

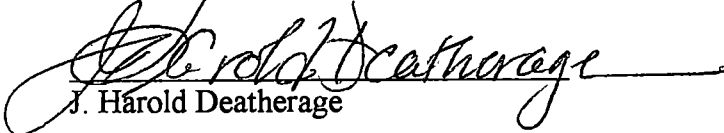
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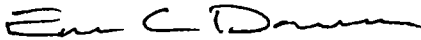


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**COMPARISON OF VOLUMETRIC PROPERTIES FOR
150-mm VERSUS 100-mm DIAMETER GYRATORY
COMPACTED HMA SPECIMENS**

A Thesis Presented for the Master of Science Degree

The University of Tennessee, Knoxville

Lee James Czor
August 1999

DEDICATION

This work is dedicated to my wife, Karen, and my daughter, Chelsea. Thank you for your love, support, and patience.

ACKNOWLEDGEMENTS

I would like to thank the faculty and staff of the Civil and Environmental Engineering Department for their academic advice, and assistance during my years at The University of Tennessee. I would especially thank Dr. Mike Jackson, Dr. Eric Drumm, Dr. Hal Deatherage, Dr. Greg Reed, Dr. Karen Chou, Mr. Curtis Allin, and Mrs. Jane Taylor for their friendship and support as well. I would also like to thank the Tennessee Department of Transportation, especially Mr. Greg Duncan, Mr. Mike Russell, Mr. Jackie Hunter, Mr. Mitch Blankenship, and Mr. Tom Miller for their help with this project. For their friendship and hard work on this project, I would like to thank Patrick Kiser, Danny Oliver, Dexter Justis, Stuart Malley, Glenn Cox, and Todd Phillips. Finally, I would like to express love and thanks to my Mother, Father, and Sister for making this possible.

ABSTRACT

As the volume of traffic and vehicle wheel loads increase, it has become necessary to improve the effectiveness and efficiency of the design of Hot Mix Asphalt (HMA). Superpave was introduced with the intent to make it possible for the bituminous paving industry to use a rational design approach to produce superior quality pavements. The Superpave Gyrotory Compactor (SGC) is a vital part of this improved mix design system. Currently, the SGC uses a 150-mm (6-inch) diameter cylindrical mold to produce HMA specimens for mix design testing and volumetric evaluation. This study explores the possibility of using a 100-mm (4-inch) diameter mold to produce these specimens.

Loose HMA was collected from typical TDOT paving projects across the state of Tennessee. After compaction, the volumetric properties of both 150-mm and 100-mm diameter specimens were determined and statistically compared. The results of the statistical analysis showed that the differences in volumetric properties of the 150-mm and 100-mm diameter specimens were very small. However, the statistical p-value of the paired t-test used indicated that these properties were not comparable. Further analysis of this data indicated that the difference in volumetric properties between the different size samples was smaller than the variation permitted in the test results used to determine them. It has been recommended to the Tennessee DOT that it is possible to use 100-mm diameter specimens in lieu of using 150-mm diameter specimens for design and/or quality control of HMA.

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1. INTRODUCTION

The need for an improved Hot Mix Asphalt (HMA) design system was brought about by increased traffic volumes and vehicle wheel loading on our national highways. Between October 1987 and March 1993 the Strategic Highway Research Program (SHRP) conducted a \$50 million research effort aimed at developing new methods of testing, specifying and designing asphalt pavements. The United States Federal Highway Administration (FHWA) took a lead role in the implementation of the recommendations from SHRP. The SHRP recommendations were used to develop the Superior Performing Asphalt Pavement System (Superpave).

The Superpave Gyratory Compactor (SGC) is one of the resulting products of the Superpave system. This piece of equipment is used by HMA mix designers to produce specimens for volumetric evaluation and performance testing. Cylindrical specimens are produced by the gyrating-kneading action of the SGC. The SGC is capable of compacting both 150-mm (6-inch) and 100-mm (4-inch) diameter cylindrical specimens. Figure 1 shows both 150-mm (6-inch) and 100-mm (4-inch) stainless steel cylinder molds used to make compacted HMA specimens. Current Superpave specifications require the use of the 150-mm (6-inch) diameter mold for design and QA/QC purposes for all mix designs.

The objective of this study is to evaluate the potential of using 100-mm (4-inch) diameter cylinder molds to prepare HMA specimens for design and/or quality control.

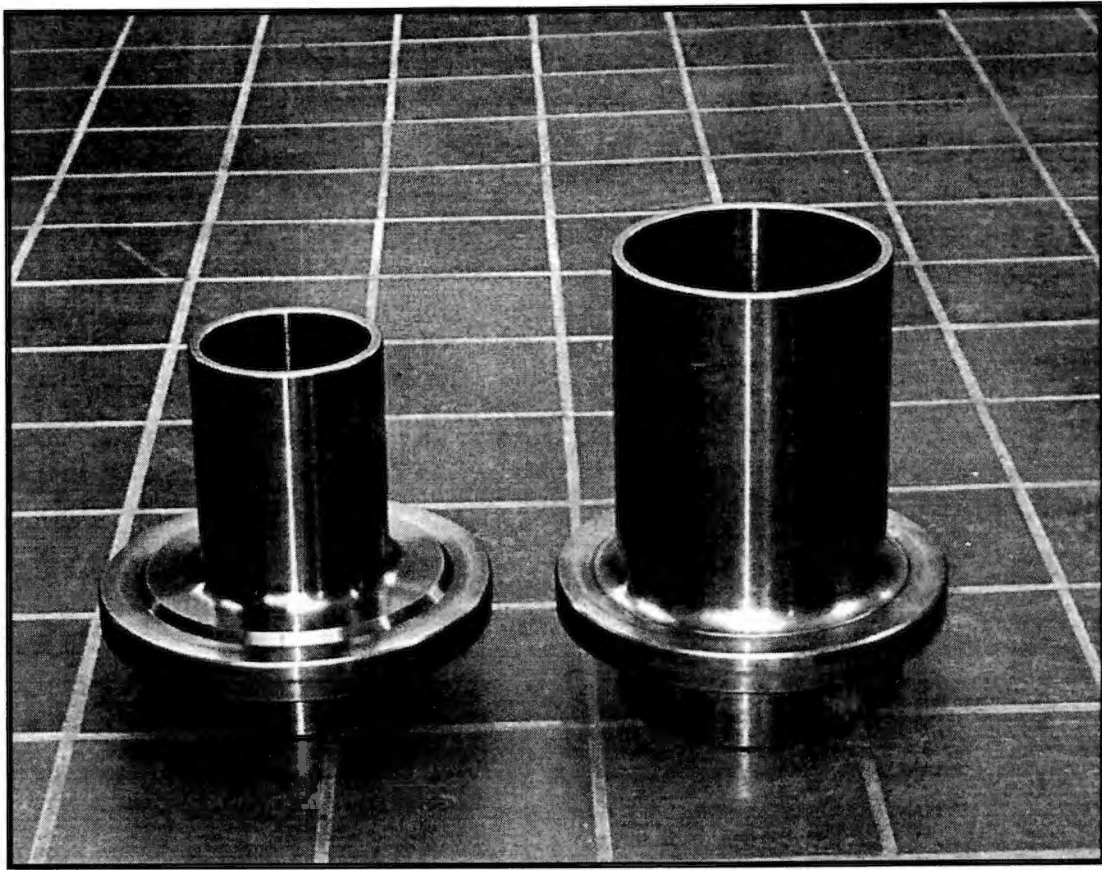


Figure 1. 150-mm (6-inch) and 100-mm (4-inch) Diameter Cylinder Molds

A study conducted by McGennis et al. (1996) showed that it was statistically not feasible to use the 100-mm (4-inch) diameter cylinder mold for specimen production. According to Mr. Greg Duncan (1999), Operations Specialist II, at the Tennessee Department of Transportation (TDOT), the use of the smaller mold size has several advantages:

- Thickness of 100-mm (4-inch) sample, 63.5-mm (2.5-inches) better represents lift thickness of HMA in Tennessee.

- Sample size reduced by 400% - time of preparation, storage space, and transported material similarly reduced.
- Option of running additional performance testing (100-mm [4-inch] diameter required).
- The majority of mix designs in Tennessee use 25.4-mm (or smaller) nominal maximum aggregate size.

In 1998 the Tennessee DOT commissioned this study (Project - RES 1141, Contract - CUT 187) to explore this possibility.

2. BACKGROUND

Design and Analysis of HMA

Design of HMA has evolved since the late 19th century to the present. Early road building pioneers such as Telford and McAdam designed aggregate based roadways that provided improved stability and durability. Road builders in England began using hot tar to bind the aggregates together as early as 1820 (Suarez 1999). This mixture became known as "tarmacadam" and was patented in 1910 by Warren Brothers (later APAC). Several coal tar roads were built during the 1860's and 1870's in the District of Columbia. In 1876, the first HMA pavement project to use asphalt from the Trinidad Lake deposit was constructed on Pennsylvania Avenue in Washington D.C. Refined petroleum asphalt was introduced in the 1870's and was used as a softener in Trinidad asphalt combinations (Crawford 1989).

Laboratory testing of hot mix asphalt was unheard of before 1900. Pioneering asphalt technologist Clifford Richardson was the first to obtain and analyze material from these early bituminous roads in 1906 (Richardson 1912). He documented the principles of air void content (VTM) and voids in the mineral aggregate (VMA). The "Pat Test" was the first serious attempt to determine an optimum asphalt cement (AC) content in an HMA mixture. After pressing a sample of sheet asphalt against a brown manila envelope, Richardson judged the proper optimum AC content by visually

inspecting the stain left behind on the paper. This method continued to be popular into the 1920's when the Hubbard-Field method was introduced.

The Hubbard-Field method was the first to use empirical mix stability values to determine optimum AC content. Compaction of asphalt mix samples was achieved by impact loading using a small tamping foot in a 2-inch diameter mold. This method was widely used in modified form into the 1950's when the Marshall test gained popularity (Roberts et al. 1996).

In the 1920's and 30's Francis Hveem developed a mix design method applying stability values to samples compacted using a kneading type compactor to determine optimum asphalt content. This method was adopted by several state agencies in the western portion of the United States and remains popular as an alternative to the Marshall method (Vallerga & Lovering 1985).

Bruce Marshall began developing his design method while with the Mississippi State Highway department as early as 1939. The Marshall method continued to evolve through the years as wheel loads increased for airport and highway traffic. This method used impact compaction to prepare HMA samples using higher or lower blow counts corresponding to traffic levels (White 1985). These hot mix asphalt design pioneers laid the groundwork for modern pavement designers and the development of the Superpave mix design system.

The Superpave system includes new testing equipment, test methods, and specification criteria based on a rational approach to HMA mixture design. Among the new testing equipment developed for the Superpave system was the Superpave

Gyratory Compactor. The SGC is an entirely new piece of compaction equipment that borrows from earlier gyratory compaction principles.

In the 1930's, the state of Texas developed a compaction machine that used a back and forth gyratory motion to densify a six-inch diameter cylindrical HMA specimen. This compaction method produced a kneading action by repeatedly gyrating the HMA specimen through a horizontal angle. The magnitude of compaction achieved was primarily dependent on the number of gyrations applied to the sample. By the 1940's, with the outbreak of World War II and increased construction of airfields, it was apparent that heavy-duty pavement designs would be required. It became necessary to handle increased traffic and wheel loads on highways and increased wheel loads on airport runways (McRae et al. 1966). The United States Corps of Engineers developed the Gyratory Testing Machine (GTM) to address these concerns. The GTM was unique for its time because it provided the user with the ability to monitor shear resistance throughout the compaction process (Technical Report No. 3-594, 1962). The French Central Laboratory for Bridges and Roads (LCPC, le Laboratoire Central des Ponts et Chaussées) further refined the gyratory concept by 1972. The LCPC evaluated gyratory parameters including gyration angle, ram head pressure, and gyration speed (Blankenship 1993).

A large portion of the SHRP research was devoted to the SGC. A study conducted by Consuegra, Little, Von Quintus, and Burati (1989) concluded that the gyratory compaction method was superior for reproducing mixtures with "engineering properties nearest those determined from field cores". Five compaction methods were

evaluated and are listed in descending order of ability to reproduce conditions found in field cores:

- 1) Texas gyratory shear compactor
- 2) California kneading compactor
- 3) Mobile steel wheel simulator
- 4) Arizona vibratory-kneading compactor
- 5) Marshall mechanical hammer

Separate studies by the Asphalt Institute and the FHWA concluded that the Superpave gyratory compactor can be used effectively as a field control tool for the evaluation of HMA mixtures (Anderson et al. 1995; D'Angelo et al. 1996).

Historically, field quality control of the asphalt mix was conducted by monitoring the proportions of aggregate and asphalt cement. Unfortunately, the field performance of these mixes has not always met expectations. The need for additional measures was met with the Superpave system. When volumetric properties are monitored with the SGC, necessary changes can be made before thousands of tons of HMA are placed on the roadway (Harman et al. 1995).

The Superpave Gyratory Compactor (SGC)

The SGC was developed using a large Texas gyratory compactor (modified to use the compaction principles of the French gyratory compactor) as the basis for

comparison (Roberts et al. 1996). The SGC is a compaction device designed to reproduce asphalt pavement densities and aggregate orientation occurring under actual field compaction conditions (Yue 1996). In a comparative study performed in 1998 comparing four other compactor types, the Superpave gyratory compactor best met these conditions (Khan et al. 1998). The Superpave gyratory compactor consists of the following components:

- Reaction frame, rotating base, and motor.
- Loading system, load ram, and pressure gauge.
- Height measuring and recording system.
- Mold and base plate.

The reaction frame provides a non-compliant structure against which the loading ram can push during the compaction process. Support bearings are used to position the mold at an angle of 1.25 degrees from horizontal. The motor drives the rotating base of the SGC at 30 revolutions per minute. The rotating base of the compactor, which supports the sample molds, is attached to the load frame.

The load system applies a load to the loading ram, which pushes against the sample with a constant pressure of 600 kPa (87 psi). The ram head matches the nominal inside diameter of the specimen mold. The pressure gauge constantly measures ram pressure during compaction. It signals the loading system to adjust the position of the loading ram so that constant pressure can be applied during the compaction cycle.

The height of the asphalt specimen is constantly measured during the compaction process. Knowledge of this height combined with specimen diameter and specimen mass can be used to estimate the density of the sample at any point during compaction. Change in specimen height is recorded after each gyration and transferred via serial port to a personal computer and printer, which provide both digital and paper output of these measurements.

An outer flange permits the mold to rest on the support bearings of the reaction frame. Each mold has both a base and cap plate to provide specimen confinement during compaction. Figures 2 and 3 show the basic components as well as the mold configuration and compaction parameters of the SGC, respectively.

As noted, the specimen mold for the Superpave gyratory compactor can be either 150-mm (6-inch) or 100-mm (4-inch) inside diameter. However, the 150-mm (6-inch) mold is the standard size specified by Superpave. It has been recommended that a minimum specimen size of 3500-grams be used with the 150-mm (6-inch) mold for the smallest possible variation of volumetric results (Hall et al. 1996). Further, a study conducted by McGennis et al. (1996) evaluated the possibility of using 100-mm (4-inch) specimens for Superpave design purposes. Seven mix designs were used at three different asphalt content percentages. Each specimen was subjected to 250 gyrations and measurements were observed at 10, 100, 150, and 250 gyrations. The authors simply compared the 100-mm (4-inch) samples to 150-mm (6-inch) samples for each combination.

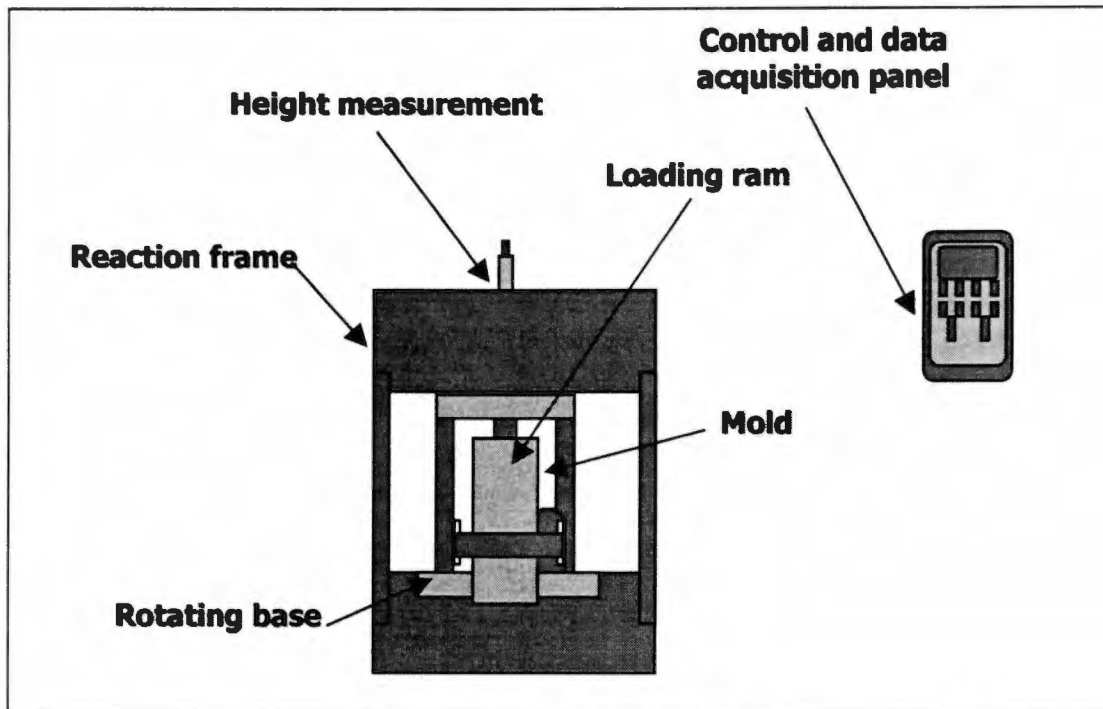


Figure 2. Components of SGC (McGennis et al. 1995)

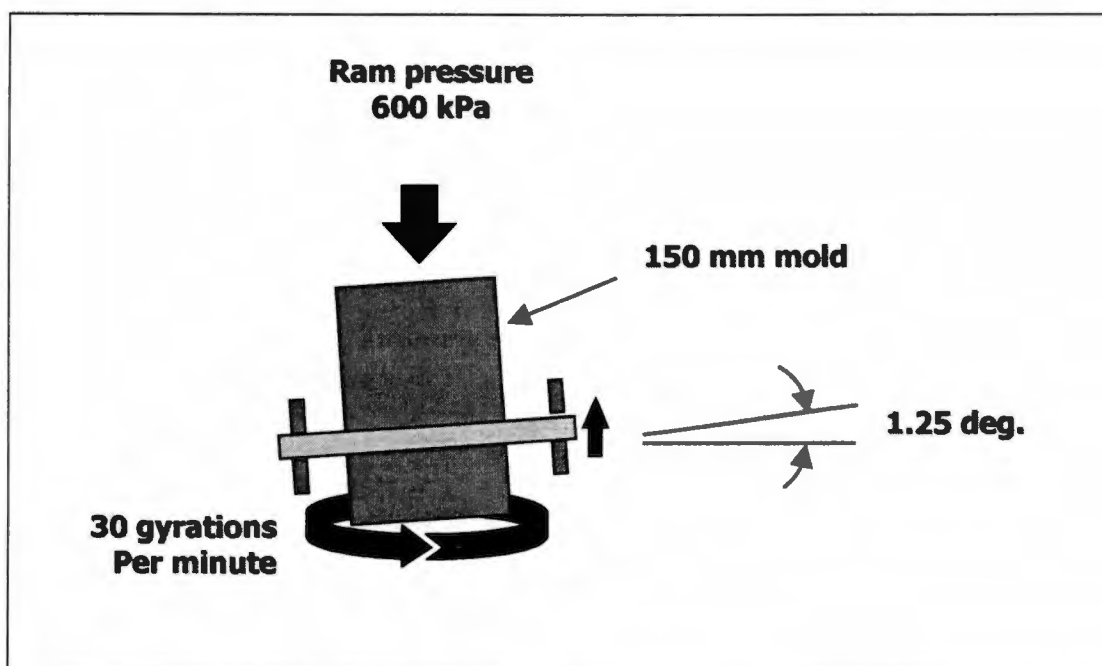


Figure 3. Compaction Parameters for SGC (McGennis et al. 1995)

In this study, they determined whether to reject or accept the null hypothesis (H_0 : %G_{mm} would be equal for both size specimens at a given gyration level) based on a two-sample t-test ($\alpha = 0.05$). The results of this study (56% reject H_0) indicated that it was statistically not possible to use a 100-mm (4-inch) specimen for Superpave design purposes.

Superpave Volumetric Design

The Superpave system originally consisted of three mix design levels. Level One consisted strictly of volumetric mix design specifications. Level Two mix design was to include the following empirically based performance tests: permanent deformation, fatigue cracking, and low temperature cracking. Level Three design was to add indirect tension, strain, and creep performance tests to the aforementioned specifications. Currently, the original level one mix design is the only part of the Superpave design system being utilized by contractors and state agencies.

The use of volumetric proportioning for HMA mix design is well documented, and forms a central part of the Marshall mix design method (Kandahl 1985). The determination of VTM, VMA, voids filled with asphalt (VFA), and percent maximum theoretical specific gravity (%G_{mm}) are the basis of a rational system for the volumetric design of HMA. These volumetric properties also form the basis of the Superpave volumetric mix design system.

Volumetric HMA Relationships

Hot mix asphalt is composed of three components: air, asphalt cement, and aggregate. Figure 4 illustrates the unit volumetric components of a compacted asphalt mixture. The proportioning of these constituents is vital to the performance characteristics of the mix under traffic loading and environmental conditions. Due to the fact that density and specific gravity are numerically the same (the density of water is 1.000 g/cm^3 and the specific gravity of water is 1.000 at 25°C), the component diagram in Figure 3 is based on metric units of measure

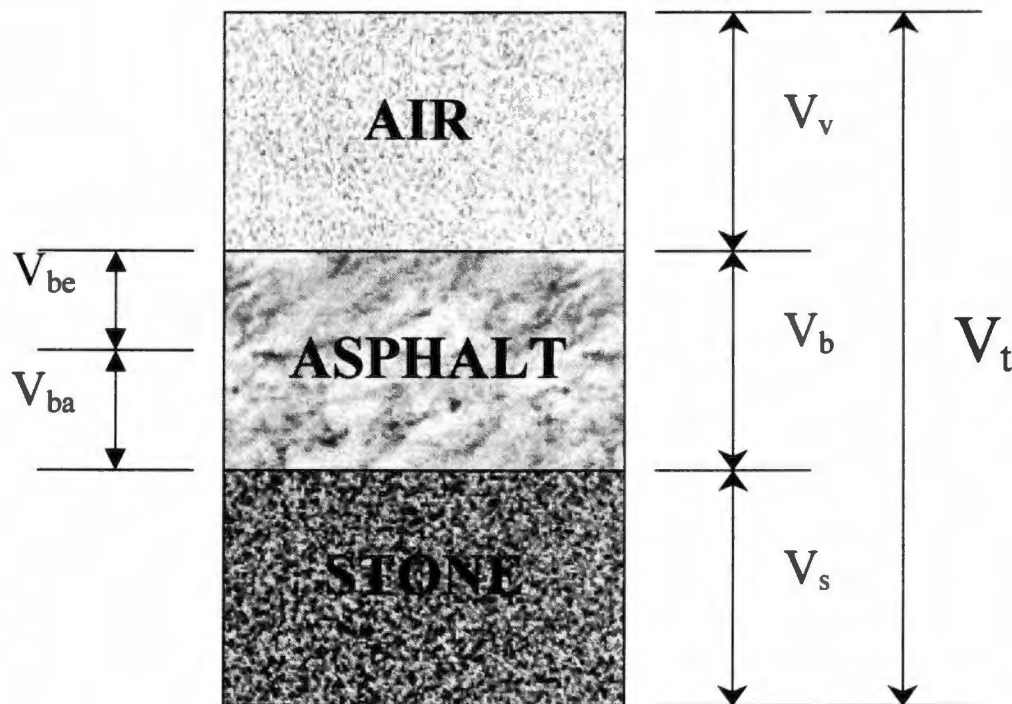


Figure 4. Component Diagram of Compacted HMA Sample

In order to convert from mass to volume of an asphalt mixture, an understanding of the relationship between specific gravity, mass, and volume is necessary. The term specific gravity, as used by asphalt technologists, is the ratio of mass (grams) to volume (cm³) of the material multiplied by the density of water (Equation 1).

$$G = M/(V * 1.000 \text{ g/cm}^3) \quad (1)$$

The specific gravity of an HMA mixture depends upon the level of compaction (ranging from fully compacted to loose) of the mixture. The bulk specific gravity (G_{mb}) is typically used to represent specific gravity of a compacted sample. Bulk specific gravity is measured in the laboratory using either ASTM D2726 or ASTM D1189 (Saturated-Surface-Dry [SSD] and Parafilm methods, respectively). The maximum theoretical specific gravity (G_{mm}) has the same mass/volume ratio as G_{mb} , however it is determined using a loose sample of HMA, thus the volume of the air is not included. Maximum theoretical specific gravity is measured in the laboratory using ASTM D2041.

The total volume of air in HMA is expressed as a percentage of the total volume of the mixture (Equation 2).

$$VTM = V_v/V_T \quad (2)$$

The performance characteristics of an HMA mixture are related to VTM. Sufficient air void space in the mixture is required for a durable pavement; however excess void space will produce a pavement susceptible to permanent deformation (rutting). A study by Linden et al. (1989), which included a survey of 48 state highway departments, concluded that for every 1% loss of air void content an asphalt pavement can suffer a 10% reduction in service life.

The level of compaction achieved in the SGC can be represented in terms of %G_{mm} as shown in Equation 3.

$$\%G_{mm} = (G_{mb}/G_{mm}) \times 100 \quad (3)$$

The %G_{mm} value is important in the design and evaluation of Superpave HMA mix designs. Superpave sets a maximum value of %G_{mm} at N_{ini} gyrations (< 89%) that is dependent on expected traffic level. This requirement eliminates mixes that show little resistance to compaction and may be unstable on the roadway. At N_{des} Superpave requires the %G_{mm} to be 96%, which simulates the level of compaction on the road surface in the wheel path after several years of traffic loading. Superpave sets a maximum value of %G_{mm} at N_{max} gyrations (<98%) in order to ensure acceptable durability of the pavement.

According to Superpave specifications, specimens prepared in the SGC are compacted to a specific number of gyrations related to traffic level and climatic conditions of the pavement in question. The number of gyrations required for

specified traffic levels and air temperatures are shown in Table 1. Air voids are calculated at three different gyration levels: N-initial (N_{ini}), N-design (N_{des}), and N-maximum (N_{max}).

The gyration levels presented in Table 1 are based on recommendations made by SHRP researchers. A simplified table of gyration effort (shown as Table 2) was proposed in NCHRP (National Cooperative Highway Research Program) Report No. 237 (1999). This Compaction effort table was adopted by the Tennessee Department of Transportation (TDOT) for use during the 1999-construction season (Duncan 1999).

Table 1. Superpave Gyratory Compaction Effort (McGennis et al. 1995)

Design ESAL's (millions)	Average Design High Air Temperature											
	<39°C			39-40°C			41-42°C			43-44°C		
	N_{ini}	N_{des}	N_{max}	N_{ini}	N_{des}	N_{max}	N_{ini}	N_{des}	N_{max}	N_{ini}	N_{des}	N_{max}
<0.3	7	68	104	7	74	114	7	78	121	7	82	127
0.3-1	7	76	117	7	83	129	7	88	138	8	93	146
1-3	7	86	134	8	95	150	8	100	158	8	105	167
3-10	8	96	152	8	106	169	8	113	181	9	119	192
10-30	8	109	174	9	121	195	9	128	208	9	135	220
30-100	9	126	204	9	139	228	9	146	240	10	153	253
>100	9	142	233	10	158	262	10	165	275	10	172	288

Table 2. Simplified Gyratory Compaction Effort

Design ESAL's (millions)	Compaction Level		
	N _{ini}	N _{des}	N _{max}
< 0.3	6	50	75
0.3 to < 3	7	75	115
3 to < 30	8	100	160
> 30	9	125	205

3. RESEARCH PROGRAM

Research Methodology

The purpose of this study was to further examine the possibility of using 100-mm (4-inch) diameter specimens in the SGC for design and/or quality control purposes. Hot mix asphalt samples were gathered from each of the four TDOT regions in Tennessee. Thirty-two paving projects, using typical mixes placed by TDOT, were identified (with assistance from TDOT personnel) for sampling and testing. Forty-two different mixes, as summarized in Table 3, were sampled from haul trucks at the time of paving. All projects selected for use in this study were constructed during the 1998-paving season. Tennessee DOT Job Mix Formula (JMF) design information is included in Appendix A. Surface and base mixes designed using both Marshall (75 blow-rotating base) and Superpave procedures were used in this study to provide a comprehensive representation of common HMA used in Tennessee. Mixes with maximum aggregate size no larger than 1-inch were specified for inclusion in this study. Loose samples were collected and transported to the Civil Engineering Materials Laboratory at the University of Tennessee for further testing and analysis.

The SGC was used to compact cylindrical test specimens at both 150-mm (6-inch) and 100-mm (4-inch) diameter sizes at two separate compaction levels. One group of samples was compacted to $N_{\max}$ (152) gyrations. The $\%G_{\text{mm}}$ was back calculated for all other gyrations. It is known that there is some error introduced

Table 3. Mix Identification Summary

Mix #	Project Number	TDOT Region	County	TDOT Mix Type	Mix Description
1	3556	III	Davidson (a)	411D	Marshall-Surface
2	4352	III	Davidson/Wilson	307 BM	Marshall-Binder
3	4725	III	Rutherford	307 BM	Marshall-Binder
4	4759	II	Hamilton	411D	Marshall-Surface
5	4858	I	Blount/Loudon	307 BM	Marshall-Binder
6	4895	II	Coffee	307 BM	Marshall-Binder
7	4895	II	Coffee	411D	Marshall-Surface
8	5100	IV	Benton	307 BM	Marshall-Binder
9	5100	IV	Benton	411D	Marshall-Surface
10	5120	III	Dickson	307 BM	Marshall-Binder
11	5120	III	Dickson	411 D	Marshall-Surface
12	5122	III	Giles	307 BM	Marshall-Binder
13	5149	IV	Shelby	411S	Superpave-Surface
14	5161	I	Campbell	307 BM	Marshall-Binder
15	5161	I	Campbell	411D	Marshall-Surface
16	5168	III	Davidson (b)	411 D	Marshall-Surface
17	5185	II	Jackson	307 BM	Marshall-Binder
18	5185	II	Jackson	411D	Marshall-Surface
19	5191	II	McMinn	307 S	Superpave-Binder
20	5191	II	McMinn	411 S	Superpave-Surface
21	5195	II	Polk	411 D	Marshall-Surface
22	5267	I	Blount	411S w/ Fiber	Superpave-Surface
23	5267	I	Blount	411S	Superpave-Surface
24	5267	I	Blount	307S w/Fiber	Superpave-Binder
25	5267	I	Blount	307S	Superpave-Binder
26	5285	IV	Dyer	411-S	Superpave-Surface
27	5285	IV	Dyer	307-S	Superpave-Binder
28	5295	II	Grundy	307 BM	Marshall-Binder
29	5295	II	Grundy	411 D	Marshall-Surface
30	5305	IV	Madison	307 BM	Marshall-Binder
31	5306	IV	Madison	307-S w/Fiber	Superpave-Binder
32	5306	IV	Madison	411-S w/Fiber	Superpave-Surface
33	5306	IV	Madison	411-S	Superpave-Surface
34	5308	III	Maury	411S	Superpave-Surface
35	5313	II	Pickett	411S	Superpave-Surface
36	5318	II	Sequatchie	411D	Marshall-Surface
37	5366	I	Knox	411S	Superpave-Surface
38	5382	III	Montgomery	307 S	Superpave-Binder
39	5386	II	Putnam	307 S	Superpave-Binder
40	5386	II	Putnam	411 S	Superpave-Surface
41	5398	I	Sevier	307 S	Superpave-Binder
42	5398	I	Sevier	411S	Superpave-Surface

at low gyration levels using the current back-calculation method (Vavrick & Carpenter 1997). In order to account for these effects, a second group was compacted to 4 +/- 1% VTM (96 %G_{mm}). If large error were present in the back-calculation method, it would show up as a significant discrepancy in the mean difference of %G_{mm} between the two groups. The volumetric properties of these specimens were measured, and statistically compared using paired t-tests similar to the McGennis study (1996) previously mentioned. A linear regression model was also included to aid in comparative evaluation of the volumetric properties at selected gyration intervals.

Material Testing

A portion of the loose HMA sample from each mix sampled was used to determine the G_{mm} of the mixture. Each sample was re-heated at approximately 110° C (230° F), split into three approximately equal size samples, and tested according to ASTM and AASHTO procedures.

Specimens were compacted using the Pine Instrument Company, Model AFGC125X Gyratory Compactor shown in Figure 5. The SGC was calibrated prior to conducting this study and checked at regular intervals. Data collection was accomplished using a serial port connection to a laptop computer (using Pine-Pave 4.00 software) and a direct connection to a printer for paper copy. Loose HMA was

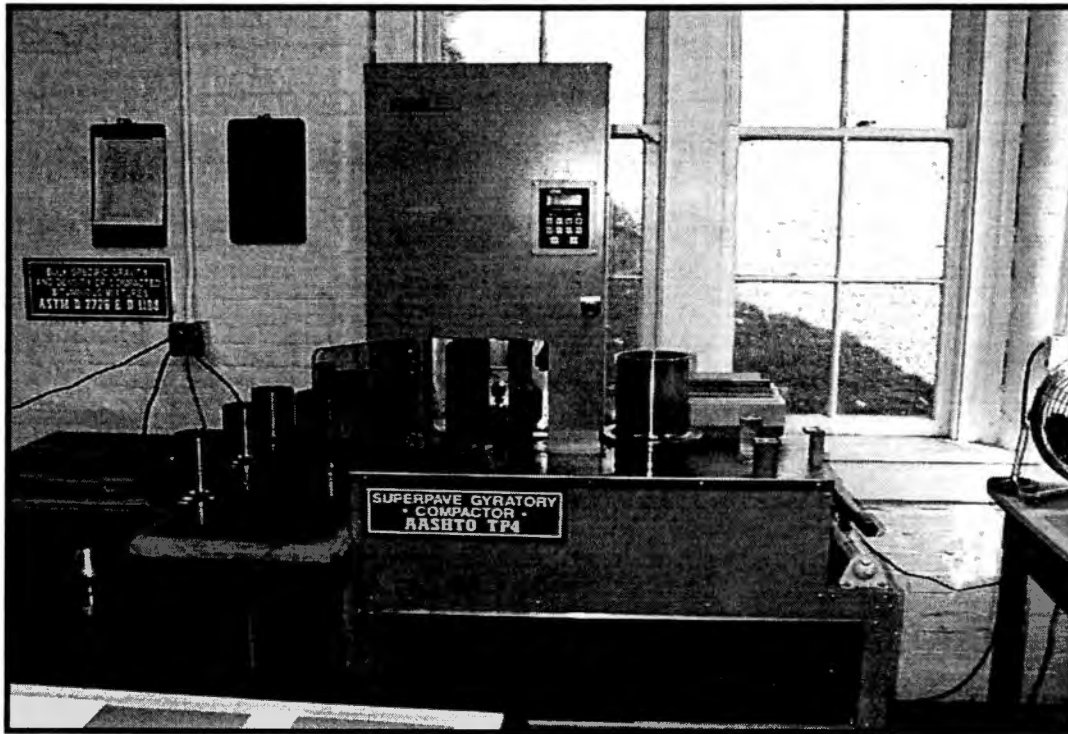


Figure 5. Pine AFCG125X Superpave Gyratory Compactor

re-heated, split, and compacted at approximately 149° C (300° F) in the SGC. Two specimens were produced at N_{max} gyrations and two at 4 +/- 1 percent VTM for both 150-mm (6-inch) and 100-mm (4-inch) diameter sizes (8 specimens per mix). Bulk specific gravity tests were performed on all compacted HMA samples according to ASTM standards. Both saturated surface dry and parafilm methods were used to determine bulk specific gravity, however, only the SSD method was used for volumetric calculations in this study. Table 4 summarizes the laboratory sampling and test procedures followed in preparation of specimens.

Table 4. Laboratory Procedure Summary

Sample Condition	Procedure Description	Specification
Loose HMA		
	Bulk Sampling of Mix	ASTM D979-89
	Sample Reduction	AASHTO T248-83
	Theoretical Maximum Specific Gravity, G_{mm}	ASTM D2041-95
	SGC Compaction	AASHTO TP4
SGC Compacted Specimens		
	Bulk Specific Gravity, G_{mb} (SSD)	ASTM D2726-96
	Bulk Specific Gravity, G_{mb} (Parafilm)	ASTM D1188-96

Test Results

The maximum theoretical specific gravity test results for the three loose specimens tested for each mix were averaged to determine G_{mm} for that mix design. The eight test specimens were then compacted for each mix design (two in each of the following categories:

- 150-mm (6-inch) diameter – N_{max} gyrations (152)
- 150-mm (6-inch) diameter – 4 +/- 1% VTM
- 100-mm (4-inch) diameter – N_{max} gyrations (152)
- 100-mm (4-inch) diameter – 4 +/- 1% VTM

A typical test data summary sheet is shown in Figure 6. All pertinent physical data was recorded for the compacted specimens including mass, number of gyrations, and compaction temperature. Bulk specific gravity test data and results were recorded for each of the eight specimens. All summarized compaction, G_{mm} , and G_{mb} data and results can be found in Appendix B.

Determination of % G_{mm}

In order to determine whether the 100-mm (4-inch) diameter HMA specimen can be used by the Tennessee DOT, in lieu of the 150-mm (6-inch) diameter specimens, the volumetric properties should be statistically compared. As previously mentioned, % G_{mm} at a given gyration is of great interest to the asphalt technologist for quality and/or mix design purposes.

The percent maximum theoretical specific gravity is simply the ratio of the bulk specific gravity to maximum theoretical specific gravity, expressed as a percentage, and indicates the level of compaction achieved. Bulk specific gravity is measured at the height corresponding to the terminal gyration for a particular mix design. The G_{mb} is estimated for all preceding gyration levels using the volume of a cylinder at the recorded height corresponding to that gyration, the diameter of the specimen mold, and the mass of the sample (Equation 1).

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Sevier	Rice Gravity Date	3/3/99
Mix Type	307-S		
Project Number	5398	Compaction Date	3/11/99
Contractor	Blavlock & Sons		
Date Sampled	10/16/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm PM (6" Dia.)				63.5 mm x 100mm PM (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1758.7	2604.4	2525.5					
(B) Wet mass ; Asphalt, Bowl, & water, g	2335.6	2850.3	2801.2					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1070.1	1584.8	1535.7	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.554	2.554	2.552	2.553				
Compaction								
	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax (152)	Nmax (152)	4+/-1% VTM	4+/-1% VTM	Nmax (152)	Nmax (152)	4+/-1% VTM	4+/-1% VTM
Mass of Sample Before Compaction, g	4942.0	4942.0	4799.0	4799.0	1213.0	1213.0	1178.0	1178.0
Mix Temperature, °C	149.4	148.9	148.9	149.4	149.4	149.4	147.8	147.2
Number of Gyration	152	152	62	58	152	152	80	95
Compacted Height, mm	113.9	114.0	114.9	114.6	64.1	63.5	63.4	63.5
Bulk Specific Gravity								
Dry mass (A), g	4931.1	4907.1	4793.1	4772.8	1188.7	1193.0	1160.3	1156.9
Dry mass with Parafilm (D), g	4939.5	4916.0	4800.1	4779.8	1194.0	1199.7	1163.8	1160.3
Wet mass with Parafilm (E), g	2932.8	2906.2	2780.9	2760.4	689.8	699.3	665.1	662.4
Wet mass w/o Parafilm (C), g	2969.0	2948.6	2833.0	2809.9	709.7	716.2	686.1	684.8
Saturated Surface Dry mass (B), g	4933.7	4911.0	4797.7	4776.8	1189.8	1196.1	1161.3	1158.2
Specific Gravity (G _{sub}), SSD	2.510	2.501	2.440	2.427	2.476	2.490	2.442	2.444
Specific Gravity (G _{sub}), Parafilm	2.475	2.460	2.388	2.377	2.400	2.426	2.354	2.350
VTM = [1-(G _{sub} /G _{mm})], SSD	1.7%	2.1%	4.3%	3.0%	3.0%	2.5%	4.4%	4.3%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	3.1%	3.7%	6.5%	6.9%	6.0%	5.0%	7.8%	7.9%

Figure 6. Typical Laboratory Test Data Summary Sheet

$$G_{mb}(\text{estimated}) = (M/V)/(1.00\text{g/cm}^3) \quad (1)$$

This estimate assumes that the volume of the specimen was determined from a smooth-sided cylinder. Due to surface irregularities, the sides of the specimen are not smooth and must be accounted for. A correction factor using the ratio of the $G_{mb}(\text{measured})$ to $G_{mb}(\text{estimated})$ at N_{max} gyrations is calculated (Equation 2) and can be used to correct the estimated G_{mb} at all other gyration levels.

$$C = G_{mb}(\text{measured})/G_{mb}(\text{estimated}) \quad (2)$$

The estimated G_{mb} is multiplied by the correction factor to produce a corrected G_{mb} (Equation 3)

$$G_{mb}(\text{corrected}) = C * G_{mb}(\text{estimated}) \quad (3)$$

For this study, the corrected G_{mb} was used in calculations for $\%G_{mm}$ at all other gyrations. The $\%G_{mm}$ was reported at every 10 gyrations, including 8, 96, and 152 gyrations, where applicable. Figure 7 provides an example of typical $\%G_{mm}$ back-calculations. The $\%G_{mm}$ calculation sheets for all mix designs are provided in Appendix C.

County: Blount

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G _{mb}	G _{mm}	Uncorrected Density	Actual G _{mb}	Correction Factor	Corrected %G _{mm}
1	0		147.2	2601.2	1.868		74.3		1.02488	76.2
	8		129.8	2293.8	2.118		84.3		1.02488	86.4
	10		128.3	2267.2	2.143		85.3		1.02488	87.4
	20		123.8	2187.7	2.221		88.4		1.02488	90.6
	30		121.4	2145.3	2.265		90.1		1.02488	92.4
	40		119.8	2117.0	2.295		91.4		1.02488	93.6
	50		118.7	2097.6	2.316		92.2		1.02488	94.5
	60		117.7	2079.9	2.336		93.0		1.02488	95.3
	70		117.0	2067.6	2.350		93.5		1.02488	95.9
	80		116.4	2057.0	2.362		94.0		1.02488	96.4
	90		115.9	2048.1	2.372		94.4		1.02488	96.8
	96		115.6	2042.8	2.378		94.7		1.02488	97.0
	100		115.4	2039.3	2.383		94.8		1.02488	97.2
	110		115.0	2032.2	2.391		95.2		1.02488	97.5
	120		114.7	2026.9	2.397		95.4		1.02488	97.8
	130		114.4	2021.6	2.403		95.7		1.02488	98.0
2	140		114.1	2016.3	2.410		95.9		1.02488	98.3
	150		113.8	2011.0	2.416		96.2		1.02488	98.6
	152	4858.8	113.8	2011.0	2.416	2.512	96.2	2.476	1.02488	98.6
	0		147.0	2597.7	1.866		74.3		1.02425	76.1
	8		129.8	2293.8	2.114		84.1		1.02425	86.2
	10		128.3	2267.2	2.138		85.1		1.02425	87.2
	20		123.9	2189.5	2.214		88.1		1.02425	90.3
	30		121.5	2147.1	2.258		89.9		1.02425	92.1
	40		119.9	2118.8	2.288		91.1		1.02425	93.3
	50		118.7	2097.6	2.311		92.0		1.02425	94.2
	60		117.8	2081.7	2.329		92.7		1.02425	94.9
	70		117.0	2067.6	2.345		93.3		1.02425	95.6
	80		116.4	2057.0	2.357		93.8		1.02425	96.1
	90		115.9	2048.1	2.367		94.2		1.02425	96.5
	96		115.6	2042.8	2.373		94.5		1.02425	96.7
	100		115.4	2039.3	2.377		94.6		1.02425	96.9
	110		115.0	2032.2	2.386		95.0		1.02425	97.3
	120		114.6	2025.1	2.394		95.3		1.02425	97.6
	130		114.3	2019.8	2.400		95.5		1.02425	97.8
	140		114.0	2014.5	2.406		95.8		1.02425	98.1
	150		113.8	2011.0	2.411		96.0		1.02425	98.3
	152	4848.0	113.8	2011.0	2.411	2.512	96.0	2.469	1.02425	98.3

Figure 7. Typical Back-Calculation Results for %G_{mm} at Different Gyration

When the logarithm of gyration is plotted as a function of %G_{mm}, a densification curve is produced. This curve is useful to the pavement designer in selecting the proper aggregate structure and binder content for an HMA mixture design (McGennis et al. 1995). Figure 8 shows a typical densification chart for both 150-mm (6-inch) and 100-mm (4-inch) specimens.

County: Blount

Mix: 411-S

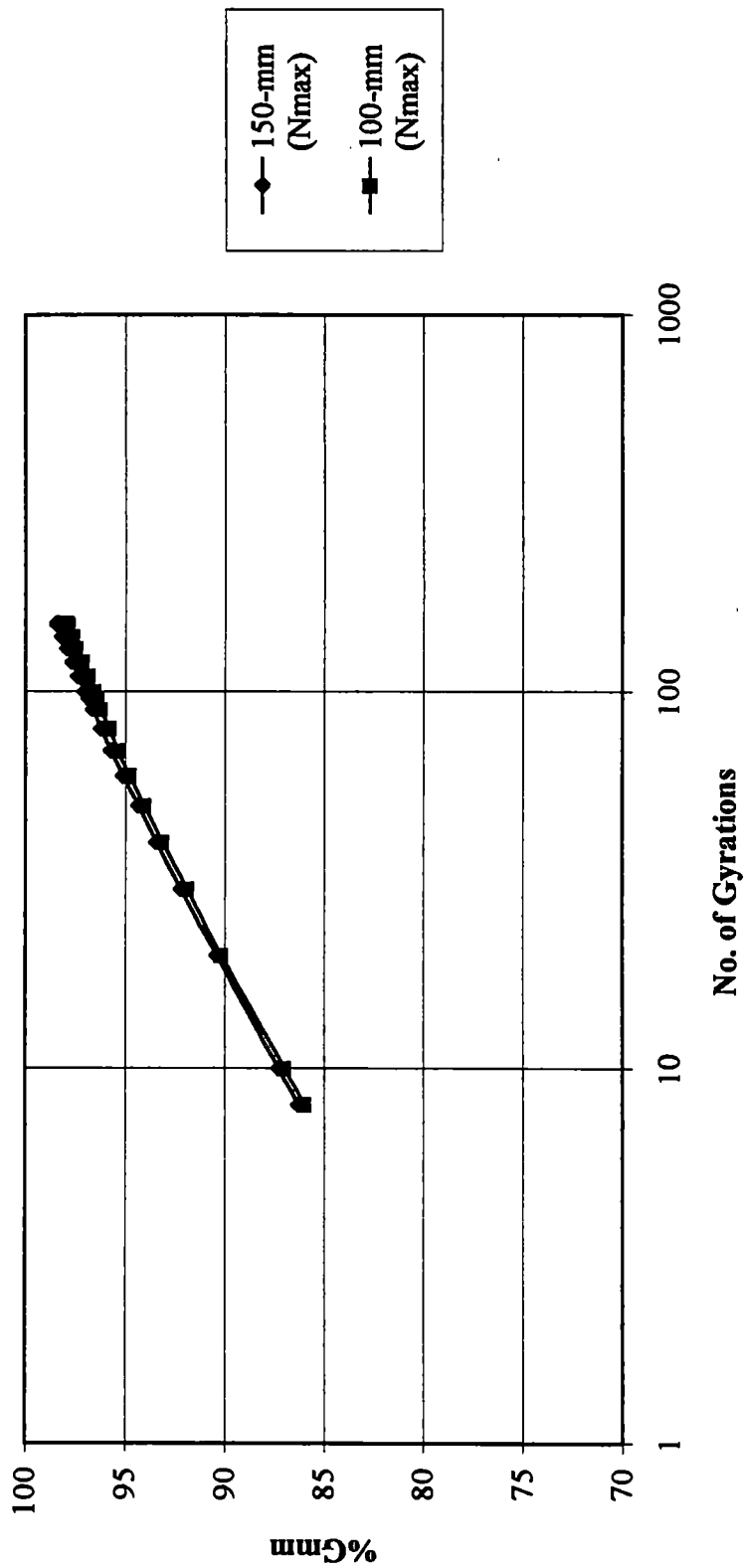


Figure 8. %Gmm vs. No. of Gyration (N_{max} Specimens)

4. ANALYSIS OF RESULTS

Statistical Analysis

The statistical analysis of the volumetric data was accomplished using several test methods with *SPSS Base 9.0* statistical software. Paired t-tests were performed on all 150-mm (6-inch) vs. 100-mm (4-inch) data, as well as several subgroups of this data, that were compacted to $N_{\max}$ gyrations. The results of these analyses are summarized in Tables 5 and included in Appendix D. The $\%G_{\text{mm}}$ was compared at every 10 gyrations, including 8 (N_{ini}), 96 (N_{des}), and 152 ($N_{\max}$) gyrations. The mean $\%G_{\text{mm}}$ was compared for all data and subgroups that were split into mix design method (Marshall vs. Superpave) as well as mix type (binder vs. surface) respectively.

A linear regression model was also used for $\%G_{\text{mm}}$ data to examine the strength of the relationship between 150-mm (6-inch) and 100-mm (4-inch) samples. The coefficient of determination (R^2) of 0.987 indicates that the values of $\%G_{\text{mm}}$ at 100-mm (4-inch) correlate well with $\%G_{\text{mm}}$ at 150-mm (6-inch) and that their relationship is strongly linear.

The same statistical methods were also employed using the companion data at 4 +/- 1% VTM and are summarized in Table 6. Similar results indicated that if there was error in the back-calculation method, it did not significantly affect the outcome of the tests. The mean differences remain low in all cases, however, the *p-value* of zero indicates the null hypothesis is rejected and the means are not statistically equal.

Table 5. Statistical Analysis Summary, $N_{\max}$ Specimens

Subgroup Identification	SPSS Identification	<i>p-value</i>	Mean Difference ($\mu_{150}-\mu_{100}$)	Paired Sample Correlation	Coefficient of Determination (R^2)
All Mix Designs		0.000	0.2986	0.993	0.987
All Superpave Mix Designs	MIXCLASS 1.00	0.000	0.4173		
All Marshall Mix Designs	MIXCLASS 2.00	0.000	0.1907		
Superpave-Surface Mix Designs	GROUP 1.00	0.000	0.2992		
Superpave-Binder Mix Designs	GROUP 2.00	0.000	0.5945		
Marshall-Surface Mix Designs	GROUP 3.00	0.000	0.1711		
Marshall-Binder Mix Designs	GROUP 4.00	0.000	0.2104		

Table 6. Statistical Analysis Summary, 4 +/- 1% Specimens

Subgroup Identification	SPSS Identification	<i>p-value</i>	Mean Difference ($\mu_{150}-\mu_{100}$)	Paired Sample Correlation	Coefficient of Determination (R^2)
All Mix Designs		0.000	0.3814	0.991	0.982
All Superpave Mix Designs	MIXCLASS 1.00	0.000	0.4377		
All Marshall Mix Designs	MIXCLASS 2.00	0.000	0.3124		
Superpave-Surface Mix Designs	GROUP 1.00	0.000	0.3188		
Superpave-Binder Mix Designs	GROUP 2.00	0.000	0.5647		
Marshall-Surface Mix Designs	GROUP 3.00	0.000	0.3553		
Marshall-Binder Mix Designs	GROUP 4.00	0.000	0.2704		

The null hypothesis for each comparison stated that the mean %G_{mm} for both 150-mm (6-inch) and 100-mm (4-inch) samples was the same. More simply stated, the mean difference of the two categories is equal to zero ($H_0: \mu_{150\text{-mm}} - \mu_{100\text{-mm}} = 0$). The paired sample correlation of 0.993 indicates a strong linear relation between the 150-mm (6-inch) and 100-mm (4-inch) mean values. This reinforces the decision to use a paired statistical model design rather than a design with two independent groups (Iman 1994). The *p-value* of zero indicates that the null hypothesis is rejected and the means of the two data sets are not statistically equal. It must be noted, however, that the difference in the means (0.2986 %G_{mm}) was very small. As seen in Table 5, similar results were obtained by performing the paired-t statistical analysis on the other sub-groups.

