

PROYEK AKHIR

KARAKTERISTIK AGREGAT BANTAK DITINJAU DARI PENGUJIAN
ULTRASONIC PULSE VELOCITY (UPV) DAN STABILITAS MARSHALL

LAMPIRAN DATA HASIL PENGUJIAN

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JURUSAN TEKNIK SIPIL DAN PERENCANAAN
FAKULTAS TEKNIK
UNIVERSITAS NEGERI YOGYAKARTA
2015



Tabel Hasil Pengujian *UPV* (control variabel)

No	Jenis Agregat	Kadar Aspal (%)	KodeBenda Uji	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
1	BANTAK	5 %	B1	7,57	7,58	7,54	23,50	21,70	21,20
			B2	7,46	7,49	7,47	21,50	21,70	21,80
			B3	7,32	7,25	7,30	20,00	19,20	20,90
		5,5 %	B1	7,55	7,54	7,55	21,80	22,20	23,70
			B2	7,40	7,40	7,37	20,10	22,30	22,00
			B3	7,37	7,33	7,35	20,20	22,00	21,00
		6 %	B1	7,43	7,32	7,40	22,40	22,20	21,80
			B2	7,32	7,30	7,30	20,20	19,70	20,50
			B3	7,14	7,14	7,10	18,90	19,10	19,20
		6,5 %	B1	7,33	7,34	7,33	19,60	21,70	21,60
			B2	7,11	7,23	7,18	19,70	21,40	23,20
			B3	6,94	7,17	7,07	19,10	19,20	21,30
		7 %	B1	7,20	7,18	7,20	19,80	20,50	20,90
			B2	7,27	7,30	7,44	21,40	20,80	21,80
			B3	6,94	6,92	7,03	18,20	19,00	19,70

No	Jenis Agregat	Kadar Aspal (%)	KodeBenda Uji	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
2	CLERENG	5 %	C1	7,52	7,55	7,55	52,00	57,60	63,40
			C2	7,55	7,65	7,55	60,00	59,30	67,20
			C3	7,09	8,00	8,01	54,30	56,80	57,30
		5,5 %	C1	7,95	8,00	7,96	91,90	97,20	97,20
			C2	7,56	7,64	7,67	31,30	32,70	33,30
			C3	7,47	7,48	7,47	37,60	34,60	40,40
		6 %	C1	7,36	7,39	7,33	32,50	33,40	34,00
			C2	7,59	7,66	7,54	42,40	44,30	40,20
			C3	7,90	8,03	7,85	30,40	31,40	28,60
		6,5 %	C1	7,78	7,77	7,76	61,10	62,20	56,30
			C2	7,36	7,42	7,33	39,50	43,50	45,00
			C3	7,76	7,81	7,75	50,30	52,30	55,50
		7 %	C1	8,03	8,03	8,05	48,40	47,70	48,50
			C2	7,94	8,01	7,95	45,70	47,50	45,20
			C3	7,62	7,56	7,53	30,10	33,00	33,70

No	Jenis Agregat	Kadar Aspal (%)	KodeBenda Uji	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
3	PROGO	5 %	P1	7,37	7,34	7,35	21,70	23,80	23,30
			P2	7,27	7,23	7,26	25,70	26,90	24,60
			P3	7,51	7,49	7,44	26,30	26,50	26,30
		5,5 %	P1	7,44	7,40	7,32	22,50	21,00	24,40
			P2	7,60	7,70	7,57	24,40	24,30	25,00
			P3	7,71	7,57	7,49	26,20	25,00	25,80
		6 %	P1	7,23	7,20	7,27	20,60	21,30	21,90
			P2	7,19	7,15	7,15	20,60	21,10	21,60
			P3	7,14	7,25	7,17	20,60	20,20	21,00
		6,5 %	P1	7,35	7,33	7,28	21,60	22,30	22,70
			P2	7,30	7,38	7,38	21,50	22,80	24,20
			P3	7,47	7,44	7,40	20,90	22,50	23,70
		7 %	P1	7,26	7,35	7,38	20,60	20,70	21,40
			P2	7,59	7,58	7,59	23,20	23,90	23,50
			P3	7,38	7,30	7,36	21,10	21,50	19,80

