data Lapangan



Dokumentasi Pengambilan Data Laboratorium