Test Precision

It is worth noting the precision of the bulk specific gravity and maximum theoretical specific gravity test procedures used to determine the volumetric properties of the HMA mix designs in this study. According to the precision and bias statement for the *Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures* (ASTM D2041), the acceptable range of results for two single-operator tests is 0.011. The acceptable range of results between two single-operator tests for the *Standard Test Method for Bulk Specific Gravity and Density of*

Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens (ASTM D2726) is 0.035. If the tests were conducted between two separate laboratories, the acceptable range of results increases for both G_{mm} and G_{mb} test procedures. A summary of the precision and bias statements, including the acceptable ranges in test results, is included in Appendix E. Percent G_{mm} was calculated at maximum and minimum values of these ranges to determine the effect of single or compounded variations. Base line calculations were made at 96 and 98% G_{mm} as a basis for comparisons at typical G_{mb} and G_{mm} values.

When the acceptable ranges were included in % G_{mm} calculations (Tables 7 and 8, Appendix E), the effect was magnified. Variation in maximum theoretical specific gravity values can result in a 0.42 percent deviation from the standard value and bulk specific gravity variations can result in a 0.95 percent deviation. If G_{mm} and G_{mb} result variations are compounded, the range of % G_{mm} values could deviate from the base-line value by as much as 1.84 percent.

Summary

Statistical analysis is a valuable tool for comparing the volumetric properties of the HMA specimens and determining whether the 100 and 150-mm (4-inch and 6-inch) samples can be used interchangeably (under specific conditions) by TDOT. However, statistics should not overshadow the “engineering” significance of the data. It is apparent from Tables 5 & 6 and Appendix E that the overall magnitudes of the

difference in mean $\%G_{mm}$ is less than the acceptable precision range for either the G_{mb} or G_{mm} tests. When compounded, the variation of $\%G_{mm}$ was significantly greater than the mean difference. With this knowledge, asphalt technologists can confidently conclude that the observed difference in the mean $\%G_{mm}$ has no “engineering” significance.

5. CONCLUSIONS

The SGC is one of the most significant design contributions of the Superpave mixture analysis and design system. This piece of equipment, capable of using either 150-mm (6-inch) or 100-mm (4-inch) diameter sample molds, can produce compacted HMA specimens for volumetric evaluation and performance testing. Currently, the 150-mm (6-inch) diameter mold is standard for use in the Superpave mix design system. The objective of this study was to examine the possibility of using 100-mm (4-inch) diameter specimens in the SGC for design and/or quality control purposes in Tennessee.

Loose HMA was collected from paving projects across the state of Tennessee. After compaction, the volumetric properties of both 150-mm (6-inch) and 100-mm (4-inch) diameter specimens were determined. A paired t-test was used to compare the mean $\%G_{mm(150)}$ to mean $\%G_{mm(100)}$. The *p-values* and mean differences in $\%G_{mm}$ were calculated and evaluated. From this analysis the following conclusions were drawn:

- The *p-value* near zero indicates a rejection of the null hypothesis ($H_0: \mu_{150} - \mu_{100} = 0$) in agreement with previous research;
- However, overall mean differences in $\%G_{mm}$ were very small (less than 0.4 percent);

- The coefficient of determination between 150-mm (6-inch) and 100-mm (4-inch) % G_{mm} values was nearly 1.0, indicating that a very strong correlation exists;
- The range of acceptable values for G_{mb} and G_{mm} testing were magnified when used to calculate % G_{mm} values;
- The test result variations were large in relation to the overall mean difference in % G_{mm} values; and
- Due to the insignificance of the mean difference, there is no “engineering” significance in the rejection of the null hypothesis.

6. RECOMMENDATIONS

As the Superpave mix design system is evaluated and implemented by state agencies across the United States (such as the Tennessee DOT), the initial standards and specifications must also come under scrutiny. This study has assessed the viability of using a 100-mm (4-inch) diameter specimen for the design and/or quality control of HMA designs. It is the recommendation of the author that it is possible to use the 100-mm (4-inch) sample mold to produce HMA specimens for design and/or quality control purposes. This recommendation is accompanied by the following cautions for the asphalt technologist:

- Use of the 100-mm (4-inch) diameter mold should be restricted to HMA mix designs with a nominal maximum aggregate size of 25.4-mm (1-inch) or smaller.
- Statistical analysis indicates a larger mean difference in $\%G_{mm}$ for mix designs with coarse gradations, such as TDOT 307-B and 307-S mixes, indicating greater variability of results. Therefore, care should be taken when producing and testing coarse graded HMA samples in the SGC.

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APPENDICES

APPENDIX A

JOB MIX FORMULA SHEETS

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form ST-256
Rev. 8-88

Date 2/12/98
 Project Reference No. _____ County Davidson Region III
 Project No. 19036-3215-14 Contract No. 2556
 Type HCS (H.M.) Sec. No. 411-D Latex Article No. _____
 Contractor Alman Construction Co. Subcontractor APAL TN
 State Rt. No. 12 TOTAL MIX INCLUDING BITUMEN Date of Letting: _____

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
C.A.			
Med. C.A.	<u>5/8" Pan</u>	<u>Burns Stone</u> <u>Dickson</u>	<u>42.435</u>
Screenings	<u>3/8" Pan</u>	<u>Vulcan Mtls</u> <u>River Rd</u>	<u>23.575</u>
Sand	<u>3/8" Pan</u>	<u>Hunter Marine</u> <u>Nashville</u>	<u>28.29</u>
Asphalt Cement	<u>60-70</u> <u>Latex</u>	<u>Southern States</u> <u>Nashville</u> <u>White pine</u> <u>Dallas Ga</u>	<u>5.70</u> <u>37.3403</u>
Anti-Strip	Type: <u>Pace Bond L-10</u>	Dosage Rate: <u>0.3</u>	

% Fractured Faces on Plus No. 4 Material: _____ % Glassy Particles on Plus No. 4 Material: _____ 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	Filler Percent	Calculated Mix
Temp.	<u>275-325</u>	<u>300</u>	<u>240-320</u>		<u>45</u>	<u>25</u>	<u>30</u>		<u>100</u>
% A.C.	<u>53-70</u>	<u>5.7</u>				<u>Design No 22.5</u>			
	<u>+ 5.7% to Porch 1/2 inch</u>					<u>Then = 2.416</u>			
	<u>2 * 5.7 ÷ .7 = 8.14 total Latex</u>					<u>LOI = 19.5</u>			
1 1/2"									
1"									
3/4"									
5/8"	<u>100</u>	<u>100</u>			<u>100</u>	<u>100</u>	<u>100</u>		<u>100</u>
3/4"	<u>95-100</u>	<u>97</u>			<u>94</u>	<u>100</u>	<u>100</u>		<u>97.3</u>
3/4"	<u>90-93</u>	<u>86</u>			<u>69</u>	<u>100</u>	<u>100</u>		<u>86.1</u>
No. 4	<u>54-76</u>	<u>56</u>			<u>11</u>	<u>90</u>	<u>95</u>		<u>56.0</u>
No. 8	<u>35-57</u>	<u>43</u>			<u>1.9</u>	<u>62</u>	<u>90</u>		<u>43.4</u>
No. 30	<u>17-29</u>	<u>27</u>			<u>1.7</u>	<u>30</u>	<u>62</u>		<u>26.9</u>
No. 60	<u>10-18</u>	<u>10</u>			<u>1.5</u>	<u>24.0</u>	<u>12</u>		<u>10.3</u>
No. 100	<u>3-10</u>	<u>5.7</u>			<u>1.2</u>	<u>19.6</u>	<u>1.0</u>		<u>5.7</u>
No. 200	<u>0-6.5</u>	<u>4.3</u>			<u>0.9</u>	<u>15.0</u>	<u>0.4</u>		<u>4.3</u>

Requested 2-12-98 APAL TN Approved 2-26-98
 Contractor Alman Construction Co. Region Materials Engineer
 Approved J. E. Gilman Approved Bobby E. Parris
 Region Construction Engineer Engineer of Materials and Tests

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form DT-6254
Re. Form T-110

Date 2 5 98
 Project Reference No. _____ County Daviess Miss. Region 3
 Project No. 19141-3262-04 95001-3242-01 Contract No. 4352
 Type 80M2.4M Sec. No. 307 BM Article No. 307
 Contractor LOTAC ENT Subcontractor _____
 State Rt. No. Lebanon Rd TOTAL MIX INCLUDING BITUMEN Date of Letting _____

MATERIAL ..	SCREEN Total Percent Passing	PRODUCER AND ADDRESS		Percent Used
C. A.	1" Pan	Vulcan Mills	Hermitage	19.16
Med. C. A.	3/4" Pan	"	"	28.74
Screenings	3/2" Pan	"	"	14.37
Land	3/8" Pan	Ingram Mills	Nashville	14.37
Filler: RAP	3/4" Pan	Lotac Ent	Hermitage	20.26
A. C. and Pen.	PC-20 ^{and 100} Perman	Maintenance Ashland Inc	Nashville	3.30
% Fractured Faces on Plus No. 4 Material: <u>ASH 22 1.15</u> <u>N</u> (<u>.390</u>)				100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C. A. Percent	Med. C. A. Percent	Screenings Percent	Sand Percent	Filler Percent	Calculated SLR
Temp.	275-325	310	290-330	20	30	15	15	20	100
1/2" A.C.	4.2-6.2	4.2				Design No.		91	
3"						Thru	2.520		
3 1/2"						RAP AC	4.590		
2"									
1 1/2"									
1"	100	100	100	100	100	100	100	100	100
3/4"	85-100	98	92.3-100	91	100	100	100	99	92.0
3/8"									
3/16"	59.79	73	67.3-72.7	19	69	100	100	90	72.5
No. 4	42.61	49	45.53	8.5	14	93	99	69	48.5
No. 8	29.47	36	32.7-39.3	5	5	63	94	50	36.1
No. 30	13.27	22	18.7-25.3	2	3	22	63	35	21.6
No. 50	7.20	10	6.7-13.3	1.2	2	20	13	22	10.3
No. 100	4.10	7.1	5.5-8.7	1	1.5	19	1.5	17	7.1
No. 200	0.65	5.2	4.2-7.4	.2	1.3	16	.5	14	5.2

Requested LOTAC ENT Miss Ford
 Approved Jo Ely
 Region Construction Engineer

Approved John A. Hall 3-6-98
 Approved Billy E. Hall 3-6-98
 Region Materials Engineer
 Engineer of Materials and Tests

Appendix A

Job Mix Formula

UNTESTED ASPHALT JOB MIX FORMULA

Re: Form T-118

Date 5-6-97
 Reference No. IM-24-1 (77) 62 County RUTHERFORD Region 3
 Project No. 75001-3167-44 Contract No. 4725
 Type BDMB-UM Sec. No. 307-BM2 R Article No. 307-04-34
 Contractor LOTAC ENT Subcontractor _____
 State Rt. No. I-24 TOTAL MIX INCLUDING BITUMEN Date of Letting _____

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
C.A. <u>56's</u>	<u>1 1/4" Pan</u>	<u>Stoneman Inc</u>	<u>M'boro</u>
Med. C.A. (<u>56's</u> to <u>20's</u>)	<u>3/4" Pan</u>	<u>"</u>	<u>"</u>
Screenings	<u>3/2" Pan</u>	<u>"</u>	<u>"</u>
Sand	<u>3/2" Pan</u>	<u>Hunter Marine</u>	<u>Nashville</u>
Filler <u>RAP</u>	<u>3/4" Pan</u>	<u>LOTAC ENT</u>	<u>M'boro</u>
A.C. and Pen.	<u>AC-20 Polymer</u>	<u>SOV. STATES</u>	<u>Nashville</u>
% Fractured Faces on Plus No. 4 Material <u>AAA PA 475... SOV. STATES (1.39%)</u>			<u>100%</u>

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent (No. 20 & 60)	Sand Percent	Filler Percent	Calculated Mix
Temp.	<u>275-325</u>	<u>315</u>	<u>295-335</u>	<u>28</u>	<u>19</u>	<u>13</u>	<u>20</u>	<u>20</u>	<u>100</u>
% A.C.	<u>4.2-6.2</u>	<u>4.2</u>				<u>Druss No.</u>		<u>221</u>	
3"						<u>LAP AC 5.0</u>			
2 1/2"						<u>Theo</u>	<u>2.52</u>		
2"									
1 1/2"									
1 1/4"	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
3/4"	<u>91-93</u>	<u>91</u>	<u>85.3-96.7</u>	<u>70</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>99</u>	<u>91.4</u>
3/8"									
1/2"	<u>57-73</u>	<u>67</u>	<u>51.3-72.7</u>	<u>10</u>	<u>67</u>	<u>100</u>	<u>100</u>	<u>90</u>	<u>66.5</u>
No. 4	<u>40-56</u>	<u>47</u>	<u>43-51</u>	<u>4</u>	<u>13</u>	<u>83</u>	<u>99</u>	<u>67</u>	<u>47.4</u>
No. 8	<u>28-43</u>	<u>35</u>	<u>31.7-38.3</u>	<u>3</u>	<u>4</u>	<u>33</u>	<u>94</u>	<u>50</u>	<u>34.7</u>
No. 30	<u>13-25</u>	<u>21</u>	<u>17.7-24.3</u>	<u>2</u>	<u>3</u>	<u>10</u>	<u>63</u>	<u>30</u>	<u>21.0</u>
No. 50	<u>9-19</u>	<u>9</u>	<u>5.7-12.3</u>	<u>1.9</u>	<u>2.5</u>	<u>7</u>	<u>13</u>	<u>20</u>	<u>8.5</u>
No. 100	<u>6-10</u>	<u>5.2</u>	<u>3.6-6.8</u>	<u>1.7</u>	<u>2.2</u>	<u>5</u>	<u>15</u>	<u>17</u>	<u>5.2</u>
No. 200	<u>2.5-6.5</u>	<u>4.6</u>	<u>3.0-6.2</u>	<u>1.6</u>	<u>2</u>	<u>4.5</u>	<u>.8</u>	<u>15</u>	<u>4.6</u>

Requested LOTAC Contractor Lotac Approved John Abbott 5-23-97
 Approved Lotac Region Materials Engineer John E. R... 5-23-97

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

FORM DT-422a

Rev. 1-8-74

Date: Feb. 06, 1998

Proj. Ref. Jenkins Road Connector County Hamilton Region II
 Proj. No. 33005-3160-44 Contract No. 4759
 Type ACSC (HM) Sec. No. 411"D.R. Snd/Slag Article _____
 Contractor Mayse Construction Co. Subcontractor: Vulcan Construction Co
 State Rt. _____ Date of Letting _____

MATERIAL			Screen	% Passing	PRODUCER AND ADDRESS					% USED
C.A.										
Med. C.A.	Slag	16mm - 4 75mm	Vulcan Wheland Slag, Chattanooga, TN					13.98		
Med. C.A.	5/8's	16mm - 75um	Vulcan Sand & Gravel, Chattanooga, TN					32.62		
Screenings		9.5mm - 75um	Vulcan Materials Company, Chattanooga, TN					23.30		
Sand	River	4 75mm - 75um	Vulcan Sand & Gravel, Chattanooga, TN					23.30		
Asphalt Cement		AC-20	Amoco Oil Co., Chatt., TN					6.80		
Anti-Strip	TYPE:		Pavebond Lite		DOSAGE RATE: 0.3 %					
% Fractured Faces on #4 Material:			99.0		% Glassy Particles on #4 Material			0.10%	100 %	
100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING						
SCREEN	Tot. Passing	Requested	Tolerance	C. A.	Med. C. A.	Med. C. A.	Screenings	River Sand	Calculated	
	Design Range	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Mix	
Temp		310 F			15	35	25	25		
% A.C.	5.3-7.0	6.8			(Washed Gradations)					
Compaction Temp:		285-293			LOI: 11.1 %					
Mixing Temp:		304-314			Theo: 2.314					
7-2-13										
50mm (2")										
37.5mm (1 1/2")										
25mm (1")										
19mm (3/4")										
16mm (5/8")	100	100.0			100.0	100.0	100.0	100.0	100.0	
12.5mm (1/2")	95-100	96.0			96.0	96.0	100.0	100.0	98.0	
9.5mm (3/8")	80-93	89.2			70.0	82.0	100.0	100.0	89.2	
4.75mm (#4)	54-76	66.1			20.0	46.0	91.0	97.0	66.1	
2.36mm (#8)	35-57	46.4			10.0	24.0	59.0	87.0	46.4	
600um (#30)	17-29	26.4			3.0	9.0	28.0	63.0	26.4	
300um (#60)	10-18	13.9	-		2.0	8.0	21.0	22.0	13.9	
150um (#100)	3-10	6.8			1.0	6.0	17.0	1.0	6.8	
75um (#200)	0-6.5	5.2			1.0	5.0	13.0	0.3	5.2	

Requested Frederick J. Johnston (VHC) Approved W. P. Brown
 Approved William T. Pittman Approved _____
 Region Construction Engineer Region Maintenance Engineer
 Engineer of Materials and Tests

Job Mix Formula

Requested (APAC-TT) HARRISON DIV. Bobby Everett Approved Don Fyne
Contractor Region Materials Engineer

Approved St. M. R. Approved _____
Region Const. Engineer Engineer of Materials and Test

JOB MIX FORMULA

2-5-98

PROJECT REF. NO. _____
 PROJECT NO. 1600-4206-04
 TYPE OF MIX 307BM
 CONTRACTOR ROGERS GROUP INC.
 SUB CONTRACTOR _____
 ARTICLE NO. _____

DATE 1/30/98
 REGION #2
 COUNTY COFFEE
 CONT # #4895
 ST. RT. #2
 LETTING 7/18/97

Lo 1
 THEORETICAL GRAVITY 2.511
 LOSS ON IGNITION N/A
 TENSIL STRENGTH RATIO 64.9
 DUST TO ASPHALT RATIO 1.0
 A.C. PERCENT IN RAP _____
 RECLAIMED A.C. FROM RAP _____

MATERIAL MATERIAL SIZE

C.A. _____
 R.A.P. 1" to pan
 MED C.A. _____
 SCREENINGS 3/8" to pan
 SAND 3/8" to pan
 ASPHALT CEMENT MG 20-40
 ANTI STRIP pave bond light
 FRACTURED FACES _____

PRODUCER AND ADDRESS

Rogers Group Inc., Hillsboro Tn.
 Rogers Group Inc., Hillsboro Tn.
 Cumb. Min. sand, Hillsboro Tn.
 Asphalt Materials Cement, Indianapolis In.
 Southern States Oil
 GLASSY PARTICLES _____

PERCENT USED

 62.3
 26.6
 6.7
 4.2
 (5)

3mm - 2 - 1)

SCREEN SIZES	MASTER RANGE	REQUEST PERCENT	TOLER. PERCENT
TEMP.	310-340	320	
%A.C.		4.2	
50mm(2in)			
37.5mm(1 1/2in)			
25mm(1in)	100	100	
19mm(3/4in)	90-100	95.5	
12.5mm(1/2in)	85-90	85.7	
9.5mm(3/8in)	40-95	51.0	
4.75mm(#4)	15-35	34.7	
2.36mm(#60)	10-25	25.0	
600um(#30)	5-19	14.8	
300um(#50)	2-13	9.3	
150um(#100)	1-6	6.0	
75um(#200)	0-5	4.5	

REQUESTED
 APPROVED

Kyle David RGT

AGGREGATE ANALYSIS TOTAL PERCENT PASSING

C.A. PERCENT	MED C.A. PERCENT	MED C.A. PERCENT	SCREEN. BAND PERCENT	R.A.P. PERCENT	CAL. PERCENT MIX
		85	28	7	
		100	100	100	100
		93.0	100	100	95.5
		47.2	100	100	85.7
		24.6	100	100	51.0
		4.0	90.0	98.0	34.7
		2.2	61.6	90.0	25.0
		1.7	32.1	87.0	14.8
		1.5	23.1	21.4	9.3
		1.0	16.8	4.5	6.0
		0.5	12.5	2.0	4.5

APPROVED
 APPROVED

Kyle David RGT

JOB MIX FORMULA

PROJECT REF. NO.	S.P.	DATE	1/23/98	THEORETICAL GRAVITY	2.512
PROJECT NO.	18004-4208-04	REGION	#2	LOSS ON IGNITION	28.0
TYPE OF MIX	411-D SURFACE	COUNTY	COFFEE	TENSIL STRENGTH RATIO	85.5
CONTRACTOR	ROGERS GROUP INC.	CONT. #	#4895	DUST TO ASPHALT RATIO	0.6
SUB CONTRACTOR		ST. RT.	#2	A.C. PERCENT IN RAP	
ARTICLE NO		LETTING	7/18/97	RECLAIMED A.C. FROM RAP	

MATERIAL	MATERIAL SIZE	PRODUCER AND ADDRESS	PERCENT USED
C.A.			0
R.A.P.	1" to pan	Rogers Group Inc., Hillsboro Tn.	0
MED C.A.	1" to pan	Rogers Group Inc., Hillsboro Tn.	0
MED C.A.	3/8" to pan	Rogers Group Inc., Hillsboro Tn.	61.75
SCREENINGS			9.5
SAND			23.75
ASPHALT CEMENT	MG 20-40	Asphalt Materials Cement, Indianapolis In.	5.0
ANTI STRIP	pave bond light	Southern States Oil	(.5)
FRACTURED FACES		GLASSY PARTICLES	

SCREEN SIZES	MASTER RANGE	REQUEST TOLER. PERCENT	AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
			C.A. PERCENT	MED C.A. PERCENT	MED C.A. PERCENT	SCREEN. SAND PERCENT	R.A.P. PERCENT	CAL. PERCENT MIX
TEMP.	310-340	320				65	10	25
%A.C.		5.0						
50mm(2in)								
37.5mm(1 1/2in)								
25mm(1in)								
19mm(3/4in)	100	100						
15.75(5/8in)			100	100	100	100	100	100
12.5mm(1/2in)	90-100	94.7	91.8	100	100	100	100	94.7
9.5mm(3/8in)	62-84	79.2	68	100	100	100	100	79.2
4.75mm(#4)	35-55	44.1	18	90	98.6	98.6	91	44.1
2.36mm(#8)	20-39	31.3	3.7	61.8	61	61	64	31.3
600um(#30)	5-18	19.0	1	28	25.3	21.4	21.4	19.0
300um(#50)	3-18	8.5	0.8	17.4	4.5	4.5	4.5	8.5
150um(#100)	1-11	4.0	0.7	12.5	2	2	2	4.0
75um(#200)	0-8	3.0						3.0

APPROVED *[Signature]*
APPROVED *[Signature]*

REQUESTED *[Signature]*
APPROVED

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form DT-0256

Re: Form T-118

C-91

Date 04/20/98
 Time 15:36:25
 Project Reference IME-40-2(76)-126 County BENTON Region 4
 Project No. 03001-8167-44 Contract No. 5100
 Type BPMB-(HM) Sec. No. 307-B(M)II/POLY Article No. _____
 Contractor APAC-TN Subcontractor _____
 State Rt. No. I-40 TOTAL MIX INCLUDING BITUMEN Date of Letting 2-6-98

MATERIAL	SCREEN	PRODUCER AND ADDRESS	Percent Used
C.A.	31.25mm-Pan	Vulcan Mtls.--Parsons, TN	23.55% 85'
MED. C.A.	19mm-Pan	Vulcan Mtls.--Parsons, TN	14.25% 31
Screenings	9.5mm-Pan	Vulcan Mtls.--Parsons, TN	19.05% 08
Sand	9.5mm-Pan	Tinker Sand and Gravel--Perryville, TN	19.05% 08
R.A.P.	25mm-Pan	I-40 Hickman Co.	19.05% 08
A.C. and Pen.	PMAC-20	KOCH--Memphis, TN	% 4.6
%Fractured Faces on Plus No. 4 Material			40% R = 78.169; 100% CV
100 PERCENT MINERAL AGGREGATE			
AGGREGATE ANALYSIS TOTAL PERCENT PASSING			
SCREEN	Total Passing Design Range Percent	Requested Percent	Tolerance Percent
Temp	275-325	320	
% A.C.	4.20-6.20 ✓	4.6	500%
62.5mm			
50mm			
31.25mm	100	100	100
25mm			
19mm	81-93 /	93	87.3-96.7
12.5mm			
9.5mm	57-73 /	65	59.3-70.7
4.75mm	40-56 /	49	45-53
2.36mm	28-43 /	37	33.7-40.3
600um	13-25 /	22	16.7-25.3
300um	9-19 /	12	8.7-15.3
150um	6-10 /	7.2	5.6-8.8
75um	2.5-6.5 ✓	5.4	3.8-7.0

Requested

Maury J. Kildow APAC-TN
 Contractor

Approved

Wendy P. Douthett 5-1-98
 Region Materials Engineer

Approved

Scotty Plunk
 Region Construction

Approved

Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form 77-400
Rev. 7-1-83

Date 5-29-98
 Project Reference No. IME-40-2 (76) AL County Benton Region IV
 Project No. 03001-2167-44 Contract No. 5100
 Type ALS-HM Sec. No. 411-D Poly Article No. _____
 Contractor APAC-TN Subcontractor _____
 State Rt. No. I-40 TOTAL MIX INCLUDING BITUMEN Date of Letting 2-6-98

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
C. A.			
Med. C. A.	<u>16-PAN</u>	<u>Perry Decatur Gravel Perryville TN</u>	<u>42.075</u>
Screenings	<u>9.5-PAN</u>	<u>Vulcan MTLs Parsons, TN</u>	<u>23.375</u>
Sand	<u>4.5-PAN</u>	<u>Tinker Sand & Gravel Perryville, TN</u>	<u>28.050</u>
Asphalt Cement	<u>PMAC-2.0</u>	<u>KDCH Memphis, TN</u>	<u>6.50</u>
Anti-Strip	Type: <u>Five Bond Life</u>	<u>Southern Stores Nashville, TN</u>	<u>3%</u>

% Fractured Faces on Plus No. 4 Material: 88.7 % Glassy Particles on Plus No. 4 Material: — 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Percent Master Blend	Required Percent	Tolerance Percent	C. A. Percent	Med. C. A. Percent	Screenings Percent	Sand Percent	Fiber Percent	Calculated Mix
Temp.	<u>275-325</u>	<u>325</u>			<u>45</u>	<u>25</u>	<u>30</u>		<u>100</u>
% A. C.	<u>5.3-7.0</u>	<u>6.50</u>							
2 "									
1 1/2 "									
1 "									
3/4 "									
3/8 "16	<u>100</u>	<u>100</u>			<u>100</u>	<u>100</u>	<u>100</u>		<u>100</u>
1/2 "12.5	<u>95-100</u>	<u>96</u>			<u>92</u>	<u>100</u>	<u>100</u>		<u>96.4</u>
3/4 "9.5	<u>80-93</u>	<u>89</u>			<u>75</u>	<u>100</u>	<u>100</u>		<u>88.8</u>
No. 4 7.5	<u>54-76</u>	<u>71</u>			<u>42</u>	<u>90</u>	<u>97</u>		<u>76.5</u>
No. 10 3.6	<u>35-57</u>	<u>51</u>			<u>24</u>	<u>62</u>	<u>82</u>		<u>50.9</u>
No. 20 600	<u>17-29</u>	<u>29</u>			<u>9</u>	<u>35</u>	<u>53</u>		<u>28.7</u>
No. 40 300	<u>10-18</u>	<u>15</u>			<u>6</u>	<u>28</u>	<u>17</u>		<u>14.8</u>
No. 60 150	<u>0-10</u>	<u>8.5</u>			<u>4</u>	<u>22</u>	<u>4</u>		<u>9.5</u>
No. 80 75	<u>0-6.5</u>	<u>6.0</u>			<u>2.5</u>	<u>16</u>	<u>3</u>		<u>6.0</u>

Requested J. K. Riddick APAC-TN Approved William St. Williams 6-11-98
 Contractor Region Materials Engineer
 Approved _____ Approved _____
 Region Construction Inspector

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form 01-0116
Rev. 1-1-78

Date FEB. 12 1998
 Project Reference No. SP County DEKALB Region TP
 Project No. 22007-4233-04 Contract No. 5120
 Type 3PMB-HM Sec. No. 3073MR Article No. 0316
 Contractor EUBANK PAVING Subcontractor ✓
 State Rt. No. 48 TOTAL MIX INCLUDING BITUMEN Date of Letting FEB. 6 1998

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
COARSE AGG.	1" - 1/4"	BURNS STONE DEKALB	38.000
3/4" MTL	1/4" - PAN	BURNS STONE DEKALB	19.000
SOFT SCR.	1/4" - PAN	BURNS STONE DEKALB	9.500
SAND	3/8" - PAN	SAWGRAB NEW JONNSVILLE	9.500
RAP	1" - PAN	EUBANK PAVING DEKALB	20.256
ASPHALT CEMENT	P/G-64-22	MARATHON/ASHLAND NASHVILLE	3.744
Anti-Strip	Type: <u>PAVE BOND LITE</u>	Dosage Rate: <u>0.5</u>	

% Fractured Faces on Plus No. 4 Material: _____ % Classy Particles on Plus No. 4 Material: _____ 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	S. A. Percent	3/4" S. A. Percent	5/8" S. A. Percent	Sand Percent	RAP Percent	Calculated Total
Temp. "F"	275-325	300	280-320	40	20	10	10	20	
% A.C.	4.2-6.2	5.0	4.15-5.35		4.2				
					Design No. 22				
					Thick Viscosity - 2.446				
1/2"									
3/4"	100	100	100	100	100	100	100	100	100
5/8"	85-100	94	88.3-99.7	86	100	100	100	100	94.2
3/8"									
1/4"									
No. 10	59-79	73	67.3-78.7	37	100	100	100	90	72.8
No. 20	42-61	54	50.0-58.0	8	88	96	97	68	53.7
No. 40	29-47	31	27.7-34.3	4	21	68	83	52	31.3
No. 60	13-27	17	13.7-20.3	3	6	33	59	29	17.4
No. 100	7-20	11	7.7-14.3	2	5	24	21	22	10.7
No. 200	4-10	6.70	5.10-8.30	1	5	19	4	15	6.70
No. 400	0-6.5	5.38	3.78-6.98	.7	4	16	1	13	5.38

Requested EUBANK PAVING BRUM Approved John H. Hottel 2-27-98
 Contractor ✓ Approved Billy C. Hottel 3-4-98
 Approved John E. Hottel

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form OT-421a
Re. Form T-111b

Project Reference No. SP County DICKSON Date MARCH 4 1998 Region III
 Project No. 22007-4233-04 Contract No. 5120
 Type ALS-HM Sec. No. 411-D Article No. CLC1-C102
 Contractor EUBANK PAVING Subcontractor ✓
 State Rt. No. 48 TOTAL MIX INCLUDING BITUMEN Date of Letting Feb 6 1998

MATERIAL	SCREEN	PRODUCER AND ADDRESS	Percent Used
C.A.	5/8" - 1/2"	BURNS STONE DICKSON	37.640
Med. C.A.	1/2" - PAN	BURNS STONE DICKSON	15.957
Screenings	1/2" - PAN	BURNS STONE DICKSON	16.938
Sand	3/8" - PAN	SANGRAUL NEW JERSEYVILLE	23.525
Asphalt Cement	PG-64-22	MARATHON/AGLAND NASHVILLE	5.900
Anti-Strip	Type: <u>PAV PAV L.T.</u>	Dosage Rate: <u>.5</u>	

% Fractured Faces on Plus No. 4 Material: _____ % Glassy Particles on Plus No. 4 Material: _____ 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	Filler Percent	Calculated Mix
Temp.	275-325	300	280-320	40	17	18	25		
% A.C.	5.3-7.0	5.9	5.55-6.25						
2"									
1 1/2"									
1"									
3/4"									
5/8"	100	100	100	100	100	100	100		100
1/2"	95-100	98	92.3-100	95	100	100	100		98.0
3/8"	80-93	89	83.3-94.7	73	100	100	100		89.2
No. 4	54-76	63	59-67	13	96	16	97		63.1
No. 8	35-57	46	42.7-49.8	4	65	68	83		45.6
No. 30	17-29	26	22.7-29.5	3	25	33	59		26.1
No. 60	10-18	13	19.7-26.5	2	17	24	21		13.3
No. 100	3-10	7.11	5.51-8.71	1.2	13	19	4		7.11
No. 200	0-6.5	5.15	3.55-6.75	0.8	10	16	1		5.15

Requested EUBANK PAVING TRUM Approved John H. Hottel 3-9-98
 Contractor ✓ Region Materials Engineer
 Approved Bob E. Davis 3-6-98
 Region Construction Engineer

Appendix A

Job Mix Formula

ASPHALT JOB MIX FORMULA

PROJECT REFERENCE NO. IME-65-1(58)0 DATE 5/1/98 Form DT-0256
 COUNTY GILES Re: Form T-118
 REGION 3
 PROJECT NO. 28001-8162-44 CONTRACT NO. 5122
 TYPE (BPM-BM) SEC. NO. 307-B-C ARTICLE NO. .03.16
 CONTRACTOR DEMENT CONSTRUCTION CO. SUBCONTRACTOR N/A
 STATE RT. NO. DATE OF LETTING 2/6/98

MATERIAL	SCREEN TOTAL PASSING	PRODUCER AND ADDRESS	PERCENT USED
P.A. #56	30mm-PAN	ROGERS GROUP FULASKI, TN.	18.960
RED.C.A.#7	19mm-PAN	ROGERS GROUP FULASKI, TN.	33.180
SCRNS. #10	9.5mm-PAN	ROGERS GROUP FULASKI, TN.	17.064
SAND SAND	9.5mm-PAN	ADAMSVILLE SAND & GRAVEL ADAMSVILLE, TN	7.584
FILLER RAP	19mm-PAN	DEMENT CONSTRUCTION COMPANY FULASKI, TN.	19.081
P.C. ERG	PG64-22	ERGON INC. NASHVILLE TN. RAP HAS 5.6%AC	4.131
FRACTURED FACES ON PLUS 4 MATERIAL		N/A	
BRAND OF ANT-STRIP: <u>Perma Tac Plus</u>		% ANTI-STRIP	0.30%
			100

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL				PERCENT PASSING	
SCREEN	TOTAL PASSING MASTER RANGE	Requested %	Tolerance %	C.A. %	Med.C.A. %	SCRNS. %	Sand %	FILLER %	CALC. MIX
OMP.	0	149	138 - 16	#56-RGP	#7-RGP	#10-RGP	SAND-AS	RAP-DC	
A.C.	4.2-6.2	5.2	Test Results @ Recommended A.C. Content	20	35	18	8	19	100.0
3mm			Blk Grv. 2.382	DESIGN NO. CONTRACTORS					
7.5mm			Eff. Grv 2.689	MAX. SP. GRV. 2.481					
12mm	100	100	Stab. 3157.8	100	100	100	100	100	100.0
19mm			Flow						
25mm	81-93	85	Voids 3.9903	25	100	100	100	100	85.0
37.5mm			VMA 16						
47.5mm			V.Filled 75.1						
75mm	57-73	67	Dust-AC 0.9	5	66	100	100	89	67.0
90mm	40-56	41	Unit WT. 148.63	4	6	92	94	73	40.9
108mm	28-43	28	Moisture Damage Information	3	3	60	77	51	28.3
150mm	13-25	16	Avg. Dry 220.3	2.5	2.5	25	57	29	15.9
190mm	9-19	10	Avg. Cnd. 188.9	2	2	19	19	21	10.0
250mm	6-10	6	TSR 85.7	1.5	1.5	15	3	14	6.4
300mm	2.5-6.5	4.9		1		13	1	10	4.9

REQUESTED John Dement Lt-303 APPROVED John Dement 5-7-98
 Dement Construction Company Region Materials Engineer
 PROVED John Dement APPROVED
 Region Construction Engineer Engineer of Materials and Test

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Plant #	5		Date:	7/13/98	
L-R Job #	98-C95				
Project Ref. No.		County	Shelby	Region:	IV
Proj No	79020-4242-04	Layer	Surface	Contract No	5149
Type	ASCS-HM	Sec. No	411-S	Article	01 01-01 02
Contractor	Lehman-Roberts Co.		Subcontractor	Lehman-Roberts Co.	
St. Route	Lamar	Total Mix including Bitumen		Date of Letting	1/26/98

Material	Size Range or Type	Producer and Address	% Used	
5/8" Cr Gravel	5/8" - #200	Memphis Stone & Gravel pit# 534	56.34	
#10 Limestone	3/8" - #200	Vulcan Materials Pit# 457	15.96	
Mfg Sand	3/8" - #200	Memphis Stone & Gravel pit# 534	15.96	
Ag Lime	3/8" - #200	Vulcan Materials Pit# 457	5.63	
Asphalt Cement	PG75-22	Ergon Petroleum Poly Blend	6.10	
Anti-Strip	Morelife	Dosage Rate.	0.3%	
% Fractured Faces on #4 Material:		88.9	% Glassy Particles on #4 Material:	N/A
				100.0

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
Screen	Ts. Passing	Requested	Percent	Percent	Percent	Percent	Percent	Percent	Calculated
	Design Range			5/8" Cr Gravel	#10 Limestone	Mfg Sand	Ag Lime		Mix
Temp	320-360		6.1	0.0	60.0	17.0	17.0	6.0	100.0
% AC				Latex Brand: None % Latex Used: N/A Theoretical Maximum Density: 2.341 L.O.I.: 9.2					
Compaction Temp:		345							
Mixing Temp:		355							
(Washed Gradations)									
50									0.0
37.5									0.0
25.0		100		100.0	100.0	100.0	100.0	100.0	100.0
19.0		100		100.0	100.0	100.0	100.0	100.0	100.0
12.5	90-100	95		92.0	100.0	100.0	100.0	100.0	95.2
9.5		86		77.0	100.0	99.0	100.0	100.0	86.0
4.75		60		42.0	91.0	81.0	99.0	100.0	60.4
2.36	28-58	36		23.0	50.0	37.0	97.0	100.0	36.1
1.18		26		18.0	36.0	21.0	85.0	100.0	25.6
0.600		18		13.0	22.0	9.5	73.0	100.0	17.5
0.300		13		9.0	16.0	7.4	56.0	100.0	12.7
0.425		8.9		6.0	11.5	5.8	40.0	100.0	8.9
0.075	2-10	6.3		4.0	9.7	3.1	28.0	100.0	6.3

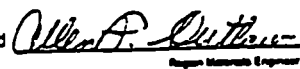
Requested



 Larry D. Brewer

 Contractor

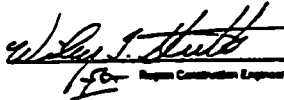
Approved



 William A. Dutton

 Region Materials Engineer

Approved



 William A. Dutton

 Region Construction Engineer

Approved

 Engineer of Materials and Tests

Appendix A

Job Mix Formula

07-02-98 TUE 15:17 FAX 423 578 2001 IN ASPHALT-KNOX

REF: # NY-1(98)30 JMF Change for Gradation

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA Date 7-2-98

Project Reference No. IME-75-3(130)129 County Campbell Region I

Project No. 07100-8104-44 Contract No. 5161

Type BPMB-HM Sec. No. 307BM2 Article No. M0316

Contractor Tennessee Asphalt Subcontractor _____

State PI No. I-75 TOTAL MIX INCLUDING BITUMEN Date of Letting 3-20-98

MATERIAL	SCREEN	PRODUCER, CITY ADDRESS	PERCENT USED
C.A. <u>Sp 5</u>	<u>1 1/4" - #200</u>	<u>Key Limestone, LaFollette</u>	<u>23.95</u>
Med. C.A. <u>7</u>	<u>3/4" - #200</u>	<u>Key Limestone, LaFollette</u>	<u>19.16</u>
Screenings <u>10</u>	<u>3/8" - #200</u>	<u>Key Limestone, LaFollette</u>	<u>23.95</u>
Sand <u>Black</u>	<u>3/8" - #200</u>	<u>Horsehead Res Dev., Rockwood</u>	<u>14.37</u>
RAF <u>I-75 New</u>	<u>3/4" - #200</u>	<u>Tennessee Asphalt Co., LaFollette</u>	<u>14.37</u>
Asphalt Cement	<u>PG 64-22</u>	<u>Shell Oil Co., Knoxville</u>	<u>4.20</u>
Anti-Slip	Type: <u>Porebond Lite</u>	Dosage Rate: <u>05</u>	

% Fractured Faces on Plus No. 4 Material: _____ % Glassy Particles on Plus No. 4 Material: _____ 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Mass Percent	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	RAF Percent	Calculated Mix
Temp.	<u>275°-325°</u>	<u>300°</u>	<u>280°-320°</u>	<u>25</u>	<u>20</u>	<u>27</u>	<u>10</u>	<u>18</u>	<u>100</u>
% A.C.	<u>4.2-6.2</u>	<u>4.2</u>							
2"									
1-1/2"									
1 1/4" 31.5mm	<u>100</u>	<u>100</u>		<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
3/4" 19mm	<u>81-93</u>	<u>93</u>		<u>72</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>93</u>
5/8"									
1/2"									
3/8" 9.5mm	<u>57-73</u>	<u>68</u>	<u>69.1</u>	<u>2</u>	<u>68</u>	<u>100</u>	<u>100</u>	<u>93</u>	<u>68</u>
No. 40 4.75mm	<u>40-56</u>	<u>46</u>		<u>1</u>	<u>1</u>	<u>88</u>	<u>92</u>	<u>71</u>	<u>46</u>
No. 60 2.5mm	<u>28-43</u>	<u>33</u>		<u>1</u>	<u>1</u>	<u>60</u>	<u>67</u>	<u>52</u>	<u>33</u>
No. 30 600 600 13-25	<u>13-25</u>	<u>15</u>		<u>1</u>	<u>1</u>	<u>27</u>	<u>21</u>	<u>31</u>	<u>15</u>
No. 50 300 300 7-19	<u>7-19</u>	<u>10</u>		<u>1</u>	<u>1</u>	<u>19</u>	<u>9</u>	<u>21</u>	<u>10</u>
No. 100 150 150 6-10	<u>6-10</u>	<u>7.11</u>		<u>1</u>	<u>1</u>	<u>14.11</u>	<u>2.8</u>	<u>14.27</u>	<u>7.11</u>
No. 200 75 75 2.5-6.5	<u>2.5-6.5</u>	<u>5.03</u>		<u>-</u>	<u>1</u>	<u>10.51</u>	<u>1.0</u>	<u>10.49</u>	<u>5.0</u>

Requested Tennessee Asphalt Co. Approved [Signature] Engineer

Approved [Signature] Engineer

Approved [Signature] Engineer

Job Mix Formula

State Rt. No. <u>175</u>		TOTAL TONS USED		DES. NO.	PERCENT USED
MATERIAL	SCREEN Total Percent Passing	SEA. NO. <u>M-1(98)233-A</u>	PRODUCER, AND ADDRESS <u>DUI-(58)191-A</u>		
C.A.					
Med. C.A.	<u>5 1/2" - #200</u>	<u>Vulcan Mtls Co., Enaka, NC</u>		<u>46.90</u>	
Screenings	<u>3/8" - #200</u>	<u>Key Limestone Co., LaFollette, Tn</u>		<u>23.45</u>	
Sand	<u>3/8" - #200</u>	<u>Horseshoe Res Dev., Rockwood, Tn</u>		<u>9.38</u>	
RAP Not. Sand.	<u>3/8" - #200</u>	<u>Wolichucky Sand & Gravel, Greeneville, Tn.</u>		<u>14.07</u>	
Asphalt Cement	<u>PG 76-22</u>	<u>Shell Oil Co., Knoxville, Tn.</u>		<u>620</u>	
Anti-Strip	Type: <u>Pavebond Lite</u>	Dosage Rate: <u>0.5</u>			
Total Tons No. 4 Material: <u>80</u> % Glassy Particles on Plus No. 4 Material: <u>NA</u>					100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Mass Range	Requested Percent	Tolerance Percent	C. A. Percent	Med. C. A. Percent	Sieveings Percent	Sand Percent	Fine Percent	Calculated Max
Temp.	163.7-173.3°C 327-344°F	168.6°C 335.5°F			50	25	10	15	100
% A.C.	53-7.0	6.2							
2		REVISED FOR A.C.	4 Theo.	GRAV	Theo	Dens = 2.489	2489 KN/m ³		
1-1/2"					DAR = 0.6				
1					LOI = 9.9				
3/4									
5/8	100	100			100	100	100	100	100
1/2	95-100	98			95	100	100	100	98
3/8	80-93	87			73	100	100	100	87
No. 40	54-76	60			28	88	97	96	60
No. 60	35-57	38			7	60	76	78	38
No. 80	17-29	17			3	27	26	38	17
No. 100	10-18	10			2	20	11	17	10
No. 150	3-10	6.03			2	14.11	3.78	7.47	6.03
No. 200	0-6.5	3.85			1	10.51	1.38	3.90	3.85

Requested Tennessee Asphalt Co. Approved _____
Jeanne M. Moore _____ Region Materials Engineer
 Approved _____ Approved _____
 _____ Region Construction Engineer _____ Engineer of Materials and Tests

Job Mix Formula

Form 01 0250
Rev. 1-1-10

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used	
C. A.				
Med. C. A.	5/8" - Pan	AMERICAN LimestonE	SPRINGFIELD	42.613
Screenings	3/8" - Pan	VULCAN	DANLEY	23.675
Sand	3/8" - Pan	INCON	NASHVILLE	29.211
Asphalt Cement	PG - 76-22	EGON	NASHVILLE	5.3
Anti-Strip	Type: <u>Pave Guard 1.4</u>	Dosage Rate: <u>A3</u>		

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C. A. Percent	Med. C.A. Percent	Scraper Percent	Sand Percent	Filter Percent	Calculated Mix
Temp.	275-325	300	280-320		45	25	30		100
% A.C.	5.3-7.0	5.3			Desired 22.5				
2 "					Temp → 2.442				
1 1/2"					L.A.T. → 19.5				
1 "									
3/4 "									
5/8 "	100	100			100	100	100		100
1/2 "	95-100	98			95	100	100		97.8
3/8 "	80-93	87			72	100	100		87.4
No. 4	54-76	61			20	92	96		60.8
No. 8	35-57	45			5	62	91		45.1
No. 20	17-29	27			2.9	30	61		27.1
No. 60	10-18	11			2.8	22.5	12		10.5
No. 100	3-10	6.0			2.3	18.5	1.0		6.0
No. 200	0-6.5	4.9			1.9	15.8	0.4		4.9

Requested Ashley Smith 20 Five To
Contractor
Approved Johanna Abbott 11-20-79
Region Materials Engineer
Approved Tary Miller
Region Construction Engineer
Approved Belle & Ross 5-20-88
Assistant Regional Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

5-4-78
63

Date: 4/16/98

Project Ref. No. _____ County Jackson Region II
 Proj. No. 44004-4235-04 Contract No. 5185
 Type BPMB-HM Sec. No. 307-BM/RAP Article 307m-03.15
 Contractor Highway Materials Subcontractor: N/A
 State Rt. 56 TOTAL MIX INCLUDING BITUMEN Date of Letting 3/20/98

MATERIAL	Screen	Total % Passing	PRODUCER AND ADDRESS		% O.S.D.				
CA #57	25mm-pan		Rogers Group	Algood, TN	38.16				
Med. CA 1/2"	12.7mm-pan		Rogers Group	Algood, TN	14.31				
Screenin B.D.	4.75-pan		" "	" "	9.54				
Sand	4.75-pan		Highways, Inc.	Monterey, TN	19.08				
RAP	25mm-pan		Highways, Inc.	Algood, TN	14.31				
Asphalt Cement	PG64-22		Ergon -Nashville,Tn.		4.50				
Anti-Strip	TYPE: Pavebond-Lite		DOSAGE RATE:		0				
% Fractured Faces on +4 Material:		% Glassy Particles on +4 Material		0	100 %				
100 PERCENT MIXERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	% Passing Design Size	Requested Percent		C. A. Percent	Med. C. A. Percent	Screenings Percent	Sand Percent	2A2 Percent	Calculated Mix
Temp	275-325	300° F		40	15	10	20	15	100.0
% A.C.	4.2-6.2	4.6	4.25-4.95		(Washed Gradations)				
	Compaction Temp:	280-290			A.C. In RAP: 5.1				
	Mixing Temp:	295-305			Theo 2.501				
50mm					Jm - 2 - 97				
37.5mm									
31.5mm									
25mm	100	100.0	100	100.0	100.0	100.0	100.0	100.0	100.0
19mm	85-100	93.0	87.3-98.7	85.0	100.0	100.0	100.0	95.0	93.0
16mm									
12.7mm									
9.5mm	59-79	63.0	57.3-68.7	24.0	63.0	100.0	100.0	90.0	63.0
4.75mm	42-61	43.0	39-47	7.0	10.0	94.0	98.0	66.0	43.0
2.36mm	29-47	35.0	31.7-38.3	5.0	5.0	58.0	93.0	53.0	35.0
600um	13-27	24.0	20.7-27.3	4.0	5.0	24.0	72.0	31.0	24.0
300um	7-20	11.0	7.7-14.3	4.0	4.0	18.0	29.0	20.0	11.0
150um	4-10	6.0	4.4-7.6	3.0	4.0	14.0	3.0	15.0	6.0
75um	0-6.5	3.9	2.3-5.5	2.0	2.0	10.0	1.0	10.0	3.9

Requested [Signature] Approved [Signature]
 Approved [Signature] Approved [Signature]
 Requested Contractor Signature Requested Materials Signature

STATE OF TENNESSEE ASPHALT JOB MIX FORM

Same as CN 4871

Date: 4/20/98

Project Ref. No. _____ - County Jackson Region II
 Proj. No. 44004 4235 04 Contract No. 5185
 Type ACS-HM Sec. No. 411m-D Article 411m-01.01..02
 Contract Highway Materials Subcontractor: N/A
 State Rt. _____ TOTAL MIX INCLUDING BITUMEN Date of Letting 3/20/98

MATERIAL	Screen	Total % Passing	PRODUCER AND ADDRESS	% OSEED
C.A.				0.00
Med. C.A.	16mm-pan		Rogers Group-Gordonsville, Tn.	47.30
Screenin B.D.	4.75-pan		Rogers Group-Algood, Tn.	20.81
Sand	4.75-pan		Highway Materials-Monterey, Tn.	26.49
RAP				0.00
Asphalt Cement	PG64-22		Ergon Nashville, TN	5.40
Anti-Strip	TYPE: <u>Pavebond LP</u>		DOSAGE RATE:	0.3
% Fractured Faces on #4 Material:		% Glassy Particles on #4 Material		0 100 %

100% PERCENT MATERIAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING						Calculated Mix
SCREEN	% Passing	Requested Percent		C. A. Percent	Med. C. A. Percent	S.D. Percent	Sand Percent	RAP Percent		
Temp	275-325	300.0			50	22	28			
% A.C.	5.3-7.0	5.4	5.05-5.75							
	Compaction Temp: 280-290				(Washed Gradations)					
	Mixing Temp: 295-305				LOI: 27.5					
					Theor: 2.484					
50mm-2"						2	98			
37.5mm-1.5										
1.5mm-1.25										
25mm-1"										
19mm-3/4										
16mm-5/8	100	100.0	100		100.0	100.0	100.0			100.0
12.5mm-1/2	95-100	98.5	92.8-100		97.0	100.0	100.0			98.5
9.5mm-3/8	80-93	86.0	80.3-91.7		72.0	100.0	100.0			86.0
4.75mm-#4	54-76	55.9	51.9-59.9		16.0	93.0	98.0			55.9
2.36mm-#20	35-57	41.3	38.0-44.6		5.0	58.0	93.0			41.3
600um-30	17-29	27.2	23.9-30.5		4.0	24.0 24.5	71.0 75.0			27.2
300um-50	10-18	11.1	7.8-14.4		3.0	18.0 22.5	20.0 25.0			11.1
150um-100	3-10	4.7	3.1-6.3		2.0	13.0	3.0			4.7
75um-200	0-6.5	3.7	2.1-5.3		2.0	11.0	1.0			3.7

Requested J. C. K... - L.T.-129 Approved [Signature]
 Approved J. C. K... Contractor Approved [Signature]
 Approved [Signature] Supervisor of Materials Approved [Signature]

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

6-11-75
FORM DT-4214
RE Form T-118

Note: Design was built by Reg. II Lab

Date: 08-07-98

Project Ref. No. SP County McMinn Region II
 Proj. No. 54016-4217-04 Contract No. 5191
 Type ERR Sec. No. 307-S Binder Article
 Contractor Renfro Cont. Subcontractor:
 State Rt. 305 TOTAL MIX INCLUDING BITUMEN Date of Letting '03-20-98

MATERIAL	Screen	% Passing	PRODUCER AND ADDRESS	% USED
C.A.	#57's		Vulcan Mtls., Athens, Tn.	23.85
Med. C.A.	#7's		Vulcan Mtls., Athens, Tn.	28.62
Screenings	#10's		Vulcan Mtls., Athens, Tn.	20.99
M. Sand	3/8"-Pan		Vulcan Mtls., Athens, Tn.	21.94
				0.00

Asphalt Cement PG 64-22 Amoco Oil, Chatt., Tn. 4.60
 Anti-Strip TYPE: Pavabond Lite DOSAGE RATE: 0.5

% Fractured Faces on +4 Material: % Glassy Particles on +4 Material 100 %

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Td. Passing Design Range	Requested Percent	Tolerance Percent	C. A. Percent	Med. C. A. Percent	Screenings Percent	Mfg Sand Percent	River Sand Percent	Calculated Mix
Temp		315		25	30	22	23	0	
% A.C.		4.6							
	Compaction Temp:		280-290						
	Mixing Temp:		310-320						

50mm (2")	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
37.5mm (1 1/2")	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
25mm (1")	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
19mm (3/4")	93.1	72.3	100.0	100.0	100.0	100.0	100.0	100.0	93.1
12.5mm (1/2")	81.9	30.0	98.0	100.0	100.0	100.0	100.0	100.0	81.9
9.5mm (3/8")	71.2	18.2	72.0	100.0	100.0	100.0	100.0	100.0	71.2
4.75mm (#4)	47.2	4.0	7.0	96.0	100.0	100.0	100.0	100.0	47.2
2.35mm (#8)	37.3	1.3	2.0	70.0	91.0	100.0	100.0	100.0	37.3
1.18mm (#16)	22.6	1.0	1.5	40.0	57.0	100.0	100.0	100.0	22.6
600um (#30)	14.1	0.9	1.0	30.0	30.5	100.0	100.0	100.0	14.1
300um (#60)	9.2	0.7	0.8	23.0	16.1	100.0	100.0	100.0	9.2
150um (#100)	5.7	0.6	0.5	16.0	8.1	100.0	100.0	100.0	5.7
75um (#200)	4.4	0.4	0.1	14.0	5.0	100.0	100.0	100.0	4.4

Requested Randy Carter
 Approved [Signature]
 Region Materials Engineer

Approved Tom Miller
 Approved _____
 Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Note: Design was built by Reg. II Lab

Date: 08-07-98

Project Ref. No. SP County McMinn Region II
 Proj. No. 54016-4219-04 Contract No. 5191
 Type 411M10.01 Sec. No. 411-S Surface Article _____
 Contractor Renfro Cont. Subcontractor: _____
 State Rt. 305 TOTAL MIX INCLUDING BITUMEN Date of Letting 03-20-98

MATERIAL		Screen	% Passing	PRODUCER AND ADDRESS					% USED	
C.A.									0.00	
Med. C.A.		5/8"-Pan		Vulcan Sand & Gravel, Chatt., Tn.					60.52	
Screenings		3/8"-Pan		Vulcan Mtls., Athens, Tn.					13.96	
M. Sand		3/8"-Pan		Vulcan Mtls., Athens, Tn.					9.31	
R. Sand		3/8"-Pan		Vulcan Sand & Gravel, Chatt., Tn.					9.31	
Asphalt Cement		PG 64-22		Amoco Oil, Chatt., Tn.					6.90	
Anti-Strip		TYPE: <u>Pavebond Lite</u>		DOSAGE RATE: <u>0.5</u>						
% Fractured Faces on +4 Material:			% Glassy Particles on +4 Material					100 %		
100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING						
SCREEN	Til. Passing Design Range	Requested Percent	Tolerance Percent	C. A. Percent	Med. C. A. Percent	Screenings Percent	Mfg Sand Percent	River Sand Percent	Calculated Mix	
Temp		315		0	65	15	10	10		
% A.C.		6.9			(Washed Gradations)					
	Compaction Temp:	280-290			LOI =	10.5				
	Mixing Temp:	310-320			Theo	2.263				
<u>Job - 2 - 261</u>										
50mm (2")		100.0			100.0	100.0	100.0	100.0	100.0	
37.5mm (1 1/2")		100.0			100.0	100.0	100.0	100.0	100.0	
25mm (1")		100.0			100.0	100.0	100.0	100.0	100.0	
19mm (3/4")		100.0			100.0	100.0	100.0	100.0	100.0	
12.5mm (1/2")		98.1			97.0	100.0	100.0	100.0	98.1	
9.5mm (3/8")		87.0			80.0	100.0	100.0	100.0	87.0	
4.75mm (#4)		62.8			44.0	96.0	100.0	98.0	62.8	
2.35mm (#8)		44.9			25.0	70.0	91.0	90.0	44.9	
1.18mm (#16)		31.0			18.0	40.0	57.0	76.0	31.0	
600um (#30)		20.1			10.0	30.0	30.5	60.0	20.1	
300um (#50)		11.1			7.0	23.0	16.1	15.0	11.1	
150um (#100)		7.2			6.0	16.0	8.1	1.0	7.2	
75um (#200)		5.3			4.0	14.0	5.0	0.5	5.3	

Requested Pandy Partin Renfro Cont. Approved Tom Miller
 Approved [Signature] Approved _____
 Requested Engineer Engineer of Materials and Tests

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form 01472d
Re Form 9-114

Date 6-3-98

Project Reference No.