No	Jenis Agregat	Kadar Aspal (%)	KodeBenda Uji	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
4	KRASAK	5 %	K1	7,16	7,02	7,02	20,00	20,20	20,80
			K2	7,46	7,27	7,27	22,40	24,60	23,50
			K3	7,45	7,31	7,31	22,00	22,50	22,90
		5,5 %	K1	7,44	7,46	7,49	20,50	22,70	22,20
			K2	7,19	7,12	7,10	19,30	21,00	21,40
			K3	8,19	8,14	8,10	25,80	26,60	25,60
		6 %	K1	7,36	7,33	7,42	21,40	22,50	22,30
			K2	7,20	7,14	7,32	20,90	21,00	23,20
			K3	7,10	7,26	7,06	20,30	21,10	22,80
		6,5 %	K1	7,24	7,34	7,25	19,60	21,60	22,20
			K2	7,23	7,15	7,23	18,70	19,30	18,50
			K3	7,32	7,30	7,32	20,40	20,70	21,90
		7 %	K1	7,30	7,14	7,20	19,50	21,00	20,50
			K2	7,14	7,17	7,20	21,00	19,00	21,30
			K3	7,24	7,36	7,27	20,90	21,00	22,20

Tabel Hasil Pengujian *UPV* (varians 1-8)

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V1	F1 : BANTAK	6%	NO.1	7,24	7,16	7,19	20,30	20,10	20,80
			NO.2	7,34	7,39	7,39	23,40	23,20	23,20
			NO.3	7,25	7,15	7,18	20,20	21,00	22,30
	F2 : BANTAK		NO.4	7,20	7,15	7,17	20,90	21,70	19,70
			NO.5	7,33	7,26	7,21	21,20	21,70	21,90
			NO.6	7,30	7,32	7,27	20,70	21,70	22,00
	F3 : PROGO		NO.7	7,22	7,21	7,16	21,10	21,30	21,80
			NO.8	7,43	7,47	7,52	21,70	26,90	24,50

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V2	F1 : BANTAK	6%	NO.1	7,26	7,45	7,29	33,40	33,90	33,90
			NO.2	7,43	7,35	7,32	31,10	35,30	32,30
			NO.3	7,44	7,40	7,37	34,30	35,90	34,70
	F2 : CLERENG		NO.4	7,58	7,52	7,53	47,90	47,10	56,60
			NO.5	7,55	7,55	7,54	35,50	35,10	36,60
			NO.6	7,35	7,35	7,38	29,90	32,20	32,50
	F3 : CLERENG		NO.7	7,25	7,33	7,26	32,50	31,50	34,50
			NO.8	7,52	7,50	7,40	34,00	37,50	36,50

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V3	F1 : BANTAK	6%	NO.1	7,65	7,48	7,46	21,50	21,00	22,40
			NO.2	7,45	7,45	7,45	21,20	21,80	21,20
			NO.3	7,66	7,66	7,69	23,20	24,10	22,60
	F2 : BANTAK		NO.4	7,27	7,30	7,29	21,80	23,00	23,50
			NO.5	7,65	7,75	7,62	23,80	23,90	23,30
			NO.6	7,71	7,66	7,66	22,70	22,60	24,20
	F3 : BANTAK		NO.7	7,38	7,43	7,45	22,10	21,50	23,70
			NO.8	7,73	7,75	7,30	23,20	23,30	24,50

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V4	F1 : BANTAK	6%	NO.1	7,45	7,47	7,51	21,60	22,30	24,30
			NO.2	7,22	7,75	7,20	20,20	21,00	23,30
			NO.3	7,20	7,20	7,32	19,70	19,70	20,30
	F2 : BANTAK		NO.4	7,38	7,40	7,36	21,00	21,70	23,20
			NO.5	7,45	7,50	7,44	25,40	22,50	25,30
			NO.6	7,45	7,57	7,48	21,20	22,20	23,00
	F3 : SEMEN		NO.7	7,47	7,55	7,54	21,00	21,30	21,50
			NO.8	7,38	7,42	7,39	21,30	22,20	20,30

