



**LABORATORIUM JALAN RAYA**  
**FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UII**  
 Jl. Kaliurang Km.14,4 Telp. 95330 Yogyakarta 55584

lampiran 21

**Batu kapur : Batu pecah = 100% : 0% Jenis Campu. Aspal Beton**  
 Pekerjaan Test Marshall Dikerjakan Oleh : 1. Irwan Sugiarto  
 2. Sandhi Nugroho  
 Tanggal 6 Maret 2000 Diperiksa Oleh :

**PERHITUNGAN TEST MARSHALL**

No	t	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
1	6.81	4.71	4.5	1170	1211	664	547	2.13894	2.378314	9.23	80.70673	10.06	19.29327	47.83226	10.06486	358	1227.117	1059.90	3.81
2	6.91	4.71	4.5	1168	1198	662	536	2.179104	2.378314	9.40	82.22224	8.38	17.77776	52.88459	8.376068	322	1103.719	942.39	3.302
3	7.29	4.71	4.5	1175	1204	667	537	2.188082	2.378314	9.44	82.56097	8.00	17.43903	54.13393	7.998596	380	1302.526	1056.70	3.048
4	7.58	5.26	5	1178	1201	668	533	2.210131	2.362478	10.60	82.95633	6.45	17.04367	62.16425	6.448599	326	1117.43	829.67	4.064
5	6.79	5.26	5	1179	1203	669	534	2.207865	2.362478	10.58	82.87127	6.54	17.12873	61.79213	6.544522	400	1371.08	1189.40	3.302
6	6.61	5.26	5	1174	1196	666	530	2.215094	2.362478	10.62	83.14262	6.24	16.85738	62.99234	6.238523	400	1371.08	1240.80	3.302
7	6.62	5.82	5.5	1173	1200	664	536	2.188433	2.346852	11.54	81.70956	6.75	18.29044	63.09392	6.750283	266	911.7682	822.87	3.556
8	6.60	5.82	5.5	1177	1201	668	533	2.208255	2.346852	11.64	82.44967	5.91	17.55033	66.35021	5.905649	512	1754.982	1592.70	3.556
9	6.50	5.82	5.5	1180	1198	670	528	2.234848	2.346852	11.78	83.44258	4.77	16.55742	71.17606	4.7725	600	2056.62	1918.30	3.81
10	6.64	6.38	6	1174	1203	680	523	2.244742	2.331431	12.91	83.36852	3.72	16.63148	77.64305	3.718291	440	1508.188	1352.80	3.81
11	6.54	6.38	6	1164	1189	660	529	2.200378	2.331431	12.66	81.72088	5.62	18.27912	69.24826	5.621148	394	1350.514	1245.20	3.81
12	6.66	6.38	6	1155	1174	647	527	2.191651	2.331431	12.61	81.39675	6.00	18.60325	67.77188	5.995477	381	1305.954	1164.90	3.81
13	6.46	6.95	6.5	1173	1197	663	534	2.196629	2.316212	13.69	81.1477	5.16	18.8523	72.61419	5.162855	331	1134.569	1069.90	4.826
14	6.68	6.95	6.5	1161	1185	653	532	2.182331	2.316212	13.60	80.61949	5.78	19.38051	70.17333	5.780173	336	1151.707	1023.60	3.556
15	6.65	6.95	6.5	1164	1194	657	537	2.167598	2.316212	13.51	80.07522	6.42	19.92478	67.79759	6.416257	334	1144.852	1024.60	4.318

t = tebal benda uji  
 a = % aspal terhadap batuan  
 b = % aspal terhadap campuran  
 c = berat kering/sblm direndam  
 d = berat dlm keadaan SS  
 e = berat didalam air (gr)  
 f = Vol (isi) = d - e  
 g = berat isi sampel  
 h = B.J maksimum (teoritis)  

$$i = \left\{ 100 \cdot \left( \frac{\% \text{aggr}}{B.J \text{ Aggr}} + \frac{\% \text{aspal}}{B.J \text{ Aspal}} \right) \right\}$$

$$j = \frac{b \times g}{B.J \text{ aspal}}$$

$$k = (100 - i - j)$$

$$l = (100 - j) \cdot \left( \frac{1}{100 \times \frac{g}{h}} \right)$$

$$m = \left( 100 \times \frac{1}{j} \right) \cdot \left( \frac{1}{\text{rongga yang terisi aspal (V.F.W.A)}} \right)$$

$$n = \text{rongga yang terisi campuran } 100 - \left( 100 \times \frac{g}{h} \right)$$

$$o = \text{pembacaan arloji (stabilitas)}$$

$$p = o \times \text{kaliabrasi proving ring}$$

$$q = p \times \text{koreksi tebal sampel (STABILITAS)}$$
 r = FLOW (kelelahan plastis)  
 Suhu Pencampuran : ±160°C  
 Suhu Pematangan : ±140°C  
 Suhu Water Bath : 60°C  
 B.J. Aspal : 1,043  
 B.J. Agregat : 2,531  
 Tanda Tangan :