County Polk

Region II

Project No. 70004-4575-04

Contract No. 5195

Type

Sec. No. 411.D

Article No.

Contractor Hillis Group

Subcontractor

State Rt. No. _____ TOTAL MIX INCLUDING BITUMEN _____

Date of Letting

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
C.A.			
Med. C. A.	5/8-PAN	CALDWELL STONE ELLIJAY, GA	37.48
Screenings	3/8-PAN	BRADLEY STONE CLEVELAND TN	23.42
Sand	3/8-PAN	BRADLEY STONE & SAND JASPER, TN	32.80
Asphalt Cement	PG64-22	AMOCO CHATTANOOGA	6.30
Anti-Strip	Type: <u>KLING - BETA</u>	Dosage Rate: <u>.03</u>	100%

% Fractured Faces on Plus No. 4 Material:

2 Glassy Particles on Plus No. 2 Material:

100%

100 PERCENT MINERAL AGGREGATE

AGGREGATE ANALYSIS TOTAL PERCENT PASSING

SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent
Temp.			
% A.C.		6.3	
2 "			
1 1/2"			
1 "			
3/4 "			
5/8 "			
1/2 "	95-100	95.6	
3/4 "	80-93	83.6	
No. 4	54-76	61.7	
No. 8	35-57	45.3	
No. 30	17-29	29	
No. 50	10-18	11.6	
No. 100	3-10	4.7	
No. 200	0-6.5	3.5	

C.A. Percent	Med. C.A. Percent	Screensings Percent	Sand Percent	Filler Percent	Calclm. Mls
40	25	35			
Theo:	2.474				
Roots	33				
L.O.T.	6.8				
Jm.-2-	139				
100	100	100			
89	100	100			95.6
59	100	100			83.6
10	95	97			61.7
2	63	82			45.3
1	26	63			29
1	18	19			11.6
1	13	3			4.7
1	11	1			3.5

Requested

Approved

Region Materials Engineer

Approved

Approved

Appendix A

Job Mix Formula

SUPERPAVE STATE OF TENNESSEE ASPHALT JOB MIX FORMULA									
MIX DESIGN NO: <u>DW 2E</u> 247				SERIAL NO: <u>47(98)256</u>			DATE: <u>8/10/98</u>		
REGION: <u>ONE</u>				ARTICLE NO:					
PROJECT REF: <u>SP</u>				CONTRACT NO: <u>5267</u>					
PROJECT: <u>BS007-4219-04</u>				COUNTY: <u>BLOUNT</u>					
TYPE: <u>BCRM: S.P./12.5mm</u> <u>411-5</u>				SEC. NO:					
CONTRACTOR: <u>APAC-HARRISON CONST.</u>				SUBCONTRACTOR:					
STATE RT. NO: <u>S.R.:35 & 447</u>				DATE OF LETTING: <u>JUNE/98</u>					
Material	Total Percent Passing		Producer and Address					Percent Used	
GRANITE #7	19mm - 0.75mm		VULCAN MATERIALS, ENKA, N.C.					61.04	
#10	9.5mm - 0.75mm		VULCAN MATERIALS, MARYVILLE					21.59	
NATL. SAND	9.5mm - 0.75mm		HIGHLAND SAND, CRABORCHARD					9.39	
BAGHOUSE FINES	.150mm - 0.75mm		HARRISON ASPHALT PLANT, MARYVILLE					1.88	
ASPHALT CEMENT	PG 75-22 <u>0.5% FIBERS</u>		MARATHON/ASHLAND, KNOXVILLE					6.10	
PAVE-BOND	PAVE-BOND		Densities: <u>0.5%</u>					100	
AGGREGATE ANALYSIS TOTAL PERCENT PASSING									
MIXING TEMP	340 F		171 C						
COMP. TEMP.	316 F		157 C						
PERCENT AC	REQUESTED	6.1		#7	#10	NATL. SAND	BAGHOUSE FINES	Calculated	
	CONTROL POINTS	RESTRICTED ZONE	MIX BLEND	%	%	%	%	Mix	
25mm			0	65%	23%	10%	7%	100.0%	
19mm	100		100	100	100	100	100	100.0	
12.5mm	90/100		95	93	100	100	100	95.5	
9.5mm			79	68	100	100	100	79.2	
4.75mm			50	26	92	99	100	50.0	
2.36mm	28/50	39.1	29	9	56	56	100	29.3	
1.18mm		29.6/21.6	20	5	31	51	100	20.5	
600mm		19.1/23.1	16	4	20	70	100	16.2	
300mm		15.5	8	3	14	12	100	8.4	
.150mm			6.4	2	12	4.0	98.9	6.4	
.075mm	2/10		5.4	1.5	10.0	2.0	98.3	5.4	
				THEO. GRAVITY	kg/m3	PCF	DAR	TSR	LOI
				2.507	1597.0	156.4	3.9	81%	12
REQUEST	APAC-TN, HARRISON DIV <u>Bobby Eruth</u>			APPROVED: <u>[Signature]</u> REGION MATERIALS ENGINEER					
CONTRACTOR									
APPROVED:	<u>Steve M. Bunk</u>			APPROVED ENGINEER OF MATERIALS AND TEST					
REGION CONST. ENGINEER									

Appendix A

Job Mix Formula

SUPERPAVE STATE OF TENNESSEE ASPHALT JOB MIX FORMULA									
MIX DESIGN NO: <u>DR-155)244</u>				SERIAL NO: <u>M-1(58)257</u>			DATE: <u>8/10/98</u>		
REGION: <u>ONE</u>				ARTICLE NO:					
PROJECT REF: <u>SP</u>				CONTRACT NO: <u>5267</u>					
PROJECT: <u>05002-4219-04</u>				COUNTY: <u>BLOUNT</u>					
TYPE: <u>BCMD- S.P./12.5mm 411-S</u>				SEC NO:					
CONTRACTOR: <u>APAC-HARRISON CONST</u>				SUBCONTRACTOR:					
STATE RT. NO: <u>S.R.:35 & 447</u>				DATE OF LETTING: <u>JUNE/98</u>					
Material		Total Percent Passing		Producer and Address				Percent Used	
GRANITE #7		19mm - 075mm		VULCAN MATERIALS, ENKA, N.C.				61.10	
#10		9.5mm - 075mm		VULCAN MATERIALS, MARYVILLE				21.62	
NATL. SAND		9.5mm - 075mm		HIGHLAND SAND, CRABORCHARD				9.40	
BAGHOUSE FINES		.150mm - 075mm		HARRISON ASPHALT PLANT, MARYVILLE				1.88	
Asphalt Content:		PG 76-22		MARATHON/ASHLAND, KNOXVILLE				6.00	
Ave-Stp		PAVE-BOND		Densite Rate: 0.5%				100	
AGGREGATE ANALYSIS TOTAL PERCENT PASSING									
MIXING TEMP.		340 F		171 C					
COMP. TEMP.		315 F		157 C					
PERCENT AC REQUESTED		6.0							
CONTROL POINTS		RESTRICTED ZONE		MIX BLEND					
25mm				0				0.0	
19mm		100		100		100		100.0	
12.5mm		90/100		95		93		95.5	
9.5mm				79		68		79.2	
4.75mm				50		26		50.0	
2.36mm		28/32		29		9		29.3	
.119mm		25.6/31.6		20		5		20.5	
600um		19.1/23.1		16		4		16.2	
300um		15.5		8		3		8.4	
.150mm				5.4		2		5.4	
075mm		2/10		5.4		1.5		5.4	
						THEO			
						GRAVITY			
						2.512		12513.0	
						156.8		0.9	
						DAR		TSR	
						85%		12	
REQUEST		APAC-TN: HARRISON DIV		Bobby Everett		APPROVED		REGION MATERIALS ENGINEER	
		CONTRACTOR							
APPROVED		Steve M. Bunk				APPROVED		ENGINEER OF MATERIALS AND TEST	
		REGION CONST. ENGINEER							

Appendix A

Job Mix Formula

SUPERPAVE STATE OF TENNESSEE ASPHALT JOB MIX FORMULA											
MIX DESIGN NO. <u>DV-1 (98) 252</u>				SERIAL NO. <u>M-1 (98) 3-3</u>				DATE <u>7/15/98</u>			
REGION <u>ONE</u>				ARTICLE NO.							
PROJECT REF <u>SP</u>				CONTRACT NO. <u>5267</u>							
PROJECT <u>05002-4219-04</u>				COUNTY <u>BLOUNT</u>							
TYPE <u>DCM S.P./19mm 307-S</u>				SEC NO.							
CONTRACTOR <u>APAC-HARRISON CONST</u>				SUBCONTRACTOR							
STATE RT. NO. <u>S.R. 35 & 447</u>				DATE OF LETTING <u>JUNE 98</u>							
Material	Total Percent Passing	Producer and Address						Percent Used			
#57/67	25mm - 075mm	VULCAN MATERIALS, MARYVILLE						26.47			
#7	19mm - 075mm	VULCAN MATERIALS, MARYVILLE						23.72			
#10	9.5mm - 075mm	VULCAN MATERIALS, MARYVILLE						21.82			
NATL. SAND	9.5mm - 075mm	HIGHLAND SAND, CRABORCHARD						9.49			
WASH SAND	4.75mm - 075mm	VULCAN MATERIALS, MARYVILLE						9.49			
BAGHOUSE FINES	150um - 075mm	HARRISON ASPHALT PLANT, MARYVILLE						1.89			
Asphalt Cement	PG 76-22 (10.5% FIBERS)	MARATHON ASPHALT, KNOXVILLE						5.10			
Anti-Slip	PAVE-BOND	Densar Fm: 0.5%						100			
AGGREGATE ANALYSIS TOTAL PERCENT PASSING											
MIXING TEMP.	340 F	171 C	#57/67	#7	#10	NATL SAND	WASH SAND	BAGHOUSE FINES	CALCULATED MIX		
COMP. TEMP.	315 F	157 C	%	%	%	%	%	%	%		
PERCENT AC REQUESTED	5.1		30%	25%	23%	10%	10%	2%	100.0%		
CONTROL POINTS	RESTRICTED ZONE	MIX BLEND									
25mm	100	100	100	100	100	100	100	100	100.0		
19mm	90 / 100	97	89	100	100	100	100	100	96.7		
12.5mm	90 max	79	42	34	100	100	100	100	78.6		
9.5mm		67	27	56	100	100	100	100	67.1		
4.75mm		49	9	11	92	96	100	100	48.6		
2.36mm	23 / 49	34	2	3	56	92	90	100	34.0		
1.18mm		23	2	3	31	31	47	100	23.3		
600um		17	1	2	20	20	22	100	16.6		
300um		8	1	2	14	12	9	100	8.1		
150um		5.2	1	2	5.2	4.9	3.8	100	5.2		
075mm	2.0 / 8.0	5.2	1.0	1.0	10.0	2.0	2.1	95.3	5.2		
			THEO. GRAVITY	kg/m3	PCF	DAR	TSR	LCI			
			2.572	157.9	160.9	1.0		NA			
REQUEST	APAC-TN, HARRISON DIV. <u>Bobby Smith</u>						APPROVED <u>[Signature]</u> REGION MATERIALS ENGINEER				
APPROVED	<u>[Signature]</u> REGION CONST. ENGINEER						APPROVED ENGINEER OF MATERIALS AND TEST				

Appendix A

Job Mix Formula

SUPERPAVE											
STATE OF TENNESSEE ASPHALT JOB MIX FORMULA											
MIX DESIGN NO: <u>DY-1(98) 251</u>				SERIAL NO <u>M-1(98) 302</u>				DATE <u>7/15/98</u>			
REGION <u>ONE</u>				ARTICLE NO							
PROJECT REF <u>SP</u>				CONTRACT NO <u>5267</u>							
PROJECT <u>05007-4219-04</u>				COUNTY <u>BLOUNT</u>							
TYPE: <u>BCMD S.P./19mm 307-5</u>				SEC NO							
CONTRACTOR: <u>APAC-HARRISON CONST</u>				SUBCONTRACTOR							
STATE RT. NO: <u>S.R.:35 & 447</u>				DATE OF LETTING <u>JUNE/98</u>							
Material	Total Percent Passing	Producer and Address						Percent Used			
#57/67	25mm - .075mm	VULCAN MATERIALS, MARYVILLE						28.68			
#7	19mm - .075mm	VULCAN MATERIALS, MARYVILLE						23.80			
#10	9.5mm - .075mm	VULCAN MATERIALS, MARYVILLE						21.90			
NATL. SAND	9.5mm - .075mm	HIGHLAND SAND, CRABORCHARD						9.56			
WASH SAND	4.75mm - .075mm	VULCAN MATERIALS, MARYVILLE						9.56			
BAGHOUSE FINES	1.180mm - .075mm	HARRISON ASPHALT PLANT, MARYVILLE						1.91			
Asphalt Cement	PG 76-22	MARATHON/ASHLAND, KNOXVILLE						4.40			
And-Stop	PAVE-BOND	Dispersant Rate: 0.5%						100			
AGGREGATE ANALYSIS TOTAL PERCENT PASSING											
MIXING TEMP.	340 F	171 C	#57/67	#7	#10	NATL SAND	WASH SAND	BAGHOUSE FINES	Calculate		
COMP. TEMP	315 F	157 C	%	%	%	%	%	%	NOI		
PERCENT AC	REQUESTED	4.4	%	%	%	%	%	%	NOI		
	CONTROL POINTS	RESTRICTED ZONE	MIX BLEND	30%	25%	25%	10%	10%	2%	100.0%	
25mm	100		100	100	100	100	100	100	100	100.0	
19mm	90 / 100		97	89	100	100	100	100	100	96.7	
12.5mm	90 MAX		79	42	84	100	100	100	100	78.6	
9.5mm			67	27	56	100	100	100	100	67.1	
4.75mm			49	9	11	92	99	100	100	49.5	
2.36mm	23 / 49	34.6	34	2	0	46	88	90	100	34.0	
1.18mm		22.3 / 29.3	23	0	0	31	81	47	100	22.2	
600um		16.7 / 20.7	17	0	0	20	70	22	100	16.6	
300um		13.7	5	0	0	14	22	9	100	5.1	
150um			0	0	0	10	4.0	3.8	100	5.3	
.075mm	2.0 / 8.0		0.0	0.0	1.0	10.0	2.0	2.1	95.3	5.2	
			THEO	10.3	PCF	DAP	TSR	LOI			
			GRAVITY	2.619	12.19	0	167.4	1.2	NA		
REQUEST	APAC-TN, HARRISON DIV. <u>Bobby Everett</u>				APPROVED <u>[Signature]</u> REGION MATERIALS ENGINEER						
APPROVED	<u>[Signature]</u> REGION CONST. ENGINEER				APPROVED ENGINEER OF MATERIALS AND TEST						

STATE OF TENNESSEE

ASPHALT JOB MIX FORMULA

DATE 09-01-98 Form DT-0256
 COUNTY DYER Re: Form T-118
 REGION 4
 PROJECT REFERENCE NO. SP
 PROJECT NO. 23002-4223-04 CONTRACT NO. 5285
 TYPE SUPERPAVE 19 MM SEC. NO. 307-5 ARTICLE NO. SF 307-
 CONTRACTOR FORD CONSTRUCTION CO. SUBCONTRACTOR N/A
 STATE RT. NO. 3 DATE OF LETTING 07-24-98
 TOTAL MIX INCLUDING BITUMEN

MATERIAL	SCREEN	TOTAL PASSING	PRODUCER AND ADDRESS	PERCENT USED
C.A. #57	11/4-#200		VULCAN MATERIALS CO., GILBERTSVILLE, KY.	25.59%
MED.C.A. #7	5/8-#200		FORD CONSTRUCTION CO., TROY, TN.	25.59%
SCRNS. MFG	3/8-#200		FORD CONSTRUCTION CO., TROY, TN.	14.22%
SAND #10	3/8-#200		VULCAN MATERIALS CO., GILBERTSVILLE, KY.	19.90%
FILLER RAP	1/2-#200		HWY. 51 BYPASS, RIPLEY, TN. (RAP AC @ 6%)	9.48%
A.C. PG76	PG76-22		ERCON ASPHALT CO., MEMPHIS, TN.	5.20%
% FRACTURED +4 MTL.	88		LATEX: N/A	% RAP AC 0.61
BRAND OF ANT-STRIP:	Perma Tac		A-STRIP: 0.50%	% VIR AC 4.59
				100

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING						
SCREEN TOTAL PASSING	Requested	Tolerance	C.A.	Med.C.A.	SCRNS.	Sand	FILLER	CALC.		
MASTER RANGE	%	%	%	%	%	%	%	MIX		
TEMP.	340	320	360	#57-R	#7-GR	MFG-SND	#10-R	RAP		
%A.C.	5.2	Test Results @	27	27	15	21	10	100.0		
63 mm		Recommended								
50 mm		A.C. Content								
37.5 mm		Blk Grv. 2.298								
31.5 mm		Eff. Grv 2.584								
25 mm	100	Stab. 4133								
19 mm	90-100	Flow 18.5	100	100	100	100	100	100.0		
16 mm	90	Voids 4.1	84	100	100	100	100	95.7		
12.5 mm	82	VMA 15.7	62	100	100	100	99	89.6		
9.5 mm	72	V.Filled 74	37	98	100	100	99	82.4		
4.75 mm	49	Dust-AC 1.1	14	83	100	100	93	71.5		
2.36 mm	31	Unit WT. 143.39	4	38	69	96	71	49.0		
600 um	15	Moisture Damage	2	18	35	72	53	31.1		
300 um	11	Information	1	6	16	38	30	15.3		
150 um	8	Avg. Dry 140.4	1	5	12	28	12	10.3		
75 um	5.8	Avg. Cnd. 129.4	1	4	8	21	7	7.7		
		TSR 92.2	1	3	6	16	5	5.3		

REQUESTED *Sammy Gault* APPROVED *Allen P. Dutton* 9-18-98
 Region Materials Engineer
 APPROVED *Scott Plunk* APPROVED
 Region Construction Engineer
 Region Materials and Test

Appendix A

Job Mix Formula

STATE OF TENNESSEE.
ASPHALT JOB MIX FORMULA

DATE 09-14-98 Form DT-0256
Re: Form T-118
COUNTY DYER REGION 4
PROJECT REFERENCE NO. SP _____ CONTRACT NO. 5285
PROJECT NO. 23002-4223-04 SEC. NO. 411-S ARTICLE NO. SP411-S
TYPE SUPERPAVE 12.5MM SUBCONTRACTOR N/A
CONTRACTOR FORD CONSTRUCTION CO. DATE OF LETTING 07-24-98
STATE RT. NO. 3 TOTAL MIX INCLUDING BITUMEN _____

MATERIAL	SCREEN TOTAL PASSING	PRODUCER AND ADDRESS	PERCENT USED
C.A.			
MED.C.A.#7	5/8-#200	FORD CONSTRUCTION CO., TROY, TN.	61.295
SCRNS. #10	3/8-#200	VULCAN MATERIALS CO., GILBERTSVILLE, KY.	18.860
SAND MFG.	3/8-#200	FORD CONSTRUCTION CO., TROY, TN.	9.430
FILLER AG.L	3/8-#200	FREDONIA VALLEY QUARRY, FREDONIA, KY.	4.715
A.C. ERG.	PG76-22	BERGON ASPHALT CO., MEMPHIS, TN.	5.700

1 FRACTURED +4 HTL. 87 LATEX: N/A % RAP AC N/A
BRAND OF ANT-STRIP: Perma Tac A-STRIP: 0.50% % VIR AC 5.7 100

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	TOTAL PASSING	Requested	Tolerance	C.A.	Med.C.A.	SCRNS.	Sand	FILLER	CALC.
MASTER RANGE		%	%	%	%	%	%	%	MIX
TEMP.		340	320 360		107-GR	1010-R	1MFG-SND	1AG.L.-F	
A.C.		5.7	Test Results @ Recommended		65	20	10	5	100.0
63 mm			A.C. Content	INCAT OVEN CORR.	0.72				
50 mm			Blk Grv. 2.178	LOI	11				
37.5 mm			Eff. Grv 2.507	MAX. SP. GRV.	2.317				
30 mm			Stab. 4525						
25 mm			Flow 20						
19 mm	100	100	Voids 6.0		100	100	100	100	100.0
16 mm		100	VMA 18.1		100	100	100	100	100.0
12.5mm	90-100	99	V.Filled 66.7		98	100	100	100	98.7
9.5 mm	MAX-90	90	Dust-AC 1.2		85	100	100	100	90.3
7.5 mm		56	Unit Wt. 135.90		38	96	69	99	55.8
6.3 mm	28-58	35			18	72	35	97	34.5
600 um		17	Moisture Damage Information		6	38	16	76	16.9
300 um		13	Avg. Dry 124.7		5	28	12	57	12.9
150 um		10	Avg. Cnd. 118		4	21	8	44	9.8
75 um	2.0-10.0	6.8	TSR 94.6		2	16	6	33	6.8

REQUESTED

Samy Carter
Ford Construction Company
Samy Carter
Ford Construction Company

APPROVED

Allen P. Outlaw 9-23-98
Region Materials Engineer

APPROVED

APPROVED

Engineer of Materials and Test

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA 601

AS Form T-111

Date: 7-14-98

Project Ref. No. _____ County Grundy Region II
 Proj. No. 31006-4227-04 Contract No. 5295
 Type _____ Sec. No. 307m03.15 Article _____
 Contractor: Thomas Bros Const. Subcontractor: _____
 State Rt. 127 TOTAL MIX INCLUDING BITUMEN Date of Letting 6-12-98

MATERIAL	Screen	% Passing	PRODUCER AND ADDRESS	% USED
C.A.	3/4"	48	Dunlap Stone Inc. Dunlap TN.	23.74
Med. C.A.	1/2"	48	" " " "	23.74
Screenings	1/4"	200	" " " "	28.72
Sand	1/4"	200	Dunlap Stone & Sand Plant. Dunlap TN.	19.15
Asphalt Cement	PG 64-22	Shell oil, CO. Chattanooga TN.	4.25	
Anti-Skid	yes	TYPE LP Pavement Lite	DOSAGE RATE: 0.5%	
% Fractured Faces on +4.75 Mail:	N/A	% Glassy Particles on +4.75 Mail:	N/A	100 %

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	T/L Passing	Required	Tolerance	C.A.	Med. C.A.	Screenings	Sand		Calculated
	Design Range	Permit	Permit	Permit	Permit	Permit	Permit	Permit	Mix
Temp		300		25	25	30	20		
% A.C.	42-62	4.25							
Compaction Temp:	280-290					(Washed Gradations)			
Mixing Temp:						Jm. 2 - 196			
						Theo: 2.508			
30mm (1 1/4")									
37.5mm (1 1/2")									
25mm (1")	100			100	100	100	100		100
19mm (3/4")	95-100			100	100	100	100		100
14mm (5/8")									
12.5mm (1/2")									
9.5mm (3/8")	59-79			4.3	75.0	100	100		69.8
4.75mm (#4)	42.61			2.0	4.0	45	94		49.4
2.36mm (#60)	29-47			1.7	3	66	84		37.8
600um (#30)	13-27			1.5	2	30	64		23.5
300um (#60)	7-20			1.0	1.5	22	28.4		12.9
150um (#100)	4-10			1.0	1.0	15.5	4.1		5.82
75um (#200)	0.6-5			.8	.7	11.5	1.1		4.05

Requested Paul L. Carey Jr.Approved Tom MillerApproved William T. Chausse
Regional Construction EngineerApproved _____
Regional Materials Engineer

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

SD Form T-118

* Same as Contract 4837

Date: 7-16-98

411D

Project Ref. No. _____ County Grundy Region II
 Proj. No. 31006-4227-04 Contract No. 5295
 Type _____ Sec. No. 411m01.01 Article _____
 Contractor: Thames Bros. Const. Co. Subcontractor: _____
 State Rt. _____ TOTAL MIX INCLUDING BITUMEN Date of Letting 6-12-98

MATERIAL	Screen	% Passing	PRODUCER AND ADDRESS	% USED
C.A.	54" - #200		Vulcan Sand & Gravel Chattanooga TN	51.37
Med. C.A.				
Screenings	1/2" - #200		Dunkley Stone Inc. Durbin TN	18.68
Sand	1/4" - #60		Dunkley Stone & Sand Plant Dunkley TN	18.68
Lime	44 - #200		Dunkley Stone Inc. Dunkley TN	4.67
Asphalt Cement	PB-64-22		Shell Oil Co. Chattanooga TN	6.6
Anti-Strip	yes		TYPE LP Pavement Line DOSAGE RATE: 0.5%	
% Fractured Faces on +4.75 Mail: 88				% Gummy Particles on +4.75 Mail: 100 %

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Td. Passing Design Range	Requested Permit	Tolerance Permit	C.A. Permit	Med. C.A. Permit	Screenings Permit	Sand Permit	Permit	Calculated Mix
Temp		150°		55		20	20	5	
% A.C.	53 - 7.0	6.6				(Washed Gradations) L.O.I. 10.0			
	Compaction Temp:					Theo: 2.292			
	Mixing Temp:					7m-2-115			
50mm (#2)						7m-2-197			
37.5mm (#12)									
25mm (#10)									
19mm (#10)									
16mm (#10)	100			100		100	100	100	100
12.5mm (#12)	95-100			96		100	100	100	97.8
9.5mm (#20)	80-93			79		100	100	100	88.5
4.75mm (#4)	54-76			47		96	94	100	64.9
2.36mm (#8)	35-57			29		62	84	95	50.7
600um (#30)	17-29			11		22	64	62	28.6
300um (#60)	10-18			8		20	23	46	16.3
150um (#100)	3-10			5.2		15.5	4.1	32.4	8.42
75um (#200)	0-6			3.1		1.5	1.1	23.5	5.42

Requested Paul L. Carey Jr.Approved Tom Miller

Region Manager Engineer

Approved William T. Chausse

Approved _____

Signature of Member and Team

STATE OF TENNESSEE

, ASPHALT JOB MIX FORMULA

PROJECT REFERENCE NO. SP (Res. 58-2) DATE 4-15-98 Form DT-0256
 PROJECT NO. 54010-0217-04 57007-4231-04 COUNTY MADISON Re: Form T-118
 TYPE (BPMH-MM) CONTRACT NO. 538 578 REGION
 CONTRACTOR FORD CONSTRUCTION CO. JACKSON SEC. NO. 307-BM2 ARTICLE NO. 01-02-C
 SUBCONTRACTOR
 STATE RT. NO. 5 412 TOTAL MIX INCLUDING BITUMEN DATE OF LETTING 6-12-98 2-20-98

MATERIAL	SCREEN	TOTAL PASSING	PRODUCER AND ADDRESS	PERCENT USED
C.A. #5	11/2-#200		VULCAN MATERIALS CO., PARSONS, TN.	19.060
MED.C.A. #7	5/8-#200		VULCAN MATERIALS CO., PARSONS, TN.	28.590
SCRNS. #10	3/8-#200		VULCAN MATERIALS CO., PARSONS, TN.	14.295
SAND SAND	#4-#200		DEMENT SAND CO., JACKSON, TN.	19.060
FILLER RAP	1/2-#200		STATE ROUTE 365 & 100 (RAP AC @ 5.5%)	0.932 14.295
A.C. ERG.	PG 76-22		ERGON ASPHALT CO., MEMPHIS, TN.	3.868 4.700

% FRACTURED FACES ON PLUS 4 MATERIAL N/A
 BRAND OF ANT-STRIP: Perma Tac % ANTI-STRIP 0.3% 100

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	TOTAL PASSING	Requested	Tolerance	C.A.	Med.C.A.	SCRNS.	Sand	FILLER	CALC.
MASTER RANGE	%	%	%	%	%	%	%	%	MIX
TEMP.		340	320 360	#5-V	#7-V	#10-P	SAND-0	RAP	
%A.C.	4.2-6.2	4.7	Test Results @	20	30	15	20	15	100.0
2 1/2"			Recommended	DESIGN NO. CONTRACTORS					
2"			A.C. Content	MAX. SP. GRV. 2.472					
1 1/2"			Blk Grv. 2.370						
1 1/4"	100	100	Eff. Grv 2.661						
1"			Stab. 3133	100	100	100	100	100	100.0
3/4"	81-93	85	Flow 10.02						
5/8"			Voids 3.8025	25	100	100	100	100	85.0
1/2"			VMA 14.8						
3/8"	57-73	66	V.Filled 74.4						
NO. 4	40-56	49	Dust-AC 1.2	3	53	100	100	95	65.8
NO. 8	28-43	41	Unit WT. 148.30	2	11	91	100	79	49.2
NO. 30	13-25	24	Moisture Damage	2	4	64	100	62	40.5
NO. 50	9-19	12	Information	2	3	34	59	39	24.1
NO. 100	6-10	7	Avg.Dry 189	2	3	27	15	21	11.5
NO. 200	2.5-6.5	5.5	Avg.Cnd. 143.5	2	3	21	3	12	6.9
			TSR 75.9	2	3	16	2	9	5.3

REQUESTED Craig Johnson APPROVED Allen P. Dutton 5-5-98
 Ford Construction Company Region Materials Engineer
 APPROVED Scott Clark APPROVED _____
 Region Construction Supervisor Engineer of Materials and T

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date: 9/1/98

Project Ref. No. SP County Madison Region 4
 Proj. No. 57012-4209-04 Layer Binder Contract No. 5306
 Type BPM-B-HM Sec. No. 307-S w/Fiber Article 307M10.11
 Contractor Dement Construction Subcontractor _____
 St. Route 412 Total Mix including Bitumen Date of Letting 6/12/98

Material	Size Range or Type	Producer and Address	% Used
#57's	1"-Pan	Vulcan Mtls., Parsons, TN	19.06
#7's	3/4"-Pan	Vulcan Mtls., Parsons, TN	33.36
Block #10's	3/8"-Pan	Vulcan Mtls., Parsons, TN	19.06
Screw Sand	3/8"-Pan	Vulcan Mtls., Holladay, TN	14.30
RAP	3/4"-Pan	Dement Construction, Jackson, TN	10.12
Asphalt Cement	PG 76-22	Koch Mat's, Memphis, TN	4.12
Anti-Strip	Agg-Grip	Dosage Rate: 0.5%	
% Fractured Faces on +4 Material: N/A		% Glassy Particles on +4 Material: N/A	100.0

% Fractured Faces on +4 Material:			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
100 PERCENT MINERAL AGGREGATE			#57's	#7's	Block #10's	Screw Sand	RAP	Calculated
Screen	To. Passing	Requested	Percent	Percent	Percent	Percent	Percent	Mix
Design Range		Percent						
Temp		310° F	20.0	35.0	20.0	15.0	10.0	100.0
% AC		4.7	NCAT Furnace Corr. Factor: N/A Loss On Ignition: N/A Theoretical Maximum Density: 2.505 AC in RAP: 5.8					
Compaction Temp:		300-315						
Mixing Temp:		325-340						
			(Washed Gradations)					
2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1"	100	100	100.0	100.0	100.0	100.0	100.0	100.0
3/4"	90-100	99	95.0	100.0	100.0	100.0	100.0	99.0
1/2"		85	35.0	95.0	100.0	100.0	96.0	84.9
3/8"		65	7.0	57.0	100.0	100.0	90.0	65.4
#4		39	2.0	7.0	75.0	94.0	71.0	39.1
#8	23-49	23	1.0	5.0	14.0	82.0	55.0	22.6
#16		15	1.0	3.0	8.9	52.0	41.0	14.9
#30		11	1.0	2.5	6.4	33.0	33.0	10.6
#50		8	1.0	2.0	5.8	22.0	21.0	7.5
#100		4.7	1.0	2.0	5.2	10.0	13.0	4.7
#200	2-8	3.5	1.0	2.0	4.4	6.0	8.4	3.5

0.3% Polyester Fiber supplied by Jim Crawford

Requested James Hopkins LT-034

Contractor

Approved Walter P. Rutledge 9-11-98

Region Materials Engineer

Approved

[Signature]

Region Construction Engineer

Approved

Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date: 9/23/98

Project Ref. No. 57012-4209-04 SP SP County Madison Region 4
 Proj. No. 57012-4209-04 Layer Surface Contract No. 5306
 Type ACS-HM Sec. No. SP 411-S w/ Fibers Article
 Contractor Dement Construction Subcontractor
 St. Route 412 Total Mix including Bitumen Date of Letting 6/12/98

Material	Size Range or Type	Producer and Address	% Used
D Rock	5/8"-Pan	Adamsville Sand & Gravel, Adamsville, TN	60.78
Block #10's	3/8"-Pan	Vulcan Mtls., Parsons, TN	9.35
Screw Sand	3/8"-Pan	Vulcan Mtls., Holladay, TN	14.03
Dement Sand	#4-Pan	Dement Const. Denmark, Tn.	9.35
	0.30%	Polyester Fiber supplied by Jim Crawford	0.00
Asphalt Cement	PG 76-22	Koch Mat's, Memphis, TN	6.50
Anti-Strip	Agg-Grip	Dosage Rate: 0.5%	
% Fractured Faces on +4 Material:		72.1	
% Glassy Particles on +4 Material		N/A	100.0

100 PERCENT MINERAL AGGREGATE			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					Calculated
Screen	Tot. Passing Design Range	Requested Percent	D Rock Percent	Block #10's Percent	Screw Sand Percent	Dement Sand Percent	0 Percent	Mix
Temp		310° F	65.0	10.0	15.0	10.0		100.0
% AC		6.5	NCAT Furnace Corr. Factor: 0.76 Loss On Ignition: 10.9 Theoretical Maximum Density: ~~2.287~~ AC in RAP: 2.313 <i>mab</i>					
Compaction Temp:		300-315						
Mixing Temp:		325-340						
(Washed Gradations)								
2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1"		100	100.0	100.0	100.0	100.0	100.0	100.0
3/4"	100	100	100.0	100.0	100.0	100.0	100.0	100.0
1/2"	90-100	94	90.0	100.0	100.0	100.0	100.0	93.5
3/8"		86	78.0	100.0	100.0	100.0	100.0	85.7
#4		54	34.0	75.0	94.0	100.0	100.0	53.7
#8	28-58	38	22.0	14.0	82.0	98.0	100.0	37.8
#16		26	14.0	8.9	52.0	83.0	100.0	26.1
#30		17	9.0	6.4	33.0	60.0	100.0	17.4
#50		9	6.0	5.8	22.0	16.0	100.0	9.4
#100		5.1	4.0	5.2	10.0	5.0	100.0	5.1
#200	2-8	3.6	3.1	4.4	6.0	2.1	100.0	3.6

Requested

John Smith LT-097
Contractor

Approved

W.A. Black 9/24/98
Region Materials Engineer
Cmpd.

Approved

Scott Plunk
Region Construction Engineer

Approved

Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date: 9/17/98

Project Ref. No. SP County Madison Region 4
 Proj. No. 57012-4209-04 Layer Surface Contract No. 5306
 Type ACS-HM Sec. No. SP 411-S Article
 Contractor Dement Construction Subcontractor
 St. Route 412 Total Mix Including Bitumen Date of Letting 6/12/98

Material	Size Range or Type	Producer and Address	% Used
D Rock	5/8"-Pan	Adamsville Sand & Gravel, Adamsville, TN	61.30
Block #10's	3/8"-Pan	Vulcan Mtls., Parsons, TN	9.43
Screw Sand	3/8"-Pan	Vulcan Mtls., Holladay, TN	14.15
Dement Sand	#4-Pan	Vulcan Mtls., Holladay, TN	9.43
			0.00
Asphalt Cement	PG 76-22	Koch Mat's, Memphis, TN	5.70
Anti-Strip	Agg-Grip	Dosage Rate: 0.5%	
% Fractured Faces on +4 Material: 72.1		% Glassy Particles on +4 Material: N/A	100.0

100 PERCENT MINERAL AGGREGATE			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
Screen	Ttl. Passing Design Range	Requested Percent	D Rock Percent	Block #10's Percent	Screw Sand Percent	Dement Sand Percent	0 Percent	Calculated Mix
Temp		310° F	65.0	10.0	15.0	10.0		100.0
% AC		5.7						
Compaction Temp:		300-315						
Mixing Temp:		325-340						
2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2"		100	100.0	100.0	100.0	100.0	100.0	100.0
1"		100	100.0	100.0	100.0	100.0	100.0	100.0
3/4"	100	100	100.0	100.0	100.0	100.0	100.0	100.0
1/2"	90-100	94	90.0	100.0	100.0	100.0	100.0	93.5
3/8"		86	78.0	100.0	100.0	100.0	100.0	85.7
#4		54	34.0	75.0	94.0	100.0	100.0	53.7
#8	28-58	38	22.0	14.0	82.0	98.0	100.0	37.8
#16		26	14.0	8.9	52.0	83.0	100.0	26.1
#30		17	9.0	6.4	33.0	60.0	100.0	17.4
#50		9	6.0	5.8	22.0	16.0	100.0	9.4
#100		5.1	4.0	5.2	10.0	5.0	100.0	5.1
#200	2-8	3.6	3.1	4.4	6.0	2.1	100.0	3.6

MIX DESIGNED IN DPT. CENTRAL LAB. (98)

 Requested James V. Lee LT-097
 (901) 784-3053 Contractor

 Approved Allen P. Smith 9-21-98
 Region Materials Engineer

 Approved Sally Plunk
 Region Construction Engineer

 Approved _____
 Engineer of Materials and Tests

revised copy STATE OF TENNESSEE ASPHALT JOB MIX FORMULADate 6/18/98

Project Ref. No. SP County Maury Region III
 Proj. No. 60002-4270-04 Layer Surface Contract No. 5308
 Type ACS-HM Sec. No. 411-S Article 01.01-01.02
 Contractor Logac Ent. Subcontractor _____
 St. Route _____ Total Mix including Bitumen _____ Date of Letting _____

Material	Size Range or Type	Producer and Address	% Used
"D" Rock	5/8"-Pan	Burns Stone, Burns, TN	~~9.82~~ 51.81
Hard #10's	3/8"-Pan	Burns Stone, Burns, TN	~~18.68~~ 18.84
Soft #10's	3/8"-Pan	Vulcan, Franklin, TN	~~14.46~~ 14.18
Washed Scr.	1/4"-Pan	Columbia Rock, Columbia, TN	~~8.44~~ 9.12
RAP/Filler			0.00
Asphalt Cement	PG 64-22	Ergon, Nashville, TN	~~6.60~~ 5.80
Anti-Strip	Pave Bond Lite	Dosage Rate: 0.3%	
% Fractured Faces on <4 Material: N/A		% Glassy Particles on <4 Material: N/A	100.0
100 PERCENT MINERAL AGGREGATE			
Screen	Tot. Passing	Requested	TD Rock
	Design Range	Percent	Percent
Temp		300° F	55.0
% AC		5.8-5.6	20.0
Compaction Temp:	295-305		15.0
Mixing Temp:	305-315		10.0
		NCAT Furnace Corr. Factor: N/A	0.0
		Loss On Ignition: 26.0	
		Theoretical Maximum Density: ~~2.439~~ 2.425	
		AC in RAP: 0.0	
(Washed Gradations)			
2"		100	100.0
1 1/2"		100	100.0
1"		100	100.0
3/4"		100	100.0
1/2"		98	97.0
3/8"		84	70.0
#4		49	11.0
#8		33	4.0
#16		22	3.0
#30		14	2.5
#50		10	2.0
#100		7.8	1.8
#200	2-8	6.1	1.7

Requested Lo-Tec _____
ContractorApproved John Abbott 7-10-98
Region Materials EngineerApproved Terry Wilson
Region Construction EngineerApproved _____
Engineer of Materials and Tests

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

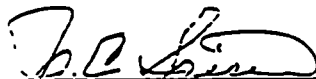
Date: 9/4/98

Project Ref. No. _____ County Pickett Region II
 Proj. No. 67950-3503-04 Layer Surface Contract No. 5313
 Type A.C.S.-H.M. Sec. No. 411M-D Article 411M-01.01.02
 Contractor Highway Materials Subcontractor N/A
 St. Route _____ Total Mix including Bitumen Date of Letting 9/11/98

Material	Size Range or Type	Producer and Address	% Used
C.A.			
Med. C.A.	16mm-pan	Livingston Limestone Livingston, Tn.	57.06
Screening	4.75mm-pan	Livingston Limestone Livingston, Tn.	9.51
Nat. Sand	4.75mm-pan	Highways Inc. Monterey, Tn.	14.27
M.S.	4.75mm-pan	Livingston Limestone Livingston, Tn.	14.25
Asphalt Cement	PG64-22	Southern States/Marathon Nashville, Tn.	4.90
Anti-Strip	Pave Bond Lite	Dosage Rate:	0.3
% Fractured Faces on +4 Material:		N/A	100.0
% Glassy Particles on +4 Material		N/A	100.0

100 PERCENT MINERAL AGGREGATE			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
Screen	Ttl. Passing Design Range	Requested Percent	C.A. Percent	Med. C.A. Percent	Screening Percent	Nat. Sand Percent	M.S. Percent	Calculated Mix
Temp	275-325	300 F		60.0	10.0	15.0	15.0	100.0
% AC		4.9						
Compaction Temp:		280-290	NCAT Furnace Corr. Factor: Loss On Ignition: 27.0 Theoretical Maximum Density: 2.494 AC in RAP:					
Mixing Temp:		295-305						
(2") 50mm								
(11/2) 37.5								
(11/4) 31.5								
(1") 25mm								
(3/4) 19mm								
(5/8) 16mm	100	100		100.0	100.0	100.0	100.0	100.0
(1/2) 12.7	95-100	94		90.0	100.0	100.0	100.0	94.0
(3/8) 9.5	80-93	79		65.0	100.0	100.0	100.0	79.0
(#4) 4.75	54-76	52		22.0	93.0	98.0	99.0	52.1
(#8) 2.36	35-57	36		7.0	63.0	93.0	78.0	36.2
(16) 1.18		29		5.0	44.0	90.0	55.0	29.2
(#30) 600	17-29	21		4.0	31.0	75.0	30.0	21.3
(#50) 300	10-18	10		3.0	22.0	24.0	16.0	10.0
(#100) 150	3-10	4.5	9.8	2.0	16.0	3.0	8.0	4.548
(#200) 75	0-6.5	3.2		2.0	11.0	1.0	5.0	3.2

Requested


 J. C. Spicer Lt. 129 Contractor

Approved


 Tom Miller Region Materials Engineer

Approved


 Region Construction Engineer

Approved

Engineer of Materials and Tests

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

SE Form T-111

* SAME AS CON. 4837

Date: 7-6-98

Project Ref. No. _____ County Sevier Region II
 Proj. No. 77004 - 4207 - 04 Contract No. 5318
 Type _____ Sec. No. 411 MDJ. 01 Article _____
 Contractor: Truman Bros. Const. Subcontractor: _____
 State Rt. _____ TOTAL MIX INCLUDING BITUMEN Date of Letting 6-12-98

MATERIAL	Screen	% Passing	PRODUCER AND ADDRESS	% USED
C.A.	54"	100	Vulcan Sand & Gravel Chattanooga	51.37
Med. C.A.	16"	900	Dunlap Stone Inc. Dunlap TN	18.68
Screenings	16"	700	Dunlap Stone sand Dunlap TN	8.68
Sand	16"	200	Dunlap Stone Inc. Dunlap TN	9.67
Asphalt Cement	100	64-22	Shell Oil Co. Chattanooga TN	6.6
Anti-Strip	TYPE: <u>LD</u>	DOSAGE RATE: <u>0.5%</u>		
% Fractured Faces on +4.75 Matl:	48	% Glassy Particles on +4.75 Matl:		100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Tot. Passing Design Range	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	Permat Percent	Calculated Mat
Temp		160°C		55		20	20	5	
% A.C.	5.3-7.0	6.6				(Washed Gradations) 40%: 10.0%			
Compaction Temp:						Theo: 2.292			
Mixing Temp:						2-2-161			
50mm (#2)									
37.5mm (#1 1/2)									
25mm (#1)									
19mm (#10)									
16mm (#12)	100	100		100		100	100	100	100
12.5mm (#1 1/2)	25-100	97.8		96		100	100	100	97.8
9.5mm (#20)	20-100	88.5		79		100	100	100	88.5
4.75mm (#4)	54-75	68.9		47		96	97	100	68.9
2.36mm (#60)	35-57	50.7		29		66	84	95	50.7
600um (#30)	1-25	28.6		11		29	68	62	28.6
300um (#60)	7-14	16.3		8		20	28	46	16.3
150um (#100)	3-10	8.42		5.2		15.5	4.1	32.8	8.42
75um (#200)	0-6.5	5.40		3.1		11.5	1.1	23.5	5.40

Requested Paul L. WayApproved Tom MullinsApproved Jeff Blinn

Approved _____

Appendix A

Job Mix Formula

FINE Agg. ANGULARITY = 48.4%

Date 8/18/98
Clinton Hwy
 County KNOX Region ONE
 Contract No 5366
 Project Reference No SP
 Project No 47013-422-04
 Type 411-S Sec No _____ Article No _____
 Contractor ROGERS GROUP INC Subcontractor _____
 State Rt No 25 W TOTAL MIX INCLUDING BITUMEN Date of letting _____

MATERIAL	SCREEN Total Percent Passing	SER. No. PRODUCER AND ADDRESS	Percent Used
Med C.A.	5/8" to pan	<u>M-1 (98) 317</u> Rogers Group Inc. Oak Ridge, TN	56.70
Screenings	3/8" to pan scr.	Rogers Group Inc. Oak Ridge, TN	23.63
SAND	3/8" to pan	Rogers Group Inc. Oak Ridge, TN	14.17
Asphalt Cement	PG 76-22	Shell Oil Knoxville, TN	5.5
Anti-Strip	Type: _____	Dosage Rate: _____	

% Fractured Faces on Plus No. 4 Material:				100	% Glassy Particles on Plus No. 4 Material:				100%
100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C A Percent	Med. C A Percent	Screenings Percent	Sand Percent	RAP	Calculated Percent
Temp	150C-170C	160C	148C-170C		80	25	15		
	5.3-7.0	5.5			TSR	1157.80 / 1315.68 = 88%			
						THEO.	2.528		
1"					L.O.I.	32.3%			
3/4"	100	100			100	100	100		100
5/8"					"				
1/2"	90-100	98			97	100	100		98.2
3/8"	<90	83			72	100	100		83.2
No. 4		51			22	92	99		51.05
No. 8	28-58	37			15	60	87		37.05
No. 30		18			5	24	58		17.7
No. 50		12			4	20	28		11.6
No. 100		7			3	18	6		7.2
No. 200	2-10	5			2	12	3		4.65

BY CLELLAN TIDWELL

Requested ROGERS GROUP INC.
 Contractor
 Approved [Signature]
 Region Construction Engineer

Approved [Signature]
 Region Materials Engineer
 Approved _____
 Engineer of Material and Tests

Appendix A

Job Mix Formula

98M417

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date 09-21-99

Project Reference No. 63-011-4235-04 County MONTGOMERY Region 3

Project No. Contract No. 5387

Type BPMB - HM Sec. No. 307 - S Article No.