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V5	F1 : BANTAK	6%	NO.1	7,15	7,23	7,17	21,50	23,60	23,00
			NO.2	7,28	7,08	7,08	20,80	21,70	22,40
			NO.3	7,46	7,33	7,42	21,70	21,60	23,30
	F2 : KRASAK		NO.4	7,40	7,37	7,43	22,60	22,40	22,20
			NO.5	7,30	7,31	7,37	21,00	21,40	21,50
			NO.6	7,35	7,30	7,30	21,60	21,50	21,40
	F3 : BANTAK		NO.7	7,34	7,39	7,43	22,00	24,50	22,00
			NO.8	7,82	7,80	7,84	25,40	26,30	25,30

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V6	F1 : CLERENG	6%	NO.1	7,40	7,47	7,49	46,00	52,00	53,00
			NO.2	7,55	7,42	7,45	45,00	50,00	48,40
			NO.3	7,70	7,68	7,67	42,80	42,20	41,80
	F2 : CLERENG		NO.4	7,39	7,72	7,35	48,30	48,10	51,10
			NO.5	7,65	7,67	7,65	52,20	53,10	54,40
			NO.6	7,32	7,49	7,45	55,20	54,30	54,20
	F3 : CLERENG		NO.7	7,61	7,50	7,52	42,40	43,40	44,50
			NO.8	7,65	7,56	7,58	57,00	63,00	57,60

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V7	F1 : PROGO	6%	NO.1	7,40	7,40	7,44	26,70	27,80	27,60
			NO.2	7,26	7,16	7,32	25,50	26,90	28,70
			NO.3	7,47	7,52	7,28	24,70	24,80	25,70
	F2 : CLERENG		NO.4	7,76	7,66	7,32	25,20	26,20	26,10
			NO.5	7,40	7,27	7,49	27,00	29,70	26,90
			NO.6	7,55	7,47	7,60	28,50	32,50	30,40
	F3 : CLERENG		NO.7	7,48	7,27	7,28	23,20	23,30	25,90
			NO.8	7,34	7,39	7,43	24,90	27,80	26,20

NO VARIANS	JENIS AGREGAT	KADAR ASPAL	BENDA UJI	Jarak Transduser			Travel Time		
				T 1	T 2	T 3	T 1	T 2	T 3
V8	F1 : KRASAK	6%	NO.1	7,42	7,38	7,48	22,90	23,20	22,80
			NO.2	7,22	7,26	7,26	20,30	22,40	23,60
			NO.3	7,00	6,98	6,96	22,10	21,70	21,80
	F2 : PROGO		NO.4	7,25	7,26	7,26	22,30	23,40	23,70
			NO.5	7,33	7,26	7,32	26,00	24,10	25,80
			NO.6	7,31	7,29	7,35	23,90	25,40	26,50
	F3 : CLERENG		NO.7	7,34	7,31	7,34	25,40	25,80	25,90
			NO.8	7,10	7,12	7,15	23,60	24,40	25,60

Mengetahui,
Teknisi Laboratorium,

Yogyakarta, 07 Oktober 2015
Diuji oleh mahasiswa,

Sudarman, S.Pd
NIP. 19610214 199103 1 001

Sebastian G D,dkk
NIM. 12510134035

Tabel Hasil Pengujian Stabilitas (control variabel BANTAK)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
5%	B1	13:19	13:49	86	725
	B2	13:22	13:52	64	410
	B3	13:25	13:55	99	410
5,5%	B1	13:28	13:58	82	680
	B2	13:31	14:01	119	440
	B3	13:33	14:03	86	450
6%	B1	13:35	14:05	77	568
	B2	13:37	14:07	79	537
	B3	13:47	14:17	96	690
6,5%	B1	13:49	14:19	63	497
	B2	13:51	14:21	90	495
	B3	13:53	14:23	114	355
7%	B1	13:55	14:25	89	520
	B2	13:57	14:27	79	630
	B3	13:59	14:29	103	510

Tabel Hasil Pengujian Stabilitas (control variabel CLERENG)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
5%	C1	14:40	15:20	25	570
	C2				
	C3				
5,5%	C1				
	C2	14:12	14:42	21	598
	C3				
6%	C1	14:08	14:38	12	660
	C2	14:14	14:44	45	840
	C3				
6,5%	C1				
	C2	14:42	15:22	27	720
	C3				
7%	C1				
	C2				
	C3	14:10	14:40	20	550