Contractor MCINTOSH CONSTRUCTION Subcontractor

State Rt. N 48 / 13 TOTAL MIX INCLUDING BITUMEN Date of Letting 7-24-98

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	PERCENT USED
# 57 Stone	25.4 mm - PAN	VULCAN MATERIALS CLARKSVILLE, TN	33.320
5/8" D - Rock	19.0 mm - PAN	VULCAN MATERIALS CLARKSVILLE, TN	19.040
# 10 Screenings	9.5 mm - PAN	VULCAN MATERIALS CLARKSVILLE, TN	19.040
Mfg. Sand	9.5 mm - PAN	VULCAN MATERIALS CLARKSVILLE, TN	23.800
Asphalt Cement	PG 64 - 22	MARATHON - ASHLAND NASHVILLE, TN	4.8
Anti-Strip	Type: KLING BETALQ	Dosage Rate: 0.5 %	

% Fractured Face on Plus No. 4 Material % Glassy Particles on Plus No. 4 Material 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	# 57 Stone	5/8" D - Rock	# 10 Screenings	Mfg. Sand	Filler Percent	Calculate Mix
Temp.	159 - 166 °C	166		35	20	20	25		
% A.C.	4.2 - 6.2	4.8							
25.4 mm	100	100		100.0	100.0	100.0	100.0		100.0
19.0 mm	90 - 100	96		88.5	100.0	100.0	100.0		96.0
12.5 mm				32.6	87.1	100.0	100.0		73.8
9.5 mm				13.4	53.0	100.0	100.0		60.3
4.75 mm				1.5	2.5	74.1	95.9		39.8
2.36 mm	23 - 49	30		0.9	1.8	42.7	81.7		29.8
1.18 mm				0.7	1.6	34.2	47.8		19.4
600 um				0.7	1.5	20.6	27.2		11.5
300 um				0.7	1.5	18.4	13.2		7.5
150 um				0.57	1.31	17.70	3.92		4.98
75 um	2 - 8	3		0.50	1.15	10.20	2.04		2.96

Requested David P. McIntosh Approved John R. Whit 9-27-98Approved John R. Whit Region Materials EngineerApproved John R. Whit Region Construction EngineerApproved John R. Whit 10-5-98Approved John R. Whit Engineer of Materials and Tests

FORM 07-025
22 Jan 7-118

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date: 10/12/98

Project Ref. No. S.P. County Putnam Region II
 Proj. No. 71005-4229-04 Contract No. 5386
 Type BPMB-H.M. Sec. No. 307-S Article 01.01-01.02
 Contractor Highways, Inc. Subcontractor N/A
 State Rt. TOTAL MIX INCLUDING BITUMEN Date of 7/24/98

MATERIAL	Screen	Total % Passing	PRODUCER AND ADDRESS		% USED			
CA	#57		Rogers Group	Algood, Tn.	28.86			
Med. CA	#7		Rogers Group	Algood, Tn.	33.67			
Screenings	B.D.		Rogers Group	Algood, Tn.	24.05			
Sand	N. Sand		Highways Inc.	Monterey, Tn.	9.62			
RAP					0.00			
Asphalt Cement	PG64-22		Ergon	Nashville, Tn.	3.80			
Anti-Strip	TYPE: <u>Pavebond-Lite</u>		DOSAGE RATE: <u> </u>		<u>0.53</u>			
% Fractured Faces on +4 Material:		% Glassy Particles on +4 Material			0 100 %			
100 PERCENT MINERAL AGGREGATE			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Id. Passing Design Range	Requested Percent	C. A. Percent	Med. C. A. Percent	Screenings Percent	Sand Percent	RAP Percent	Calculated Mix
Temp	275-325	300° F	30	35	25	10		
% A.C.		3.8	3.45-4.15	(Washed Gradations)				
	Compaction Temp:	295-305		L.O.I.				
	Mixing Temp:	305-315		Theo 2.529				
37.5mm				3m - 2-294				0.0
31.5mm								0.0
25mm		100.0	100	100.0	100.0	100.0		100.0
19mm		95.5	89.8-100	85.0	100.0	100.0		95.5
16mm								0.0
12.7		78.8	73.1-84.5	35.0	95.0	100.0		78.8
9.5mm		64.3	58.6-70.0	24.0	63.0	100.0		64.3
4.75mm		38.7	34.7-42.7	7	10.0	93.0		38.7
2.36mm		27.1	23.8-30.4	5.0	5.0	58.0		27.1
1.18		23.7	20.4-27	4.0	5.0	47.0		23.7
600um		16.1	12.8-19.4	4.0	4.0	24.0		16.1
300um		9.6	6.3-12.9	4.0	4.0	18.0		9.6
150um		5.8	4.3-7.4	3.0	3.0	14.0		5.8
75um		3.9	2.3-5.5	2.0	2.0	10.0		3.9

Requested J.C. Spicer Approved Tom Miller
 J.C. Spicer L.T.-126 Contractor Region Materials Engineer
 Approved John A. Blinn Approved
Region Construction Engineer Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Date: 10/27/98

Project Ref. No. _____ S.P. _____ County Putnam Region II
 Proj. No. 71005-4229-04 Layer Surface Contract No. 5386
 Type A.C.S.-H.M. Sec. No. 411M-S.P. Article 411M-01.01.02
 Contractor Highway Materials Subcontractor N/A
 St. Route _____ Total Mix including Bitumen Date of Letting 7/24/98

Material	Size Range or Type	Producer and Address		% Used
C.A.				
Med. C.A.	16mm-pan	Rogers Group	Gordonsville, Tn.	57.06
B. D.	4.75-pan	Rogers Group	Algood, Tn.	23.78
Nat. Sand	4.75-pan	Highways Inc.	Monterey, Tn.	14.27
M.S.				
Asphalt Cement	PG-64-22	Ergon	Nashville, Tn.	4.90
Anti-Strip	Pave Bond Lite	Dosage Rate:		0.00
% Fractured Faces on +4 Material:		N/A	% Glassy Particles on +4 Material	N/A
				100.0

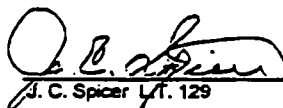
100 PERCENT MINERAL AGGREGATE			AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
Screen	Til. Passing Design Range	Requested Percent	C.A. Percent	Med. C.A. Percent	B. D. Percent	Nat. Sand Percent	M.S. Percent	Calculated Mix
Temp		300 F		60.0	25.0	15.0		100.0
% AC		4.9						
Compaction Temp:		295-305						
Mixing Temp:		305-315						
(2") 50mm								
(1 1/2) 37.5								
(1 1/4) 31.5								
(1") 25mm								
(3/4) 19mm								
(5/8) 16mm		100		100.0	100.0	100.0		100.0
(1/2) 12.7		98		97.0	100.0	100.0		97.5
(3/8) 9.5		83		72.0	100.0	100.0		83.2
(#4) 4.75		50		20.0	93.0	98.0		50.0
(#8) 2.36		32		5.0	58.0	93.0		31.5
(16) 1.18		25		5.0	34.0	90.0		25.0
(#30) 600		20		4.0	24.0	75.0		19.7
(#50) 300		10		3.0	18.0	25.0		10.1
(#100) 150		4.9		2.0	18.0	3.0		4.59
(#200) 75		4.1		2.0	11.0	1.0		4.1

NCAT Furnace Corr. Factor:
 Loss On Ignition: 32.1
 Theoretical Maximum Density: 2.545
 AC in RAP:

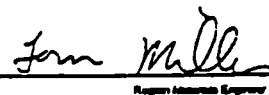
Jm-2-307

(Washed Gradations)

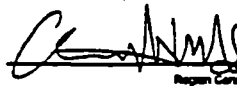
Requested


 J. C. Spicer L.T. 129 Contractor

Approved


 Region Materials Engineer

Approved


 Region Construction Engineer

Approved

Engineer of Materials and Tests

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form 07-4234
Rev. 10-1-74

FINE ANGULARITY 47.0% Date Oct 11, 1998

Project Reference No. SP County SEVIER Region I

Project No. 28016-7207-04 Contract No. 5398

Type TRMB Hm. Gen. m. S. Sec. No. 302-5.8.004 Article No.

Contractor Charles Bishop & Sons Subcontractor

State Rt. No. 339 TOTAL MIX INCLUDING BITUMEN Date of Letting 7-27-98

MATERIAL	SCREEN Sieve Percent Passing	SER. # PRODUCER AND ADDRESS	Percent Used
C.A.	19mm-75um	VULCAN MATERIALS, SEVIERVILLE TN	28.50
Med. C.A.	19mm-75um	VULCAN MATERIALS, SEVIERVILLE TN	23.75
Screenings	19mm-75um	VULCAN MATERIALS, SEVIERVILLE TN	42.75
Sand			
Asphalt Content	<u>PG 64-22</u>	<u>Volunteer Shell, Knoxville, TN</u>	<u>5.0</u>
Agg. Stiff.	Type: <u>Km. Ret. L</u>	Moisture: <u>0.3%</u>	

% Fracture Form on Plus No. 4 Material: - % Glassy Particles on Plus No. 4 Material: - 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Percent Upper Bound	Requested Percent	Percentage of Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	Filler Percent	Calculated Max
Top	<u>175-625</u>	<u>100</u>		<u>30</u>	<u>25</u>	<u>45</u>			<u>100</u>
% A.C.		<u>5.0</u>							
2"									
1 1/2"									
1"	<u>100</u>	<u>100</u>		<u>100</u>					<u>100</u>
3/4"	<u>90-100</u>	<u>98</u>		<u>94.3</u>	<u>100</u>				<u>98.3</u>
1/2"	<u>90</u>	<u>88</u>		<u>45</u>	<u>96</u>				<u>88.5</u>
3/8"				<u>27.4</u>	<u>75</u>	<u>100</u>			<u>72</u>
No. 4				<u>6</u>	<u>24</u>	<u>93</u>			<u>49.7</u>
No. 8	<u>23-49</u>	<u>33</u>		<u>3.5</u>	<u>10</u>	<u>66</u>			<u>33.3</u>
No. 16				<u>2.6</u>	<u>5</u>	<u>42</u>			<u>20.9</u>
No. 30				<u>2</u>	<u>3</u>	<u>27</u>			<u>13.5</u>
No. 60				<u>1.3</u>	<u>2</u>	<u>17</u>			<u>8.5</u>
No. 100				<u>0.6</u>	<u>0.7</u>	<u>12</u>			<u>5.8</u>
No. 200	<u>2-8</u>	<u>4.4</u>		<u>0.4</u>	<u>0.8</u>	<u>9.1</u>			<u>4.4</u>

Requested Charles Bishop & Sons Contractor

Approved Don Farnham Engineer of Materials and Tests

Approved John E. Farnham Region Construction Engineer

Appendix A

Job Mix Formula

STATE OF TENNESSEE ASPHALT JOB MIX FORMULA

Form OT-425B
Rev. Form 7-110

Project Reference No. SP Date OCT 19, 1998
 County SEVIER Region I
 Project No. 78016-4207-04 Contract No. 5398
 Type ACS GRADING 411-5 Sec. No. 411-5 Article No. _____
 Contractor CHARLES BLACK & SONS Subcontractor _____
 State Rt. No. 339 TOTAL MIX INCLUDING BITUMEN Date of Letting 7-27-98

MATERIAL	SCREEN Total Percent Passing	PRODUCER AND ADDRESS	Percent Used
C.A.		M-1478) 397	04-148) 331
Med. C.A.	19mm - 75um	NEWPORT SAND & GRAVEL, NEWPORT TN	56.76
Screenings	9.5mm - 75um	VULCAN MATERIALS, SEVIERVILLE TN	23.65
Sand	9.5mm - 75um	NEWPORT SAND & GRAVEL, NEWPORT TN	14.19
Asphalt Cement	PG 64-22	VOLUNTARY SHILL, KNOXVILLE TN	5.40
Anti-Strip	Type: <u>KLM Beta LV</u>	Dosage Rate: <u>0.3%</u>	

% Fractured Faces on Plus No. 4 Material: 944 % Glassy Particles on Plus No. 4 Material: — 100%

100 PERCENT MINERAL AGGREGATE				AGGREGATE ANALYSIS TOTAL PERCENT PASSING					
SCREEN	Total Passing Master Range	Requested Percent	Tolerance Percent	C.A. Percent	Med. C.A. Percent	Screenings Percent	Sand Percent	Filler Percent	Calculated Mix
Temp.	135°-142.8°	148.9°			60	25	15		100
% A.C.		5.4							
2 "									
1 1/2 "									
1 "									
3/4 " 19mm	100				100				100
1/2 " 12.5mm	90-100	97			95				97
3/8 " 9.5mm	— 90	92.8			71.3	100	100		82.8
No. 4 4.75mm		55.3			29	93	97.8		55.3
No. 8 2.36mm	28-58	37.6			17	66	72.5		37.6
No. 16 1.18mm		26.5			12.4	42	56.9		26.5
No. 30 0.6mm		18.2			9.8	27	37.2		18.2
No. 50 0.3mm		11.4			7.5	17	17.4		11.4
No. 100 0.15mm		6.5			4.6	12	5		6.5
No. 200 75um	2-10	4.6			3.3	9.1	2.4		4.6

Requested Charles Black & Sons Contractor Approved [Signature] Region Materials Engineer
 Approved [Signature] Region Construction Engineer Approved [Signature] Engineer of Materials and Tests

APPENDIX B

GYRATORY DATA SUMMARY SHEETS

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Davidson (a)</u>	Rice Gravity Date	<u>10/19/98</u>
Mix Type	<u>411-D</u>		
Project Number	<u>3556</u>	Compaction Date	<u>11/13/98</u>
Contractor	<u>APAC-TN</u>		
Date Sampled	<u>7/22/98</u>	Bulk Gravity Date	<u>11/16/98</u>

Theoretical Maximum Specific Gravity (Rice)	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2129.4	1970.2	1970.1					
(B) Wet mass ; Asphalt, Bowl, & water, g	2518.5	2426.8	2426.0					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1252.9	1161.2	1160.4	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.429	2.435	2.433	2.433				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+-1%VTM	4+-1%VTM	Nmax	Nmax	4+-1%VTM	4+-1%VTM
Mass of Sample Before Compaction, g	4758.0	4758.0	4684.0	4684.0	1168.0	1168.0	1149.0	1149.0
Mix Temperature, ° C	148.9	149.4	148.3	149.4	149.4	148.9	147.2	147.2
Number of Gyration	152	152	25	30	152	152	33	34
Compacted Height, mm	112.1	111.8	114.9	114.9	62.1	62.1	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	4729.2	4718.1	4648.1	4650.3	1159.1	1149.0	1136.4	1139.0
Dry mass with Parafilm (D), g	4738.8	4727.4	4657.6	4659.8	1164.3	1153.7	1141.3	1145.3
Wet mass with Parafilm (E), g	2754.0	2746.9	2637.5	2639.1	672.3	664.5	644.3	645.7
Wet mass w/o Parafilm (C), g	2780.5	2775.2	2688.3	2693.7	681.4	675.3	657.8	660.8
Saturated Surface Dry mass (B), g	4729.9	4718.5	4656.7	4662.4	1159.6	1149.5	1138.4	1141.7
Specific Gravity (G _{sub}), SSD	2.426	2.428	2.361	2.362	2.424	2.423	2.363	2.368
Specific Gravity (G _{sub}), Parafilm	2.402	2.401	2.319	2.320	2.398	2.387	2.325	2.329
VTM = [1-(G _{sub} /G _{sub})], SSD	0.3%	0.2%	2.9%	2.9%	0.4%	0.4%	2.8%	2.6%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	1.3%	1.3%	4.7%	4.7%	1.4%	1.9%	4.4%	4.3%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Davidson/Wilson	Rice Gravity Date	11/7/98
Mix Type	307-BM		
Project Number	4352	Compaction Date	2/25/99
Contractor	LoJac		
Date Sampled	8/3/98	Bulk Gravity Date	2/28/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1748.9	2113.9	1663.7					
(B) Wet mass ; Asphalt, Bowl, & water, g	2318.8	2541.5	2268.2					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	1053.4	1276.1	1002.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.515	2.523	2.517	2.518				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4912.0	4912.0	4912.0	4912.0	1203.0	1203.0	1203.0	1203.0
Mix Temperature, °C	148.9	148.9	150.0	149.4	147.2	149.4	146.7	148.9
Number of Gyration	152	152	39	39	152	152	39	39
Compacted Height, mm	111.8	111.9	111.9	111.1	62.3	61.8	63.6	63.6
Bulk Specific Gravity								
Dry mass (A), g	4883.4	4891.1	4906.1	4907.7	1199.2	1199.9	1201.4	1199.1
Dry mass with Parafilm (D), g	4891.9	4898.3	4913.5	4914.8	1204.5	1203.5	1203.0	1202.3
Wet mass with Parafilm (E), g	2920.7	2924.5	2879.1	2891.6	712.5	717.0	703.6	704.0
Wet mass w/o Parafilm (C), g	2940.0	2943.7	2926.3	2924.2	723.3	723.8	716.1	714.2
Saturated Surface Dry mass (B), g	4885.2	4892.9	4912.5	4912.3	1200.1	1200.1	1202.2	1200.4
Specific Gravity (G _{sub}), SSD	2.510	2.509	2.470	2.469	2.515	2.519	2.472	2.466
Specific Gravity (G _{sub}), Parafilm	2.493	2.493	2.426	2.440	2.482	2.504	2.435	2.432
VTM = [1-(G _{sub} /G _{sub})], SSD	0.3%	0.4%	1.9%	2.0%	0.1%	0.0%	1.9%	2.1%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	0.9%	1.0%	3.7%	3.1%	1.4%	0.6%	3.3%	3.4%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Rutherford	Rice Gravity Date	10/19/98
Mix Type	307-BM		
Project Number	4725	Compaction Date	2/25/99
Contractor	LoJac Enterprises		
Date Sampled	7/13/98	Bulk Gravity Date	2/28/99

Theoretical Maximum Specific Gravity (Rice)	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1829.0	1855.9	2131.3					
(B) Wet mass ; Asphalt, Bowl, & water, g	2370.6	2386.9	2555.0					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1105.0	1121.3	1289.4	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.526	2.526	2.532	2.528				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4932.0	4932.0	4932.0	4932.0	1210.0	1210.0	1210.0	1210.0
Mix Temperature, °C	149.4	148.9	150.0	149.4	147.8	148.3	150.0	148.9
Number of Gyration	152	152	39	39	152	152	45	45
Compacted Height, mm	112.8	112.8	116.4	116.4	62.6	63.3	64.3	63.9
Bulk Specific Gravity								
Dry mass (A), g	4919.9	4906.1	4923.7	4923.0	1204.6	1196.2	1206.7	1205.8
Dry mass with Parafilm (D), g	4928.0	4913.2	4930.9	4930.3	1210.5	1202.1	1210.3	1209.3
Wet mass with Parafilm (E), g	2939.3	2936.2	2886.6	2883.5	714.1	705.2	706.6	708.2
Wet mass w/o Parafilm (C), g	2963.3	2957.2	2937.7	2936.1	723.3	721.7	720.2	721.0
Saturated Surface Dry mass (B), g	4922.3	4907.9	4931.3	4931.1	1203.5	1198.2	1207.9	1206.6
Specific Gravity (G _{sub}), SSD	2.514	2.513	2.470	2.468	2.509	2.510	2.474	2.483
Specific Gravity (G _{sub}), Parafilm	2.491	2.497	2.423	2.422	2.476	2.456	2.425	2.433
VTM = [1-(G _{sub} /G _{sub})], SSD	0.6%	0.5%	2.3%	2.4%	0.8%	0.7%	2.1%	1.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	1.5%	1.2%	4.2%	4.2%	2.1%	2.9%	4.1%	3.7%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Hamilton	Rice Gravity Date	9/25/98
Mix Type	411-D	Compaction Date	10/15/98
Project Number	4759	Bulk Gravity Date	1/5/99
Contractor	Mavac Construction		
Date Sampled	8/20/98		

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.3	2005.3	2005.3					
(A) Dry mass of Asphalt, g	1654.6	1411.1	1869.1					
(B) Wet mass ; Asphalt, Bowl, & water, g	2207.9	2068.5	2330.5					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	942.5	803.1	1065.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.324	2.321	2.325	2.323				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4532.0	4532.0	4461.0	4461.0	1112.0	1112.0	1093.0	1093.0
Mix Temperature, °C	148.9	149.4	149.4	149.4	149.4	148.9	149.4	148.9
Number of Gyration	152	1152	28	28	152	152	24	26
Compacted Height, mm	1111.2	111.2	114.7	114.8	61.9	61.7	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4438.3	4499.8	4434.9	4436.6	1102.6	1102.2	1073.7	1073.9
Dry mass with Parafilm (D), g	4450.6	4510.8	4449.8	4451.3	1108.2	1108.6	1079.8	1080.0
Wet mass with Parafilm (E), g	2479.7	2543.8	2420.7	2419.9	617.6	616.7	577.1	580.7
Wet mass w/o Parafilm (C), g	2522.3	2538.3	2456.6	2456.2	624.9	626.6	593.0	594.7
Saturated Surface Dry mass (B), g	4442.2	4502.9	4438.3	4440.3	1102.8	1102.4	1074.9	1073.0
Specific Gravity (G _{sub}), SSD	2.312	2.314	2.238	2.236	2.307	2.317	2.228	2.236
Specific Gravity (G _{sub}), Parafilm	2.276	2.309	2.213	2.211	2.291	2.290	2.180	2.196
VTM = [1-(G _{sub} /G _{sub})], SSD	0.5%	0.4%	3.7%	3.7%	0.7%	0.3%	4.1%	3.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	2.0%	0.6%	4.7%	4.8%	1.6%	1.4%	6.2%	5.5%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	<u>Blount/Loudon</u>	Rice Gravity Date	<u>9/30/98</u>
Mix Type	<u>307 BM/2</u>		
Project Number	<u>4858</u>	Compaction Date	<u>1/4/99</u>
Contractor	<u>APAC-TN</u>		
Date Sampled	<u>8/3/98</u>	Bulk Gravity Date	<u>1/5/99</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.3	2005.3	2005.3					
(A) Dry mass of Asphalt, g	2791.6	3106.8	3482.3					
(B) Wet mass ; Asphalt, Bowl, & water, g	2989.6	3186.1	3418.1					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1723.8	1920.3	2152.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.614	2.618	2.618	2.617				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	3106.0	3106.0	3052.0	3032.0	1253.0	1253.0	1240.0	1240.0
Mix Temperature, °C	149.4	148.9	150.0	149.4	149.4	148.9	149.4	148.9
Number of Gyration	152	152	152	152	152	152	152	152
Compacted Height, mm	119.2	116.6	115.6	115.7	65.8	64.5	64.0	64.5
Bulk Specific Gravity								
Dry mass (A), g	3087.1	3084.9	3031.1	3030.3	1249.9	1247.8	1235.1	1229.8
Dry mass with Parafilm (D), g	3098.8	3097.4	3039.1	3043.3	1254.9	1253.4	1241.0	1233.4
Wet mass with Parafilm (E), g	3049.0	3006.0	3013.8	3006.2	740.5	745.5	737.4	728.1
Wet mass w/o Parafilm (C), g	3109.1	3110.1	3071.3	3071.7	762.3	760.6	753.2	750.4
Saturated Surface Dry mass (B), g	3102.6	3114.0	3043.5	3042.4	1252.3	1250.0	1237.1	1232.9
Specific Gravity (G _{sub}), SSD	2.552	2.538	2.551	2.553	2.551	2.550	2.552	2.549
Specific Gravity (G _{sub}), Parafilm	2.506	2.456	2.501	2.498	2.470	2.503	2.501	2.470
VTM = [1-(G _{sub} /G _{mm})] SSD	2.5%	3.0%	2.5%	2.5%	2.5%	2.6%	2.5%	2.6%
VTM = [1-(G _{sub} /G _{mm})] Parafilm	4.3%	6.2%	4.4%	4.6%	5.6%	4.4%	4.4%	5.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Coffee	Rice Gravity Date	8/26/98
Mix Type	307-BM		
Project Number	4895	Compaction Date	9/2/98
Contractor	Rogers Group Inc.		
Date Sampled	6/26/98	Bulk Gravity Date	9/3/98

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	2022.1	2682.3	1584.5					
(B) Wet mass ; Asphalt, Bowl, & water, g	2479.1	2870.5	2215.1					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1213.5	1604.9	949.5	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.501	2.490	2.495	2.495				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4972.0	4972.0	4972.0	4972.0	1220.0	1220.0	1220.0	1220.0
Mix Temperature, °C	147.2	147.2	149.4	150.0	137.8	147.8	148.9	149.4
Number of Gyration	152	152	96	96	152	152	96	96
Compacted Height, mm	115.2	114.2	116.1	115.7	65.0	64.1	65.0	64.2
Bulk Specific Gravity								
Dry mass (A), g	4930.1	4938.7	4920.2	4942.2	1188.9	1199.3	1197.1	1201.8
Dry mass with Parafilm (D), g	4941.0	4953.3	4936.8	4938.5	1193.8	1204.9	1205.2	1205.4
Wet mass with Parafilm (E), g	2908.1	2923.4	2876.8	2899.9	685.0	696.9	682.3	701.7
Wet mass w/o Parafilm (C), g	2945.4	2961.6	2931.0	2946.0	706.8	713.6	707.1	714.8
Saturated Surface Dry mass (B), g	4932.5	4939.8	4924.7	4944.6	1191.8	1199.9	1197.8	1202.4
Specific Gravity (G _{sub}), SSD	2.481	2.497	2.468	2.473	2.451	2.476	2.440	2.465
Specific Gravity (G _{sub}), Parafilm	2.447	2.462	2.421	2.433	2.375	2.405	2.351	2.415
VTM = [1-(G _{sub} /G _{sub})], SSD	0.6%	-0.1%	1.1%	0.9%	1.8%	0.8%	2.2%	1.2%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	1.9%	1.3%	1.0%	2.5%	4.8%	3.6%	5.8%	3.2%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Coffee	Rice Gravity Date	8/26/98
Mix Type	411-D		
Project Number	4895	Compaction Date	9/9/98
Contractor	Rogers Group Inc.		
Date Sampled	7/6/98	Bulk Gravity Date	9/10/98

	115 mm x 150mm PHL (6" Dia.)				63.5 mm x 100mm PHL (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2006.2	2006.2	2006.2					
(A) Dry mass of Asphalt, g	2013.9	2548.3	2120.4					
(B) Wet mass ; Asphalt, Bowl, & water, g	2480.5	2799.9	2542.8					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1214.9	1534.3	1277.2	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.521	2.513	2.515	2.516				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+-1%VTM	4+-1%VTM	Nmax	Nmax	4+-1%VTM	4+-1%VTM
Mass of Sample Before Compaction, g	4837.0	4837.0	4837.0	4837.0	1192.0	1192.0	1192.0	1192.0
Mix Temperature, °C	147.8	148.3	147.2	148.3	148.3	148.9	148.9	148.9
Number of Gyration	132	132	96	96	132	132	96	96
Compacted Height, mm	110.2	110.1	110.3	110.3	60.2	60.7	61.8	62.1
Bulk Specific Gravity								
Dry mass (A), g	4819.8	4823.3	4811.2	4809.7	1165.5	1160.5	1176.4	1172.5
Dry mass with Parafilm (D), g	4830.6	4834.5	4823.9	4820.6	1168.7	1163.7	1179.8	1176.0
Wet mass with Parafilm (E), g	2877.1	2884.0	2867.8	2852.7	695.2	687.8	692.9	687.5
Wet mass w/o Parafilm (C), g	2908.2	2909.6	2899.0	2892.0	702.4	699.0	703.1	701.4
Saturated Surface Dry mass (B), g	4820.2	4823.5	4811.6	4811.1	1165.8	1160.8	1177.4	1173.2
Specific Gravity (G_{mb}), SSD	2.521	2.520	2.516	2.506	2.515	2.513	2.491	2.485
Specific Gravity (G_{mb}), Parafilm	2.490	2.497	2.486	2.467	2.489	2.466	2.445	2.429
VTM = $[1 - (G_{mb}/G_{mm})]$, SSD	-0.2%	-0.2%	0.0%	0.4%	0.0%	0.1%	1.0%	1.2%
VTM = $[1 - (G_{mb}/G_{mm})]$, Parafilm	1.0%	0.8%	1.2%	2.0%	1.1%	2.0%	2.8%	3.3%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Benton</u>	Rice Gravity Date	<u>9/11/98</u>
Mix Type	<u>307-BM</u>		
Project Number	<u>5100</u>	Compaction Date	<u>2/25/98</u>
Contractor	<u>APAC-TN</u>		
Date Sampled	<u>7/16/98</u>	Bulk Gravity Date	<u>2/28/98</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.3	2005.3	2005.3					
(A) Dry mass of Asphalt, g	2176.4	1755.5	2327.8					
(B) Wet mass ; Asphalt, Bowl, & water, g	2567.5	2316.4	2653.9					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	1302.1	1051.0	1388.5	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.489	2.492	2.478	2.486				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4850.0	4850.0	4724.0	4724.0	1190.0	1190.0	1159.0	1159.0
Mix Temperature, °C	147.8	150.0	148.9	148.9	148.9	148.9	149.4	148.9
Number of Gyrations	152	152	16	12	152	152	15	15
Compacted Height, mm	111.6	111.9	114.7	114.5	61.8	61.5	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4819.2	4812.5	4709.0	4711.4	1183.0	1179.4	1155.6	1155.6
Dry mass with Parafilm (D), g	4826.1	4819.3	4716.1	4719.3	1188.2	1184.6	1158.9	1158.9
Wet mass with Parafilm (E), g	2861.2	2848.3	2703.2	2708.5	699.3	699.1	663.1	663.1
Wet mass w/o Parafilm (C), g	2883.9	2870.4	2759.2	2752.8	703.6	704.9	673.6	673.6
Saturated Surface Dry mass (B), g	4821.9	4813.6	4719.6	4720.1	1183.3	1179.5	1157.2	1157.2
Specific Gravity (G _{mb}), SSD	2.487	2.477	2.402	2.395	2.476	2.485	2.390	2.390
Specific Gravity (G _{mb}), Parafilm	2.467	2.456	2.356	2.358	2.463	2.473	2.357	2.357
VTM = [1-(G _{mb} /G _{mm})], SSD	0.0%	0.4%	3.4%	3.7%	0.4%	0.1%	3.9%	3.9%
VTM = [1-(G _{mb} /G _{mm})], Parafilm	0.8%	1.2%	3.3%	5.1%	0.9%	0.5%	5.2%	5.2%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Benton	Rice Gravity Date	9/15/98
Mix Type	411-D		
Project Number	5100	Compaction Date	10/29/98
Contractor	APAC-TN		
Date Sampled	5/28/98	Bulk Gravity Date	10/31/98

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1772.3	1555.2	1873.6					
(B) Wet mass ; Asphalt, Bowl, & water, g	2273.6	2153.4	2337.1					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1007.8	887.6	1071.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.318	2.330	2.335	2.328				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4542.0	4542.0	4471.0	4471.0	1115.0	1115.0	1097.0	1097.0
Mix Temperature, °C	148.9	149.4	148.9	150.0	148.9	148.3	149.4	148.9
Number of Gyration	152	152	113	106	152	152	152	96
Compacted Height, mm	113.0	113.3	115.0	113.0	66.1	67.1	63.9	63.8
Bulk Specific Gravity								
Dry mass (A), g	4404.2	4399.5	4458.2	4452.1	1142.4	1153.0	1087.3	1120.5
Dry mass with Parafilm (D), g	4414.9	4410.4	4468.8	4462.8	1145.5	1157.0	1090.7	1124.7
Wet mass with Parafilm (E), g	2424.4	2416.0	2445.9	2439.1	626.7	630.2	590.3	608.5
Wet mass w/o Parafilm (C), g	2443.5	2438.2	2465.4	2459.8	635.3	641.0	600.3	618.8
Saturated Surface Dry mass (B), g	4408.5	4405.5	4463.5	4458.0	1143.7	1155.1	1089.3	1122.4
Specific Gravity (G _{sub}), SSD	2.241	2.236	2.231	2.228	2.247	2.243	2.224	2.225
Specific Gravity (G _{sub}), Parafilm	2.233	2.226	2.223	2.220	2.224	2.217	2.198	2.201
VTM = [1-(G _{sub} /G _{mm})], SSD	3.7%	3.9%	4.1%	4.3%	3.3%	3.6%	4.5%	4.4%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	4.1%	4.4%	4.5%	4.6%	4.4%	4.8%	3.6%	3.5%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Dickson</u>	Rice Gravity Date	<u>12/4/98</u>
Mix Type	<u>307-BM</u>		
Project Number	<u>5121</u>	Compaction Date	<u>3/1/99</u>
Contractor	<u>Eubank Asphalt</u>		
Date Sampled	<u>8/26/98</u>	Bulk Gravity Date	<u>3/6/99</u>

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	1612.6	1716.0	1446.4					
(B) Wet mass ; Asphalt, Bowl, & water, g	2215.0	2274.6	2117.4					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	949.6	1009.2	852.0	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.432	2.428	2.433	2.431				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4743.0	4743.0	4619.0	4619.0	1164.0	1164.0	1134.0	1134.0
Mix Temperature, °C	149.4	147.8	148.9	150.0	147.2	147.8	148.9	147.8
Number of Gyration	152	152	84	75	152	152	127	88
Compacted Height, mm	116.8	117.1	114.9	115.0	64.9	65.1	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	4725.3	4730.5	4604.0	4608.7	1157.6	1157.7	1129.4	1125.6
Dry mass with Parafilm (D), g	4733.4	4738.4	4611.6	4616.4	1162.8	1163.4	1132.8	1129.2
Wet mass with Parafilm (E), g	2682.0	2676.9	2591.7	2596.3	652.1	651.1	635.7	632.4
Wet mass w/o Parafilm (C), g	2738.5	2733.4	2652.7	2653.1	670.9	670.5	653.7	649.0
Saturated Surface Dry mass (B), g	4740.6	4742.7	4616.0	4620.9	1159.7	1162.7	1131.8	1129.3
Specific Gravity (G _{sub}), SSD	2.360	2.354	2.345	2.342	2.368	2.352	2.362	2.344
Specific Gravity (G _{sub}), Parafilm	2.319	2.309	2.296	2.296	2.306	2.303	2.298	2.293
VTM = [1-(G _{sub} /G _{sub})], SSD	2.9%	3.2%	3.9%	3.7%	2.6%	3.3%	2.8%	3.0%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	4.6%	5.0%	5.6%	5.6%	5.2%	5.3%	5.5%	5.7%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Dickson	Rice Gravity Date	10/23/98
Mix Type	411-D		
Project Number	5120	Compaction Date	11/6/98
Contractor	Eubank Asphalt		
Date Sampled	8/26/98	Bulk Gravity Date	11/9/98

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1681.2	1647.6	1499.1					
(B) Wet mass ; Asphalt, Bowl, & water, g	2255.6	2232.2	2149.3					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	990.2	966.8	883.9	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.433	2.420	2.437	2.430				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+-1%VTM	4+-1%VTM	Nmax	Nmax	4+-1%VTM	4+-1%VTM
Mass of Sample Before Compaction, g	4741.0	4741.0	4667.0	4667.0	1163.0	1163.0	1145.0	1145.0
Mix Temperature, °C	148.9	148.3	148.9	149.4	148.9	147.8	143.9	149.4
Number of Gyration	152	152	72	74	152	152	90	103
Compacted Height, mm	114.9	114.9	115.1	115.1	62.7	62.9	63.6	63.6
Bulk Specific Gravity								
Dry mass (A), g	4724.2	4702.0	4643.7	4640.7	1139.6	1140.2	1133.6	1145.9
Dry mass with Parafilm (D), g	4734.1	4711.7	4653.7	4650.2	1144.2	1144.4	1137.9	1141.1
Wet mass with Parafilm (E), g	2709.2	2688.9	2627.0	2623.3	630.0	649.8	637.4	647.7
Wet mass w/o Parafilm (C), g	2733.2	2715.7	2659.1	2655.1	660.8	660.2	649.3	660.4
Saturated Surface Dry mass (B), g	4726.2	4704.5	4648.4	4648.2	1140.9	1141.4	1136.4	1145.0
Specific Gravity (G_{mb}), SSD	2.370	2.364	2.334	2.328	2.374	2.369	2.327	2.363
Specific Gravity (G_{mb}), Parafilm	2.332	2.343	2.310	2.310	2.342	2.338	2.298	2.283
VTM = $[1 - (G_{mb}/G_{mm})]$, SSD	2.5%	2.7%	3.9%	4.2%	2.3%	2.5%	4.2%	2.7%
VTM = $[1 - (G_{mb}/G_{mm})]$, Parafilm	3.2%	3.6%	4.9%	4.9%	3.6%	3.8%	5.4%	5.9%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Giles	Rice Gravity Date	11/8/98
Mix Type	307-BM		
Project Number	5122	Compaction Date	2/24/99
Contractor	Dement Construction		
Date Sampled	8/6/98	Bulk Gravity Date	2/28/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	2068.6	2239.1	2248.3					
(B) Wet mass ; Asphalt, Bowl, & water, g	2498.6	2595.4	2601.7					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	1233.2	1330.0	1336.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.476	2.463	2.465	2.468				
Compaction								
	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4815.0	4815.0	4689.0	4689.0	1182.0	1182.0	1151.0	1151.0
Mix Temperature, °C	149.4	148.9	149.4	148.9	149.4	148.9	141.1	146.1
Number of Gyration	152	152	16	17	152	152	20	21
Compacted Height, mm	110.8	110.5	114.5	114.6	61.4	60.7	63.2	63.2
Bulk Specific Gravity								
Dry mass (A), g	4774.7	4759.6	4652.3	4657.6	1173.7	1159.3	1126.3	1132.1
Dry mass with Parafilm (D), g	4782.2	4767.1	4660.0	4664.9	1179.1	1164.7	1129.9	1133.5
Wet mass with Parafilm (E), g	2821.4	2816.3	2650.5	2655.5	689.8	683.2	632.8	638.7
Wet mass w/o Parafilm (C), g	2831.3	2840.3	2722.1	2719.7	701.9	692.0	653.4	662.2
Saturated Surface Dry mass (B), g	4776.1	4760.5	4664.0	4667.2	1174.1	1159.3	1128.8	1133.0
Specific Gravity (G_{mb}), SSD	2.481	2.479	2.396	2.392	2.486	2.480	2.369	2.394
Specific Gravity (G_{mb}), Parafilm	2.451	2.456	2.330	2.332	2.444	2.454	2.293	2.305
VTM = $[1 - (G_{mb}/G_{mm})]$, SSD	-0.5%	-0.4%	2.9%	3.1%	-0.7%	-0.3%	4.0%	3.0%
VTM = $[1 - (G_{mb}/G_{mm})]$, Parafilm	0.7%	0.5%	5.6%	5.5%	1.0%	0.6%	7.1%	6.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Shelby</u>	Rice Gravity Date	<u>10/5/98</u>
Mix Type	<u>411-S</u>		
Project Number	<u>5149</u>	Compaction Date	<u>2/23/99</u>
Contractor	<u>Lehman-Roberts Co.</u>		
Date Sampled	<u>7/21/98</u>	Bulk Gravity Date	<u>2/28/99</u>

Theoretical Maximum Specific Gravity (Rice)	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Dry Bowl mass, g	2005.6	2005.6	2005.6					
(A) Dry mass of Asphalt, g	2524.8	2011.6	1954.9					
(B) Wet mass ; Asphalt, Bowl, & water, g	2720.8	2425.8	2391.5					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1455.0	1160.0	1125.7	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.360	2.362	2.358	2.360				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4604.0	4604.0	4480.0	4480.0	1130.0	1130.0	1099.0	1099.0
Mix Temperature, °C	150.0	150.0	148.9	148.9	148.9	148.9	149.4	148.9
Number of Gyration	152	1152	75	67	152	152	96	87
Compacted Height, mm	115.6	115.6	114.9	114.9	64.3	64.2	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	4597.9	4593.9	4461.3	4464.6	1125.9	1124.8	1094.0	1094.1
Dry mass with Parafilm (D), g	4603.6	4601.3	4469.0	4472.6	1132.1	1130.4	1097.3	1097.5
Wet mass with Parafilm (E), g	2575.8	2563.0	2451.2	2452.8	625.5	625.2	600.0	600.8
Wet mass w/o Parafilm (C), g	2608.9	2599.8	2499.3	2494.6	636.7	637.6	615.2	615.3
Saturated Surface Dry mass (B), g	4602.6	4599.1	4472.7	4471.7	1127.2	1126.1	1093.8	1093.9
Specific Gravity (G _{sub}), SSD	2.306	2.298	2.261	2.258	2.295	2.303	2.276	2.277
Specific Gravity (G _{sub}), Parafilm	2.280	2.268	2.225	2.225	2.269	2.268	2.224	2.228
VTM = [1-(G _{sub} /G _{sub})], SSD	2.3%	2.6%	4.2%	4.3%	2.7%	2.4%	3.5%	3.3%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.4%	3.9%	3.7%	3.7%	3.9%	3.9%	3.7%	3.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Campbell	Rice Gravity Date	8/21/98
Mix Type	307-BM/2		
Project Number	5161	Compaction Date	8/24/98
Contractor	Tennessee Asphalt		
Date Sampled	7/16/98	Bulk Gravity Date	8/27/98

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	1804.8	1832.0	1786.4					
(B) Wet mass ; Asphalt, Bowl, & water, g	2380.7	2396.4	2370.0					
(D) Wet mass ; Bowl, & water, g	1265.9	1265.9	1265.9					
Bouyant Force (C = B - D), g	1114.8	1130.5	1104.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.616	2.612	2.618	2.615				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	5074.0	5074.0	5074.0	5074.0	1252.0	1252.0	1252.0	1252.0
Mix Temperature, ° C	147.8	148.9	148.9	148.9	145.0	145.6	147.8	148.9
Number of Gyration	152	152	96	96	152	152	96	96
Compacted Height, mm	115.1	115.0	115.6	116.9	63.8	64.5	65.2	64.2
Bulk Specific Gravity								
Dry mass (A), g	5046.3	5056.6	5049.4	5051.0	1235.5	1222.6	1237.3	1238.6
Dry mass with Parafilm (D), g	5062.8	5066.9	DNP	5061.8	1239.0	1228.0	1241.9	1242.1
Wet mass with Parafilm (E), g	5028.0	5043.5	DNP	5002.0	738.9	722.1	731.3	740.9
Wet mass w/o Parafilm (C), g	5078.1	5086.6	5037.7	5064.8	752.0	743.4	751.4	753.0
Saturated Surface Dry mass (B), g	5052.1	5061.8	5053.9	5056.7	1237.6	1225.5	1240.1	1239.6
Specific Gravity (G _{sub}), SSD	2.556	2.560	2.530	2.536	2.544	2.536	2.532	2.545
Specific Gravity (G _{sub}), Parafilm	2.514	2.520	DNP	2.474	2.500	2.460	2.460	2.500
VTM = [1-(G _{sub} /G _{sub})], SSD	2.2%	2.1%	3.3%	3.0%	2.7%	3.0%	3.2%	2.7%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.9%	3.6%	DNP	5.4%	4.4%	5.9%	5.9%	4.4%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Campbell	Rice Gravity Date	8/21/98
Mix Type	411-D		
Project Number	5161	Compaction Date	8/25/98
Contractor	Tennessee Asphalt Co.		
Date Sampled	7/17/98	Bulk Gravity Date	8/26/98

Theoretical Maximum Specific Gravity (Rice)	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Dry Bowl mass, g	2005.8	2005.8						
(A) Dry mass of Asphalt, g	1605.5	1247.5						
(B) Wet mass ; Asphalt, Bowl, & water, g	2229.5	2015.8						
(D) Wet mass ; Bowl, & water, g	1266.0	1266.0						
Bouyant Force (C = B - D), g	963.5	749.8	0.0	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.501	2.507	DNP	2.504				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4883.0	4883.0	4883.0	4883.0	1192.0	1192.0	1192.0	1192.0
Mix Temperature, °C	148.9	151.7	148.9	148.9	146.7	149.4	146.7	150.0
Number of Gyration	132	132	96	96	132	132	96	96
Compacted Height, mm	111.4	110.3	113.0	112.3	61.1	61.4	62.0	57.4
Bulk Specific Gravity								
Dry mass (A), g	4834.2	4788.1	4841.2	4840.3	1173.2	1179.0	1170.2	1074.7
Dry mass with Parafilm (D), g	4830.3	4799.0	4832.5	4831.2	1177.8	1182.3	1173.1	1079.2
Wet mass with Parafilm (E), g	2867.5	2841.1	2833.2	2846.2	695.7	700.0	683.4	623.4
Wet mass w/o Parafilm (C), g	2901.3	2869.4	2890.8	2888.1	703.3	707.7	697.5	640.3
Saturated Surface Dry mass (B), g	4833.2	4789.3	4843.6	4843.3	1173.4	1179.0	1170.3	1074.9
Specific Gravity (G_{mb}), SSD	2.500	2.494	2.479	2.476	2.506	2.502	2.475	2.473
Specific Gravity (G_{mb}), Parafilm	2.472	2.468	2.444	2.436	2.473	2.473	2.430	2.408
VTM = $[1 - (G_{mb}/G_{mm})]$, SSD	0.1%	0.4%	1.0%	1.1%	-0.1%	0.1%	1.1%	1.2%
VTM = $[1 - (G_{mb}/G_{mm})]$, Parafilm	1.3%	1.4%	2.4%	2.7%	1.2%	1.2%	2.9%	3.8%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Davidson (b)	Rice Gravity Date	10/19/98
Mix Type	411-D	Compaction Date	1/6/99
Project Number	5168	Bulk Gravity Date	1/18/99
Contractor	APAC-TN		
Date Sampled	7/20/98		

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1616.2	2027.9	2169.0					
(B) Wet mass ; Asphalt, Bowl, & water, g	2220.4	2463.0	2542.2					
(D) Wet mass ; Bowl, & water, g	1265.4	1265.4	1265.4					
Bouyant Force (C = B - D), g	955.0	1197.6	1276.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.444	2.442	2.431	2.439				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4758.0	4758.0	4684.0	4684.0	1168.0	1168.0	1149.0	1149.0
Mix Temperature, °C	149.4	149.4	149.4	149.4	148.9	148.9	150.0	148.9
Number of Gyration	152	152	19	16	152	152	26	24
Compacted Height, mm	112.1	112.0	114.6	114.8	62.2	62.1	63.4	63.4
Bulk Specific Gravity								
Dry mass (A), g	4744.8	4738.6	4660.6	4642.5	1166.5	1163.5	1144.3	1144.4
Dry mass with Parafilm (D), g	4737.4	4749.1	4670.3	4652.1	1172.8	1169.7	1150.6	1150.5
Wet mass with Parafilm (E), g	2771.7	2766.7	2651.3	2631.6	679.9	677.3	650.9	650.5
Wet mass w/o Parafilm (C), g	2789.4	2783.3	2677.8	2658.8	685.4	684.1	659.8	659.4
Saturated Surface Dry mass (B), g	4746.0	4740.5	4664.0	4647.6	1166.8	1163.9	1145.0	1145.0
Specific Gravity (G_{mm}), SSD	2.425	2.424	2.346	2.334	2.423	2.425	2.338	2.337
Specific Gravity (G_{mm}), Parafilm	2.415	2.412	2.327	2.316	2.418	2.414	2.329	2.326
VTM = $[1 - (G_{mm}/G_{mm})]$, SSD	0.6%	0.6%	3.8%	4.3%	0.7%	0.6%	3.3%	3.4%
VTM = $[1 - (G_{mm}/G_{mm})]$, Parafilm	1.0%	1.1%	4.6%	5.1%	0.9%	1.1%	4.1%	4.2%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	<u>Jackson</u>	Rice Gravity Date	<u>10/13/98</u>
Mix Type	<u>307 BM</u>		
Project Number	<u>5185</u>	Compaction Date	<u>3/1/99</u>
Contractor	<u>Highway Materials</u>		
Date Sampled	<u>9/17/98</u>	Bulk Gravity Date	<u>3/7/99</u>

	115 mm x 150mm PHL (6" Dia.)				63.5 mm x 100mm PHL (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	1670.1	1617.7	1715.8					
(B) Wet mass ; Asphalt, Bowl, & water, g	2268.2	2234.8	2293.0					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1002.6	969.2	1027.4	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.502	2.495	2.492	2.496				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	4869.0	4869.0			1193.0	1193.0	1164.0	1164.0
Mix Temperature, °C	146.7	149.4	149.4	149.4	147.8	150.0	149.4	148.9
Number of Gyration	152	152	56	55	152	152	39	39
Compacted Height, mm	115.0	114.3	114.9	114.9	63.0	63.2	63.4	63.3
Bulk Specific Gravity								
Dry mass (A), g	4854.3	4842.3	4728.0	4732.6	1179.8	1182.9	1155.6	1143.4
Dry mass with Parafilm (D), g	4861.1	4830.4	4736.6	4740.9	1183.3	1188.0	1158.9	1143.9
Wet mass with Parafilm (E), g	2832.2	2836.3	2715.4	2719.3	688.0	689.3	658.8	649.2
Wet mass w/o Parafilm (C), g	2868.4	2863.9	2764.9	2767.1	697.4	699.2	671.2	668.3
Saturated Surface Dry mass (B), g	4861.8	4848.6	4733.9	4740.9	1180.8	1183.9	1157.2	1145.2
Specific Gravity (G _{sub}), SSD	2.433	2.440	2.401	2.398	2.441	2.440	2.378	2.398
Specific Gravity (G _{sub}), Parafilm	2.406	2.420	2.356	2.357	2.417	2.413	2.336	2.321
VTM = [1 - (G _{sub} /G _{sub})], SSD	2.4%	2.3%	3.8%	4.0%	2.2%	2.2%	4.7%	4.0%
VTM = [1 - (G _{sub} /G _{sub})], Parafilm	3.6%	3.0%	5.6%	5.6%	3.2%	3.3%	6.4%	7.0%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Jackson	Rice Gravity Date	110/12/98
Mix Type	411-D		
Project Number	5185	Compaction Date	10/29/98
Contractor	Highway Materials		
Date Sampled	9/22/98	Bulk Gravity Date	10/30/98

	115 mm x 150mm Pli (6" Dia.)				63.5 mm x 100mm Pli (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	1810.0	1669.6	1975.8					
(B) Wet mass ; Asphalt, Bowl, & water, g	2349.5	2263.3	2448.2					
(D) Wet mass ; Bowl, & water, g	1265.7	1265.7	1265.7					
Bouyant Force (C = B - D), g	1083.8	997.6	1182.5	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.492	2.485	2.491	2.489				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4856.0	4856.0	4780.0	4780.0	1192.0	1192.0	1173.0	1173.0
Mix Temperature, ° C	150.0	148.9	148.9	149.4	149.4	148.9	150.0	149.4
Number of Gyration	152	152	22	25	152	152	33	33
Compacted Height, mm	112.8	112.9	115.0	115.1	62.2	62.2	63.6	63.6
Bulk Specific Gravity								
Dry mass (A), g	4814.5	4807.6	4743.7	4744.1	1166.3	1169.5	1167.0	1167.0
Dry mass with Parafilm (D), g	4824.5	4817.3	4754.2	4754.1	1171.4	1173.6	1171.1	1171.1
Wet mass with Parafilm (E), g	2826.0	2823.1	2731.0	2731.4	681.8	682.7	672.8	672.8
Wet mass w/o Parafilm (C), g	2848.8	2845.3	2760.7	2764.3	690.1	691.7	683.2	683.2
Saturated Surface Dry mass (B), g	4816.7	4810.1	4751.4	4751.5	1166.8	1170.1	1168.8	1168.8
Specific Gravity (G _{sub}), SSD	2.447	2.447	2.383	2.387	2.447	2.445	2.403	2.403
Specific Gravity (G _{sub}), Parafilm	2.429	2.431	2.365	2.365	2.424	2.416	2.375	2.375
VTM = [1-(G _{sub} /G _{mm})], SSD	1.7%	1.7%	4.3%	4.1%	1.7%	1.8%	3.5%	3.5%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	2.4%	2.4%	5.0%	5.0%	2.6%	2.9%	4.6%	4.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	McMinn	Rice Gravity Date	3/1/99
Mix Type	307-S		
Project Number	5191	Compaction Date	3/2/99
Contractor	Renfro Construction		
Date Sampled	11/12/98	Bulk Gravity Date	3/6/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2004.5	2004.5	2004.5					
(A) Dry mass of Asphalt, g	3172.8	3174.3	2899.9					
(B) Wet mass ; Asphalt, Bowl, & water, g	3206.4	3206.6	3039.5					
(D) Wet mass ; Bowl, & water, g	1265.3	1265.3	1265.3					
Bouyant Force (C = B - D), g	1941.1	1941.3	1774.2	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.576	2.574	2.576	2.575				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	5024.0	5024.0	4893.0	4893.0	1233.0	1233.0	1201.0	1201.0
Mix Temperature, °C	148.9	149.4	149.4	148.9	148.9	148.3	147.2	147.2
Number of Gyration	152	152	152	146	152	152	152	152
Compacted Height, mm	118.8	118.4	118.1	115.0	66.0	66.1	63.1	64.2
Bulk Specific Gravity								
Dry mass (A), g	5003.8	5001.3	4976.9	4838.5	1226.0	1222.5	1200.6	1189.5
Dry mass with Parafilm (D), g	5010.7	5010.3	4984.7	4847.2	1231.5	1227.6	1204.0	1193.2
Wet mass with Parafilm (E), g	2918.7	2923.3	2906.3	2818.0	710.2	705.5	694.9	688.6
Wet mass w/o Parafilm (C), g	2956.8	2960.4	2955.3	2869.4	722.5	720.8	711.2	703.6
Saturated Surface Dry mass (B), g	5010.6	5008.2	4983.0	4843.5	1218.5	1224.1	1202.2	1190.2
Specific Gravity (G _{mb}), SSD	2.436	2.442	2.454	2.449	2.472	2.439	2.445	2.445
Specific Gravity (G _{mb}), Parafilm	2.405	2.414	2.410	2.402	2.394	2.380	2.383	2.386
VTM = [1-(G _{mb} /G _{mm}), SSD	3.4%	3.2%	4.7%	4.9%	4.0%	5.7%	5.1%	5.1%
VTM = [1-(G _{mb} /G _{mm}), Parafilm	6.0%	6.3%	6.4%	6.9%	7.1%	7.6%	7.4%	7.3%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	<u>McMinn</u>	Rice Gravity Date	<u>3/1/99</u>
Mix Type	<u>411-S</u>		
Project Number	<u>5191</u>	Compaction Date	<u>3/2/99</u>
Contractor	<u>Renfro Construction</u>		
Date Sampled	<u>11/19/98</u>	Bulk Gravity Date	<u>3/6/99</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1778.8	1905.8	1687.9					
(B) Wet mass ; Asphalt, Bowl, & water, g	2269.9	2341.5	2219.0					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1004.3	1075.9	953.4	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.297	2.296	2.298	2.297				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4481.0	4481.0			1100.0	1100.0	1071.0	1071.0
Mix Temperature, °C	147.8	149.4	148.9	149.4	148.9	148.3	148.9	143.3
Number of Gyration	152	152	71	77	152	152	83	83
Compacted Height, mm	113.3	115.4	114.9	113.0	64.2	64.2	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4464.3	4457.8	4346.2	4346.2	1094.1	1092.1	1064.3	1050.5
Dry mass with Parafilm (D), g	4471.8	4465.6	4354.4	4354.5	1099.4	1097.2	1067.1	1053.6
Wet mass with Parafilm (E), g	2440.5	2432.2	2332.2	2332.6	592.5	591.1	568.3	556.1
Wet mass w/o Parafilm (C), g	2473.1	2466.2	2370.7	2370.6	603.2	603.3	580.7	570.2
Saturated Surface Dry mass (B), g	4468.1	4461.7	4331.5	4330.8	1096.0	1093.2	1064.9	1051.3
Specific Gravity (G_{mb}), SSD	2.238	2.234	2.194	2.193	2.229	2.230	2.198	2.184
Specific Gravity (G_{mb}), Parafilm	2.211	2.206	2.164	2.164	2.197	2.195	2.155	2.134
VTM = $[1 - (G_{mb}/G_{mm})]$, SSD	2.0%	2.7%	4.5%	4.5%	3.0%	2.9%	4.3%	4.9%
VTM = $[1 - (G_{mb}/G_{mm})]$, Parafilm	3.7%	3.9%	5.8%	5.8%	4.4%	4.5%	6.2%	7.1%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Polk	Rice Gravity Date	12/29/98
Mix Type	411-D		
Project Number	5195	Compaction Date	1/8/99
Contractor	Hillis Group		
Date Sampled	10/9/98	Bulk Gravity Date	1/19/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2004.5	2004.5	2004.5					
(A) Dry mass of Asphalt, g	2744.2	2750.9	3029.6					
(B) Wet mass ; Asphalt, Bowl, & water, g	2885.3	2889.7	3051.6					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1619.7	1624.1	1786.0	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.440	2.441	2.436	2.439				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4758.0	4758.0	4648.0	4648.0	1168.0	1168.0	1149.0	1149.0
Mix Temperature, ° C	149.4	148.3	148.9	148.9	149.4	147.8	148.3	148.3
Number of Gyration	152	152	15	17	152	1152	18	22
Compacted Height, mm	115.6	111.1	114.9	114.8	60.4	60.9	63.2	63.3
Bulk Specific Gravity								
Dry mass (A), g	4906.2	4713.9	4664.0	4663.6	1138.0	1138.1	1138.1	1141.8
Dry mass with Parafilm (D), g	4914.0	4721.6	4671.3	4671.1	1143.3	1143.3	1144.0	1148.6
Wet mass with Parafilm (E), g	2858.3	2749.1	2650.4	2649.7	660.6	660.4	644.6	643.8
Wet mass w/o Parafilm (C), g	2889.8	2773.7	2681.4	2681.4	671.9	672.3	656.8	660.7
Saturated Surface Dry mass (B), g	4906.7	4714.4	4666.4	4663.4	1138.6	1138.5	1139.2	1143.1
Specific Gravity (G _{sub}), SSD	2.433	2.429	2.350	2.351	2.438	2.441	2.359	2.367
Specific Gravity (G _{sub}), Parafilm	2.402	2.405	2.322	2.321	2.402	2.400	2.325	2.323
VTM = [1-(G _{sub} /G _{sub})], SSD	0.3%	0.4%	3.7%	3.6%	0.0%	-0.1%	3.3%	3.0%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	1.5%	1.4%	4.8%	4.8%	1.5%	1.6%	4.7%	4.8%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Blount	Rice Gravity Date	9/21/98
Mix Type	411-S (with Fiber)		
Project Number	5267	Compaction Date	3/3/99
Contractor	APAC-TN		
Date Sampled	8/23/98	Bulk Gravity Date	5/18/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.3	2005.3	2005.3					
(A) Dry mass of Asphalt, g	1696.7	2170.0	1829.0					
(B) Wet mass ; Asphalt, Bowl, & water, g	2285.8	2571.8	2367.9					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1020.0	1306.0	1102.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.507	2.512	2.516	2.512				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	4901.0	4901.0	4773.0	4773.0	1203.0	1203.0	1171.0	1171.0
Mix Temperature, °C	148.9	148.3	149.4	148.9	147.2	148.9	148.9	147.8
Number of Gyration	152	152	80	70	152	152	109	118
Compacted Height, mm	114.7	115.6	114.9	114.9	64.3	64.3	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	4843.8	4878.1	4770.2	4749.2	1191.3	1191.3	1160.4	1170.4
Dry mass with Parafilm (D), g	4850.6	4885.2	4778.2	4757.1	1196.8	1196.8	1163.9	1173.9
Wet mass with Parafilm (E), g	2828.1	2848.2	2556.1	2733.7	688.2	688.2	665.0	675.0
Wet mass w/o Parafilm (C), g	2863.2	2888.6	2796.9	2780.8	704.3	704.3	681.2	690.3
Saturated Surface Dry mass (B), g	4848.7	4882.1	4773.5	4756.2	1193.1	1193.1	1161.1	1171.2
Specific Gravity (G _{sub}), SSD	2.440	2.447	2.413	2.404	2.437	2.437	2.418	2.434
Specific Gravity (G _{sub}), Parafilm	2.408	2.409	2.160	2.363	2.385	2.385	2.353	2.374
VTM = [1-(G _{sub} /G _{sub})], SSD	2.9%	2.6%	3.0%	4.3%	3.0%	3.0%	3.7%	3.1%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	4.1%	4.1%	14.0%	3.9%	5.0%	5.0%	6.3%	5.5%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Blount	Rice Gravity Date	9/21/98
Mix Type	411-S		
Project Number	5267	Compaction Date	3/3/99
Contractor	APAC-TN		
Date Sampled	9/9/98	Bulk Gravity Date	5/18/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.2	2005.2	2005.2					
(A) Dry mass of Asphalt, g	2667.7	2492.8	2570.2					
(B) Wet mass ; Asphalt, Bowl, & water, g	2871.5	2766.1	2812.9					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1605.9	1500.5	1547.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.512	2.512	2.513	2.512				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	4901.0	4901.0	4748.0	4748.0	1203.0	1203.0	1163.0	1163.0
Mix Temperature, °C	148.9	148.9	149.4	147.8	148.9	148.9	149.4	150.0
Number of Gyration	152	152	57	57	152	152	57	57
Compacted Height, mm	113.8	113.8	114.9	114.9	63.2	63.4	63.4	63.4
Bulk Specific Gravity								
Dry mass (A), g	4858.8	4848.0	4735.3	4727.1	1180.7	1176.9	1154.7	1154.7
Dry mass with Parafilm (D), g	4866.0	4853.0	4742.8	4735.3	1185.5	1185.1	1158.1	1158.1
Wet mass with Parafilm (E), g	2859.3	2849.9	2720.3	2715.2	687.6	682.2	660.1	660.1
Wet mass w/o Parafilm (C), g	2899.0	2887.9	2772.4	2767.6	702.0	699.8	677.4	677.4
Saturated Surface Dry mass (B), g	4861.2	4851.3	4728.5	4730.0	1181.8	1178.1	1153.0	1153.0
Specific Gravity (G _{sub}), SSD	2.476	2.469	2.408	2.409	2.461	2.461	2.418	2.418
Specific Gravity (G _{sub}), Parafilm	2.436	2.432	2.356	2.356	2.410	2.406	2.345	2.345
VTM = [1-(G _{sub} /G _{sub})], SSD	1.4%	1.7%	4.1%	4.1%	2.1%	2.1%	3.8%	3.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.0%	3.2%	6.2%	6.2%	4.1%	4.3%	6.6%	6.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Blount	Rice Gravity Date	9/30/98
Mix Type	307-S (with Fiber)	Compaction Date	3/4/99
Project Number	5267	Bulk Gravity Date	5/18/99
Contractor	APAC-TN		
Date Sampled	9/9/98		

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.8	2005.8	2005.8					
(A) Dry mass of Asphalt, g	2914.3	2415.9	2798.5					
(B) Wet mass ; Asphalt, Bowl, & water, g	3051.4	2745.2	2981.6					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1785.6	1479.4	1715.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.582	2.580	2.585	2.582				
Compaction	6-1 N _{max}	6-2 N _{max}	6-3 4 +/- 1%VTM	6-4 4 +/- 1%VTM	4-1 N _{max}	4-2 N _{max}	4-3 4 +/- 1%VTM	4-4 4 +/- 1%VTM
Mass of Sample Before Compaction, g	5037.0	5037.0	4857.0	4837.0	1236.0	1236.0	1192.0	1192.0
Mix Temperature, °C	148.9	148.3	148.9	148.9	148.9	148.9	147.2	146.7
Number of Gyration	152	152	101	77	152	152	148	117
Compacted Height, mm	116.5	117.0	115.0	115.0	64.2	66.1	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	5027.2	5001.2	4832.9	4810.2	1204.6	1232.2	1185.2	1164.9
Dry mass with Parafilm (D), g	5034.3	5008.3	4840.5	4817.8	1210.2	1237.6	1188.5	1168.6
Wet mass with Parafilm (E), g	2980.1	2946.0	2817.6	2789.4	701.9	714.9	689.1	670.1
Wet mass w/o Parafilm (C), g	3024.6	3001.0	2888.1	2861.3	723.5	724.6	707.7	694.4
Saturated Surface Dry mass (B), g	5033.9	5009.7	4841.6	4821.2	1207.9	1235.1	1186.0	1167.9
Specific Gravity (G _{sub}), SSD	2.502	2.490	2.474	2.454	2.487	2.462	2.478	2.460
Specific Gravity (G _{sub}), Parafilm	2.461	2.439	2.404	2.386	2.414	2.399	2.400	2.366
VTM = [1-(G _{sub} /G _{mm})], SSD	3.1%	3.6%	4.2%	5.0%	3.7%	4.7%	4.0%	4.7%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	4.7%	5.9%	6.9%	7.6%	6.5%	7.1%	7.1%	8.4%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Blount	Rice Gravity Date	10/7/98
Mix Type	307-S		
Project Number	5267	Compaction Date	3/4/99
Contractor	APAC-TN		
Date Sampled	9/9/98	Bulk Gravity Date	5/18/99

	115 mm x 150mm PIII (6" Dia.)				63.5 mm x 100mm PIII (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.8	2005.8	2005.8					
(A) Dry mass of Asphalt, g	2208.6	2296.9	2606.6					
(B) Wet mass ; Asphalt, Bowl, & water, g	2627.6	2680.9	2876.9					
(D) Wet mass ; Bowl, & water, g	1265.8	1265.8	1265.8					
Bouyant Force (C = B - D), g	1361.8	1415.1	1611.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.608	2.605	2.618	2.610				
Compaction								
	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	5092.0	5092.0	4906.0	4906.0	1250.0	1250.0	1204.0	1204.0
Mix Temperature, ° C	147.2	148.9	149.4	148.9	148.9	148.9	148.9	147.2
Number of Gyration	152	152	72	100	152	152	122	95
Compacted Height, mm	117.4	114.6	113.0	113.0	66.2	65.7	63.5	63.3
Bulk Specific Gravity								
Dry mass (A), g	5083.8	4968.8	4897.8	4890.0	1250.0	1241.4	1199.2	1193.7
Dry mass with Parafilm (D), g	5090.7	4975.8	4906.0	4897.7	1256.0	1246.7	1202.1	1198.8
Wet mass with Parafilm (E), g	3031.2	2963.0	2886.3	2880.7	735.1	730.8	706.3	702.8
Wet mass w/o Parafilm (C), g	3080.7	3001.4	2934.8	2936.5	754.8	751.2	723.0	717.7
Saturated Surface Dry mass (B), g	5091.0	4975.3	4903.6	4894.4	1254.2	1244.7	1199.7	1197.0
Specific Gravity (G _{sub}), SSD	2.529	2.517	2.488	2.498	2.503	2.516	2.516	2.495
Specific Gravity (G _{sub}), Parafilm	2.482	2.483	2.442	2.440	2.447	2.448	2.443	2.436
VTM = [1-(G _{sub} /G _{sub})], SSD	3.1%	3.6%	4.7%	4.3%	4.1%	3.6%	3.6%	4.4%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	4.9%	4.9%	6.3%	6.3%	6.3%	6.2%	6.4%	6.7%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Dyer	Rice Gravity Date	2/23/99
Mix Type	307-S		
Project Number	5285	Compaction Date	3/4/99
Contractor	Ford Construction		
Date Sampled	9/28/98	Bulk Gravity Date	3/6/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2004.5	2004.5	2004.5					
(A) Dry mass of Asphalt, g	2741.2	2588.1	2698.0					
(B) Wet mass ; Asphalt, Bowl, & water, g	2854.7	2764.0	2840.1					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1589.2	1498.5	1574.6	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.380	2.375	2.402	2.385				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+-1%VTM	4+-1%VTM	Nmax	Nmax	4+-1%VTM	4+-1%VTM
Mass of Sample Before Compaction, g	4632.0	4632.0	4532.0	4532.0	1142.0	1142.0	1112.0	1112.0
Mix Temperature, °C	148.9	148.9	149.4	148.9	146.7	147.8	147.2	148.9
Number of Gyration	152	152	47	50	152	152	85	73
Compacted Height, mm	114.3	114.0	114.9	114.8	63.0	64.3	63.3	63.5
Bulk Specific Gravity								
Dry mass (A), g	4630.8	4635.7	4512.9	4502.9	1121.0	1130.9	1110.4	1109.1
Dry mass with Parafilm (D), g	4638.6	4643.1	4521.2	4511.7	1126.3	1136.7	1113.5	1111.7
Wet mass with Parafilm (E), g	2624.1	2637.7	2503.9	2497.7	629.8	630.4	618.0	616.3
Wet mass w/o Parafilm (C), g	2657.8	2677.5	2560.0	2558.5	642.7	647.2	634.9	633.7
Saturated Surface Dry mass (B), g	4635.7	4641.1	4520.7	4513.4	1121.9	1133.8	1111.9	1109.5
Specific Gravity (G _{sub}), SSD	2.341	2.361	2.302	2.303	2.339	2.324	2.328	2.329
Specific Gravity (G _{sub}), Parafilm	2.314	2.326	2.253	2.252	2.299	2.277	2.265	2.264
VTM = [1-(G _{sub} /G _{sub})], SSD	1.9%	1.0%	3.5%	3.4%	1.9%	2.6%	2.4%	2.4%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.0%	2.5%	5.6%	5.6%	3.6%	4.5%	5.1%	5.1%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	Dyer	Rice Gravity Date	2/26/99
Mix Type	411-S		
Project Number	5285	Compaction Date	3/4/99
Contractor	Ford Construction		
Date Sampled	10/19/98	Bulk Gravity Date	3/8/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2004.6	2004.6	2004.6					
(A) Dry mass of Asphalt, g	2622.0	1987.7	2379.0					
(B) Wet mass ; Asphalt, Bowl, & water, g	2755.5	2395.1	2620.5					
(D) Wet mass ; Bowl, & water, g	1265.3	1265.3	1265.3					
Bouyant Force (C = B - D), g	1490.2	1129.8	1355.2	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.317	2.317	2.324	2.319				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4524.0	4524.0	4406.0	4406.0	1110.0	1110.0	1081.0	1081.0
Mix Temperature, °C	149.4	150.0	149.4	149.4	149.4	148.9	147.8	146.7
Number of Gyration	152	152	47	50	152	152	85	73
Compacted Height, mm	119.3	119.6	117.6	117.5	67.1	67.6	65.3	65.9
Bulk Specific Gravity								
Dry mass (A), g	4505.4	4506.6	4398.7	4384.3	1108.9	1103.0	1078.0	1074.9
Dry mass with Parafilm (D), g	4512.6	4514.2	4407.8	4393.6	1114.2	1108.2	1081.5	1078.7
Wet mass with Parafilm (E), g	2418.3	2414.9	2344.7	2330.8	587.2	576.8	570.9	564.1
Wet mass w/o Parafilm (C), g	2475.9	2473.7	2410.2	2402.9	609.1	603.0	588.9	586.3
Saturated Surface Dry mass (B), g	4520.8	4520.9	4414.8	4404.7	1114.0	1103.5	1081.1	1078.5
Specific Gravity (G _{sub}), SSD	2.203	2.201	2.194	2.190	2.196	2.204	2.190	2.184
Specific Gravity (G _{sub}), Parafilm	2.164	2.160	2.148	2.142	2.140	2.110	2.136	2.115
VTM = [1-(G _{sub} /G _{sub})], SSD	5.0%	5.1%	5.4%	5.6%	5.3%	5.0%	5.6%	5.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	6.7%	6.9%	7.4%	7.7%	7.7%	9.0%	7.9%	8.8%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Grundv</u>	Rice Gravity Date	<u>10/17/98</u>
Mix Type	<u>307-BM</u>		
Project Number	<u>5295</u>	Compaction Date	<u>1/6/99</u>
Contractor	<u>Thomas Brothers</u>		
Date Sampled	<u>9/16/98</u>	Bulk Gravity Date	<u>1/18/99</u>

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
	1	2	3	AVG.				
Theoretical Maximum Specific Gravity (Rice)								
Dry Bowl mass, g	2005.5	2005.5	2005.5					
(A) Dry mass of Asphalt, g	1691.4	2189.2	2189.6					
(B) Wet mass ; Asphalt, Bowl, & water, g	2286.0	2585.4	2584.3					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1020.5	1319.9	1318.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.521	2.518	2.514	2.518				
Compaction								
	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4912.0	4912.0	4810.0	4810.0	1205.5	1302.5	1180.0	1180.0
Mix Temperature, °C	147.8	148.9	149.4	149.4	146.7	148.9	147.2	147.2
Number of Gyration	152	152	85	72	152	152	68	93
Compacted Height, mm	1114.4	114.2	114.9	114.9	63.7	63.1	63.4	63.5
Bulk Specific Gravity								
Dry mass (A), g	4888.9	4889.2	4779.0	4792.9	1198.1	1193.6	1171.0	1173.8
Dry mass with Parafilm (D), g	4904.5	4901.9	4794.8	4802.6	1204.3	1199.4	1176.6	1179.3
Wet mass with Parafilm (E), g	2880.2	2883.0	2762.7	2779.2	700.3	700.1	675.1	680.0
Wet mass w/o Parafilm (C), g	2904.1	2834.1	2919.1	2830.5	712.2	712.2	693.0	696.4
Saturated Surface Dry mass (B), g	4893.3	4792.7	4893.1	4802.7	1199.6	1194.2	1174.5	1176.7
Specific Gravity (G _{mb}), SSD	2.438	2.496	2.421	2.430	2.463	2.476	2.432	2.444
Specific Gravity (G _{mb}), Parafilm	2.447	2.447	2.383	2.393	2.427	2.438	2.379	2.395
VTM = [1-(G _{mb} /G _{mm})] , SSD	2.4%	0.9%	3.9%	3.5%	2.2%	1.7%	3.4%	2.9%
VTM = [1-(G _{mb} /G _{mm})] , Parafilm	2.8%	2.8%	3.4%	3.0%	3.6%	3.2%	3.5%	4.9%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Grundv	Rice Gravity Date	10/20/98
Mix Type	411-D		
Project Number	5295	Compaction Date	1/6/99
Contractor	Thomas Brothers		
Date Sampled	9/23/98	Bulk Gravity Date	1/10/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2500.4	2846.9	2644.9					
(B) Wet mass, Asphalt, Bowl, & water, g	2677.3	2874.3	2758.3					
(D) Wet mass; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1411.8	1608.8	1492.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.297	2.299	2.296	2.297				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4481.0	4481.0	4411.0	4411.0	1100.0	1100.0	1083.0	1083.0
Mix Temperature, °C	150.0	149.4	149.4	149.4	148.9	149.4	147.8	149.4
Number of Gyration	152	152	89	92	152	152	152	92
Compacted Height, mm	114.8	114.3	115.0	115.0	63.3	64.2	64.0	63.3
Bulk Specific Gravity								
Dry mass (A), g	4450.0	4452.1	4388.0	4393.3	1086.6	1091.5	1074.5	1077.6
Dry mass with Parafilm (D), g	4464.6	4465.0	4401.0	4405.8	1092.6	1097.1	1080.1	1083.2
Wet mass with Parafilm (E), g	2433.1	2443.8	2369.4	2373.8	592.3	590.1	574.2	583.0
Wet mass w/o Parafilm (C), g	2474.3	2474.1	2414.6	2416.6	602.6	605.9	595.3	595.5
Saturated Surface Dry mass (B), g	4454.3	4455.0	4398.3	4404.7	1087.4	1092.3	1078.9	1079.7
Specific Gravity (G _{mb}), SSD	2.247	2.248	2.212	2.210	2.241	2.239	2.222	2.226
Specific Gravity (G _{mb}), Parafilm	2.217	2.226	2.183	2.184	2.216	2.193	2.164	2.195
VTM = [1 - (G _{mb} /G _{mm})] , SSD	2.2%	2.2%	3.7%	3.8%	2.4%	2.5%	3.3%	3.1%
VTM = [1 - (G _{mb} /G _{mm})] , Parafilm	3.5%	3.1%	5.0%	4.9%	3.5%	4.5%	5.8%	4.4%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Madison	Rice Gravity Date	1/16/99
Mix Type	307-BM/2		
Project Number	5305	Compaction Date	3/9/99
Contractor	Ford Construction		
Date Sampled	8/20/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2172.4	2162.2	2426.4					
(B) Wet mass ; Asphalt, Bowl, & water, g	2567.8	2566.0	2721.9					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1302.3	1300.5	1456.4	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.497	2.509	2.501	2.502				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4481.0	4481.0	4727.0	4727.0	1198.0	1198.0	1160.0	1160.0
Mix Temperature, °C	150.0	145.0	149.4	148.9	148.9	148.9	148.9	148.9
Number of Gyration	152	152	15	18	152	152	14	14
Compacted Height, mm	112.6	112.6	114.7	114.7	61.8	61.8	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4865.9	4855.0	4710.2	4708.9	1192.6	1188.1	1156.4	1156.4
Dry mass with Parafilm (D), g	4875.2	4862.2	4718.2	4717.3	1198.0	1194.1	1159.6	1159.6
Wet mass with Parafilm (E), g	2887.9	2885.0	2703.9	2700.8	707.4	704.9	663.9	663.9
Wet mass w/o Parafilm (C), g	2904.4	2900.3	2740.3	2749.9	713.1	710.4	671.3	671.3
Saturated Surface Dry mass (B), g	4867.6	4856.2	4716.2	4717.4	1193.0	1188.4	1157.2	1157.2
Specific Gravity (G _{mb}), SSD	2.479	2.482	2.384	2.393	2.485	2.486	2.380	2.380
Specific Gravity (G _{mb}), Parafilm	2.468	2.470	2.354	2.352	2.476	2.479	2.358	2.358
VTM = [1-(G _{mb} /G _{mm})], SSD	1.0%	0.8%	4.7%	4.4%	0.7%	0.7%	4.9%	4.9%
VTM = [1-(G _{mb} /G _{mm})], Parafilm	1.4%	1.3%	5.9%	6.0%	1.0%	0.9%	5.8%	5.8%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County Madison Rice Gravity Date 1/16/99
 Mix Type 307-S (with Fiber)
 Project Number 5306 Compaction Date 3/9/99
 Contractor Dement Construction
 Date Sampled 9/17/98 Bulk Gravity Date 3/17/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2425.2	1911.9	2726.7					
(B) Wet mass ; Asphalt, Bowl, & water, g	2721.4	2414.1	2902.8					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1455.9	1148.6	1637.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.502	2.505	2.503	2.503				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4883.0	4883.0	4731.0	4731.0	1198.0	1198.0	1161.0	1161.0
Mix Temperature, °C	148.3	149.4	148.9	148.9	149.4	149.4	148.9	148.9
Number of Gyration	152	152	124	88	152	152	152	152
Compacted Height, mm	117.1	116.8	115.0	115.0	65.4	65.7	63.6	63.3
Bulk Specific Gravity								
Dry mass (A), g	4884.3	4872.2	4737.5	4670.4	1193.7	1192.0	1161.3	1154.5
Dry mass with Parafilm (D), g	4894.0	4879.4	4746.3	4679.1	1199.0	1197.5	1163.1	1157.9
Wet mass with Parafilm (E), g	2824.4	2816.8	2724.5	2650.2	682.1	680.5	663.0	659.0
Wet mass w/o Parafilm (C), g	2873.6	2866.6	2783.0	2720.9	701.2	700.0	681.5	677.0
Saturated Surface Dry mass (B), g	4894.7	4880.0	4748.1	4686.8	1196.8	1195.1	1162.8	1156.1
Specific Gravity (G _{mb}), SSD	2.417	2.420	2.411	2.376	2.409	2.408	2.413	2.410
Specific Gravity (G _{mb}), Parafilm	2.379	2.376	2.360	2.319	2.349	2.347	2.352	2.341
VTM = [1-(G _{mb} /G _{mm})], SSD	3.5%	3.3%	3.7%	5.1%	3.8%	3.8%	3.6%	3.7%
VTM = [1-(G _{mb} /G _{mm})], Parafilm	5.0%	5.1%	5.7%	7.4%	6.1%	6.2%	6.0%	6.5%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	Madison	Rice Gravity Date	1/29/99
Mix Type	411-S (with Fiber)		
Project Number	5306	Compaction Date	3/9/99
Contractor	Dement Construction		
Date Sampled	9/23/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2373.4	2514.0	1519.3					
(B) Wet mass ; Asphalt, Bowl, & water, g	2615.9	2693.5	2125.4					
(D) Wet mass ; Bowl, & water, g	1265.3	1265.3	1265.3					
Bouyant Force (C = B - D), g	1350.6	1428.2	860.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.320	2.315	2.305	2.314				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM	Nmax	Nmax	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	4514.0	4514.0	4397.0	4397.0	1108.0	1108.0	1079.0	1079.0
Mix Temperature, ° C	149.4	149.4	148.9	148.9	148.3	147.8	149.4	149.4
Number of Gyration	152	152	76	58	152	152	129	102
Compacted Height, mm	115.7	115.3	114.9	114.9	63.0	64.6	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4500.4	4477.9	4381.9	4339.8	1102.0	1096.7	1076.2	1072.3
Dry mass with Parafilm (D), g	4507.3	4484.7	4390.9	4349.1	1107.2	1101.8	1079.8	1076.4
Wet mass with Parafilm (E), g	2469.3	2449.3	2362.7	2318.4	593.9	592.5	580.4	578.1
Wet mass w/o Parafilm (C), g	2505.7	2493.1	2411.0	2381.9	613.0	606.7	593.7	592.2
Saturated Surface Dry mass (B), g	4506.4	4486.1	4390.3	4352.6	1104.2	1098.8	1077.7	1074.0
Specific Gravity (G _{sub}), SSD	2.249	2.247	2.214	2.202	2.243	2.229	2.233	2.226
Specific Gravity (G _{sub}), Parafilm	2.221	2.212	2.177	2.154	2.192	2.190	2.181	2.181
VTM = [1-(G _{sub} /G _{sub})], SSD	2.8%	2.9%	4.3%	4.8%	3.0%	3.7%	3.5%	3.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	4.0%	4.4%	5.9%	6.9%	5.2%	5.3%	5.7%	5.7%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Madison	Rice Gravity Date	1/16/99
Mix Type	411-S		
Project Number	5306	Compaction Date	3/9/99
Contractor	Dement Construction		
Date Sampled	9/21/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2650.2	2803.5	2441.6					
(B) Wet mass ; Asphalt, Bowl, & water, g	2788.2	2872.8	2666.3					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1522.7	1607.3	1400.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.351	2.344	2.346	2.347				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM	N _{max}	N _{max}	4 +/- 1%VTM	4 +/- 1%VTM
Mass of Sample Before Compaction, g	4579.0	4579.0	4460.0	4460.0	1124.0	1124.0	1094.0	1094.0
Mix Temperature, °C	150.0	149.4	149.4	148.9	148.9	148.3	148.9	148.9
Number of Gyration	152	152	152	152	152	1152	152	152
Compacted Height, mm	118.7	119.3	116.3	115.8	65.7	66.6	64.6	64.6
Bulk Specific Gravity								
Dry mass (A), g	4505.7	4538.9	4445.1	4420.2	1100.9	1107.6	1089.4	1089.9
Dry mass with Parafilm (D), g	4517.9	4547.5	4452.8	4428.7	1106.0	1112.5	1093.6	1093.6
Wet mass with Parafilm (E), g	2432.2	2448.1	2409.3	2393.7	590.1	589.6	585.5	588.2
Wet mass w/o Parafilm (C), g	2500.4	2508.6	2469.8	2453.1	607.2	611.6	606.1	608.2
Saturated Surface Dry mass (B), g	4531.4	4557.3	4464.8	4441.4	1103.3	1113.5	1093.8	1094.3
Specific Gravity (G _{sub}), SSD	2.218	2.216	2.228	2.223	2.210	2.207	2.234	2.241
Specific Gravity (G _{sub}), Parafilm	2.182	2.177	2.189	2.187	2.170	2.152	2.174	2.183
VTM = [1-(G _{sub} /G _{sub})], SSD	5.5%	5.6%	5.1%	5.3%	5.8%	6.0%	4.8%	4.5%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	7.0%	7.2%	6.7%	6.8%	7.5%	8.3%	7.4%	7.0%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	<u>Mauv</u>	Rice Gravity Date	<u>10/8/98</u>
Mix Type	<u>411-S</u>		
Project Number	<u>5308</u>	Compaction Date	<u>1/8/99</u>
Contractor	<u>LoJec Enterprises</u>		
Date Sampled	<u>8/14/98</u>	Bulk Gravity Date	<u>1/10/99</u>

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.6	2005.6	2005.6					
(A) Dry mass of Asphalt, g	2889.6	2966.5	2882.8					
(B) Wet mass ; Asphalt, Bowl, & water, g	2970.7	3014.0	2964.8					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1705.2	1748.5	1699.3	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.440	2.436	2.436	2.437				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4754.0	4754.0	4754.0	4754.0	1167.0	1167.0	1167.0	1167.0
Mix Temperature, ° C	148.9	148.9	148.9	148.9	146.7	149.4	148.9	148.9
Number of Gyration	152	152	134	135	152	152	152	152
Compacted Height, mm	113.4	114.5	113.0	113.0	63.5	63.5	63.6	64.0
Bulk Specific Gravity								
Dry mass (A), g	4679.6	4690.0	4712.1	4715.4	1143.7	1173.2	1147.2	1150.4
Dry mass with Parafilm (D), g	4689.3	4698.3	4719.7	4723.1	1152.1	1179.7	1153.6	1156.9
Wet mass with Parafilm (E), g	2687.7	2685.2	2696.7	2700.7	650.5	662.2	651.2	650.8
Wet mass w/o Parafilm (C), g	2727.4	2726.2	2736.1	2739.4	663.4	680.9	666.8	667.2
Saturated Surface Dry mass (B), g	4681.1	4692.2	4714.1	4717.3	1146.9	1174.3	1148.1	1151.5
Specific Gravity (G _{sub}), SSD	2.393	2.386	2.382	2.384	2.379	2.378	2.384	2.375
Specific Gravity (G _{sub}), Parafilm	2.357	2.346	2.344	2.346	2.334	2.316	2.333	2.323
VTM = [1-(G _{sub} /G _{sub})], SSD	1.7%	2.1%	2.2%	2.2%	2.4%	2.4%	2.2%	2.5%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.3%	3.7%	3.8%	3.7%	4.2%	5.0%	4.3%	4.7%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Pickett</u>	Rice Gravity Date	<u>10/31/98</u>
Mix Type	<u>411-S</u>		
Project Number	<u>5313</u>	Compaction Date	<u>2/24/99</u>
Contractor	<u>Highway Materials</u>		
Date Sampled	<u>9/18/98</u>	Bulk Gravity Date	<u>2/28/99</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.1	2005.1	2005.1					
(A) Dry mass of Asphalt, g	1586.5	1706.7	1824.5					
(B) Wet mass ; Asphalt, Bowl, & water, g	2215.3	2288.2	2357.5					
(D) Wet mass ; Bowl, & water, g	1265.7	1265.7	1265.7					
Bouyant Force (C = B - D), g	949.6	1022.5	1091.8	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.491	2.494	2.490	2.492				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4862.0	4862.0	4710.0	4710.0	11193.0	1193.0	1156.0	1156.0
Mix Temperature, °C	148.9	148.9	147.2	150.0	148.3	148.9	150.0	142.2
Number of Gyration	152	152	47	47	152	152	77	59
Compacted Height, mm	114.4	115.0	115.4	113.3	63.5	63.5	63.5	63.4
Bulk Specific Gravity								
Dry mass (A), g	4837.7	4845.6	4693.8	4682.6	1186.2	1186.3	1156.0	1147.7
Dry mass with Parafilm (D), g	4845.0	4853.3	4701.8	4690.6	1192.3	1191.6	1159.3	1151.1
Wet mass with Parafilm (E), g	2827.9	2825.4	2670.8	2661.7	689.3	689.0	660.2	653.7
Wet mass w/o Parafilm (C), g	2860.6	2862.0	2727.4	2719.7	701.7	699.9	675.2	667.2
Saturated Surface Dry mass (B), g	4842.3	4851.4	4708.1	4699.5	1187.8	1187.0	1157.8	1150.1
Specific Gravity (G _{sub}), SSD	2.441	2.436	2.370	2.365	2.440	2.435	2.395	2.377
Specific Gravity (G _{sub}), Parafilm	2.413	2.405	2.326	2.323	2.407	2.403	2.342	2.334
VTM = [1-(G _{sub} /G _{sub})], SSD	2.0%	2.3%	4.3%	5.1%	2.1%	2.3%	3.9%	4.6%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.2%	3.5%	6.6%	6.8%	3.4%	3.6%	6.0%	6.3%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION University of Tennessee, Knoxville

County	<u>Sequatchie</u>	Rice Gravity Date	<u>9/25/98</u>
Mix Type	<u>411-D</u>		
Project Number	<u>5318</u>	Compaction Date	<u>1/4/99</u>
Contractor	<u>Thomas Brothers</u>		
Date Sampled	<u>8/18/98</u>	Bulk Gravity Date	<u>1/6/99</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1490.2	1593.8	1976.8					
(B) Wet mass ; Asphalt, Bowl, & water, g	2110.3	2171.8	2387.0					
(D) Wet mass ; Bowl, & water, g	1265.9	1265.9	1265.9					
Bouyant Force (C = B - D), g	844.4	905.9	1121.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.308	2.317	2.310	2.312				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4310.0	4310.0	4439.0	4439.0	1107.0	1107.0	1089.0	1089.0
Mix Temperature, ° C	148.9	150.0	148.9	149.4	148.9	149.4	148.9	148.3
Number of Gyration	152	152	73	71	152	152	80	74
Compacted Height, mm	114.1	114.0	114.9	114.9	62.9	63.7	63.6	63.6
Bulk Specific Gravity								
Dry mass (A), g	4492.3	4475.1	4422.6	4425.8	1098.0	1101.4	1082.6	1084.5
Dry mass with Parafilm (D), g	4503.4	4486.2	4439.1	4441.2	1103.7	1107.2	1089.7	1090.3
Wet mass with Parafilm (E), g	2484.3	2473.0	2404.9	2406.3	603.2	603.6	587.4	588.0
Wet mass w/o Parafilm (C), g	2509.2	2500.7	2439.4	2439.7	614.5	614.9	598.7	598.4
Saturated Surface Dry mass (B), g	4497.3	4480.1	4410.5	4430.5	1098.8	1102.3	1084.7	1083.9
Specific Gravity (G _{sub}), SSD	2.259	2.261	2.221	2.223	2.267	2.260	2.230	2.225
Specific Gravity (G _{sub}), Parafilm	2.246	2.243	2.204	2.203	2.243	2.230	2.202	2.201
VTM = [1-(G _{sub} /G _{sub})], SSD	2.3%	2.3%	3.9%	3.8%	1.9%	2.2%	3.3%	3.8%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	2.8%	2.9%	4.7%	4.7%	2.9%	3.5%	4.7%	4.8%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Knox	Rice Gravity Date	10/6/98
Mix Type	411-S		
Project Number	5366	Compaction Date	2/24/99
Contractor	Rogers Group		
Date Sampled	9/27/98	Bulk Gravity Date	2/28/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	2192.9	2343.1	2681.1					
(B) Wet mass ; Asphalt, Bowl, & water, g	2585.0	2677.5	2880.6					
(D) Wet mass ; Bowl, & water, g	1265.7	1265.7	1265.7					
Bouyant Force (C = B - D), g	1319.3	1411.8	1614.9	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.510	2.516	2.515	2.514				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4905.0	4905.0	4726.0	4726.0	1204.0	1204.0	1160.0	1160.0
Mix Temperature, °C	148.9	149.4	148.9	148.9	148.9	148.9	147.8	148.9
Number of Gyration	152	152	48	48	152	152	53	66
Compacted Height, mm	114.0	114.9	114.8	114.8	64.0	64.3	63.5	63.5
Bulk Specific Gravity								
Dry mass (A), g	4862.6	4855.9	4668.5	4668.5	1185.2	1185.3	1120.7	1139.3
Dry mass with Parafilm (D), g	4870.0	4863.4	4675.0	4675.0	1190.9	1191.2	1124.4	1143.2
Wet mass with Parafilm (E), g	2859.0	2846.1	2656.4	2656.4	687.2	685.4	626.9	646.0
Wet mass w/o Parafilm (C), g	2907.3	2892.7	2725.8	2725.8	709.2	705.4	652.7	671.8
Saturated Surface Dry mass (B), g	4863.3	4859.7	4676.4	4676.4	1187.2	1186.6	1123.8	1140.9
Specific Gravity (G _{sub}), SSD	2.483	2.469	2.393	2.393	2.479	2.463	2.379	2.429
Specific Gravity (G _{sub}), Parafilm	2.433	2.422	2.325	2.325	2.398	2.390	2.281	2.322
VTM = [1-(G _{sub} /G _{mm})], SSD	1.2%	1.8%	4.8%	4.8%	1.4%	2.0%	5.4%	3.4%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	3.2%	3.6%	7.5%	7.5%	4.6%	4.9%	9.3%	7.6%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION

University of Tennessee, Knoxville

County	<u>Montgomery</u>	Rice Gravity Date	<u>11/2/98</u>
Mix Type	<u>307-S</u>		
Project Number	<u>5382</u>	Compaction Date	<u>3/9/99</u>
Contractor	<u>McIntosh Construction</u>		
Date Sampled	<u>10/12/98</u>	Bulk Gravity Date	<u>3/17/99</u>

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1811.7	2014.5	2032.9					
(B) Wet mass ; Asphalt, Bowl, & water, g	2346.6	2470.0	2482.0					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1081.1	1204.5	1216.5	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.480	2.487	2.490	2.486				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM	Nmax	Nmax	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4850.0	4850.0	4698.0	4698.0	1190.0	1190.0	1153.0	1153.0
Mix Temperature, °C	149.4	149.4	148.3	140.6	149.4	148.9	147.2	149.4
Number of Gyration	152	152	115	152	152	152	152	152
Compacted Height, mm	117.2	118.4	115.0	115.8	65.8	65.8	63.7	64.0
Bulk Specific Gravity								
Dry mass (A), g	4772.5	4791.7	4662.0	4638.7	1168.8	1168.4	1132.1	1121.1
Dry mass with Parafilm (D), g	4781.2	4798.8	4669.7	4647.1	1174.3	1173.9	1135.4	1124.7
Wet mass with Parafilm (E), g	2719.4	2717.3	2650.3	2611.3	653.5	654.4	632.0	623.2
Wet mass w/o Parafilm (C), g	2778.7	2786.3	2706.0	2699.1	677.7	678.4	659.2	648.1
Saturated Surface Dry mass (B), g	4787.8	4808.7	4673.0	4658.3	1177.8	1172.7	1135.7	1125.7
Specific Gravity (G _{sub}), SSD	2.375	2.369	2.368	2.368	2.337	2.364	2.376	2.347
Specific Gravity (G _{sub}), Parafilm	2.331	2.315	2.323	2.394	2.293	2.289	2.274	2.263
VTM = [1-(G _{sub} /G _{mm})] , SSD	4.4%	4.7%	4.7%	4.7%	6.0%	4.9%	4.4%	5.0%
VTM = [1-(G _{sub} /G _{mm})] , Parafilm	6.2%	6.9%	6.5%	7.7%	7.7%	7.9%	8.5%	9.0%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Putnam	Rice Gravity Date	3/5/99
Mix Type	307-S		
Project Number	5386	Compaction Date	3/1/99
Contractor	Highway Materials		
Date Sampled	11/5/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pli (6" Dia.)				63.5 mm x 100mm Pli (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2004.7	2004.7	2004.7					
(A) Dry mass of Asphalt, g	1972.4	2400.8	2328.2					
(B) Wet mass ; Asphalt, Bowl, & water, g	2457.7	2717.0	2674.6					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1192.2	1451.5	1409.1	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.528	2.529	2.533	2.530				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4936.0	4936.0	4736.0	4736.0	1211.0	1211.0	1167.0	1167.0
Mix Temperature, °C	150.0	149.4	150.0	148.9	148.9	147.9	148.3	150.0
Number of Gyration	152	152	87	103	152	152	132	146
Compacted Height, mm	116.8	118.6	115.0	115.0	65.8	65.9	63.3	63.3
Bulk Specific Gravity								
Dry mass (A), g	4915.9	4900.3	4737.6	4734.2	1203.7	1199.4	1158.6	1159.8
Dry mass with Parafilm (D), g	4925.3	4907.6	4744.0	4740.8	1208.9	1204.5	1161.5	1163.2
Wet mass with Parafilm (E), g	2870.6	2829.3	2724.6	2720.3	691.5	687.4	663.8	665.2
Wet mass w/o Parafilm (C), g	2922.9	2914.9	2794.1	2798.3	711.4	710.3	684.7	689.2
Saturated Surface Dry mass (B), g	4922.3	4918.3	4750.4	4748.5	1207.1	1203.1	1162.6	1161.7
Specific Gravity (G _{sub}), SSD	2.439	2.446	2.422	2.428	2.428	2.435	2.424	2.435
Specific Gravity (G _{sub}), Parafilm	2.411	2.372	2.359	2.356	2.366	2.358	2.351	2.356
VTM = [1-(G _{sub} /G _{sub})], SSD	2.8%	3.3%	4.3%	4.0%	4.0%	3.8%	4.2%	3.0%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	4.7%	6.3%	6.8%	6.9%	6.3%	6.8%	7.1%	6.9%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Putnam	Rice Gravity Date	3/5/99
Mix Type	411-S		
Project Number	5386	Compaction Date	3/11/99
Contractor	Highway Materials		
Date Sampled	11/16/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm PHL (6" Dia.)				63.5 mm x 100mm PHL (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1837.5	1915.9	1771.9					
(B) Wet mass ; Asphalt, Bowl, & water, g	2374.8	2422.5	2334.8					
(D) Wet mass ; Bowl, & water, g	1265.6	1265.6	1265.6					
Bouyant Force (C = B - D), g	1109.2	1156.9	1069.2	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.523	2.524	2.522	2.523				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4922.0	4922.0	4743.0	4743.0	1208.0	1208.0	1164.0	1164.0
Mix Temperature, °C	149.4	149.4	148.9	146.1	149.4	148.9	150.0	150.0
Number of Gyration	132	132	14	15	132	132	19	22
Compacted Height, mm	111.2	111.3	114.4	114.6	61.1	61.6	63.2	63.3
Bulk Specific Gravity								
Dry mass (A), g	4881.4	4888.1	4718.3	4717.3	1190.8	1184.6	1156.9	1155.1
Dry mass with Parafilm (D), g	4889.6	4894.9	4725.0	4724.3	1196.1	1189.6	1160.2	1158.5
Wet mass with Parafilm (E), g	2923.2	2932.1	2716.6	2708.5	710.3	703.9	664.7	663.8
Wet mass w/o Parafilm (C), g	2934.6	2930.4	2774.5	2772.1	719.0	715.6	681.5	682.4
Saturated Surface Dry mass (B), g	4889.0	4882.7	4727.0	4728.3	1191.1	1185.2	1157.9	1156.6
Specific Gravity (G _{sub}), SSD	2.523	2.530	2.417	2.412	2.522	2.523	2.428	2.436
Specific Gravity (G _{sub}), Parafilm	2.502	2.505	2.362	2.353	2.497	2.482	2.361	2.362
VTM = [1-(G _{sub} /G _{sub})], SSD	0.0%	-0.3%	4.2%	4.4%	0.0%	0.0%	3.7%	3.3%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	0.8%	0.7%	6.4%	6.7%	1.0%	1.6%	6.4%	6.4%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Sevier	Rice Gravity Date	3/3/99
Mix Type	307-S		
Project Number	5398	Compaction Date	3/11/99
Contractor	Blavlock & Sons		
Date Sampled	10/16/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pili (6" Dia.)				63.5 mm x 100mm Pili (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.4	2005.4	2005.4					
(A) Dry mass of Asphalt, g	1758.7	2604.4	2525.5					
(B) Wet mass ; Asphalt, Bowl, & water, g	2335.6	2850.3	2801.2					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1070.1	1584.8	1535.7	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.554	2.554	2.552	2.553				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4942.0	4942.0	4799.0	4799.0	1213.0	1213.0	1178.0	1178.0
Mix Temperature, °C	149.4	148.9	148.9	149.4	149.4	149.4	1258.9	147.2
Number of Gyration	152	152	62	58	152	152	80	95
Compacted Height, mm	113.9	114.0	114.9	114.8	64.1	63.5	63.4	63.5
Bulk Specific Gravity								
Dry mass (A), g	4931.1	4907.1	4793.1	4772.8	1188.7	1193.0	1160.3	1156.9
Dry mass with Parafilm (D), g	4939.5	4916.0	4800.1	4779.8	1194.0	1199.7	1163.8	1160.3
Wet mass with Parafilm (E), g	2932.8	2906.2	2780.9	2760.4	689.8	699.3	665.1	662.4
Wet mass w/o Parafilm (C), g	2969.0	2948.6	2833.0	2809.9	709.7	716.2	686.1	684.8
Saturated Surface Dry mass (B), g	4933.7	4911.0	4797.7	4776.8	1189.8	1196.1	1161.3	1158.2
Specific Gravity (G _{sub}), SSD	2.510	2.501	2.440	2.427	2.476	2.490	2.442	2.444
Specific Gravity (G _{sub}), Parafilm	2.475	2.460	2.388	2.377	2.400	2.426	2.354	2.350
VTM = [1-(G _{sub} /G _{sub})], SSD	1.7%	2.1%	4.3%	5.0%	3.0%	2.5%	4.4%	4.3%
VTM = [1-(G _{sub} /G _{sub})], Parafilm	3.1%	3.7%	6.3%	6.9%	6.0%	5.0%	7.8%	7.9%

Appendix B

Gyratory Data Summary

GYRATORY COMPACTION DATA COLLECTION
University of Tennessee, Knoxville

County	Sevier	Rice Gravity Date	11/4/98
Mix Type	411-S		
Project Number	5398	Compaction Date	3/11/99
Contractor	Blavlock & Sons		
Date Sampled	10/26/98	Bulk Gravity Date	3/17/99