Tabel Hasil Pengujian Stabilitas (control variabel PROGO)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
5%	P1	13:25	13:55	30	398
	P2	13:28	13:58	18	360
	P3	13:31	14:01	31	350
5,5%	P1	13:33	14:03	32	365
	P2	13:35	14:05	21	305
	P3	13:37	14:07	70	440
6%	P1	13:40	14:10	80	410
	P2	13:42	14:12	69	430
	P3	13:53	14:13	82	420
6,5%	P1	13:55	14:25	57	418
	P2	13:57	14:27	41	480
	P3	13:59	14:29	58	560
7%	P1	14:01	14:31	59	530
	P2	14:03	14:33	78	720
	P3	14:05	14:35	88	540

Tabel Hasil Pengujian Stabilitas (control variabel KRASAK)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
5%	K1	14:02	14:32	90	340
	K2	14:13	14:43	86	695
	K3	14:15	14:45	64	310
5,5%	K1	14:21	14:51	74	310
	K2	14:19	14:49	104	230
	K3	14:17	14:47	42	270
6%	K1	14:23	14:53	58	330
	K2	14:25	14:55	64	310
	K3	14:27	14:57	61	320
6,5%	K1	14:12	14:42	81	470
	K2	14:14	14:44	98	398
	K3	14:16	14:46	78	390
7%	K1	14:18	14:48	80	240
	K2	14:35	15:05	76	340
	K3	14:38	15:08	63	370

Tabel Hasil Pengujian Stabilitas (varians 1-8)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
6%	Varians 1 No. 1	12:20	12:50	78	364
6%	Varians 1 No. 2	12:24	12:54	73	493
6%	Varians 1 No. 3	12:27	12:57	77	406
6%	Varians 2 No. 1	12:30	13:00	49	474
6%	Varians 2 No. 2	12:33	13:03	58	768
6%	Varians 2 No. 3	12:36	13:06	55	643
6%	Varians 3 No. 1	12:39	13:09	71	784
6%	Varians 3 No. 2	12:42	13:12	87	687
6%	Varians 3 No. 3	12:49	13:19	88	556
6%	Varians 4 No. 1	12:52	13:22	57	703
6%	Varians 4 No. 2	12:55	13:25	82	565
6%	Varians 4 No. 3	12:58	13:28	82	604
6%	Varians 5 No. 1	13:01	13:31	57	310
6%	Varians 5 No. 2	13:03	13:33	87	540
6%	Varians 5 No. 3	13:05	13:35	96	605
6%	Varians 6 No. 1	13:07	13:37	18	610
6%	Varians 6 No. 2	12:55	13:25	18	626
6%	Varians 6 No. 3	12:58	13:28	11	640
6%	Varians 7 No. 1	13:01	13:31	49	728
6%	Varians 7 No. 2	13:03	13:33	45	620
6%	Varians 7 No. 3	13:05	13:35	58	610
6%	Varians 8 No. 1	13:08	13:38	46	370
6%	Varians 8 No. 2	13:12	13:42	79	529
6%	Varians 8 No. 3	13:10	13:40	51	620

Tabel Hasil Pengujian Stabilitas (proporsi agregat 70:30)

Kadar Aspal	Benda Uji	Masuk Jam	Keluar Jam	Stabilitas	Flow
6%	Varians 1 No. 1	11:47	12:17	76	235
6%	Varians 1 No. 2	11:49	12:19	55	579
6%	Varians 2 No. 1	11:51	12:21	54	452
6%	Varians 2 No. 2	11:53	12:23	64	407
6%	Varians 3 No. 1	11:55	12:25	76	309
6%	Varians 3 No. 2	11:57	12:27	73	204
6%	Varians 4 No. 1	11:59	12:29	85	678
6%	Varians 4 No. 2	12:01	12:31	48	397
6%	Varians 5 No. 1	12:06	12:36	106	578
6%	Varians 5 No. 2	12:09	12:39	51	372
6%	Varians 6 No. 1	12:12	12:42	9	465
6%	Varians 6 No. 2	12:15	12:45	9	436
6%	Varians 7 No. 1	12:18	12:48	19	378
6%	Varians 7 No. 2	12:21	12:51	30	368
6%	Varians 8 No. 1	12:24	12:54	68	208
6%	Varians 8 No. 2	12:27	12:57	58	258

Mengetahui,
Teknisi Laboratorium,

Yogyakarta, 07 Oktober 2015
Diuji oleh mahasiswa,

.....
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