	115 mm x 150mm Pill (6" Dia.)				63.5 mm x 100mm Pill (4" Dia.)			
	Sample Number				Sample Number			
Theoretical Maximum Specific Gravity (Rice)	1	2	3	AVG.				
Dry Bowl mass, g	2005.6	2005.6	2005.6					
(A) Dry mass of Asphalt, g	1902.4	1761.8	1782.3					
(B) Wet mass ; Asphalt, Bowl, & water, g	2394.4	2310.1	2323.1					
(D) Wet mass ; Bowl, & water, g	1265.5	1265.5	1265.5					
Bouyant Force (C = B - D), g	1128.9	1044.6	1057.6	Average				
Theoretical Max. (Rice) Gmm = A / A-C	2.459	2.456	2.459	2.458				
Compaction	6-1	6-2	6-3	6-4	4-1	4-2	4-3	4-4
	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM	N _{max}	N _{max}	4+/-1%VTM	4+/-1%VTM
Mass of Sample Before Compaction, g	4795.0	4795.0	4645.0	4645.0	1177.0	1177.0	1140.0	1140.0
Mix Temperature, ° C	149.4	148.9	148.9	148.9	148.3	147.8	149.4	149.4
Number of Gyration	152	152	134	128	152	152	152	152
Compacted Height, mm	117.8	117.8	115.0	115.0	65.8	66.5	63.8	63.7
Bulk Specific Gravity								
Dry mass (A), g	4771.0	4771.0	4596.3	4598.3	1151.3	1162.9	1125.5	1125.0
Dry mass with Parafilm (D), g	4780.4	4780.4	4603.1	4595.0	1156.6	1168.2	1128.9	1127.8
Wet mass with Parafilm (E), g	2705.5	2705.5	2575.3	2571.2	637.2	643.5	626.7	627.4
Wet mass w/o Parafilm (C), g	2732.5	2732.5	2633.3	2630.7	639.3	666.2	642.0	644.2
Saturated Surface Dry mass (B), g	4775.5	4775.5	4602.9	4595.5	1154.8	1165.2	1126.4	1126.1
Specific Gravity (G _{sub}), SSD	2.358	2.358	2.334	2.335	2.324	2.330	2.323	2.335
Specific Gravity (G _{sub}), Parafilm	2.317	2.317	2.279	2.280	2.255	2.254	2.267	2.269
VTM = [1-(G _{sub} /G _{mm})], SSD	4.1%	4.1%	5.1%	5.0%	5.5%	5.2%	5.5%	5.0%
VTM = [1-(G _{sub} /G _{mm})], Parafilm	5.8%	5.8%	7.3%	7.3%	8.3%	8.3%	7.8%	7.7%

APPENDIX C

PERCENT G_{mm} SUMMARY SHEETS

Appendix C

Percent G_{mm} Summary

County: Davidson (a)

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		133.6	2360.9	2.003		82.3		1.01619	83.7
	8		121.2	2141.8	2.208		90.8		1.01619	92.2
	10		120.4	2127.6	2.223		91.4		1.01619	92.9
	20		117.9	2083.5	2.270		93.3		1.01619	94.8
	30		116.5	2058.7	2.297		94.4		1.01619	96.0
	40		115.6	2042.8	2.315		95.2		1.01619	96.7
	50		114.9	2030.5	2.329		95.7		1.01619	97.3
	60		114.3	2019.8	2.341		96.2		1.01619	97.8
	70		113.8	2011.0	2.352		96.7		1.01619	98.2
	80		113.5	2005.7	2.358		96.9		1.01619	98.5
	90		113.2	2000.4	2.364		97.2		1.01619	98.8
	96		113.0	1996.9	2.368		97.4		1.01619	98.9
	100		112.9	1995.1	2.370		97.4		1.01619	99.0
	110		112.7	1991.6	2.375		97.6		1.01619	99.2
	120		112.5	1988.0	2.379		97.8		1.01619	99.4
	130		112.3	1984.5	2.383		98.0		1.01619	99.5
	140		112.2	1982.7	2.385		98.0		1.01619	99.6
	150		112.1	1981.0	2.387		98.1		1.01619	99.7
	152	4729.2	112.1	1981.0	2.387	2.433	98.1	2.426	1.01619	99.7
2	0		133.2	2353.8	2.004		82.4		1.01666	83.8
	8		120.7	2132.9	2.212		90.9		1.01666	92.4
	10		119.8	2117.0	2.229		91.6		1.01666	93.1
	20		117.3	2072.9	2.276		93.6		1.01666	95.1
	30		116.0	2049.9	2.302		94.6		1.01666	96.2
	40		115.1	2034.0	2.320		95.4		1.01666	96.9
	50		114.5	2023.4	2.332		95.9		1.01666	97.5
	60		114.0	2014.5	2.342		96.3		1.01666	97.9
	70		113.6	2007.5	2.350		96.6		1.01666	98.2
	80		113.2	2000.4	2.359		97.0		1.01666	98.6
	90		112.9	1995.1	2.365		97.2		1.01666	98.8
	96		112.8	1993.3	2.367		97.3		1.01666	98.9
	100		112.7	1991.6	2.369		97.4		1.01666	99.0
	110		112.4	1986.3	2.375		97.6		1.01666	99.3
	120		112.2	1982.7	2.380		97.8		1.01666	99.4
	130		112.1	1981.0	2.382		97.9		1.01666	99.5
	140		111.9	1977.4	2.386		98.1		1.01666	99.7
	150		111.8	1975.7	2.388		98.2		1.01666	99.8
	152	4718.1	111.8	1975.7	2.388	2.433	98.2	2.428	1.01666	99.8

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: Davidson (a)

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		75.4	592.2	1.957		80.5		1.01993	82.1
	8		67.8	532.5	2.177		89.5		1.01993	91.3
	10		67.2	527.8	2.196		90.3		1.01993	92.1
	20		65.6	515.2	2.250		92.5		1.01993	94.3
	30		64.7	508.2	2.281		93.8		1.01993	95.6
	40		64.2	504.2	2.299		94.5		1.01993	96.4
	50		63.7	500.3	2.317		95.2		1.01993	97.1
	60		63.4	497.9	2.328		95.7		1.01993	97.6
	70		63.2	496.4	2.335		96.0		1.01993	97.9
	80		62.9	494.0	2.346		96.5		1.01993	98.4
	90		62.7	492.4	2.354		96.8		1.01993	98.7
	96		62.7	492.4	2.354		96.8		1.01993	98.7
	100		62.6	491.7	2.358		96.9		1.01993	98.8
	110		62.5	490.9	2.361		97.1		1.01993	99.0
	120		62.3	489.3	2.369		97.4		1.01993	99.3
	130		62.2	488.5	2.373		97.5		1.01993	99.5
	140		62.1	487.7	2.377		97.7		1.01993	99.6
	150		62.1	487.7	2.377		97.7		1.01993	99.6
	152	1159.1	62.1	487.7	2.377	2.433	97.7	2.424	1.01993	99.6
2	0		76.2	598.5	1.920		78.9		1.02854	81.2
	8		68.0	534.1	2.151		88.4		1.02854	91.0
	10		67.4	529.4	2.171		89.2		1.02854	91.8
	20		65.8	516.8	2.223		91.4		1.02854	94.0
	30		64.9	509.7	2.254		92.7		1.02854	95.3
	40		64.3	505.0	2.275		93.5		1.02854	96.2
	50		63.9	501.9	2.289		94.1		1.02854	96.8
	60		63.6	499.5	2.300		94.6		1.02854	97.3
	70		63.3	497.2	2.311		95.0		1.02854	97.7
	80		63.0	494.8	2.322		95.5		1.02854	98.2
	90		62.9	494.0	2.326		95.6		1.02854	98.3
	96		62.8	493.2	2.330		95.8		1.02854	98.5
	100		62.7	492.4	2.333		95.9		1.02854	98.7
	110		62.5	490.9	2.341		96.2		1.02854	99.0
	120		62.4	490.1	2.344		96.4		1.02854	99.1
	130		62.3	489.3	2.348		96.5		1.02854	99.3
	140		62.2	488.5	2.352		96.7		1.02854	99.4
	150		62.1	487.7	2.356		96.8		1.02854	99.6
	152	1149.0	62.1	487.7	2.356	2.433	96.8	2.423	1.02854	99.6

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Davidson/Wilson
Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		134.9	2383.9	2.049		81.3		1.01566	82.6
	8		121.1	2140.0	2.282		90.6		1.01566	92.0
	10		120.1	2122.3	2.301		91.4		1.01566	92.8
	20		117.1	2069.3	2.360		93.7		1.01566	95.2
	30		115.6	2042.8	2.391		94.9		1.01566	96.4
	40		114.7	2026.9	2.409		95.7		1.01566	97.2
	50		114.0	2014.5	2.424		96.3		1.01566	97.8
	60		113.6	2007.5	2.433		96.6		1.01566	98.1
	70		113.2	2000.4	2.441		96.9		1.01566	98.5
	80		112.9	1995.1	2.448		97.2		1.01566	98.7
	90		112.6	1989.8	2.454		97.5		1.01566	99.0
	96		112.5	1988.0	2.456		97.5		1.01566	99.1
	100		112.4	1986.3	2.459		97.6		1.01566	99.2
	110		112.3	1984.5	2.461		97.7		1.01566	99.2
	120		112.1	1981.0	2.465		97.9		1.01566	99.4
	130		112.0	1979.2	2.467		98.0		1.01566	99.5
	140		111.9	1977.4	2.470		98.1		1.01566	99.6
2	150		111.8	1975.7	2.472		98.2		1.01566	99.7
	152	4883.4	111.8	1975.7	2.472	2.518	98.2	2.510	1.01566	99.7
	0		134.8	2382.1	2.053		81.5		1.01449	82.7
	8		121.1	2140.0	2.286		90.8		1.01449	92.1
	10		120.1	2122.3	2.305		91.5		1.01449	92.8
	20		117.2	2071.1	2.362		93.8		1.01449	95.1
	30		115.7	2044.6	2.392		95.0		1.01449	96.4
	40		114.8	2028.7	2.411		95.7		1.01449	97.1
	50		114.2	2018.1	2.424		96.2		1.01449	97.6
	60		113.7	2009.2	2.434		96.7		1.01449	98.1
	70		113.4	2003.9	2.441		96.9		1.01449	98.3
	80		113.1	1998.6	2.447		97.2		1.01449	98.6
	90		112.8	1993.3	2.454		97.4		1.01449	98.8
	96		112.7	1991.6	2.456		97.5		1.01449	98.9
	100		112.6	1989.8	2.458		97.6		1.01449	99.0
	110		112.4	1986.3	2.462		97.8		1.01449	99.2
	120		112.3	1984.5	2.465		97.9		1.01449	99.3
	130		112.1	1981.0	2.469		98.0		1.01449	99.5
	140		112.0	1979.2	2.471		98.1		1.01449	99.6
	150		111.9	1977.4	2.473		98.2		1.01449	99.6
	152	4891.1	111.9	1977.4	2.473	2.518	98.2	2.509	1.01449	99.6

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Davidson/Wilson

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		76.4	600.0	1.999		79.4		1.02622	81.4
	8		68.2	535.6	2.239		88.9		1.02622	91.2
	10		67.7	531.7	2.255		89.6		1.02622	91.9
	20		65.9	517.6	2.317		92.0		1.02622	94.4
	30		65.0	510.5	2.349		93.3		1.02622	95.7
	40		64.4	505.8	2.371		94.1		1.02622	96.6
	50		64.0	502.7	2.386		94.7		1.02622	97.2
	60		63.7	500.3	2.397		95.2		1.02622	97.7
	70		63.4	497.9	2.408		95.6		1.02622	98.1
	80		63.2	496.4	2.416		95.9		1.02622	98.4
	90		63.0	494.8	2.424		96.2		1.02622	98.8
	96		62.9	494.0	2.427		96.4		1.02622	98.9
	100		62.8	493.2	2.431		96.5		1.02622	99.1
	110		62.7	492.4	2.435		96.7		1.02622	99.2
	120		62.6	491.7	2.439		96.9		1.02622	99.4
	130		62.5	490.9	2.443		97.0		1.02622	99.6
	140		62.4	490.1	2.447		97.2		1.02622	99.7
	150		62.3	489.3	2.451		97.3		1.02622	99.9
	152	1199.2	62.3	489.3	2.451	2.518	97.3	2.515	1.02622	99.9
2	0		75.7	594.5	2.018		80.1		1.01906	81.7
	8		67.5	530.1	2.263		89.9		1.01906	91.6
	10		67.0	526.2	2.280		90.5		1.01906	92.3
	20		65.3	512.9	2.340		92.9		1.01906	94.7
	30		64.4	505.8	2.372		94.2		1.01906	96.0
	40		63.8	501.1	2.395		95.1		1.01906	96.9
	50		63.4	497.9	2.410		95.7		1.01906	97.5
	60		63.1	495.6	2.421		96.1		1.01906	98.0
	70		62.8	493.2	2.433		96.6		1.01906	98.4
	80		62.6	491.7	2.441		96.9		1.01906	98.8
	90		62.4	490.1	2.448		97.2		1.01906	99.1
	96		62.3	489.3	2.452		97.4		1.01906	99.2
	100		62.3	489.3	2.452		97.4		1.01906	99.2
	110		62.2	488.5	2.456		97.5		1.01906	99.4
	120		62.0	486.9	2.464		97.8		1.01906	99.7
	130		61.9	486.2	2.468		98.0		1.01906	99.9
	140		61.9	486.2	2.468		98.0		1.01906	99.9
	150		61.8	485.4	2.472		98.2		1.01906	100.0
	152	1199.9	61.8	485.4	2.472	2.518	98.2	2.519	1.01906	100.0

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Rutherford
Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		138.8	2452.8	2.006		79.3		1.01857	80.8
	8		123.7	2186.0	2.251		89.0		1.01857	90.7
	10		122.6	2166.5	2.271		89.8		1.01857	91.5
	20		119.4	2110.0	2.332		92.2		1.01857	93.9
	30		117.7	2079.9	2.365		93.6		1.01857	95.3
	40		116.7	2062.3	2.386		94.4		1.01857	96.1
	50		115.9	2048.1	2.402		95.0		1.01857	96.8
	60		115.3	2037.5	2.415		95.5		1.01857	97.3
	70		114.8	2028.7	2.425		95.9		1.01857	97.7
	80		114.4	2021.6	2.434		96.3		1.01857	98.1
	90		114.1	2016.3	2.440		96.5		1.01857	98.3
	96		113.9	2012.8	2.444		96.7		1.01857	98.5
	100		113.8	2011.0	2.446		96.8		1.01857	98.6
	110		113.5	2005.7	2.453		97.0		1.01857	98.8
	120		113.3	2002.2	2.457		97.2		1.01857	99.0
	130		113.1	1998.6	2.462		97.4		1.01857	99.2
	140		113.0	1996.9	2.464		97.5		1.01857	99.3
	150		112.8	1993.3	2.468		97.6		1.01857	99.4
	152	4919.9	112.8	1993.3	2.468	2.528	97.6	2.514	1.01857	99.4
2	0		138.2	2442.2	2.009		79.5		1.01642	80.8
	8		123.3	2178.9	2.252		89.1		1.01642	90.5
	10		122.2	2159.5	2.272		89.9		1.01642	91.3
	20		119.0	2102.9	2.333		92.3		1.01642	93.8
	30		117.3	2072.9	2.367		93.6		1.01642	95.2
	40		116.2	2053.4	2.389		94.5		1.01642	96.1
	50		115.5	2041.1	2.404		95.1		1.01642	96.6
	60		114.9	2030.5	2.416		95.6		1.01642	97.1
	70		114.4	2021.6	2.427		96.0		1.01642	97.6
	80		114.0	2014.5	2.435		96.3		1.01642	97.9
	90		113.6	2007.5	2.444		96.7		1.01642	98.3
	96		113.4	2003.9	2.448		96.8		1.01642	98.4
	100		113.3	2002.2	2.450		96.9		1.01642	98.5
	110		113.0	1996.9	2.457		97.2		1.01642	98.8
	120		112.8	1993.3	2.461		97.4		1.01642	99.0
	130		112.6	1989.8	2.466		97.5		1.01642	99.1
	140		112.4	1986.3	2.470		97.7		1.01642	99.3
	150		112.2	1982.7	2.474		97.9		1.01642	99.5
	152	4906.1	112.2	1982.7	2.474	2.528	97.9	2.515	1.01642	99.5

Percent G_{max} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Rutherford
Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		77.2	606.3	1.987		78.6		1.02386	80.5
	8		68.6	538.8	2.236		88.4		1.02386	90.5
	10		68.0	534.1	2.256		89.2		1.02386	91.3
	20		66.3	520.7	2.313		91.5		1.02386	93.7
	30		65.3	512.9	2.349		92.9		1.02386	95.1
	40		64.7	508.2	2.371		93.8		1.02386	96.0
	50		64.3	505.0	2.385		94.4		1.02386	96.6
	60		64.0	502.7	2.396		94.8		1.02386	97.1
	70		63.7	500.3	2.408		95.2		1.02386	97.5
	80		63.5	498.7	2.415		95.5		1.02386	97.8
	90		63.3	497.2	2.423		95.8		1.02386	98.1
	96		63.2	496.4	2.427		96.0		1.02386	98.3
	100		63.2	496.4	2.427		96.0		1.02386	98.3
	110		63.0	494.8	2.435		96.3		1.02386	98.6
	120		62.9	494.0	2.438		96.5		1.02386	98.8
	130		62.8	493.2	2.442		96.6		1.02386	98.9
	140		62.7	492.4	2.446		96.8		1.02386	99.1
	150		62.6	491.7	2.450		96.9		1.02386	99.2
	152	1204.6	62.6	491.7	2.450	2.528	96.9	2.509	1.02386	99.2
2	0		79.4	623.6	1.918		75.9		1.04665	79.4
	8		70.9	556.8	2.148		85.0		1.04665	88.9
	10		70.2	551.3	2.170		85.8		1.04665	89.8
	20		68.2	535.6	2.233		88.3		1.04665	92.5
	30		67.1	527.0	2.270		89.8		1.04665	94.0
	40		66.3	520.7	2.297		90.9		1.04665	95.1
	50		65.8	516.8	2.315		91.6		1.04665	95.8
	60		65.3	512.9	2.332		92.3		1.04665	96.6
	70		65.0	510.5	2.343		92.7		1.04665	97.0
	80		64.7	508.2	2.354		93.1		1.04665	97.5
	90		64.4	505.8	2.365		93.5		1.04665	97.9
	96		64.3	505.0	2.369		93.7		1.04665	98.1
	100		64.2	504.2	2.372		93.8		1.04665	98.2
	110		64.1	503.4	2.376		94.0		1.04665	98.4
	120		63.9	501.9	2.383		94.3		1.04665	98.7
	130		63.8	501.1	2.387		94.4		1.04665	98.8
	140		63.6	499.5	2.395		94.7		1.04665	99.1
	150		63.5	498.7	2.399		94.9		1.04665	99.3
	152	1196.2	63.5	498.7	2.399	2.528	94.9	2.510	1.04665	99.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Hamilton

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		135.2	2389.2	1.858		80.0		1.02353	81.8
	8		121.6	2148.8	2.065		88.9		1.02353	91.0
	10		120.5	2129.4	2.084		89.7		1.02353	91.8
	20		117.5	2076.4	2.138		92.0		1.02353	94.2
	30		115.8	2046.4	2.169		93.4		1.02353	95.6
	40		114.8	2028.7	2.188		94.2		1.02353	96.4
	50		114.0	2014.5	2.203		94.8		1.02353	97.1
	60		113.4	2003.9	2.215		95.3		1.02353	97.6
	70		112.9	1995.1	2.225		95.8		1.02353	98.0
	80		112.5	1988.0	2.233		96.1		1.02353	98.4
	90		112.2	1982.7	2.238		96.4		1.02353	98.6
	96		112.0	1979.2	2.242		96.5		1.02353	98.8
	100		111.9	1977.4	2.244		96.6		1.02353	98.9
	110		111.7	1973.9	2.248		96.8		1.02353	99.1
	120		111.6	1972.1	2.251		96.9		1.02353	99.2
	130		111.4	1968.6	2.255		97.1		1.02353	99.3
	140		111.3	1966.8	2.257		97.1		1.02353	99.4
	150		111.3	1966.8	2.257		97.1		1.02353	99.4
	152	4438.3	111.2	1965.1	2.259	2.323	97.2	2.312	1.02353	99.5
2	0		134.5	2376.8	1.893		81.5		1.01063	82.4
	8		121.2	2141.8	2.101		90.4		1.01063	91.4
	10		120.1	2122.3	2.120		91.3		1.01063	92.2
	20		117.1	2069.3	2.175		93.6		1.01063	94.6
	30		115.4	2039.3	2.207		95.0		1.01063	96.0
	40		114.4	2021.6	2.226		95.8		1.01063	96.8
	50		113.6	2007.5	2.242		96.5		1.01063	97.5
	60		113.1	1998.6	2.251		96.9		1.01063	97.9
	70		112.6	1989.8	2.261		97.3		1.01063	98.4
	80		112.3	1984.5	2.267		97.6		1.01063	98.6
	90		112.0	1979.2	2.274		97.9		1.01063	98.9
	96		111.9	1977.4	2.276		98.0		1.01063	99.0
	100		111.8	1975.7	2.278		98.0		1.01063	99.1
	110		111.7	1973.9	2.280		98.1		1.01063	99.2
	120		111.5	1970.4	2.284		98.3		1.01063	99.4
	130		111.4	1968.6	2.286		98.4		1.01063	99.4
	140		111.3	1966.8	2.288		98.5		1.01063	99.5
	150		111.3	1966.8	2.288		98.5		1.01063	99.5
	152	4499.8	111.2	1965.1	2.290	2.323	98.6	2.314	1.01063	99.6

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Hamilton

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		76.7	602.4	1.830		78.8		1.01729	80.2
	8		68.3	536.4	2.055		88.5		1.01729	90.0
	10		67.7	531.7	2.074		89.3		1.01729	90.8
	20		65.8	516.8	2.134		91.8		1.01729	93.4
	30		64.8	508.9	2.166		93.3		1.01729	94.9
	40		64.2	504.2	2.187		94.1		1.01729	95.8
	50		63.7	500.3	2.204		94.9		1.01729	96.5
	60		63.3	497.2	2.218		95.5		1.01729	97.1
	70		63.1	495.6	2.225		95.8		1.01729	97.4
	80		62.8	493.2	2.235		96.2		1.01729	97.9
	90		62.6	491.7	2.243		96.5		1.01729	98.2
	96		62.5	490.9	2.246		96.7		1.01729	98.4
	100		62.4	490.1	2.250		96.8		1.01729	98.5
	110		62.3	489.3	2.253		97.0		1.01729	98.7
	120		62.2	488.5	2.257		97.2		1.01729	98.8
	130		62.1	487.7	2.261		97.3		1.01729	99.0
	140		62.0	486.9	2.264		97.5		1.01729	99.2
	150		61.9	486.2	2.268		97.6		1.01729	99.3
	152	1102.6	61.9	486.2	2.268	2.323	97.6	2.307	1.01729	99.3
2	0		76.4	600.0	1.837		79.1		1.01848	80.5
	8		68.2	535.6	2.058		88.6		1.01848	90.2
	10		67.5	530.1	2.079		89.5		1.01848	91.1
	20		65.7	516.0	2.136		91.9		1.01848	93.6
	30		64.7	508.2	2.169		93.4		1.01848	95.1
	40		64.0	502.7	2.193		94.4		1.01848	96.1
	50		63.6	499.5	2.207		95.0		1.01848	96.7
	60		63.2	496.4	2.221		95.6		1.01848	97.4
	70		62.9	494.0	2.231		96.0		1.01848	97.8
	80		62.6	491.7	2.242		96.5		1.01848	98.3
	90		62.4	490.1	2.249		96.8		1.01848	98.6
	96		62.3	489.3	2.253		97.0		1.01848	98.8
	100		62.2	488.5	2.256		97.1		1.01848	98.9
	110		62.1	487.7	2.260		97.3		1.01848	99.1
	120		62.0	486.9	2.263		97.4		1.01848	99.2
	130		61.9	486.2	2.267		97.6		1.01848	99.4
	140		61.8	485.4	2.271		97.8		1.01848	99.6
	150		61.7	484.6	2.274		97.9		1.01848	99.7
	152	1102.2	61.7	484.6	2.274	2.323	97.9	2.317	1.01848	99.7

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount/Loudon

Mix: 307 BM/2

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		139.4	2463.4	2.065		78.9		1.03361	81.6
	8		126.8	2240.7	2.270		86.8		1.03361	89.7
	10		125.8	2223.1	2.288		87.4		1.03361	90.4
	20		123.1	2175.4	2.339		89.4		1.03361	92.4
	30		121.6	2148.8	2.367		90.5		1.03361	93.5
	40		120.6	2131.2	2.387		91.2		1.03361	94.3
	50		119.9	2118.8	2.401		91.7		1.03361	94.8
	60		119.3	2108.2	2.413		92.2		1.03361	95.3
	70		118.8	2099.4	2.423		92.6		1.03361	95.7
	80		118.4	2092.3	2.431		92.9		1.03361	96.0
	90		118.1	2087.0	2.438		93.1		1.03361	96.3
	96		117.9	2083.5	2.442		93.3		1.03361	96.4
	100		117.8	2081.7	2.444		93.4		1.03361	96.5
	110		117.5	2076.4	2.450		93.6		1.03361	96.8
	120		117.2	2071.1	2.456		93.9		1.03361	97.0
	130		117.0	2067.6	2.460		94.0		1.03361	97.2
	140		116.8	2064.0	2.465		94.2		1.03361	97.3
	150		116.6	2060.5	2.469		94.3		1.03361	97.5
	152	5087.1	116.6	2060.5	2.469	2.617	94.3	2.552	1.03361	97.5
2	0		145.0	2562.4	1.984		75.8		1.05117	79.7
	8		131.1	2316.7	2.195		83.9		1.05117	88.2
	10		130.0	2297.3	2.213		84.6		1.05117	88.9
	20		126.8	2240.7	2.269		86.7		1.05117	91.1
	30		125.0	2208.9	2.302		88.0		1.05117	92.5
	40		123.8	2187.7	2.324		88.8		1.05117	93.4
	50		122.9	2171.8	2.341		89.5		1.05117	94.0
	60		122.2	2159.5	2.355		90.0		1.05117	94.6
	70		121.7	2150.6	2.364		90.3		1.05117	95.0
	80		121.2	2141.8	2.374		90.7		1.05117	95.4
	90		120.8	2134.7	2.382		91.0		1.05117	95.7
	96		120.6	2131.2	2.386		91.2		1.05117	95.8
	100		120.5	2129.4	2.388		91.2		1.05117	95.9
	110		120.2	2124.1	2.394		91.5		1.05117	96.2
	120		119.9	2118.8	2.400		91.7		1.05117	96.4
	130		119.6	2113.5	2.406		91.9		1.05117	96.6
	140		119.4	2110.0	2.410		92.1		1.05117	96.8
	150		119.2	2106.4	2.414		92.2		1.05117	97.0
	152	5084.9	119.2	2106.4	2.414	2.617	92.2	2.538	1.05117	97.0

Appendix C

Percent G_{mm} Summary

County: Blount/Loudon

Mix: 307 BM/2

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		140.8	2488.1	0.496		19.0		4.21930	80.0
	8		126.9	2242.5	0.551		21.0		4.21930	88.8
	10		125.8	2223.1	0.556		21.2		4.21930	89.6
	20		122.7	2168.3	0.570		21.8		4.21930	91.8
	30		121.0	2138.2	0.578		22.1		4.21930	93.1
	40		119.9	2118.8	0.583		22.3		4.21930	94.0
	50		119.1	2104.7	0.587		22.4		4.21930	94.6
	60		118.5	2094.1	0.590		22.5		4.21930	95.1
	70		117.9	2083.5	0.593		22.7		4.21930	95.6
	80		117.5	2076.4	0.595		22.7		4.21930	95.9
	90		117.1	2069.3	0.597		22.8		4.21930	96.2
	96		116.9	2065.8	0.598		22.8		4.21930	96.4
	100		116.8	2064.0	0.598		22.9		4.21930	96.5
	110		116.5	2058.7	0.600		22.9		4.21930	96.7
	120		116.3	2055.2	0.601		23.0		4.21930	96.9
	130		116.0	2049.9	0.603		23.0		4.21930	97.1
	140		115.8	2046.4	0.604		23.1		4.21930	97.3
	150		115.6	2042.8	0.605		23.1		4.21930	97.5
	152	1235.1	115.6	2042.8	0.605	2.617	23.1	2.551	4.21930	97.5
2	0		139.7	2468.7	0.498		19.0		4.24370	80.8
	8		126.2	2230.1	0.551		21.1		4.24370	89.4
	10		125.3	2214.2	0.555		21.2		4.24370	90.1
	20		122.5	2164.8	0.568		21.7		4.24370	92.1
	30		120.9	2136.5	0.576		22.0		4.24370	93.3
	40		119.9	2118.8	0.580		22.2		4.24370	94.1
	50		119.2	2106.4	0.584		22.3		4.24370	94.7
	60		118.6	2095.8	0.587		22.4		4.24370	95.2
	70		118.1	2087.0	0.589		22.5		4.24370	95.6
	80		117.7	2079.9	0.591		22.6		4.24370	95.9
	90		117.3	2072.9	0.593		22.7		4.24370	96.2
	96		117.1	2069.3	0.594		22.7		4.24370	96.4
	100		117.0	2067.6	0.595		22.7		4.24370	96.5
	110		116.7	2062.3	0.596		22.8		4.24370	96.7
	120		116.4	2057.0	0.598		22.8		4.24370	96.9
	130		116.2	2053.4	0.599		22.9		4.24370	97.1
	140		116.0	2049.9	0.600		22.9		4.24370	97.3
	150		115.8	2046.4	0.601		23.0		4.24370	97.5
	152	1229.8	115.7	2044.6	0.601	2.617	23.0	2.553	4.24370	97.5

Appendix C

Percent G_{mm} Summary

County: Blount/Loudon

Mix: 307 BM/2

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.8	634.6	1.970		75.3		1.05468	79.4
	8		72.5	569.4	2.195		83.9		1.05468	88.5
	10		71.9	564.7	2.213		84.6		1.05468	89.2
	20		70.0	549.8	2.273		86.9		1.05468	91.6
	30		69.0	541.9	2.306		88.1		1.05468	92.9
	40		68.4	537.2	2.327		88.9		1.05468	93.8
	50		67.9	533.3	2.344		89.6		1.05468	94.5
	60		67.5	530.1	2.358		90.1		1.05468	95.0
	70		67.2	527.8	2.368		90.5		1.05468	95.4
	80		67.0	526.2	2.375		90.8		1.05468	95.7
	90		66.7	523.9	2.386		91.2		1.05468	96.2
	96		66.6	523.1	2.390		91.3		1.05468	96.3
	100		66.5	522.3	2.393		91.4		1.05468	96.4
	110		66.4	521.5	2.397		91.6		1.05468	96.6
	120		66.2	519.9	2.404		91.9		1.05468	96.9
2	130		66.1	519.1	2.408		92.0		1.05468	97.0
	140		65.9	517.6	2.415		92.3		1.05468	97.3
	150		65.8	516.8	2.419		92.4		1.05468	97.5
	152	1249.9	65.8	516.8	2.419	2.617	92.4	2.551	1.05468	97.5
	0		80.3	630.7	1.979		75.6		1.03511	78.3
	8		71.0	557.6	2.238		85.5		1.03511	88.5
	10		70.3	552.1	2.260		86.4		1.03511	89.4
	20		68.5	538.0	2.319		88.6		1.03511	91.7
	30		67.5	530.1	2.354		89.9		1.03511	93.1
	40		66.9	525.4	2.375		90.7		1.03511	93.9
	50		66.4	521.5	2.393		91.4		1.03511	94.6
	60		66.0	518.4	2.407		92.0		1.03511	95.2
	70		65.8	516.8	2.415		92.3		1.03511	95.5
	80		65.5	514.4	2.426		92.7		1.03511	95.9
	90		65.3	512.9	2.433		93.0		1.03511	96.2
	96		65.2	512.1	2.437		93.1		1.03511	96.4
	100		65.1	511.3	2.440		93.3		1.03511	96.5
	110		65.0	510.5	2.444		93.4		1.03511	96.7
	120		64.8	508.9	2.452		93.7		1.03511	97.0
	130		64.7	508.2	2.456		93.8		1.03511	97.1
	140		64.6	507.4	2.459		94.0		1.03511	97.3
	150		64.5	506.6	2.463		94.1		1.03511	97.4
	152	1247.8	64.5	506.6	2.463	2.617	94.1	2.550	1.03511	97.4

Appendix C

Percent G_{mm} Summary

County: Blount/Loudon

Mix: 307 BM/2

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		78.9	619.7	1.993		76.2		1.03876	79.1
	8		70.8	556.1	2.221		84.9		1.03876	88.2
	10		70.2	551.3	2.240		85.6		1.03876	88.9
	20		68.3	536.4	2.302		88.0		1.03876	91.4
	30		67.3	528.6	2.337		89.3		1.03876	92.7
	40		66.6	523.1	2.361		90.2		1.03876	93.7
	50		66.1	519.1	2.379		90.9		1.03876	94.4
	60		65.7	516.0	2.394		91.5		1.03876	95.0
	70		65.4	513.7	2.405		91.9		1.03876	95.4
	80		65.1	511.3	2.416		92.3		1.03876	95.9
	90		64.9	509.7	2.423		92.6		1.03876	96.2
	96		64.7	508.2	2.431		92.9		1.03876	96.5
	100		64.7	508.2	2.431		92.9		1.03876	96.5
	110		64.5	506.6	2.438		93.2		1.03876	96.8
	120		64.4	505.8	2.442		93.3		1.03876	96.9
	130		64.2	504.2	2.449		93.6		1.03876	97.2
	140		64.1	503.4	2.453		93.7		1.03876	97.4
	150		64.0	502.7	2.457		93.9		1.03876	97.5
	152	1235.1	64.0	502.7	2.457	2.617	93.9	2.552	1.03876	97.5
2	0		79.0	620.5	1.982		75.7		1.04991	79.5
	8		71.1	558.4	2.202		84.2		1.04991	88.4
	10		70.5	553.7	2.221		84.9		1.04991	89.1
	20		68.6	538.8	2.283		87.2		1.04991	91.6
	30		67.6	530.9	2.316		88.5		1.04991	92.9
	40		67.0	526.2	2.337		89.3		1.04991	93.8
	50		66.5	522.3	2.355		90.0		1.04991	94.5
	60		66.1	519.1	2.369		90.5		1.04991	95.0
	70		65.9	517.6	2.376		90.8		1.04991	95.3
	80		65.6	515.2	2.387		91.2		1.04991	95.8
	90		65.4	513.7	2.394		91.5		1.04991	96.1
	96		65.3	512.9	2.398		91.6		1.04991	96.2
	100		65.2	512.1	2.402		91.8		1.04991	96.3
	110		65.1	511.3	2.405		91.9		1.04991	96.5
	120		64.9	509.7	2.413		92.2		1.04991	96.8
	130		64.8	508.9	2.416		92.3		1.04991	96.9
	140		64.7	508.2	2.420		92.5		1.04991	97.1
	150		64.6	507.4	2.424		92.6		1.04991	97.2
	152	1229.8	64.5	506.6	2.428	2.617	92.8	2.549	1.04991	97.4

Appendix C

Percent G_{mm} Summary

County: Coffee

Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		151.1	2670.2	1.846		74.0		1.02448	75.8
	8		132.4	2339.7	2.107		84.4		1.02448	86.5
	10		130.9	2313.2	2.131		85.4		1.02448	87.5
	20		126.0	2226.6	2.214		88.7		1.02448	90.9
	30		123.4	2180.7	2.261		90.6		1.02448	92.8
	40		121.7	2150.6	2.292		91.9		1.02448	94.1
	50		120.3	2125.9	2.319		92.9		1.02448	95.2
	60		119.3	2108.2	2.339		93.7		1.02448	96.0
	70		118.5	2094.1	2.354		94.4		1.02448	96.7
	80		117.9	2083.5	2.366		94.8		1.02448	97.2
	90		117.3	2072.9	2.378		95.3		1.02448	97.7
	96		117.0	2067.6	2.385		95.6		1.02448	97.9
	100		116.8	2064.0	2.389		95.7		1.02448	98.1
	110		116.4	2057.0	2.397		96.1		1.02448	98.4
	120		116.1	2051.7	2.403		96.3		1.02448	98.7
2	130		115.8	2046.4	2.409		96.6		1.02448	98.9
	140		115.5	2041.1	2.415		96.8		1.02448	99.2
	150		115.2	2035.8	2.422		97.1		1.02448	99.4
	152	4930.1	115.2	2035.8	2.422	2.495	97.1	2.481	1.02448	99.4
	0		147.5	2606.5	1.895		75.9		1.02016	77.5
	8		129.8	2293.8	2.153		86.3		1.02016	88.0
	10		128.3	2267.2	2.178		87.3		1.02016	89.1
	20		123.7	2186.0	2.259		90.5		1.02016	92.4
	30		121.2	2141.8	2.306		92.4		1.02016	94.3
	40		119.6	2113.5	2.337		93.6		1.02016	95.5
	50		118.5	2094.1	2.358		94.5		1.02016	96.4
	60		117.7	2079.9	2.374		95.2		1.02016	97.1
	70		117.0	2067.6	2.389		95.7		1.02016	97.7
	80		116.4	2057.0	2.401		96.2		1.02016	98.2
	90		115.9	2048.1	2.411		96.6		1.02016	98.6
	96		115.7	2044.6	2.415		96.8		1.02016	98.8
	100		115.5	2041.1	2.420		97.0		1.02016	98.9
	110		115.2	2035.8	2.426		97.2		1.02016	99.2
	120		114.9	2030.5	2.432		97.5		1.02016	99.4
	130		114.6	2025.1	2.439		97.7		1.02016	99.7
	140		114.4	2021.6	2.443		97.9		1.02016	99.9
	150		114.2	2018.1	2.447		98.1		1.02016	100.1
	152	4938.7	114.2	2018.1	2.447	2.495	98.1	2.497	1.02016	100.1

Percent G_{max} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Coffee

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		87.4	686.4	1.732		69.4		1.05260	73.1
	8		76.1	597.7	1.989		79.7		1.05260	83.9
	10		75.2	590.6	2.013		80.7		1.05260	84.9
	20		72.4	568.6	2.091		83.8		1.05260	88.2
	30		70.7	555.3	2.141		85.8		1.05260	90.3
	40		69.5	545.9	2.178		87.3		1.05260	91.9
	50		68.6	538.8	2.207		88.4		1.05260	93.1
	60		67.9	533.3	2.229		89.3		1.05260	94.0
	70		67.4	529.4	2.246		90.0		1.05260	94.7
	80		67.0	526.2	2.259		90.5		1.05260	95.3
	90		66.5	522.3	2.276		91.2		1.05260	96.0
	96		66.3	520.7	2.283		91.5		1.05260	96.3
	100		66.2	519.9	2.287		91.6		1.05260	96.5
	110		65.9	517.6	2.297		92.1		1.05260	96.9
	120		65.6	515.2	2.308		92.5		1.05260	97.3
	130		65.4	513.7	2.315		92.8		1.05260	97.6
	140		65.2	512.1	2.322		93.0		1.05260	97.9
	150		65.0	510.5	2.329		93.3		1.05260	98.2
2	152	1188.9	65.0	510.5	2.329	2.495	93.3	2.451	1.05260	98.2
	0		85.6	672.3	1.784		71.5		1.03952	74.3
	8		75.0	589.0	2.036		81.6		1.03952	84.8
	10		74.1	582.0	2.061		82.6		1.03952	85.9
	20		71.3	560.0	2.142		85.8		1.03952	89.2
	30		69.6	546.6	2.194		87.9		1.03952	91.4
	40		68.4	537.2	2.232		89.5		1.03952	93.0
	50		67.6	530.9	2.259		90.5		1.03952	94.1
	60		66.9	525.4	2.283		91.5		1.03952	95.1
	70		66.3	520.7	2.303		92.3		1.03952	96.0
	80		65.9	517.6	2.317		92.9		1.03952	96.5
	90		65.5	514.4	2.331		93.4		1.03952	97.1
	96		65.3	512.9	2.338		93.7		1.03952	97.4
	100		65.2	512.1	2.342		93.9		1.03952	97.6
	110		64.9	509.7	2.353		94.3		1.03952	98.0
	120		64.7	508.2	2.360		94.6		1.03952	98.3
	130		64.5	506.6	2.367		94.9		1.03952	98.6
	140		64.3	505.0	2.375		95.2		1.03952	98.9
	150		64.2	504.2	2.378		95.3		1.03952	99.1
	152	1199.3	64.1	503.4	2.382	2.495	95.5	2.476	1.03952	99.2

Appendix C

Percent G_{mm} Summary

County: Coffee

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.6	664.4	1.802		72.2		1.04037	75.1
	8		73.8	579.6	2.065		82.8		1.04037	86.1
	10		72.9	572.6	2.091		83.8		1.04037	87.2
	20		70.2	551.3	2.171		87.0		1.04037	90.5
	30		68.6	538.8	2.222		89.0		1.04037	92.6
	40		67.6	530.9	2.255		90.4		1.04037	94.0
	50		66.8	524.6	2.282		91.4		1.04037	95.1
	60		66.3	520.7	2.299		92.1		1.04037	95.9
	70		65.9	517.6	2.313		92.7		1.04037	96.4
	80		65.5	514.4	2.327		93.3		1.04037	97.0
	90		65.2	512.1	2.338		93.7		1.04037	97.5
	96	1197.1	65.0	510.5	2.345	2.495	94.0	2.440	1.04037	97.8
2	0		83.8	658.2	1.826		73.2		1.03410	75.7
	8		72.8	571.8	2.102		84.2		1.03410	87.1
	10		71.9	564.7	2.128		85.3		1.03410	88.2
	20		69.3	544.3	2.208		88.5		1.03410	91.5
	30		67.8	532.5	2.257		90.4		1.03410	93.5
	40		66.8	524.6	2.291		91.8		1.03410	94.9
	50		66.0	518.4	2.318		92.9		1.03410	96.1
	60		65.4	513.7	2.340		93.8		1.03410	97.0
	70		65.0	510.5	2.354		94.3		1.03410	97.6
	80		64.6	507.4	2.369		94.9		1.03410	98.2
	90		64.3	505.0	2.380		95.4		1.03410	98.6
	96	1201.8	64.2	504.2	2.383	2.495	95.5	2.465	1.03410	98.8

Appendix C

Percent G_{mm} Summary

County: Coffee

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		137.3	2426.3	1.986		79.0		1.01851	80.4
	8		122.1	2157.7	2.234		88.8		1.01851	90.4
	10		120.9	2136.5	2.256		89.7		1.01851	91.3
	20		117.4	2074.6	2.323		92.3		1.01851	94.0
	30		115.6	2042.8	2.359		93.8		1.01851	95.5
	40		114.4	2021.6	2.384		94.8		1.01851	96.5
	50		113.5	2005.7	2.403		95.5		1.01851	97.3
	60		112.9	1995.1	2.416		96.0		1.01851	97.8
	70		112.4	1986.3	2.427		96.4		1.01851	98.2
	80		111.9	1977.4	2.437		96.9		1.01851	98.7
	90		111.5	1970.4	2.446		97.2		1.01851	99.0
	96		111.3	1966.8	2.451		97.4		1.01851	99.2
	100		111.2	1965.1	2.453		97.5		1.01851	99.3
	110		110.9	1959.8	2.459		97.7		1.01851	99.6
	120		110.7	1956.2	2.464		97.9		1.01851	99.7
	130		110.5	1952.7	2.468		98.1		1.01851	99.9
	140		110.4	1950.9	2.471		98.2		1.01851	100.0
	150		110.2	1947.4	2.475		98.4		1.01851	100.2
	152	4819.8	110.2	1947.4	2.475	2.516	98.4	2.521	1.01851	100.2
2	0		136.7	2415.7	1.997		79.4		1.01658	80.7
	8		121.3	2143.5	2.250		89.4		1.01658	90.9
	10		120.1	2122.3	2.273		90.3		1.01658	91.8
	20		116.6	2060.5	2.341		93.0		1.01658	94.6
	30		114.8	2028.7	2.378		94.5		1.01658	96.1
	40		113.6	2007.5	2.403		95.5		1.01658	97.1
	50		112.8	1993.3	2.420		96.2		1.01658	97.8
	60		112.1	1981.0	2.435		96.8		1.01658	98.4
	70		111.6	1972.1	2.446		97.2		1.01658	98.8
	80		111.2	1965.1	2.455		97.6		1.01658	99.2
	90		110.8	1958.0	2.463		97.9		1.01658	99.5
	96		110.7	1956.2	2.466		98.0		1.01658	99.6
	100		110.6	1954.5	2.468		98.1		1.01658	99.7
	110		110.4	1950.9	2.472		98.3		1.01658	99.9
	120		110.3	1949.2	2.475		98.3		1.01658	100.0
	130		110.2	1947.4	2.477		98.4		1.01658	100.1
	140		110.1	1945.6	2.479		98.5		1.01658	100.2
	150		110.1	1945.6	2.479		98.5		1.01658	100.2
	152	4823.3	110.1	1945.6	2.479	2.516	98.5	2.520	1.01658	100.2

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Coffee

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		76.2	598.5	1.947		77.4		1.02031	79.0
	8		67.4	529.4	2.202		87.5		1.02031	89.3
	10		66.7	523.9	2.225		88.4		1.02031	90.2
	20		64.7	508.2	2.294		91.2		1.02031	93.0
	30		63.6	499.5	2.333		92.7		1.02031	94.6
	40		62.9	494.0	2.359		93.8		1.02031	95.7
	50		62.4	490.1	2.378		94.5		1.02031	96.4
	60		61.9	486.2	2.397		95.3		1.02031	97.2
	70		61.6	483.8	2.409		95.7		1.02031	97.7
	80		61.3	481.4	2.421		96.2		1.02031	98.2
	90		61.1	479.9	2.429		96.5		1.02031	98.5
	96		61.0	479.1	2.433		96.7		1.02031	98.6
	100		60.9	478.3	2.437		96.8		1.02031	98.8
	110		60.7	476.7	2.445		97.2		1.02031	99.1
	120		60.6	476.0	2.449		97.3		1.02031	99.3
	130		60.4	474.4	2.457		97.6		1.02031	99.6
	140		60.3	473.6	2.461		97.8		1.02031	99.8
	150		60.2	472.8	2.465		98.0		1.02031	100.0
	152	1165.5	60.2	472.8	2.465	2.516	98.0	2.515	1.02031	100.0
2	0		77.3	607.1	1.912		76.0		1.03234	78.4
	8		68.2	535.6	2.167		86.1		1.03234	88.9
	10		67.5	530.1	2.189		87.0		1.03234	89.8
	20		65.5	514.4	2.256		89.7		1.03234	92.6
	30		64.3	505.0	2.298		91.3		1.03234	94.3
	40		63.6	499.5	2.323		92.3		1.03234	95.3
	50		63.0	494.8	2.345		93.2		1.03234	96.2
	60		62.6	491.7	2.360		93.8		1.03234	96.8
	70		62.3	489.3	2.372		94.3		1.03234	97.3
	80		62.0	486.9	2.383		94.7		1.03234	97.8
	90		61.7	484.6	2.395		95.2		1.03234	98.3
	96		61.6	483.8	2.399		95.3		1.03234	98.4
	100		61.5	483.0	2.403		95.5		1.03234	98.6
	110		61.3	481.4	2.410		95.8		1.03234	98.9
	120		61.1	479.9	2.418		96.1		1.03234	99.2
	130		61.0	479.1	2.422		96.3		1.03234	99.4
	140		60.8	477.5	2.430		96.6		1.03234	99.7
	150		60.7	476.7	2.434		96.7		1.03234	99.9
	152	1160.5	60.7	476.7	2.434	2.516	96.7	2.513	1.03234	99.9

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: Benton
Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		135.7	2398.0	2.010		80.8		1.01761	82.2
	8		121.3	2143.5	2.248		90.4		1.01761	92.0
	10		120.3	2125.9	2.267		91.2		1.01761	92.8
	20		117.3	2072.9	2.325		93.5		1.01761	95.1
	30		115.8	2046.4	2.355		94.7		1.01761	96.4
	40		114.9	2030.5	2.373		95.5		1.01761	97.1
	50		114.2	2018.1	2.388		96.0		1.01761	97.7
	60		113.7	2009.2	2.399		96.5		1.01761	98.2
	70		113.3	2002.2	2.407		96.8		1.01761	98.5
	80		113.0	1996.9	2.413		97.1		1.01761	98.8
	90		112.7	1991.6	2.420		97.3		1.01761	99.0
	96		112.6	1989.8	2.422		97.4		1.01761	99.1
	100		112.5	1988.0	2.424		97.5		1.01761	99.2
	110		112.3	1984.5	2.428		97.7		1.01761	99.4
	120		112.1	1981.0	2.433		97.8		1.01761	99.6
	130		111.9	1977.4	2.437		98.0		1.01761	99.7
	140		111.8	1975.7	2.439		98.1		1.01761	99.8
	150		111.6	1972.1	2.444		98.3		1.01761	100.0
	152	4819.2	111.6	1972.1	2.444	2.486	98.3	2.487	1.01761	100.0
2	0		134.2	2371.5	2.029		81.6		1.01762	83.1
	8		120.3	2125.9	2.264		91.0		1.01762	92.6
	10		119.3	2108.2	2.283		91.8		1.01762	93.4
	20		116.5	2058.7	2.338		94.0		1.01762	95.7
	30		115.2	2035.8	2.364		95.1		1.01762	96.7
	40		114.4	2021.6	2.381		95.7		1.01762	97.4
	50		113.8	2011.0	2.393		96.2		1.01762	97.9
	60		113.4	2003.9	2.402		96.6		1.01762	98.3
	70		113.1	1998.6	2.408		96.8		1.01762	98.5
	80		112.9	1995.1	2.412		97.0		1.01762	98.7
	90		112.7	1991.6	2.416		97.2		1.01762	98.9
	96		112.6	1989.8	2.419		97.3		1.01762	99.0
	100		112.5	1988.0	2.421		97.4		1.01762	99.1
	110		112.3	1984.5	2.425		97.5		1.01762	99.2
	120		112.2	1982.7	2.427		97.6		1.01762	99.3
	130		112.1	1981.0	2.429		97.7		1.01762	99.4
	140		112.0	1979.2	2.432		97.8		1.01762	99.5
	150		111.9	1977.4	2.434		97.9		1.01762	99.6
	152	4812.5	111.9	1977.4	2.434	2.486	97.9	2.477	1.01762	99.6

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Benton

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		74.7	586.7	2.016		81.1		1.01607	82.4
	8		66.5	522.3	2.265		91.1		1.01607	92.6
	10		65.9	517.6	2.286		91.9		1.01607	93.4
	20		64.3	505.0	2.343		94.2		1.01607	95.7
	30		63.5	498.7	2.372		95.4		1.01607	96.9
	40		63.0	494.8	2.391		96.2		1.01607	97.7
	50		62.6	491.7	2.406		96.8		1.01607	98.3
	60		62.4	490.1	2.414		97.1		1.01607	98.6
	70		62.2	488.5	2.422		97.4		1.01607	99.0
	80		62.1	487.7	2.426		97.5		1.01607	99.1
	90		62.0	486.9	2.429		97.7		1.01607	99.3
	96		62.0	486.9	2.429		97.7		1.01607	99.3
	100		62.0	486.9	2.429		97.7		1.01607	99.3
	110		61.9	486.2	2.433		97.9		1.01607	99.4
	120		61.9	486.2	2.433		97.9		1.01607	99.4
	130		61.9	486.2	2.433		97.9		1.01607	99.4
	140		61.8	485.4	2.437		98.0		1.01607	99.6
	150		61.8	485.4	2.437		98.0		1.01607	99.6
	152	1183.0	61.8	485.4	2.437	2.486	98.0	2.476	1.01607	99.6
2	0		74.1	582.0	2.027		81.5		1.01774	82.9
	8		66.3	520.7	2.265		91.1		1.01774	92.7
	10		65.8	516.8	2.282		91.8		1.01774	93.4
	20		64.2	504.2	2.339		94.1		1.01774	95.7
	30		63.4	497.9	2.369		95.3		1.01774	96.9
	40		62.9	494.0	2.387		96.0		1.01774	97.7
	50		62.5	490.9	2.403		96.6		1.01774	98.3
	60		62.2	488.5	2.414		97.1		1.01774	98.8
	70		62.0	486.9	2.422		97.4		1.01774	99.1
	80		61.9	486.2	2.426		97.6		1.01774	99.3
	90		61.7	484.6	2.434		97.9		1.01774	99.6
	96		61.7	484.6	2.434		97.9		1.01774	99.6
	100		61.7	484.6	2.434		97.9		1.01774	99.6
	110		61.6	483.8	2.438		98.0		1.01774	99.8
	120		61.6	483.8	2.438		98.0		1.01774	99.8
	130		61.5	483.0	2.442		98.2		1.01774	99.9
	140		61.5	483.0	2.442		98.2		1.01774	99.9
	150		61.5	483.0	2.442		98.2		1.01774	99.9
	152	1179.4	61.5	483.0	2.442	2.486	98.2	2.485	1.01774	99.9

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Benton

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		134.7	2380.3	1.850		79.5		1.01622	80.8
	8		122.1	2157.7	2.041		87.7		1.01622	89.1
	10		121.2	2141.8	2.056		88.3		1.01622	89.8
	20		118.6	2095.8	2.101		90.3		1.01622	91.7
	30		117.2	2071.1	2.127		91.4		1.01622	92.8
	40		116.3	2055.2	2.143		92.1		1.01622	93.6
	50		115.7	2044.6	2.154		92.5		1.01622	94.0
	60		115.2	2035.8	2.163		92.9		1.01622	94.5
	70		114.8	2028.7	2.171		93.3		1.01622	94.8
	80		114.4	2021.6	2.179		93.6		1.01622	95.1
	90		114.2	2018.1	2.182		93.8		1.01622	95.3
	96		114.0	2014.5	2.186		93.9		1.01622	95.4
	100		113.9	2012.8	2.188		94.0		1.01622	95.5
	110		113.7	2009.2	2.192		94.2		1.01622	95.7
	120		113.5	2005.7	2.196		94.3		1.01622	95.9
	130		113.4	2003.9	2.198		94.4		1.01622	95.9
	140		113.2	2000.4	2.202		94.6		1.01622	96.1
	150		113.1	1998.6	2.204		94.7		1.01622	96.2
	152	4404.2	113.0	1996.9	2.206	2.328	94.8	2.241	1.01622	96.3
2	0		136.2	2406.9	1.828		78.5		1.01773	79.9
	8		122.7	2168.3	2.029		87.2		1.01773	88.7
	10		121.8	2152.4	2.044		87.8		1.01773	89.4
	20		119.0	2102.9	2.092		89.9		1.01773	91.5
	30		117.6	2078.2	2.117		90.9		1.01773	92.6
	40		116.7	2062.3	2.133		91.7		1.01773	93.3
	50		116.0	2049.9	2.146		92.2		1.01773	93.8
	60		115.5	2041.1	2.156		92.6		1.01773	94.2
	70		115.1	2034.0	2.163		92.9		1.01773	94.6
	80		114.7	2026.9	2.171		93.2		1.01773	94.9
	90		114.5	2023.4	2.174		93.4		1.01773	95.1
	96		114.3	2019.8	2.178		93.6		1.01773	95.2
	100		114.2	2018.1	2.180		93.7		1.01773	95.3
	110		114.0	2014.5	2.184		93.8		1.01773	95.5
	120		113.8	2011.0	2.188		94.0		1.01773	95.7
	130		113.6	2007.5	2.192		94.2		1.01773	95.8
	140		113.5	2005.7	2.193		94.2		1.01773	95.9
	150		113.3	2002.2	2.197		94.4		1.01773	96.1
	152	4399.5	113.3	2002.2	2.197	2.328	94.4	2.236	1.01773	96.1

Appendix C

Percent G_{mm} Summary

County: Benton

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		135.9	2401.6	0.453		19.5		4.17026	81.1
	8		123.4	2180.7	0.499		21.4		4.17026	89.3
	10		122.5	2164.8	0.502		21.6		4.17026	90.0
	20		119.9	2118.8	0.513		22.0		4.17026	91.9
	30		118.5	2094.1	0.519		22.3		4.17026	93.0
	40		117.6	2078.2	0.523		22.5		4.17026	93.7
	50		117.0	2067.6	0.526		22.6		4.17026	94.2
	60		116.5	2058.7	0.528		22.7		4.17026	94.6
	70		116.1	2051.7	0.530		22.8		4.17026	94.9
	80		115.8	2046.4	0.531		22.8		4.17026	95.2
	90		115.5	2041.1	0.533		22.9		4.17026	95.4
	96		115.3	2037.5	0.534		22.9		4.17026	95.6
	100		115.2	2035.8	0.534		22.9		4.17026	95.7
	110		115.0	2032.2	0.535		23.0		4.17026	95.9
	113	1087.3	115.0	2032.2	0.535	2.328	23.0	2.231	4.17026	95.9
2	0		135.3	2390.9	0.469		20.1		4.04096	81.4
	8		123.1	2175.4	0.515		22.1		4.04096	89.4
	10		122.2	2159.5	0.519		22.3		4.04096	90.1
	20		119.7	2115.3	0.530		22.8		4.04096	92.0
	30		118.3	2090.5	0.536		23.0		4.04096	93.0
	40		117.5	2076.4	0.540		23.2		4.04096	93.7
	50		116.8	2064.0	0.543		23.3		4.04096	94.2
	60		116.3	2055.2	0.545		23.4		4.04096	94.6
	70		115.9	2048.1	0.547		23.5		4.04096	95.0
	80		115.6	2042.8	0.549		23.6		4.04096	95.2
	90		115.3	2037.5	0.550		23.6		4.04096	95.5
	96		115.2	2035.8	0.550		23.6		4.04096	95.6
	100		115.1	2034.0	0.551		23.7		4.04096	95.6
	106	1120.5	115.0	2032.2	0.551	2.328	23.7	2.228	4.04096	95.7

Appendix C

Percent G_{mm} Summary

County: Benton

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		79.7	626.0	1.825		78.4		1.02114	80.1
	8		71.6	562.3	2.031		87.3		1.02114	89.1
	10		71.1	558.4	2.046		87.9		1.02114	89.7
	20		69.5	545.9	2.093		89.9		1.02114	91.8
	30		68.6	538.8	2.120		91.1		1.02114	93.0
	40		68.1	534.9	2.136		91.8		1.02114	93.7
	50		67.7	531.7	2.149		92.3		1.02114	94.3
	60		67.4	529.4	2.158		92.7		1.02114	94.7
	70		67.2	527.8	2.165		93.0		1.02114	95.0
	80		67.0	526.2	2.171		93.3		1.02114	95.2
	90		66.8	524.6	2.177		93.5		1.02114	95.5
	96		66.7	523.9	2.181		93.7		1.02114	95.7
	100		66.7	523.9	2.181		93.7		1.02114	95.7
	110		66.5	522.3	2.187		94.0		1.02114	96.0
	120		66.4	521.5	2.191		94.1		1.02114	96.1
	130		66.3	520.7	2.194		94.3		1.02114	96.2
	140		66.2	519.9	2.197		94.4		1.02114	96.4
	150		66.2	519.9	2.197		94.4		1.02114	96.4
	152	1142.4	66.1	519.1	2.201	2.328	94.5	2.247	1.02114	96.5
2	0		80.9	635.4	1.815		78.0		1.02510	79.9
	8		72.7	571.0	2.019		86.8		1.02510	88.9
	10		72.1	566.3	2.036		87.5		1.02510	89.7
	20		70.5	553.7	2.082		89.5		1.02510	91.7
	30		69.7	547.4	2.106		90.5		1.02510	92.8
	40		69.1	542.7	2.125		91.3		1.02510	93.6
	50		68.7	539.6	2.137		91.8		1.02510	94.1
	60		68.4	537.2	2.146		92.2		1.02510	94.5
	70		68.2	535.6	2.153		92.5		1.02510	94.8
	80		68.0	534.1	2.159		92.7		1.02510	95.1
	90		67.8	532.5	2.165		93.0		1.02510	95.4
	96		67.7	531.7	2.168		93.2		1.02510	95.5
	100		67.7	531.7	2.168		93.2		1.02510	95.5
	110		67.5	530.1	2.175		93.4		1.02510	95.8
	120		67.4	529.4	2.178		93.6		1.02510	95.9
	130		67.3	528.6	2.181		93.7		1.02510	96.1
	140		67.2	527.8	2.185		93.9		1.02510	96.2
	150		67.2	527.8	2.185		93.9		1.02510	96.2
	152	1153.0	67.1	527.0	2.188	2.328	94.0	2.243	1.02510	96.4

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		145.7	2574.7	1.835		75.5		1.03093	77.8
	8		130.4	2304.4	2.051		84.3		1.03093	87.0
	10		129.2	2283.2	2.070		85.1		1.03093	87.8
	20		125.5	2217.8	2.131		87.6		1.03093	90.3
	30		123.5	2182.4	2.165		89.1		1.03093	91.8
	40		122.2	2159.5	2.188		90.0		1.03093	92.8
	50		121.2	2141.8	2.206		90.7		1.03093	93.6
	60		120.4	2127.6	2.221		91.4		1.03093	94.2
	70		119.8	2117.0	2.232		91.8		1.03093	94.6
	80		119.2	2106.4	2.243		92.3		1.03093	95.1
	90		118.7	2097.6	2.253		92.7		1.03093	95.5
	96		118.5	2094.1	2.257		92.8		1.03093	95.7
	100		118.3	2090.5	2.260		93.0		1.03093	95.8
	110		118.0	2085.2	2.266		93.2		1.03093	96.1
	120		117.6	2078.2	2.274		93.5		1.03093	96.4
	130		117.3	2072.9	2.280		93.8		1.03093	96.7
	140		117.1	2069.3	2.283		93.9		1.03093	96.8
	150		116.8	2064.0	2.289		94.2		1.03093	97.1
	152	4725.3	116.8	2064.0	2.289	2.431	94.2	2.360	1.03093	97.1
2	0		147.9	2613.6	1.810		74.4		1.02987	76.7
	8		131.3	2320.3	2.039		83.9		1.02987	86.4
	10		130.0	2297.3	2.059		84.7		1.02987	87.2
	20		126.2	2230.1	2.121		87.2		1.02987	89.9
	30		124.1	2193.0	2.157		88.7		1.02987	91.4
	40		122.7	2168.3	2.182		89.7		1.02987	92.4
	50		121.6	2148.8	2.201		90.5		1.02987	93.3
	60		120.8	2134.7	2.216		91.1		1.02987	93.9
	70		120.1	2122.3	2.229		91.7		1.02987	94.4
	80		119.6	2113.5	2.238		92.1		1.02987	94.8
	90		119.1	2104.7	2.248		92.5		1.02987	95.2
	96		118.8	2099.4	2.253		92.7		1.02987	95.5
	100		118.7	2097.6	2.255		92.8		1.02987	95.5
	110		118.3	2090.5	2.263		93.1		1.02987	95.9
	120		118.0	2085.2	2.269		93.3		1.02987	96.1
	130		117.7	2079.9	2.274		93.5		1.02987	96.3
	140		117.4	2074.6	2.280		93.8		1.02987	96.6
	150		117.1	2069.3	2.286		94.0		1.02987	96.8
	152	4730.5	117.1	2069.3	2.286	2.431	94.0	2.354	1.02987	96.8

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		142.7	2521.7	0.448		18.4		4.21593	77.7
	8		126.7	2239.0	0.504		20.7		4.21593	87.5
	10		125.4	2216.0	0.510		21.0		4.21593	88.4
	20		121.6	2148.8	0.526		21.6		4.21593	91.1
	30		119.6	2113.5	0.534		22.0		4.21593	92.7
	40		118.2	2088.8	0.541		22.2		4.21593	93.8
	50		117.1	2069.3	0.546		22.4		4.21593	94.6
	60		116.3	2055.2	0.550		22.6		4.21593	95.3
	70		115.7	2044.6	0.552		22.7		4.21593	95.8
	80		115.1	2034.0	0.555		22.8		4.21593	96.3
	84	1129.4	114.9	2030.5	0.556	2.431	22.9	2.345	4.21593	96.5
2	0		141.5	2500.5	0.450		18.5		4.22847	78.3
	8		125.8	2223.1	0.506		20.8		4.22847	88.1
	10		124.6	2201.9	0.511		21.0		4.22847	88.9
	20		120.9	2136.5	0.527		21.7		4.22847	91.6
	30		118.9	2101.1	0.536		22.0		4.22847	93.2
	40		117.6	2078.2	0.542		22.3		4.22847	94.2
	50		116.6	2060.5	0.546		22.5		4.22847	95.0
	60		115.8	2046.4	0.550		22.6		4.22847	95.7
	70		115.2	2035.8	0.553		22.7		4.22847	96.2
	75	1125.6	115.0	2032.2	0.554	2.431	22.8	2.342	4.22847	96.3

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.2	629.9	1.793		73.8		1.04315	76.9
	8		70.9	556.8	2.028		83.4		1.04315	87.0
	10		70.2	551.3	2.048		84.3		1.04315	87.9
	20		68.1	534.9	2.112		86.9		1.04315	90.6
	30		67.0	526.2	2.146		88.3		1.04315	92.1
	40		66.2	519.9	2.172		89.3		1.04315	93.2
	50		65.6	515.2	2.192		90.2		1.04315	94.1
	60		65.1	511.3	2.209		90.9		1.04315	94.8
	70		64.7	508.2	2.223		91.4		1.04315	95.4
	80		64.4	505.8	2.233		91.8		1.04315	95.8
	90		64.2	504.2	2.240		92.1		1.04315	96.1
	96		64.1	503.4	2.243		92.3		1.04315	96.3
	100		64.0	502.7	2.247		92.4		1.04315	96.4
	110		63.8	501.1	2.254		92.7		1.04315	96.7
2	120		63.6	499.5	2.261		93.0		1.04315	97.0
	127	1129.4	63.5	498.7	2.265	2.431	93.1	2.362	1.04315	97.2
	0		79.2	622.0	1.810		74.4		1.03837	77.3
	8		70.0	549.8	2.047		84.2		1.03837	87.4
	10		69.3	544.3	2.068		85.1		1.03837	88.3
	20		67.2	527.8	2.133		87.7		1.03837	91.1
	30		66.0	518.4	2.171		89.3		1.03837	92.7
	40		65.3	512.9	2.195		90.3		1.03837	93.7
	50		64.7	508.2	2.215		91.1		1.03837	94.6
	60		64.3	505.0	2.229		91.7		1.03837	95.2
	70		63.9	501.9	2.243		92.3		1.03837	95.8
	80		63.7	500.3	2.250		92.5		1.03837	96.1
	88	1125.6	63.5	498.7	2.257	2.431	92.8	2.344	1.03837	96.4

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		82.1	644.8	1.795		73.8		1.04281	77.0
	8		72.8	571.8	2.025		83.3		1.04281	86.8
	10		72.0	565.5	2.047		84.2		1.04281	87.8
	20		69.9	549.0	2.109		86.7		1.04281	90.4
	30		68.7	539.6	2.145		88.2		1.04281	92.0
	40		68.0	534.1	2.168		89.2		1.04281	93.0
	50		67.4	529.4	2.187		89.9		1.04281	93.8
	60		66.9	525.4	2.203		90.6		1.04281	94.5
	70		66.6	523.1	2.213		91.0		1.04281	94.9
	80		66.3	520.7	2.223		91.4		1.04281	95.4
	90		66.0	518.4	2.233		91.9		1.04281	95.8
	96		65.8	516.8	2.240		92.1		1.04281	96.1
	100		65.8	516.8	2.240		92.1		1.04281	96.1
	110		65.6	515.2	2.247		92.4		1.04281	96.4
	120		65.4	513.7	2.254		92.7		1.04281	96.7
	130		65.2	512.1	2.261		93.0		1.04281	97.0
	140		65.1	511.3	2.264		93.1		1.04281	97.1
	150		65.0	510.5	2.268		93.3		1.04281	97.3
	152	1157.6	64.9	509.7	2.271	2.431	93.4	2.368	1.04281	97.4
2	0		82.4	647.2	1.789		73.6		1.03879	76.4
	8		72.9	572.6	2.022		83.2		1.03879	86.4
	10		72.2	567.1	2.042		84.0		1.03879	87.2
	20		70.1	550.6	2.103		86.5		1.03879	89.8
	30		68.9	541.1	2.139		88.0		1.03879	91.4
	40		68.2	535.6	2.161		88.9		1.03879	92.3
	50		67.6	530.9	2.181		89.7		1.03879	93.2
	60		67.2	527.8	2.193		90.2		1.03879	93.7
	70		66.8	524.6	2.207		90.8		1.03879	94.3
	80		66.5	522.3	2.217		91.2		1.03879	94.7
	90		66.2	519.9	2.227		91.6		1.03879	95.1
	96		66.0	518.4	2.233		91.9		1.03879	95.4
	100		66.0	518.4	2.233		91.9		1.03879	95.4
	110		65.7	516.0	2.244		92.3		1.03879	95.9
	120		65.6	515.2	2.247		92.4		1.03879	96.0
	130		65.4	513.7	2.254		92.7		1.03879	96.3
	140		65.2	512.1	2.261		93.0		1.03879	96.6
	150		65.1	511.3	2.264		93.1		1.03879	96.7
	152	1157.7	65.1	511.3	2.264	2.431	93.1	2.352	1.03879	96.7

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		138.8	2452.8	1.926		79.3		1.01879	80.8
	8		125.4	2216.0	2.132		87.7		1.01879	89.4
	10		124.4	2198.3	2.149		88.4		1.01879	90.1
	20		121.4	2145.3	2.202		90.6		1.01879	92.3
	30		119.9	2118.8	2.230		91.8		1.01879	93.5
	40		118.9	2101.1	2.248		92.5		1.01879	94.3
	50		118.1	2087.0	2.264		93.2		1.01879	94.9
	60		117.5	2076.4	2.275		93.6		1.01879	95.4
	70		117.0	2067.6	2.285		94.0		1.01879	95.8
	80		116.7	2062.3	2.291		94.3		1.01879	96.0
	90		116.3	2055.2	2.299		94.6		1.01879	96.4
	96		116.1	2051.7	2.303		94.8		1.01879	96.5
	100		116.0	2049.9	2.305		94.8		1.01879	96.6
	110		115.8	2046.4	2.309		95.0		1.01879	96.8
	120		115.5	2041.1	2.315		95.3		1.01879	97.0
	130		115.3	2037.5	2.319		95.4		1.01879	97.2
	140		115.1	2034.0	2.323		95.6		1.01879	97.4
	150		115.0	2032.2	2.325		95.7		1.01879	97.5
	152	4724.2	114.9	2030.5	2.327	2.430	95.7	2.370	1.01879	97.5
2	0		139.3	2461.6	1.910		78.6		1.02094	80.3
	8		125.9	2224.8	2.113		87.0		1.02094	88.8
	10		124.9	2207.2	2.130		87.7		1.02094	89.5
	20		121.8	2152.4	2.185		89.9		1.02094	91.8
	30		120.1	2122.3	2.215		91.2		1.02094	93.1
	40		119.1	2104.7	2.234		91.9		1.02094	93.9
	50		118.3	2090.5	2.249		92.6		1.02094	94.5
	60		117.6	2078.2	2.263		93.1		1.02094	95.1
	70		117.1	2069.3	2.272		93.5		1.02094	95.5
	80		116.7	2062.3	2.280		93.8		1.02094	95.8
	90		116.4	2057.0	2.286		94.1		1.02094	96.0
	96		116.2	2053.4	2.290		94.2		1.02094	96.2
	100		116.0	2049.9	2.294		94.4		1.02094	96.4
	110		115.8	2046.4	2.298		94.6		1.02094	96.5
	120		115.5	2041.1	2.304		94.8		1.02094	96.8
	130		115.3	2037.5	2.308		95.0		1.02094	97.0
	140		115.1	2034.0	2.312		95.1		1.02094	97.1
	150		114.9	2030.5	2.316		95.3		1.02094	97.3
	152	4702.0	114.9	2030.5	2.316	2.430	95.3	2.364	1.02094	97.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Dickson

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		76.1	597.7	1.907		78.5		1.02571	80.5
	8		68.5	538.0	2.118		87.2		1.02571	89.4
	10		68.0	534.1	2.134		87.8		1.02571	90.1
	20		66.4	521.5	2.185		89.9		1.02571	92.2
	30		65.5	514.4	2.215		91.2		1.02571	93.5
	40		65.0	510.5	2.232		91.9		1.02571	94.2
	50		64.5	506.6	2.250		92.6		1.02571	95.0
	60		64.2	504.2	2.260		93.0		1.02571	95.4
	70		63.9	501.9	2.271		93.4		1.02571	95.8
	80		63.7	500.3	2.278		93.7		1.02571	96.2
	90		63.5	498.7	2.285		94.0		1.02571	96.5
	96		63.4	497.9	2.289		94.2		1.02571	96.6
	100		63.3	497.2	2.292		94.3		1.02571	96.8
	110		63.2	496.4	2.296		94.5		1.02571	96.9
	120		63.1	495.6	2.299		94.6		1.02571	97.1
	130		63.0	494.8	2.303		94.8		1.02571	97.2
	140		62.8	493.2	2.310		95.1		1.02571	97.5
	150		62.7	492.4	2.314		95.2		1.02571	97.7
	152	1139.6	62.7	492.4	2.314	2.430	95.2	2.374	1.02571	97.7
2	0		76.4	600.0	1.900		78.2		1.02663	80.3
	8		68.8	540.4	2.110		86.8		1.02663	89.1
	10		68.2	535.6	2.129		87.6		1.02663	89.9
	20		66.6	523.1	2.180		89.7		1.02663	92.1
	30		65.7	516.0	2.210		90.9		1.02663	93.4
	40		65.1	511.3	2.230		91.8		1.02663	94.2
	50		64.7	508.2	2.244		92.3		1.02663	94.8
	60		64.4	505.8	2.254		92.8		1.02663	95.2
	70		64.1	503.4	2.265		93.2		1.02663	95.7
	80		63.9	501.9	2.272		93.5		1.02663	96.0
	90		63.7	500.3	2.279		93.8		1.02663	96.3
	96		63.6	499.5	2.283		93.9		1.02663	96.4
	100		63.5	498.7	2.286		94.1		1.02663	96.6
	110		63.4	497.9	2.290		94.2		1.02663	96.7
	120		63.2	496.4	2.297		94.5		1.02663	97.0
	130		63.1	495.6	2.301		94.7		1.02663	97.2
	140		63.0	494.8	2.304		94.8		1.02663	97.4
	150		62.9	494.0	2.308		95.0		1.02663	97.5
	152	1140.2	62.9	494.0	2.308	2.430	95.0	2.369	1.02663	97.5

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Giles
Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		139.3	2461.6	1.940		78.6		1.01725	79.9
	8		123.8	2187.7	2.182		88.4		1.01725	90.0
	10		122.5	2164.8	2.206		89.4		1.01725	90.9
	20		118.6	2095.8	2.278		92.3		1.01725	93.9
	30		116.5	2058.7	2.319		94.0		1.01725	95.6
	40		115.1	2034.0	2.347		95.1		1.01725	96.8
	50		114.1	2016.3	2.368		95.9		1.01725	97.6
	60		113.4	2003.9	2.383		96.5		1.01725	98.2
	70		112.8	1993.3	2.395		97.1		1.01725	98.7
	80		112.4	1986.3	2.404		97.4		1.01725	99.1
	90		112.0	1979.2	2.412		97.7		1.01725	99.4
	96		111.8	1975.7	2.417		97.9		1.01725	99.6
	100		111.7	1973.9	2.419		98.0		1.01725	99.7
	110		111.5	1970.4	2.423		98.2		1.01725	99.9
	120		111.3	1966.8	2.428		98.4		1.01725	100.1
	130		111.1	1963.3	2.432		98.5		1.01725	100.2
	140		110.9	1959.8	2.436		98.7		1.01725	100.4
2	150		110.8	1958.0	2.439		98.8		1.01725	100.5
	152	4774.7	110.8	1958.0	2.439	2.468	98.8	2.481	1.01725	100.5
	0		138.1	2440.4	1.950		79.0		1.01692	80.4
	8		122.6	2166.5	2.197		89.0		1.01692	90.5
	10		121.3	2143.5	2.220		90.0		1.01692	91.5
	20		117.4	2074.6	2.294		93.0		1.01692	94.5
	30		115.3	2037.5	2.336		94.6		1.01692	96.2
	40		114.0	2014.5	2.363		95.7		1.01692	97.3
	50		113.1	1998.6	2.381		96.5		1.01692	98.1
	60		112.5	1988.0	2.394		97.0		1.01692	98.6
	70		112.1	1981.0	2.403		97.3		1.01692	99.0
	80		111.7	1973.9	2.411		97.7		1.01692	99.3
	90		111.4	1968.6	2.418		98.0		1.01692	99.6
	96		111.2	1965.1	2.422		98.1		1.01692	99.8
	100		111.1	1963.3	2.424		98.2		1.01692	99.9
	110		110.9	1959.8	2.429		98.4		1.01692	100.1
	120		110.7	1956.2	2.433		98.6		1.01692	100.2
	130		110.6	1954.5	2.435		98.7		1.01692	100.3
	140		110.5	1952.7	2.437		98.8		1.01692	100.4
	150		110.5	1952.7	2.437		98.8		1.01692	100.4
	152	4759.6	110.5	1952.7	2.437	2.468	98.8	2.479	1.01692	100.4

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Giles

Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		78.1	613.4	1.913		77.5		1.02125	79.2
	8		69.3	544.3	2.156		87.4		1.02125	89.2
	10		68.6	538.8	2.178		88.3		1.02125	90.1
	20		66.5	522.3	2.247		91.0		1.02125	93.0
	30		65.3	512.9	2.289		92.7		1.02125	94.7
	40		64.5	506.6	2.317		93.9		1.02125	95.9
	50		63.8	501.1	2.342		94.9		1.02125	96.9
	60		63.4	497.9	2.357		95.5		1.02125	97.5
	70		63.0	494.8	2.372		96.1		1.02125	98.2
	80		62.7	492.4	2.383		96.6		1.02125	98.6
	90		62.4	490.1	2.395		97.0		1.02125	99.1
	96		62.3	489.3	2.399		97.2		1.02125	99.3
	100		62.2	488.5	2.403		97.3		1.02125	99.4
	110		62.0	486.9	2.410		97.7		1.02125	99.7
	120		61.8	485.4	2.418		98.0		1.02125	100.1
	130		61.7	484.6	2.422		98.1		1.02125	100.2
	140		61.6	483.8	2.426		98.3		1.02125	100.4
	150		61.5	483.0	2.430		98.5		1.02125	100.5
	152	1173.7	61.4	482.2	2.434	2.468	98.6	2.486	1.02125	100.7
2	0		77.5	608.7	1.905		77.2		1.01976	78.7
	8		68.3	536.4	2.161		87.6		1.01976	89.3
	10		67.5	530.1	2.187		88.6		1.01976	90.4
	20		65.3	512.9	2.260		91.6		1.01976	93.4
	30		64.1	503.4	2.303		93.3		1.01976	95.1
	40		63.3	497.2	2.332		94.5		1.01976	96.3
	50		62.7	492.4	2.354		95.4		1.01976	97.3
	60		62.2	488.5	2.373		96.1		1.01976	98.0
	70		61.9	486.2	2.385		96.6		1.01976	98.5
	80		61.6	483.8	2.396		97.1		1.01976	99.0
	90		61.4	482.2	2.404		97.4		1.01976	99.3
	96		61.3	481.4	2.408		97.6		1.01976	99.5
	100		61.2	480.7	2.412		97.7		1.01976	99.7
	110		61.1	479.9	2.416		97.9		1.01976	99.8
	120		60.9	478.3	2.424		98.2		1.01976	100.1
	130		60.8	477.5	2.428		98.4		1.01976	100.3
	140		60.8	477.5	2.428		98.4		1.01976	100.3
	150		60.7	476.7	2.432		98.5		1.01976	100.5
	152	1159.3	60.7	476.7	2.432	2.468	98.5	2.480	1.01976	100.5

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Shelby

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		146.6	2590.6	1.775		75.2		1.02464	77.1
	8		129.4	2286.7	2.011		85.2		1.02464	87.3
	10		128.1	2263.7	2.031		86.1		1.02464	88.2
	20		124.2	2194.8	2.095		88.8		1.02464	91.0
	30		122.1	2157.7	2.131		90.3		1.02464	92.5
	40		120.7	2132.9	2.156		91.3		1.02464	93.6
	50		119.7	2115.3	2.174		92.1		1.02464	94.4
	60		118.9	2101.1	2.188		92.7		1.02464	95.0
	70		118.3	2090.5	2.199		93.2		1.02464	95.5
	80		117.8	2081.7	2.209		93.6		1.02464	95.9
	90		117.3	2072.9	2.218		94.0		1.02464	96.3
	96		117.1	2069.3	2.222		94.2		1.02464	96.5
	100		116.9	2065.8	2.226		94.3		1.02464	96.6
	110		116.6	2060.5	2.231		94.6		1.02464	96.9
	120		116.3	2055.2	2.237		94.8		1.02464	97.1
	130		116.0	2049.9	2.243		95.0		1.02464	97.4
	140		115.8	2046.4	2.247		95.2		1.02464	97.6
	150		115.6	2042.8	2.251		95.4		1.02464	97.7
	152	4597.9	115.6	2042.8	2.251	2.360	95.4	2.306	1.02464	97.7
2	0		146.8	2594.2	1.771		75.0		1.02619	77.0
	8		129.9	2295.5	2.001		84.8		1.02619	87.0
	10		128.6	2272.5	2.021		85.7		1.02619	87.9
	20		124.8	2205.4	2.083		88.3		1.02619	90.6
	30		122.7	2168.3	2.119		89.8		1.02619	92.1
	40		121.3	2143.5	2.143		90.8		1.02619	93.2
	50		120.3	2125.9	2.161		91.6		1.02619	94.0
	60		119.5	2111.7	2.175		92.2		1.02619	94.6
	70		118.8	2099.4	2.188		92.7		1.02619	95.2
	80		118.3	2090.5	2.197		93.1		1.02619	95.6
	90		117.9	2083.5	2.205		93.4		1.02619	95.9
	96		117.6	2078.2	2.211		93.7		1.02619	96.1
	100		117.5	2076.4	2.212		93.8		1.02619	96.2
	110		117.2	2071.1	2.218		94.0		1.02619	96.5
	120		116.8	2064.0	2.226		94.3		1.02619	96.8
	130		116.6	2060.5	2.230		94.5		1.02619	96.9
	140		116.3	2055.2	2.235		94.7		1.02619	97.2
	150		116.1	2051.7	2.239		94.9		1.02619	97.4
	152	4593.9	116.1	2051.7	2.239	2.360	94.9	2.298	1.02619	97.4

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Shelby

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.6	640.9	1.757		74.4		1.02958	76.6
	8		71.9	564.7	1.994		84.5		1.02958	87.0
	10		71.1	558.4	2.016		85.4		1.02958	88.0
	20		69.0	541.9	2.078		88.0		1.02958	90.6
	30		67.8	532.5	2.114		89.6		1.02958	92.2
	40		67.0	526.2	2.140		90.7		1.02958	93.3
	50		66.5	522.3	2.156		91.3		1.02958	94.0
	60		66.1	519.1	2.169		91.9		1.02958	94.6
	70		65.7	516.0	2.182		92.5		1.02958	95.2
	80		65.4	513.7	2.192		92.9		1.02958	95.6
	90		65.2	512.1	2.199		93.2		1.02958	95.9
	96		65.1	511.3	2.202		93.3		1.02958	96.1
	100		65.0	510.5	2.205		93.5		1.02958	96.2
	110		64.8	508.9	2.212		93.7		1.02958	96.5
	120		64.7	508.2	2.216		93.9		1.02958	96.7
	130		64.5	506.6	2.223		94.2		1.02958	97.0
	140		64.4	505.8	2.226		94.3		1.02958	97.1
	150		64.3	505.0	2.229		94.5		1.02958	97.3
	152	1125.9	64.3	505.0	2.229	2.360	94.5	2.295	1.02958	97.3
2	0		81.7	641.7	1.753		74.3		1.03219	76.7
	8		71.9	564.7	1.992		84.4		1.03219	87.1
	10		71.2	559.2	2.011		85.2		1.03219	88.0
	20		69.0	541.9	2.076		88.0		1.03219	90.8
	30		67.8	532.5	2.112		89.5		1.03219	92.4
	40		67.0	526.2	2.138		90.6		1.03219	93.5
	50		66.5	522.3	2.154		91.3		1.03219	94.2
	60		66.0	518.4	2.170		91.9		1.03219	94.9
	70		65.7	516.0	2.180		92.4		1.03219	95.3
	80		65.4	513.7	2.190		92.8		1.03219	95.8
	90		65.1	511.3	2.200		93.2		1.03219	96.2
	96		65.0	510.5	2.203		93.4		1.03219	96.4
	100		64.9	509.7	2.207		93.5		1.03219	96.5
	110		64.7	508.2	2.214		93.8		1.03219	96.8
	120		64.6	507.4	2.217		93.9		1.03219	97.0
	130		64.4	505.8	2.224		94.2		1.03219	97.3
	140		64.3	505.0	2.227		94.4		1.03219	97.4
	150		64.2	504.2	2.231		94.5		1.03219	97.6
	152	1124.8	64.2	504.2	2.231	2.360	94.5	2.303	1.03219	97.6

Appendix C

Percent G_{mm} Summary

County: Shelby
Mix: 411-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		79.9	627.5	1.743		73.9		1.03772	76.7
	8		70.3	552.1	1.981		84.0		1.03772	87.1
	10		69.6	546.6	2.001		84.8		1.03772	88.0
	20		67.4	529.4	2.067		87.6		1.03772	90.9
	30		66.2	519.9	2.104		89.2		1.03772	92.5
	40		65.4	513.7	2.130		90.3		1.03772	93.7
	50		64.9	509.7	2.146		90.9		1.03772	94.4
	60		64.4	505.8	2.163		91.7		1.03772	95.1
	70		64.1	503.4	2.173		92.1		1.03772	95.6
	80		63.8	501.1	2.183		92.5		1.03772	96.0
	90		63.6	499.5	2.190		92.8		1.03772	96.3
	96	1094.0	63.5	498.7	2.194	2.360	93.0	2.276	1.03772	96.5
2	0		79.5	624.4	1.752		74.3		1.03815	77.1
	8		70.0	549.8	1.990		84.3		1.03815	87.5
	10		69.3	544.3	2.010		85.2		1.03815	88.4
	20		67.1	527.0	2.076		88.0		1.03815	91.3
	30		66.0	518.4	2.111		89.4		1.03815	92.9
	40		65.2	512.1	2.137		90.5		1.03815	94.0
	50		64.7	508.2	2.153		91.2		1.03815	94.7
	60		64.3	505.0	2.166		91.8		1.03815	95.3
	70		63.9	501.9	2.180		92.4		1.03815	95.9
	80		63.6	499.5	2.190		92.8		1.03815	96.4
	87	1094.1	63.5	498.7	2.194	2.360	93.0	2.277	1.03815	96.5

Appendix C

Percent G_{mm} Summary

County: Campbell
Mix: 307-BM/2

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		147.8	2611.8	1.932		73.9		1.03039	76.1
	8		131.0	2315.0	2.180		83.4		1.03039	85.9
	10		129.6	2290.2	2.203		84.3		1.03039	86.8
	20		125.2	2212.5	2.281		87.2		1.03039	89.9
	30		122.8	2170.1	2.325		88.9		1.03039	91.6
	40		121.2	2141.8	2.356		90.1		1.03039	92.8
	50		120.0	2120.6	2.380		91.0		1.03039	93.8
	60		119.1	2104.7	2.398		91.7		1.03039	94.5
	70		118.4	2092.3	2.412		92.2		1.03039	95.0
	80		117.7	2079.9	2.426		92.8		1.03039	95.6
	90		117.2	2071.1	2.437		93.2		1.03039	96.0
	96		116.9	2065.8	2.443		93.4		1.03039	96.2
	100		116.8	2064.0	2.445		93.5		1.03039	96.3
	110		116.4	2057.0	2.453		93.8		1.03039	96.7
	120		116.0	2049.9	2.462		94.1		1.03039	97.0
	130		115.7	2044.6	2.468		94.4		1.03039	97.2
	140		115.4	2039.3	2.475		94.6		1.03039	97.5
2	150		115.2	2035.8	2.479		94.8		1.03039	97.7
	152	5046.3	115.1	2034.0	2.481	2.615	94.9	2.556	1.03039	97.8
	0		147.7	2610.1	1.937		74.1		1.02887	76.2
	8		130.6	2307.9	2.191		83.8		1.02887	86.2
	10		129.2	2283.2	2.215		84.7		1.02887	87.1
	20		124.8	2205.4	2.293		87.7		1.02887	90.2
	30		122.5	2164.8	2.336		89.3		1.02887	91.9
	40		120.9	2136.5	2.367		90.5		1.02887	93.1
	50		119.7	2115.3	2.391		91.4		1.02887	94.0
	60		118.8	2099.4	2.409		92.1		1.02887	94.8
	70		118.1	2087.0	2.423		92.6		1.02887	95.3
	80		117.5	2076.4	2.435		93.1		1.02887	95.8
	90		116.9	2065.8	2.448		93.6		1.02887	96.3
	96		116.7	2062.3	2.452		93.8		1.02887	96.5
	100		116.5	2058.7	2.456		93.9		1.02887	96.6
	110		116.1	2051.7	2.465		94.2		1.02887	97.0
	120		115.8	2046.4	2.471		94.5		1.02887	97.2
	130		115.5	2041.1	2.477		94.7		1.02887	97.5
	140		115.2	2035.8	2.484		95.0		1.02887	97.7
	150		115.0	2032.2	2.488		95.1		1.02887	97.9
	152	5056.6	115.0	2032.2	2.488	2.615	95.1	2.560	1.02887	97.9

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 307-BM/2

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		146.3	2585.3	0.479		18.3		4.17629	76.4
	8		129.0	2279.6	0.543		20.8		4.17629	86.7
	10		127.6	2254.9	0.549		21.0		4.17629	87.6
	20		123.4	2180.7	0.567		21.7		4.17629	90.6
	30		121.1	2140.0	0.578		22.1		4.17629	92.3
	40		119.6	2113.5	0.585		22.4		4.17629	93.5
	50		118.5	2094.1	0.591		22.6		4.17629	94.4
	60		117.6	2078.2	0.595		22.8		4.17629	95.1
	70		116.9	2065.8	0.599		22.9		4.17629	95.7
	80		116.3	2055.2	0.602		23.0		4.17629	96.1
	90		115.8	2046.4	0.605		23.1		4.17629	96.6
	96	1237.3	115.6	2042.8	0.606	2.615	23.2	2.530	4.17629	96.7
2	0		147.0	2597.7	0.477		18.2		4.22927	77.1
	8		130.2	2300.8	0.538		20.6		4.22927	87.1
	10		128.8	2276.1	0.544		20.8		4.22927	88.0
	20		124.7	2203.6	0.562		21.5		4.22927	90.9
	30		122.5	2164.8	0.572		21.9		4.22927	92.5
	40		120.9	2136.5	0.580		22.2		4.22927	93.8
	50		119.8	2117.0	0.585		22.4		4.22927	94.6
	60		118.9	2101.1	0.589		22.5		4.22927	95.3
	70		118.2	2088.8	0.593		22.7		4.22927	95.9
	80		117.6	2078.2	0.596		22.8		4.22927	96.4
	90		117.1	2069.3	0.599		22.9		4.22927	96.8
	96	1238.6	116.9	2065.8	0.600	2.615	22.9	2.536	4.22927	97.0

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 307-BM/2

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.7	657.4	1.879		71.9		1.03189	74.2
	8		73.4	576.5	2.143		82.0		1.03189	84.6
	10		72.6	570.2	2.167		82.9		1.03189	85.5
	20		70.0	549.8	2.247		85.9		1.03189	88.7
	30		68.6	538.8	2.293		87.7		1.03189	90.5
	40		67.5	530.1	2.330		89.1		1.03189	92.0
	50		66.8	524.6	2.355		90.0		1.03189	92.9
	60		66.3	520.7	2.373		90.7		1.03189	93.6
	70		65.8	516.8	2.391		91.4		1.03189	94.3
	80		65.4	513.7	2.405		92.0		1.03189	94.9
	90		65.1	511.3	2.416		92.4		1.03189	95.3
	96		64.9	509.7	2.424		92.7		1.03189	95.6
	100		64.8	508.9	2.428		92.8		1.03189	95.8
	110		64.6	507.4	2.435		93.1		1.03189	96.1
	120		64.4	505.8	2.443		93.4		1.03189	96.4
	130		64.2	504.2	2.450		93.7		1.03189	96.7
2	140		64.0	502.7	2.458		94.0		1.03189	97.0
	150		63.8	501.1	2.466		94.3		1.03189	97.3
	152	1235.5	63.8	501.1	2.466	2.615	94.3	2.544	1.03189	97.3
	0		83.2	653.5	1.871		71.5		1.05078	75.2
	8		73.4	576.5	2.121		81.1		1.05078	85.2
	10		72.6	570.2	2.144		82.0		1.05078	86.2
	20		70.2	551.3	2.217		84.8		1.05078	89.1
	30		68.9	541.1	2.259		86.4		1.05078	90.8
	40		68.0	534.1	2.289		87.5		1.05078	92.0
	50		67.3	528.6	2.313		88.4		1.05078	92.9
	60		66.8	524.6	2.330		89.1		1.05078	93.6
	70		66.4	521.5	2.344		89.6		1.05078	94.2
	80		66.1	519.1	2.355		90.1		1.05078	94.6
	90		65.8	516.8	2.366		90.5		1.05078	95.1
	96		65.6	515.2	2.373		90.7		1.05078	95.3
	100		65.5	514.4	2.377		90.9		1.05078	95.5
	110		65.3	512.9	2.384		91.2		1.05078	95.8
	120		65.1	511.3	2.391		91.4		1.05078	96.1
	130		64.9	509.7	2.399		91.7		1.05078	96.4
	140		64.7	508.2	2.406		92.0		1.05078	96.7
	150		64.5	506.6	2.413		92.3		1.05078	97.0
	152	1222.6	64.5	506.6	2.413	2.615	92.3	2.536	1.05078	97.0

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 307-BM/2

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.4	655.0	1.889		72.2		1.04784	75.7
	8		73.3	575.7	2.149		82.2		1.04784	86.1
	10		72.5	569.4	2.173		83.1		1.04784	87.1
	20		70.0	549.8	2.251		86.1		1.04784	90.2
	30		68.6	538.8	2.296		87.8		1.04784	92.0
	40		67.6	530.9	2.330		89.1		1.04784	93.4
	50		67.0	526.2	2.351		89.9		1.04784	94.2
	60		66.4	521.5	2.373		90.7		1.04784	95.1
	70		66.0	518.4	2.387		91.3		1.04784	95.6
	80		65.7	516.0	2.398		91.7		1.04784	96.1
	90		65.4	513.7	2.409		92.1		1.04784	96.5
	96	1237.3	65.2	512.1	2.416	2.615	92.4	2.532	1.04784	96.8
2	0		81.8	642.5	1.928		73.7		1.03622	76.4
	8		71.8	563.9	2.196		84.0		1.03622	87.0
	10		71.1	558.4	2.218		84.8		1.03622	87.9
	20		68.7	539.6	2.296		87.8		1.03622	91.0
	30		67.4	529.4	2.340		89.5		1.03622	92.7
	40		66.5	522.3	2.371		90.7		1.03622	94.0
	50		65.8	516.8	2.397		91.6		1.03622	95.0
	60		65.3	512.9	2.415		92.3		1.03622	95.7
	70		64.9	509.7	2.430		92.9		1.03622	96.3
	80		64.6	507.4	2.441		93.4		1.03622	96.7
	90		64.3	505.0	2.453		93.8		1.03622	97.2
	96	1238.6	64.2	504.2	2.456	2.615	93.9	2.545	1.03622	97.3

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		143.1	2528.8	1.912		76.4		1.01805	77.7
	8		126.0	2226.6	2.171		86.7		1.01805	88.3
	10		124.6	2201.9	2.196		87.7		1.01805	89.3
	20		120.3	2125.9	2.274		90.8		1.01805	92.5
	30		117.9	2083.5	2.320		92.7		1.01805	94.3
	40		116.4	2057.0	2.350		93.9		1.01805	95.6
	50		115.3	2037.5	2.373		94.8		1.01805	96.5
	60		114.5	2023.4	2.389		95.4		1.01805	97.1
	70		113.9	2012.8	2.402		95.9		1.01805	97.7
	80		113.4	2003.9	2.412		96.4		1.01805	98.1
	90		112.9	1995.1	2.423		96.8		1.01805	98.5
	96		112.7	1991.6	2.427		97.0		1.01805	98.7
	100		112.6	1989.8	2.429		97.0		1.01805	98.8
	110		112.2	1982.7	2.438		97.4		1.01805	99.1
	120		112.0	1979.2	2.442		97.6		1.01805	99.3
	130		111.8	1975.7	2.447		97.7		1.01805	99.5
	140		111.6	1972.1	2.451		97.9		1.01805	99.7
	150		111.5	1970.4	2.453		98.0		1.01805	99.8
	152	4834.2	111.4	1968.6	2.456	2.504	98.1	2.500	1.01805	99.9
2	0		142.2	2512.9	1.905		76.1		1.01514	77.3
	8		125.0	2208.9	2.168		86.6		1.01514	87.9
	10		123.5	2182.4	2.194		87.6		1.01514	89.0
	20		119.2	2106.4	2.273		90.8		1.01514	92.2
	30		116.9	2065.8	2.318		92.6		1.01514	94.0
	40		115.4	2039.3	2.348		93.8		1.01514	95.2
	50		114.3	2019.8	2.371		94.7		1.01514	96.1
	60		113.5	2005.7	2.387		95.3		1.01514	96.8
	70		112.8	1993.3	2.402		95.9		1.01514	97.4
	80		112.3	1984.5	2.413		96.4		1.01514	97.8
	90		111.9	1977.4	2.421		96.7		1.01514	98.2
	96		111.7	1973.9	2.426		96.9		1.01514	98.4
	100		111.5	1970.4	2.430		97.1		1.01514	98.5
	110		111.2	1965.1	2.437		97.3		1.01514	98.8
	120		110.9	1959.8	2.443		97.6		1.01514	99.1
	130		110.7	1956.2	2.448		97.8		1.01514	99.2
	140		110.5	1952.7	2.452		97.9		1.01514	99.4
	150		110.3	1949.2	2.456		98.1		1.01514	99.6
	152	4788.1	110.3	1949.2	2.456	2.504	98.1	2.494	1.01514	99.6

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		143.7	2539.4	0.461		18.4		4.23044	77.9
	8		126.4	2233.7	0.524		20.9		4.23044	88.5
	10		124.9	2207.2	0.530		21.2		4.23044	89.6
	20		120.6	2131.2	0.549		21.9		4.23044	92.8
	30		118.3	2090.5	0.560		22.4		4.23044	94.6
	40		116.7	2062.3	0.567		22.7		4.23044	95.9
	50		115.6	2042.8	0.573		22.9		4.23044	96.8
	60		114.8	2028.7	0.577		23.0		4.23044	97.5
	70		114.2	2018.1	0.580		23.2		4.23044	98.0
	80		113.6	2007.5	0.583		23.3		4.23044	98.5
	90		113.2	2000.4	0.585		23.4		4.23044	98.8
	96	1170.2	113.0	1996.9	0.586	2.504	23.4	2.479	4.23044	99.0
2	0		142.3	2514.6	0.427		17.1		4.57137	78.0
	8		125.2	2212.5	0.486		19.4		4.57137	88.7
	10		123.8	2187.7	0.491		19.6		4.57137	89.7
	20		119.6	2113.5	0.508		20.3		4.57137	92.8
	30		117.3	2072.9	0.518		20.7		4.57137	94.7
	40		115.8	2046.4	0.525		21.0		4.57137	95.9
	50		114.8	2028.7	0.530		21.2		4.57137	96.7
	60		114.0	2014.5	0.533		21.3		4.57137	97.4
	70		113.4	2003.9	0.536		21.4		4.57137	97.9
	80		112.9	1995.1	0.539		21.5		4.57137	98.4
	90		112.5	1988.0	0.541		21.6		4.57137	98.7
	96	1074.7	112.3	1984.5	0.542	2.504	21.6	2.476	4.57137	98.9

Appendix C

Percent G_{mm} Summary

County: Campbell

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		79.9	627.5	1.870		74.7		1.02516	76.6
	8		69.8	548.2	2.140		85.5		1.02516	87.6
	10		68.9	541.1	2.168		86.6		1.02516	88.8
	20		66.4	521.5	2.250		89.9		1.02516	92.1
	30		65.0	510.5	2.298		91.8		1.02516	94.1
	40		64.2	504.2	2.327		92.9		1.02516	95.3
	50		63.6	499.5	2.349		93.8		1.02516	96.2
	60		63.1	495.6	2.367		94.6		1.02516	96.9
	70		62.7	492.4	2.382		95.2		1.02516	97.6
	80		62.4	490.1	2.394		95.6		1.02516	98.0
	90		62.1	487.7	2.405		96.1		1.02516	98.5
	96		62.0	486.9	2.409		96.2		1.02516	98.7
	100		61.9	486.2	2.413		96.4		1.02516	98.8
	110		61.7	484.6	2.421		96.7		1.02516	99.1
	120		61.5	483.0	2.429		97.0		1.02516	99.5
	130		61.4	482.2	2.433		97.2		1.02516	99.6
	140		61.3	481.4	2.437		97.3		1.02516	99.8
	150		61.1	479.9	2.445		97.6		1.02516	100.1
	152	1173.2	61.1	479.9	2.445	2.504	97.6	2.506	1.02516	100.1
2	0		79.6	625.2	1.886		75.3		1.02320	77.1
	8		69.4	545.1	2.163		86.4		1.02320	88.4
	10		68.6	538.8	2.188		87.4		1.02320	89.4
	20		66.2	519.9	2.268		90.6		1.02320	92.7
	30		65.0	510.5	2.309		92.2		1.02320	94.4
	40		64.2	504.2	2.338		93.4		1.02320	95.6
	50		63.6	499.5	2.360		94.3		1.02320	96.5
	60		63.1	495.6	2.379		95.0		1.02320	97.2
	70		62.8	493.2	2.390		95.5		1.02320	97.7
	80		62.5	490.9	2.402		95.9		1.02320	98.2
	90		62.3	489.3	2.410		96.2		1.02320	98.5
	96		62.1	487.7	2.417		96.6		1.02320	98.8
	100		62.1	487.7	2.417		96.6		1.02320	98.8
	110		61.9	486.2	2.425		96.9		1.02320	99.1
	120		61.7	484.6	2.433		97.2		1.02320	99.4
	130		61.6	483.8	2.437		97.3		1.02320	99.6
	140		61.5	483.0	2.441		97.5		1.02320	99.8
	150		61.4	482.2	2.445		97.7		1.02320	99.9
	152	1179.0	61.4	482.2	2.445	2.504	97.7	2.502	1.02320	99.9

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Davidson (b)

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		132.3	2337.9	2.029		83.2		1.01246	84.2
	8		119.6	2113.5	2.245		92.0		1.01246	93.2
	10		118.8	2099.4	2.260		92.7		1.01246	93.8
	20		116.4	2057.0	2.307		94.6		1.01246	95.7
	30		115.2	2035.8	2.331		95.6		1.01246	96.7
	40		114.5	2023.4	2.345		96.1		1.01246	97.3
	50		114.0	2014.5	2.355		96.6		1.01246	97.8
	60		113.6	2007.5	2.364		96.9		1.01246	98.1
	70		113.3	2002.2	2.370		97.2		1.01246	98.4
	80		113.0	1996.9	2.376		97.4		1.01246	98.6
	90		112.8	1993.3	2.380		97.6		1.01246	98.8
	96		112.7	1991.6	2.382		97.7		1.01246	98.9
	100		112.6	1989.8	2.385		97.8		1.01246	99.0
	110		112.5	1988.0	2.387		97.8		1.01246	99.1
	120		112.4	1986.3	2.389		97.9		1.01246	99.2
	130		112.3	1984.5	2.391		98.0		1.01246	99.2
	140		112.2	1982.7	2.393		98.1		1.01246	99.3
	150		112.1	1981.0	2.395		98.2		1.01246	99.4
	152	4744.8	112.1	1981.0	2.395	2.439	98.2	2.425	1.01246	99.4
2	0		132.3	2337.9	2.027		83.1		1.01228	84.1
	8		119.7	2115.3	2.240		91.8		1.01228	93.0
	10		118.8	2099.4	2.257		92.5		1.01228	93.7
	20		116.4	2057.0	2.304		94.4		1.01228	95.6
	30		115.2	2035.8	2.328		95.4		1.01228	96.6
	40		114.5	2023.4	2.342		96.0		1.01228	97.2
	50		114.0	2014.5	2.352		96.4		1.01228	97.6
	60		113.6	2007.5	2.360		96.8		1.01228	98.0
	70		113.3	2002.2	2.367		97.0		1.01228	98.2
	80		113.0	1996.9	2.373		97.3		1.01228	98.5
	90		112.8	1993.3	2.377		97.5		1.01228	98.7
	96		112.7	1991.6	2.379		97.5		1.01228	98.7
	100		112.6	1989.8	2.381		97.6		1.01228	98.8
	110		112.5	1988.0	2.384		97.7		1.01228	98.9
	120		112.3	1984.5	2.388		97.9		1.01228	99.1
	130		112.2	1982.7	2.390		98.0		1.01228	99.2
	140		112.1	1981.0	2.392		98.1		1.01228	99.3
	150		112.1	1981.0	2.392		98.1		1.01228	99.3
	152	4738.6	112.0	1979.2	2.394	2.439	98.2	2.424	1.01228	99.4

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: Davidson (b)

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		74.0	581.2	2.007		82.3		1.01479	83.5
	8		66.6	523.1	2.230		91.4		1.01479	92.8
	10		66.1	519.1	2.247		92.1		1.01479	93.5
	20		64.7	508.2	2.296		94.1		1.01479	95.5
	30		64.1	503.4	2.317		95.0		1.01479	96.4
	40		63.6	499.5	2.335		95.7		1.01479	97.2
	50		63.3	497.2	2.346		96.2		1.01479	97.6
	60		63.1	495.6	2.354		96.5		1.01479	97.9
	70		62.9	494.0	2.361		96.8		1.01479	98.2
	80		62.8	493.2	2.365		97.0		1.01479	98.4
	90		62.7	492.4	2.369		97.1		1.01479	98.5
	96		62.6	491.7	2.373		97.3		1.01479	98.7
	100		62.5	490.9	2.376		97.4		1.01479	98.9
	110		62.5	490.9	2.376		97.4		1.01479	98.9
	120		62.4	490.1	2.380		97.6		1.01479	99.0
	130		62.3	489.3	2.384		97.7		1.01479	99.2
	140		62.3	489.3	2.384		97.7		1.01479	99.2
	150		62.2	488.5	2.388		97.9		1.01479	99.3
	152	1166.5	62.2	488.5	2.388	2.439	97.9	2.423	1.01479	99.3
2	0		74.1	582.0	1.999		82.0		1.01653	83.3
	8		66.7	523.9	2.221		91.1		1.01653	92.6
	10		66.2	519.9	2.238		91.7		1.01653	93.3
	20		64.8	508.9	2.286		93.7		1.01653	95.3
	30		64.1	503.4	2.311		94.7		1.01653	96.3
	40		63.7	500.3	2.326		95.3		1.01653	96.9
	50		63.3	497.2	2.340		95.9		1.01653	97.5
	60		63.1	495.6	2.348		96.2		1.01653	97.8
	70		62.9	494.0	2.355		96.6		1.01653	98.1
	80		62.8	493.2	2.359		96.7		1.01653	98.3
	90		62.6	491.7	2.366		97.0		1.01653	98.6
	96		62.6	491.7	2.366		97.0		1.01653	98.6
	100		62.5	490.9	2.370		97.2		1.01653	98.8
	110		62.4	490.1	2.374		97.3		1.01653	98.9
	120		62.3	489.3	2.378		97.5		1.01653	99.1
	130		62.2	488.5	2.382		97.6		1.01653	99.3
	140		62.2	488.5	2.382		97.6		1.01653	99.3
	150		62.1	487.7	2.386		97.8		1.01653	99.4
	152	1163.5	62.1	487.7	2.386	2.439	97.8	2.425	1.01653	99.4

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: Jackson

Mix: 307 BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		136.2	2406.9	2.017		80.8		1.01947	82.4
	8		123.8	2187.7	2.219		88.9		1.01947	90.6
	10		122.9	2171.8	2.235		89.5		1.01947	91.3
	20		120.5	2129.4	2.280		91.3		1.01947	93.1
	30		119.2	2106.4	2.305		92.3		1.01947	94.1
	40		118.3	2090.5	2.322		93.0		1.01947	94.8
	50		117.7	2079.9	2.334		93.5		1.01947	95.3
	60		117.2	2071.1	2.344		93.9		1.01947	95.7
	70		116.8	2064.0	2.352		94.2		1.01947	96.0
	80		116.4	2057.0	2.360		94.5		1.01947	96.4
	90		116.2	2053.4	2.364		94.7		1.01947	96.5
	96		116.0	2049.9	2.368		94.9		1.01947	96.7
	100		115.9	2048.1	2.370		94.9		1.01947	96.8
	110		115.7	2044.6	2.374		95.1		1.01947	97.0
	120		115.5	2041.1	2.378		95.3		1.01947	97.1
2	130		115.3	2037.5	2.382		95.4		1.01947	97.3
	140		115.1	2034.0	2.387		95.6		1.01947	97.5
	150		115.0	2032.2	2.389		95.7		1.01947	97.6
	152	4854.3	115.0	2032.2	2.389	2.496	95.7	2.435	1.01947	97.6
	0		135.6	2396.2	2.021		81.0		1.01949	82.5
	8		123.2	2177.1	2.224		89.1		1.01949	90.8
	10		122.4	2163.0	2.239		89.7		1.01949	91.4
	20		120.0	2120.6	2.284		91.5		1.01949	93.3
	30		118.7	2097.6	2.309		92.5		1.01949	94.3
	40		117.8	2081.7	2.326		93.2		1.01949	95.0
	50		117.2	2071.1	2.338		93.7		1.01949	95.5
	60		116.7	2062.3	2.348		94.1		1.01949	95.9
	70		116.3	2055.2	2.356		94.4		1.01949	96.2
	80		116.0	2049.9	2.362		94.6		1.01949	96.5
	90		115.7	2044.6	2.368		94.9		1.01949	96.7
	96		115.6	2042.8	2.370		95.0		1.01949	96.8
	100		115.5	2041.1	2.373		95.0		1.01949	96.9
	110		115.2	2035.8	2.379		95.3		1.01949	97.1
	120		115.0	2032.2	2.383		95.5		1.01949	97.3
	130		114.8	2028.7	2.387		95.6		1.01949	97.5
	140		114.7	2026.9	2.389		95.7		1.01949	97.6
	150		114.5	2023.4	2.393		95.9		1.01949	97.7
	152	4842.5	114.5	2023.4	2.393	2.496	95.9	2.440	1.01949	97.7

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Jackson

Mix: 307 BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		75.3	591.4	1.995		79.9		1.02358	81.8
	8		68.1	534.9	2.206		88.4		1.02358	90.4
	10		67.6	530.9	2.222		89.0		1.02358	91.1
	20		66.1	519.1	2.273		91.0		1.02358	93.2
	30		65.4	513.7	2.297		92.0		1.02358	94.2
	40		64.9	509.7	2.315		92.7		1.02358	94.9
	50		64.5	506.6	2.329		93.3		1.02358	95.5
	60		64.2	504.2	2.340		93.7		1.02358	95.9
	70		64.0	502.7	2.347		94.0		1.02358	96.2
	80		63.8	501.1	2.354		94.3		1.02358	96.5
	90		63.7	500.3	2.358		94.5		1.02358	96.7
	96		63.6	499.5	2.362		94.6		1.02358	96.8
	100		63.5	498.7	2.366		94.8		1.02358	97.0
	110		63.4	497.9	2.369		94.9		1.02358	97.2
	120		63.3	497.2	2.373		95.1		1.02358	97.3
	130		63.2	496.4	2.377		95.2		1.02358	97.5
	140		63.1	495.6	2.381		95.4		1.02358	97.6
	150		63.0	494.8	2.384		95.5		1.02358	97.8
	152	1179.8	63.0	494.8	2.384	2.496	95.5	2.441	1.02358	97.8
2	0		76.1	597.7	1.979		79.3		1.02408	81.2
	8		68.3	536.4	2.205		88.3		1.02408	90.5
	10		67.7	531.7	2.225		89.1		1.02408	91.3
	20		66.2	519.9	2.275		91.1		1.02408	93.3
	30		65.4	513.7	2.303		92.3		1.02408	94.5
	40		65.0	510.5	2.317		92.8		1.02408	95.1
	50		64.6	507.4	2.331		93.4		1.02408	95.6
	60		64.4	505.8	2.339		93.7		1.02408	95.9
	70		64.2	504.2	2.346		94.0		1.02408	96.2
	80		64.0	502.7	2.353		94.3		1.02408	96.5
	90		63.9	501.9	2.357		94.4		1.02408	96.7
	96		63.8	501.1	2.361		94.6		1.02408	96.8
	100		63.7	500.3	2.364		94.7		1.02408	97.0
	110		63.6	499.5	2.368		94.9		1.02408	97.1
	120		63.5	498.7	2.372		95.0		1.02408	97.3
	130		63.4	497.9	2.376		95.2		1.02408	97.5
	140		63.3	497.2	2.379		95.3		1.02408	97.6
	150		63.2	496.4	2.383		95.5		1.02408	97.8
	152	1182.9	63.2	496.4	2.383	2.496	95.5	2.440	1.02408	97.8

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Jackson

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		130.7	2309.7	2.085		83.7		1.01293	84.8
	8		120.3	2125.9	2.265		91.0		1.01293	92.2
	10		119.6	2113.5	2.278		91.5		1.01293	92.7
	20		117.6	2078.2	2.317		93.1		1.01293	94.3
	30		116.5	2058.7	2.339		93.9		1.01293	95.2
	40		115.7	2044.6	2.355		94.6		1.01293	95.8
	50		115.2	2035.8	2.365		95.0		1.01293	96.2
	60		114.8	2028.7	2.373		95.3		1.01293	96.6
	70		114.5	2023.4	2.379		95.6		1.01293	96.8
	80		114.2	2018.1	2.386		95.8		1.01293	97.1
	90		113.9	2012.8	2.392		96.1		1.01293	97.3
	96		113.8	2011.0	2.394		96.2		1.01293	97.4
	100		113.7	2009.2	2.396		96.3		1.01293	97.5
	110		113.5	2005.7	2.400		96.4		1.01293	97.7
	120		113.3	2002.2	2.405		96.6		1.01293	97.9
2	130		113.1	1998.6	2.409		96.8		1.01293	98.0
	140		112.9	1995.1	2.413		96.9		1.01293	98.2
	150		112.8	1993.3	2.415		97.0		1.01293	98.3
	152	4814.5	112.8	1993.3	2.415	2.489	97.0	2.447	1.01293	98.3
	0		132.9	2348.5	2.047		82.2		1.01553	83.5
	8		121.1	2140.0	2.247		90.3		1.01553	91.7
	10		120.3	2125.9	2.261		90.9		1.01553	92.3
	20		118.1	2087.0	2.304		92.5		1.01553	94.0
	30		116.9	2065.8	2.327		93.5		1.01553	94.9
	40		116.1	2051.7	2.343		94.1		1.01553	95.6
	50		115.5	2041.1	2.355		94.6		1.01553	96.1
	60		115.0	2032.2	2.366		95.0		1.01553	96.5
	70		114.7	2026.9	2.372		95.3		1.01553	96.8
	80		114.4	2021.6	2.378		95.5		1.01553	97.0
	90		114.1	2016.3	2.384		95.8		1.01553	97.3
	96		113.9	2012.8	2.389		96.0		1.01553	97.4
	100		113.8	2011.0	2.391		96.0		1.01553	97.5
	110		113.6	2007.5	2.395		96.2		1.01553	97.7
	120		113.4	2003.9	2.399		96.4		1.01553	97.9
	130		113.2	2000.4	2.403		96.5		1.01553	98.0
	140		113.1	1998.6	2.405		96.6		1.01553	98.1
	150		112.9	1995.1	2.410		96.8		1.01553	98.3
	152	4807.6	112.9	1995.1	2.410	2.489	96.8	2.447	1.01553	98.3

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Jackson

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		72.6	570.2	2.045		82.2		1.02479	84.2
	8		66.6	523.1	2.230		89.6		1.02479	91.8
	10		66.2	519.9	2.243		90.1		1.02479	92.4
	20		64.9	509.7	2.288		91.9		1.02479	94.2
	30		64.3	505.0	2.309		92.8		1.02479	95.1
	40		63.9	501.9	2.324		93.4		1.02479	95.7
	50		63.5	498.7	2.339		93.9		1.02479	96.3
	60		63.3	497.2	2.346		94.2		1.02479	96.6
	70		63.1	495.6	2.353		94.5		1.02479	96.9
	80		62.9	494.0	2.361		94.8		1.02479	97.2
	90		62.8	493.2	2.365		95.0		1.02479	97.4
	96		62.7	492.4	2.368		95.1		1.02479	97.5
	100		62.7	492.4	2.368		95.1		1.02479	97.5
	110		62.5	490.9	2.376		95.5		1.02479	97.8
	120		62.4	490.1	2.380		95.6		1.02479	98.0
	130		62.3	489.3	2.384		95.8		1.02479	98.1
	140		62.3	489.3	2.384		95.8		1.02479	98.1
	150		62.2	488.5	2.387		95.9		1.02479	98.3
	152	1166.3	62.2	488.5	2.387	2.489	95.9	2.447	1.02479	98.3
2	0		72.5	569.4	2.054		82.5		1.02115	84.3
	8		66.4	521.5	2.243		90.1		1.02115	92.0
	10		66.0	518.4	2.256		90.6		1.02115	92.6
	20		64.8	508.9	2.298		92.3		1.02115	94.3
	30		64.2	504.2	2.319		93.2		1.02115	95.1
	40		63.8	501.1	2.334		93.8		1.02115	95.7
	50		63.5	498.7	2.345		94.2		1.02115	96.2
	60		63.3	497.2	2.352		94.5		1.02115	96.5
	70		63.1	495.6	2.360		94.8		1.02115	96.8
	80		62.9	494.0	2.367		95.1		1.02115	97.1
	90		62.8	493.2	2.371		95.3		1.02115	97.3
	96		62.7	492.4	2.375		95.4		1.02115	97.4
	100		62.7	492.4	2.375		95.4		1.02115	97.4
	110		62.6	491.7	2.379		95.6		1.02115	97.6
	120		62.5	490.9	2.382		95.7		1.02115	97.7
	130		62.4	490.1	2.386		95.9		1.02115	97.9
	140		62.3	489.3	2.390		96.0		1.02115	98.1
	150		62.2	488.5	2.394		96.2		1.02115	98.2
	152	1169.5	62.2	488.5	2.394	2.489	96.2	2.445	1.02115	98.2

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		154.9	2737.3	1.828		71.0		1.02219	72.6
	8		135.7	2398.0	2.087		81.0		1.02219	82.8
	10		134.1	2369.7	2.112		82.0		1.02219	83.8
	20		129.4	2286.7	2.188		85.0		1.02219	86.8
	30		126.8	2240.7	2.233		86.7		1.02219	88.6
	40		125.1	2210.7	2.263		87.9		1.02219	89.8
	50		123.9	2189.5	2.285		88.7		1.02219	90.7
	60		122.9	2171.8	2.304		89.5		1.02219	91.4
	70		122.2	2159.5	2.317		90.0		1.02219	92.0
	80		121.5	2147.1	2.331		90.5		1.02219	92.5
	90		121.0	2138.2	2.340		90.9		1.02219	92.9
	96		120.7	2132.9	2.346		91.1		1.02219	93.1
	100		120.5	2129.4	2.350		91.2		1.02219	93.3
	110		120.1	2122.3	2.358		91.5		1.02219	93.6
	120		119.7	2115.3	2.366		91.8		1.02219	93.9
	130		119.4	2110.0	2.372		92.1		1.02219	94.1
	140		119.1	2104.7	2.377		92.3		1.02219	94.4
	150		118.8	2099.4	2.383		92.5		1.02219	94.6
	152	5003.8	118.8	2099.4	2.383	2.575	92.5	2.436	1.02219	94.6
2	0		154.6	2732.0	1.831		71.1		1.02173	72.6
	8		135.5	2394.5	2.089		81.1		1.02173	82.9
	10		133.9	2366.2	2.114		82.1		1.02173	83.9
	20		129.2	2283.2	2.191		85.1		1.02173	86.9
	30		126.6	2237.2	2.236		86.8		1.02173	88.7
	40		124.9	2207.2	2.266		88.0		1.02173	89.9
	50		123.6	2184.2	2.290		88.9		1.02173	90.8
	60		122.6	2166.5	2.308		89.6		1.02173	91.6
	70		121.8	2152.4	2.324		90.2		1.02173	92.2
	80		121.2	2141.8	2.335		90.7		1.02173	92.6
	90		120.6	2131.2	2.347		91.1		1.02173	93.1
	96		120.3	2125.9	2.353		91.3		1.02173	93.3
	100		120.1	2122.3	2.357		91.5		1.02173	93.5
	110		119.7	2115.3	2.364		91.8		1.02173	93.8
	120		119.3	2108.2	2.372		92.1		1.02173	94.1
	130		119.0	2102.9	2.378		92.3		1.02173	94.3
	140		118.7	2097.6	2.384		92.6		1.02173	94.6
	150		118.4	2092.3	2.390		92.8		1.02173	94.8
	152	5001.3	118.4	2092.3	2.390	2.575	92.8	2.442	1.02173	94.8

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		153.5	2712.6	0.443		17.2		4.26657	73.3
	8		135.0	2385.6	0.503		19.5		4.26657	83.4
	10		133.5	2359.1	0.509		19.8		4.26657	84.3
	20		128.9	2277.9	0.527		20.5		4.26657	87.3
	30		126.4	2233.7	0.538		20.9		4.26657	89.0
	40		124.7	2203.6	0.545		21.2		4.26657	90.3
	50		123.4	2180.7	0.551		21.4		4.26657	91.2
	60		122.4	2163.0	0.555		21.6		4.26657	92.0
	70		121.6	2148.8	0.559		21.7		4.26657	92.6
	80		121.0	2138.2	0.561		21.8		4.26657	93.0
	90		120.4	2127.6	0.564		21.9		4.26657	93.5
	96		120.1	2122.3	0.566		22.0		4.26657	93.7
	100		119.9	2118.8	0.567		22.0		4.26657	93.9
	110		119.5	2111.7	0.569		22.1		4.26657	94.2
	120		119.1	2104.7	0.570		22.1		4.26657	94.5
	130		118.8	2099.4	0.572		22.2		4.26657	94.7
	140		118.5	2094.1	0.573		22.3		4.26657	95.0
	150		118.2	2088.8	0.575		22.3		4.26657	95.2
	152	1200.6	118.1	2087.0	0.575	2.575	22.3	2.454	4.26657	95.3
2	0		149.3	2638.3	0.451		17.5		4.18319	73.2
	8		131.0	2315.0	0.514		20.0		4.18319	83.5
	10		129.6	2290.2	0.519		20.2		4.18319	84.4
	20		125.1	2210.7	0.538		20.9		4.18319	87.4
	30		122.7	2168.3	0.549		21.3		4.18319	89.1
	40		121.1	2140.0	0.556		21.6		4.18319	90.3
	50		119.9	2118.8	0.561		21.8		4.18319	91.2
	60		118.9	2101.1	0.566		22.0		4.18319	92.0
	70		118.2	2088.8	0.569		22.1		4.18319	92.5
	80		117.5	2076.4	0.573		22.2		4.18319	93.0
	90		117.0	2067.6	0.575		22.3		4.18319	93.4
	96		116.7	2062.3	0.577		22.4		4.18319	93.7
	100		116.5	2058.7	0.578		22.4		4.18319	93.8
	110		116.1	2051.7	0.580		22.5		4.18319	94.2
	120		115.8	2046.4	0.581		22.6		4.18319	94.4
	130		115.4	2039.3	0.583		22.6		4.18319	94.7
	140		115.1	2034.0	0.585		22.7		4.18319	95.0
	146	1189.5	115.0	2032.2	0.585	2.575	22.7	2.449	4.18319	95.1

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		86.1	676.2	1.813		70.4		1.04509	73.6
	8		75.4	592.2	2.070		80.4		1.04509	84.0
	10		74.5	585.1	2.095		81.4		1.04509	85.0
	20		71.8	563.9	2.174		84.4		1.04509	88.2
	30		70.4	552.9	2.217		86.1		1.04509	90.0
	40		69.5	545.9	2.246		87.2		1.04509	91.1
	50		68.8	540.4	2.269		88.1		1.04509	92.1
	60		68.3	536.4	2.285		88.7		1.04509	92.7
	70		67.8	532.5	2.302		89.4		1.04509	93.4
	80		67.5	530.1	2.313		89.8		1.04509	93.8
	90		67.2	527.8	2.323		90.2		1.04509	94.3
	96		67.0	526.2	2.330		90.5		1.04509	94.5
	100		66.9	525.4	2.333		90.6		1.04509	94.7
	110		66.7	523.9	2.340		90.9		1.04509	95.0
	120		66.5	522.3	2.347		91.1		1.04509	95.3
	130		66.4	521.5	2.351		91.3		1.04509	95.4
	140		66.2	519.9	2.358		91.6		1.04509	95.7
	150		66.1	519.1	2.362		91.7		1.04509	95.8
	152	1226.0	66.0	518.4	2.365	2.575	91.8	2.472	1.04509	96.0
2	0		86.2	677.0	1.806		70.1		1.03149	72.3
	8		75.6	593.8	2.059		79.9		1.03149	82.5
	10		74.8	587.5	2.081		80.8		1.03149	83.3
	20		72.1	566.3	2.159		83.8		1.03149	86.5
	30		70.7	555.3	2.202		85.5		1.03149	88.2
	40		69.7	547.4	2.233		86.7		1.03149	89.4
	50		69.0	541.9	2.256		87.6		1.03149	90.3
	60		68.4	537.2	2.276		88.4		1.03149	91.1
	70		68.0	534.1	2.289		88.9		1.03149	91.7
	80		67.6	530.9	2.303		89.4		1.03149	92.2
	90		67.3	528.6	2.313		89.8		1.03149	92.6
	96		67.2	527.8	2.316		89.9		1.03149	92.8
	100		67.1	527.0	2.320		90.1		1.03149	92.9
	110		66.8	524.6	2.330		90.5		1.03149	93.3
	120		66.6	523.1	2.337		90.7		1.03149	93.6
	130		66.4	521.5	2.344		91.0		1.03149	93.9
	140		66.3	520.7	2.348		91.2		1.03149	94.0
	150		66.1	519.1	2.355		91.4		1.03149	94.3
	152	1222.5	66.1	519.1	2.355	2.575	91.4	2.429	1.03149	94.3

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.1	660.5	1.818		70.6		1.04133	73.5
	8		73.9	580.4	2.069		80.3		1.04133	83.6
	10		73.1	574.1	2.091		81.2		1.04133	84.6
	20		70.7	555.3	2.162		84.0		1.04133	87.4
	30		69.4	545.1	2.203		85.5		1.04133	89.1
	40		68.5	538.0	2.232		86.6		1.04133	90.2
	50		67.8	532.5	2.255		87.5		1.04133	91.2
	60		67.3	528.6	2.271		88.2		1.04133	91.8
	70		66.9	525.4	2.285		88.7		1.04133	92.4
	80		66.5	522.3	2.299		89.3		1.04133	92.9
	90		66.2	519.9	2.309		89.7		1.04133	93.4
	96		66.1	519.1	2.313		89.8		1.04133	93.5
	100		66.0	518.4	2.316		89.9		1.04133	93.6
	110		65.8	516.8	2.323		90.2		1.04133	93.9
	120		65.6	515.2	2.330		90.5		1.04133	94.2
	130		65.4	513.7	2.337		90.8		1.04133	94.5
	140		65.2	512.1	2.345		91.0		1.04133	94.8
	150		65.1	511.3	2.348		91.2		1.04133	94.9
	152	1200.6	65.1	511.3	2.348	2.575	91.2	2.445	1.04133	94.9
2	0		83.1	652.7	1.823		70.8		1.03622	73.3
	8		73.0	573.3	2.075		80.6		1.03622	83.5
	10		72.2	567.1	2.098		81.4		1.03622	84.4
	20		69.9	549.0	2.167		84.1		1.03622	87.2
	30		68.5	538.0	2.211		85.8		1.03622	89.0
	40		67.6	530.9	2.240		87.0		1.03622	90.1
	50		66.9	525.4	2.264		87.9		1.03622	91.1
	60		66.4	521.5	2.281		88.6		1.03622	91.8
	70		66.0	518.4	2.295		89.1		1.03622	92.3
	80		65.7	516.0	2.305		89.5		1.03622	92.7
	90		65.4	513.7	2.316		89.9		1.03622	93.2
	96		65.2	512.1	2.323		90.2		1.03622	93.5
	100		65.1	511.3	2.326		90.3		1.03622	93.6
	110		64.9	509.7	2.334		90.6		1.03622	93.9
	120		64.7	508.2	2.341		90.9		1.03622	94.2
	130		64.6	507.4	2.344		91.0		1.03622	94.3
	140		64.4	505.8	2.352		91.3		1.03622	94.6
	150		64.3	505.0	2.355		91.5		1.03622	94.8
	152	1189.5	64.2	504.2	2.359	2.575	91.6	2.445	1.03622	94.9

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		144.6	2555.3	1.747		76.1		1.02131	77.7
	8		128.4	2269.0	1.968		85.7		1.02131	87.5
	10		127.2	2247.8	1.986		86.5		1.02131	88.3
	20		123.6	2184.2	2.044		89.0		1.02131	90.9
	30		121.6	2148.8	2.078		90.4		1.02131	92.4
	40		120.3	2125.9	2.100		91.4		1.02131	93.4
	50		119.3	2108.2	2.118		92.2		1.02131	94.2
	60		118.6	2095.8	2.130		92.7		1.02131	94.7
	70		118.0	2085.2	2.141		93.2		1.02131	95.2
	80		117.5	2076.4	2.150		93.6		1.02131	95.6
	90		117.0	2067.6	2.159		94.0		1.02131	96.0
	96		116.8	2064.0	2.163		94.2		1.02131	96.2
	100		116.7	2062.3	2.165		94.2		1.02131	96.2
	110		116.3	2055.2	2.172		94.6		1.02131	96.6
	120		116.0	2049.9	2.178		94.8		1.02131	96.8
	130		115.7	2044.6	2.183		95.1		1.02131	97.1
	140		115.5	2041.1	2.187		95.2		1.02131	97.2
	150		115.3	2037.5	2.191		95.4		1.02131	97.4
	152	4464.3	115.3	2037.5	2.191	2.297	95.4	2.238	1.02131	97.4
2	0		145.2	2565.9	1.737		75.6		1.02199	77.3
	8		128.9	2277.9	1.957		85.2		1.02199	87.1
	10		127.7	2256.6	1.975		86.0		1.02199	87.9
	20		123.9	2189.5	2.036		88.6		1.02199	90.6
	30		121.9	2154.2	2.069		90.1		1.02199	92.1
	40		120.6	2131.2	2.092		91.1		1.02199	93.1
	50		119.7	2115.3	2.107		91.7		1.02199	93.8
	60		118.9	2101.1	2.122		92.4		1.02199	94.4
	70		118.3	2090.5	2.132		92.8		1.02199	94.9
	80		117.7	2079.9	2.143		93.3		1.02199	95.4
	90		117.3	2072.9	2.151		93.6		1.02199	95.7
	96		117.1	2069.3	2.154		93.8		1.02199	95.8
	100		116.9	2065.8	2.158		93.9		1.02199	96.0
	110		116.6	2060.5	2.163		94.2		1.02199	96.3
	120		116.2	2053.4	2.171		94.5		1.02199	96.6
	130		116.0	2049.9	2.175		94.7		1.02199	96.8
	140		115.7	2044.6	2.180		94.9		1.02199	97.0
	150		115.5	2041.1	2.184		95.1		1.02199	97.2
	152	4457.8	115.4	2039.3	2.186	2.297	95.2	2.234	1.02199	97.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: McMinn

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.9	635.4	1.722		75.0		1.02735	77.0
	8		71.5	561.6	1.948		84.8		1.02735	87.1
	10		70.8	556.1	1.968		85.7		1.02735	88.0
	20		68.7	539.6	2.028		88.3		1.02735	90.7
	30		67.6	530.9	2.061		89.7		1.02735	92.2
	40		66.9	525.4	2.082		90.7		1.02735	93.1
	50		66.4	521.5	2.098		91.3		1.02735	93.8
	60		66.0	518.4	2.111		91.9		1.02735	94.4
	70		65.6	515.2	2.124		92.4		1.02735	95.0
	80		65.3	512.9	2.133		92.9		1.02735	95.4
	90		65.1	511.3	2.140		93.2		1.02735	95.7
	96		65.0	510.5	2.143		93.3		1.02735	95.9
	100		64.9	509.7	2.146		93.4		1.02735	96.0
	110		64.7	508.2	2.153		93.7		1.02735	96.3
	120		64.6	507.4	2.156		93.9		1.02735	96.4
	130		64.4	505.8	2.163		94.2		1.02735	96.7
	140		64.3	505.0	2.166		94.3		1.02735	96.9
	150		64.2	504.2	2.170		94.5		1.02735	97.0
	152	1094.1	64.2	504.2	2.170	2.297	94.5	2.229	1.02735	97.0
2	0		80.8	634.6	1.721		74.9		1.02966	77.1
	8		71.5	561.6	1.945		84.7		1.02966	87.2
	10		70.8	556.1	1.964		85.5		1.02966	88.0
	20		68.8	540.4	2.021		88.0		1.02966	90.6
	30		67.7	531.7	2.054		89.4		1.02966	92.1
	40		66.9	525.4	2.078		90.5		1.02966	93.2
	50		66.4	521.5	2.094		91.2		1.02966	93.9
	60		66.0	518.4	2.107		91.7		1.02966	94.4
	70		65.7	516.0	2.116		92.1		1.02966	94.9
	80		65.4	513.7	2.126		92.6		1.02966	95.3
	90		65.1	511.3	2.136		93.0		1.02966	95.7
	96		65.0	510.5	2.139		93.1		1.02966	95.9
	100		64.9	509.7	2.143		93.3		1.02966	96.0
	110		64.7	508.2	2.149		93.6		1.02966	96.3
	120		64.6	507.4	2.152		93.7		1.02966	96.5
	130		64.4	505.8	2.159		94.0		1.02966	96.8
	140		64.3	505.0	2.163		94.1		1.02966	96.9
	150		64.2	504.2	2.166		94.3		1.02966	97.1
	152	1092.1	64.2	504.2	2.166	2.297	94.3	2.230	1.02966	97.1

Percent G_{mm} Summary

Mix: 411-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Polk
Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		138.2	2442.2	2.009		82.4		1.01285	83.4
	8		124.6	2201.9	2.228		91.3		1.01285	92.5
	10		123.6	2184.2	2.246		92.1		1.01285	93.3
	20		120.6	2131.2	2.302		94.4		1.01285	95.6
	30		119.1	2104.7	2.331		95.6		1.01285	96.8
	40		118.2	2088.8	2.349		96.3		1.01285	97.5
	50		117.5	2076.4	2.363		96.9		1.01285	98.1
	60		117.0	2067.6	2.373		97.3		1.01285	98.5
	70		116.6	2060.5	2.381		97.6		1.01285	98.9
	80		116.3	2055.2	2.387		97.9		1.01285	99.1
	90		116.1	2051.7	2.391		98.0		1.01285	99.3
	96		116.0	2049.9	2.393		98.1		1.01285	99.4
	100		115.9	2048.1	2.395		98.2		1.01285	99.5
	110		115.8	2046.4	2.398		98.3		1.01285	99.6
	120		115.7	2044.6	2.400		98.4		1.01285	99.6
	130		115.7	2044.6	2.400		98.4		1.01285	99.6
	140		115.6	2042.8	2.402		98.5		1.01285	99.7
	150		115.6	2042.8	2.402		98.5		1.01285	99.7
	152	4906.2	115.6	2042.8	2.402	2.439	98.5	2.433	1.01285	99.7
2	0		132.1	2334.4	2.019		82.8		1.01164	83.7
	8		119.2	2106.4	2.238		91.7		1.01164	92.8
	10		118.2	2088.8	2.257		92.5		1.01164	93.6
	20		115.5	2041.1	2.310		94.7		1.01164	95.8
	30		114.0	2014.5	2.340		95.9		1.01164	97.0
	40		113.1	1998.6	2.359		96.7		1.01164	97.8
	50		112.5	1988.0	2.371		97.2		1.01164	98.3
	60		112.1	1981.0	2.380		97.6		1.01164	98.7
	70		111.8	1975.7	2.386		97.8		1.01164	99.0
	80		111.6	1972.1	2.390		98.0		1.01164	99.1
	90		111.5	1970.4	2.392		98.1		1.01164	99.2
	96		111.4	1968.6	2.395		98.2		1.01164	99.3
	100		111.4	1968.6	2.395		98.2		1.01164	99.3
	110		111.3	1966.8	2.397		98.3		1.01164	99.4
	120		111.3	1966.8	2.397		98.3		1.01164	99.4
	130		111.2	1965.1	2.399		98.3		1.01164	99.5
	140		111.2	1965.1	2.399		98.3		1.01164	99.5
	150		111.1	1963.3	2.401		98.4		1.01164	99.6
	152	4713.9	111.1	1963.3	2.401	2.439	98.4	2.429	1.01164	99.6

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Polk
Mix: 411-D

Saturated Surface Dry Method-100mm Samples - N_{max}										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm^3)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		73.3	575.7	1.977		81.0		1.01646	82.4
	8		65.9	517.6	2.199		90.1		1.01646	91.6
	10		65.4	513.7	2.216		90.8		1.01646	92.3
	20		63.8	501.1	2.271		93.1		1.01646	94.6
	30		63.0	494.8	2.300		94.3		1.01646	95.8
	40		62.4	490.1	2.322		95.2		1.01646	96.8
	50		62.0	486.9	2.337		95.8		1.01646	97.4
	60		61.7	484.6	2.348		96.3		1.01646	97.9
	70		61.5	483.0	2.356		96.6		1.01646	98.2
	80		61.3	481.4	2.364		96.9		1.01646	98.5
	90		61.1	479.9	2.371		97.2		1.01646	98.8
	96		61.0	479.1	2.375		97.4		1.01646	99.0
	100		60.9	478.3	2.379		97.5		1.01646	99.1
	110		60.8	477.5	2.383		97.7		1.01646	99.3
	120		60.7	476.7	2.387		97.9		1.01646	99.5
	130		60.6	476.0	2.391		98.0		1.01646	99.6
	140		60.5	475.2	2.395		98.2		1.01646	99.8
	150		60.5	475.2	2.395		98.2		1.01646	99.8
	152	1138.0	60.4	474.4	2.399	2.439	98.3	2.438	1.01646	100.0
2	0		73.0	573.3	1.985		81.4		1.02597	83.5
	8		66.0	518.4	2.196		90.0		1.02597	92.3
	10		65.5	514.4	2.212		90.7		1.02597	93.1
	20		64.0	502.7	2.264		92.8		1.02597	95.2
	30		63.2	496.4	2.293		94.0		1.02597	96.4
	40		62.7	492.4	2.311		94.7		1.02597	97.2
	50		62.3	489.3	2.326		95.4		1.02597	97.8
	60		62.0	486.9	2.337		95.8		1.02597	98.3
	70		61.7	484.6	2.349		96.3		1.02597	98.8
	80		61.5	483.0	2.356		96.6		1.02597	99.1
	90		61.4	482.2	2.360		96.8		1.02597	99.3
	96		61.3	481.4	2.364		96.9		1.02597	99.4
	100		61.3	481.4	2.364		96.9		1.02597	99.4
	110		61.2	480.7	2.368		97.1		1.02597	99.6
	120		61.1	479.9	2.372		97.2		1.02597	99.8
	130		61.0	479.1	2.376		97.4		1.02597	99.9
	140		61.0	479.1	2.376		97.4		1.02597	99.9
	150		60.9	478.3	2.379		97.5		1.02597	100.1
	152	1138.1	60.9	478.3	2.379	2.439	97.5	2.441	1.02597	100.1

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		145.6	2573.0	1.883		75.0		1.02086	76.5
	8		129.0	2279.6	2.125		84.6		1.02086	86.4
	10		127.6	2254.9	2.148		85.5		1.02086	87.3
	20		123.6	2184.2	2.218		88.3		1.02086	90.1
	30		121.5	2147.1	2.256		89.8		1.02086	91.7
	40		120.1	2122.3	2.282		90.9		1.02086	92.8
	50		119.0	2102.9	2.303		91.7		1.02086	93.6
	60		118.2	2088.8	2.319		92.3		1.02086	94.3
	70		117.6	2078.2	2.331		92.8		1.02086	94.7
	80		117.0	2067.6	2.343		93.3		1.02086	95.2
	90		116.6	2060.5	2.351		93.6		1.02086	95.5
	96		116.3	2055.2	2.357		93.8		1.02086	95.8
	100		116.2	2053.4	2.359		93.9		1.02086	95.9
	110		115.8	2046.4	2.367		94.2		1.02086	96.2
	120		115.5	2041.1	2.373		94.5		1.02086	96.5
	130		115.2	2035.8	2.379		94.7		1.02086	96.7
	140		115.0	2032.2	2.384		94.9		1.02086	96.9
	150		114.8	2028.7	2.388		95.1		1.02086	97.0
	152	4843.8	114.7	2026.9	2.390	2.512	95.1	2.440	1.02086	97.1
2	0		147.1	2599.5	1.877		74.7		1.02474	76.6
	8		130.1	2299.1	2.122		84.5		1.02474	86.6
	10		128.7	2274.3	2.145		85.4		1.02474	87.5
	20		124.6	2201.9	2.215		88.2		1.02474	90.4
	30		122.4	2163.0	2.255		89.8		1.02474	92.0
	40		121.0	2138.2	2.281		90.8		1.02474	93.1
	50		120.0	2120.6	2.300		91.6		1.02474	93.9
	60		119.1	2104.7	2.318		92.3		1.02474	94.6
	70		118.5	2094.1	2.329		92.7		1.02474	95.0
	80		117.9	2083.5	2.341		93.2		1.02474	95.5
	90		117.5	2076.4	2.349		93.5		1.02474	95.8
	96		117.2	2071.1	2.355		93.8		1.02474	96.1
	100		117.1	2069.3	2.357		93.9		1.02474	96.2
	110		116.7	2062.3	2.365		94.2		1.02474	96.5
	120		116.4	2057.0	2.372		94.4		1.02474	96.8
	130		116.1	2051.7	2.378		94.7		1.02474	97.0
	140		115.8	2046.4	2.384		94.9		1.02474	97.3
	150		115.6	2042.8	2.388		95.1		1.02474	97.4
	152	4878.1	115.6	2042.8	2.388	2.512	95.1	2.447	1.02474	97.4

Percent G_{PM} Summary

Mix: 411-S (with Fiber)

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.6	640.9	1.859		74.0		1.03316	76.5
	8		72.1	566.3	2.104		83.8		1.03316	86.5
	10		71.4	560.8	2.124		84.6		1.03316	87.4
	20		69.2	543.5	2.192		87.3		1.03316	90.2
	30		68.0	534.1	2.231		88.8		1.03316	91.8
	40		67.2	527.8	2.257		89.9		1.03316	92.8
	50		66.6	523.1	2.277		90.7		1.03316	93.7
	60		66.2	519.9	2.291		91.2		1.03316	94.2
	70		65.8	516.8	2.305		91.8		1.03316	94.8
	80		65.5	514.4	2.316		92.2		1.03316	95.3
	90		65.3	512.9	2.323		92.5		1.03316	95.5
	96		65.1	511.3	2.330		92.8		1.03316	95.8
	100		65.1	511.3	2.330		92.8		1.03316	95.8
	110		64.9	509.7	2.337		93.1		1.03316	96.1
	120		64.7	508.2	2.344		93.3		1.03316	96.4
	130		64.5	506.6	2.352		93.6		1.03316	96.7
	140		64.4	505.8	2.355		93.8		1.03316	96.9
	150		64.3	505.0	2.359		93.9		1.03316	97.0
	152	1191.3	64.3	505.0	2.359	2.512	93.9	2.437	1.03316	97.0
2	0		81.6	640.9	1.859		74.0		1.03316	76.5
	8		72.1	566.3	2.104		83.8		1.03316	86.5
	10		71.4	560.8	2.124		84.6		1.03316	87.4
	20		69.2	543.5	2.192		87.3		1.03316	90.2
	30		68.0	534.1	2.231		88.8		1.03316	91.8
	40		67.2	527.8	2.257		89.9		1.03316	92.8
	50		66.6	523.1	2.277		90.7		1.03316	93.7
	60		66.2	519.9	2.291		91.2		1.03316	94.2
	70		65.8	516.8	2.305		91.8		1.03316	94.8
	80		65.5	514.4	2.316		92.2		1.03316	95.3
	90		65.3	512.9	2.323		92.5		1.03316	95.5
	96		65.1	511.3	2.330		92.8		1.03316	95.8
	100		65.1	511.3	2.330		92.8		1.03316	95.8
	110		64.9	509.7	2.337		93.1		1.03316	96.1
	120		64.7	508.2	2.344		93.3		1.03316	96.4
	130		64.5	506.6	2.352		93.6		1.03316	96.7
	140		64.4	505.8	2.355		93.8		1.03316	96.9
	150		64.3	505.0	2.359		93.9		1.03316	97.0
	152	1191.3	64.3	505.0	2.359	2.512	93.9	2.437	1.03316	97.0

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.4	631.5	1.838		73.2		1.03923	76.0
	8		70.5	553.7	2.096		83.4		1.03923	86.7
	10		69.8	548.2	2.117		84.3		1.03923	87.6
	20		67.5	530.1	2.189		87.1		1.03923	90.6
	30		66.3	520.7	2.228		88.7		1.03923	92.2
	40		65.6	515.2	2.252		89.7		1.03923	93.2
	50		65.1	511.3	2.270		90.4		1.03923	93.9
	60		64.6	507.4	2.287		91.1		1.03923	94.6
	70		64.3	505.0	2.298		91.5		1.03923	95.1
	80		64.0	502.7	2.309		91.9		1.03923	95.5
	90		63.8	501.1	2.316		92.2		1.03923	95.8
	96		63.7	500.3	2.319		92.3		1.03923	96.0
	100		63.6	499.5	2.323		92.5		1.03923	96.1
	109	1160.4	63.5	498.7	2.327	2.512	92.6	2.418	1.03923	96.3
2	0		80.8	634.6	1.844		73.4		1.03707	76.2
	8		71.1	558.4	2.096		83.4		1.03707	86.5
	10		70.3	552.1	2.120		84.4		1.03707	87.5
	20		67.9	533.3	2.195		87.4		1.03707	90.6
	30		66.6	523.1	2.238		89.1		1.03707	92.4
	40		65.8	516.8	2.265		90.2		1.03707	93.5
	50		65.2	512.1	2.286		91.0		1.03707	94.4
	60		64.8	508.9	2.300		91.6		1.03707	95.0
	70		64.5	506.6	2.310		92.0		1.03707	95.4
	80		64.2	504.2	2.321		92.4		1.03707	95.8
	90		64.0	502.7	2.328		92.7		1.03707	96.1
	96		63.8	501.1	2.336		93.0		1.03707	96.4
	100		63.8	501.1	2.336		93.0		1.03707	96.4
	110		63.6	499.5	2.343		93.3		1.03707	96.7
	118	1170.4	63.5	498.7	2.347	2.512	93.4	2.434	1.03707	96.9

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		147.2	2601.2	1.868		74.3		1.02488	76.2
	8		129.8	2293.8	2.118		84.3		1.02488	86.4
	10		128.3	2267.2	2.143		85.3		1.02488	87.4
	20		123.8	2187.7	2.221		88.4		1.02488	90.6
	30		121.4	2145.3	2.265		90.1		1.02488	92.4
	40		119.8	2117.0	2.295		91.4		1.02488	93.6
	50		118.7	2097.6	2.316		92.2		1.02488	94.5
	60		117.7	2079.9	2.336		93.0		1.02488	95.3
	70		117.0	2067.6	2.350		93.5		1.02488	95.9
	80		116.4	2057.0	2.362		94.0		1.02488	96.4
	90		115.9	2048.1	2.372		94.4		1.02488	96.8
	96		115.6	2042.8	2.378		94.7		1.02488	97.0
	100		115.4	2039.3	2.383		94.8		1.02488	97.2
	110		115.0	2032.2	2.391		95.2		1.02488	97.5
	120		114.7	2026.9	2.397		95.4		1.02488	97.8
	130		114.4	2021.6	2.403		95.7		1.02488	98.0
	140		114.1	2016.3	2.410		95.9		1.02488	98.3
	150		113.8	2011.0	2.416		96.2		1.02488	98.6
	152	4858.8	113.8	2011.0	2.416	2.512	96.2	2.476	1.02488	98.6
2	0		147.0	2597.7	1.866		74.3		1.02425	76.1
	8		129.8	2293.8	2.114		84.1		1.02425	86.2
	10		128.3	2267.2	2.138		85.1		1.02425	87.2
	20		123.9	2189.5	2.214		88.1		1.02425	90.3
	30		121.5	2147.1	2.258		89.9		1.02425	92.1
	40		119.9	2118.8	2.288		91.1		1.02425	93.3
	50		118.7	2097.6	2.311		92.0		1.02425	94.2
	60		117.8	2081.7	2.329		92.7		1.02425	94.9
	70		117.0	2067.6	2.345		93.3		1.02425	95.6
	80		116.4	2057.0	2.357		93.8		1.02425	96.1
	90		115.9	2048.1	2.367		94.2		1.02425	96.5
	96		115.6	2042.8	2.373		94.5		1.02425	96.7
	100		115.4	2039.3	2.377		94.6		1.02425	96.9
	110		115.0	2032.2	2.386		95.0		1.02425	97.3
	120		114.6	2025.1	2.394		95.3		1.02425	97.6
	130		114.3	2019.8	2.400		95.5		1.02425	97.8
	140		114.0	2014.5	2.406		95.8		1.02425	98.1
	150		113.8	2011.0	2.411		96.0		1.02425	98.3
	152	4848.0	113.8	2011.0	2.411	2.512	96.0	2.469	1.02425	98.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.9	643.2	1.836		73.1		1.03454	75.6
	8		71.9	564.7	2.091		83.2		1.03454	86.1
	10		71.1	558.4	2.114		84.2		1.03454	87.1
	20		68.6	538.8	2.191		87.2		1.03454	90.2
	30		67.3	528.6	2.234		88.9		1.03454	92.0
	40		66.4	521.5	2.264		90.1		1.03454	93.2
	50		65.8	516.8	2.285		90.9		1.03454	94.1
	60		65.3	512.9	2.302		91.6		1.03454	94.8
	70		64.9	509.7	2.316		92.2		1.03454	95.4
	80		64.6	507.4	2.327		92.6		1.03454	95.8
	90		64.3	505.0	2.338		93.1		1.03454	96.3
	96		64.2	504.2	2.342		93.2		1.03454	96.4
	100		64.1	503.4	2.345		93.3		1.03454	96.6
	110		63.9	501.9	2.353		93.6		1.03454	96.9
	120		63.7	500.3	2.360		93.9		1.03454	97.2
	130		63.5	498.7	2.367		94.2		1.03454	97.5
	140		63.4	497.9	2.371		94.4		1.03454	97.6
	150		63.2	496.4	2.379		94.7		1.03454	97.9
	152	1180.7	63.2	496.4	2.379	2.512	94.7	2.461	1.03454	97.9
2	0		82.3	646.4	1.821		72.5		1.04107	75.4
	8		72.3	567.8	2.073		82.5		1.04107	85.9
	10		71.4	560.8	2.099		83.5		1.04107	87.0
	20		68.9	541.1	2.175		86.6		1.04107	90.1
	30		67.6	530.9	2.217		88.2		1.04107	91.9
	40		66.7	523.9	2.247		89.4		1.04107	93.1
	50		66.0	518.4	2.270		90.4		1.04107	94.1
	60		65.5	514.4	2.288		91.1		1.04107	94.8
	70		65.1	511.3	2.302		91.6		1.04107	95.4
	80		64.8	508.9	2.312		92.0		1.04107	95.8
	90		64.5	506.6	2.323		92.5		1.04107	96.3
	96		64.4	505.8	2.327		92.6		1.04107	96.4
	100		64.3	505.0	2.330		92.8		1.04107	96.6
	110		64.1	503.4	2.338		93.0		1.04107	96.9
	120		63.9	501.9	2.345		93.3		1.04107	97.2
	130		63.7	500.3	2.352		93.6		1.04107	97.5
	140		63.6	499.5	2.356		93.8		1.04107	97.6
	150		63.5	498.7	2.360		93.9		1.04107	97.8
	152	1176.9	63.4	497.9	2.364	2.512	94.1	2.461	1.04107	97.9

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		145.4	2569.4	1.957		75.8		1.02460	77.6
	8		129.4	2286.7	2.198		85.1		1.02460	87.2
	10		128.2	2265.5	2.219		85.9		1.02460	88.1
	20		124.5	2200.1	2.285		88.5		1.02460	90.7
	30		122.6	2166.5	2.320		89.9		1.02460	92.1
	40		121.3	2143.5	2.345		90.8		1.02460	93.1
	50		120.4	2127.6	2.363		91.5		1.02460	93.8
	60		119.7	2115.3	2.377		92.0		1.02460	94.3
	70		119.1	2104.7	2.389		92.5		1.02460	94.8
	80		118.6	2095.8	2.399		92.9		1.02460	95.2
	90		118.2	2088.8	2.407		93.2		1.02460	95.5
	96		117.9	2083.5	2.413		93.4		1.02460	95.7
	100		117.8	2081.7	2.415		93.5		1.02460	95.8
	110		117.5	2076.4	2.421		93.8		1.02460	96.1
	120		117.2	2071.1	2.427		94.0		1.02460	96.3
	130		117.0	2067.6	2.431		94.2		1.02460	96.5
	140		116.7	2062.3	2.438		94.4		1.02460	96.7
	150		116.5	2058.7	2.442		94.6		1.02460	96.9
	152	5027.2	116.5	2058.7	2.442	2.582	94.6	2.502	1.02460	96.9
2	0		145.7	2574.7	1.942		75.2		1.02930	77.4
	8		129.9	2295.5	2.179		84.4		1.02930	86.8
	10		128.7	2274.3	2.199		85.2		1.02930	87.7
	20		125.1	2210.7	2.262		87.6		1.02930	90.2
	30		123.2	2177.1	2.297		89.0		1.02930	91.6
	40		121.9	2154.2	2.322		89.9		1.02930	92.5
	50		121.0	2138.2	2.339		90.6		1.02930	93.2
	60		120.2	2124.1	2.354		91.2		1.02930	93.9
	70		119.6	2113.5	2.366		91.6		1.02930	94.3
	80		119.1	2104.7	2.376		92.0		1.02930	94.7
	90		118.7	2097.6	2.384		92.3		1.02930	95.0
	96		118.5	2094.1	2.388		92.5		1.02930	95.2
	100		118.4	2092.3	2.390		92.6		1.02930	95.3
	110		118.0	2085.2	2.398		92.9		1.02930	95.6
	120		117.7	2079.9	2.405		93.1		1.02930	95.8
	130		117.5	2076.4	2.409		93.3		1.02930	96.0
	140		117.2	2071.1	2.415		93.5		1.02930	96.3
	150		117.0	2067.6	2.419		93.7		1.02930	96.4
	152	5001.2	117.0	2067.6	2.419	2.582	93.7	2.490	1.02930	96.4

Percent G_{mm} Summary

Mix: 307-S (with Fiber)

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Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.9	635.4	1.896		73.4		1.04093	76.4
	8		71.5	561.6	2.145		83.1		1.04093	86.5
	10		70.8	556.1	2.166		83.9		1.04093	87.3
	20		68.8	540.4	2.229		86.3		1.04093	89.9
	30		67.6	530.9	2.269		87.9		1.04093	91.5
	40		66.9	525.4	2.293		88.8		1.04093	92.4
	50		66.4	521.5	2.310		89.5		1.04093	93.1
	60		66.0	518.4	2.324		90.0		1.04093	93.7
	70		65.6	515.2	2.338		90.5		1.04093	94.3
	80		65.4	513.7	2.345		90.8		1.04093	94.5
	90		65.1	511.3	2.356		91.2		1.04093	95.0
	96		65.0	510.5	2.360		91.4		1.04093	95.1
	100		64.9	509.7	2.363		91.5		1.04093	95.3
	110		64.7	508.2	2.371		91.8		1.04093	95.6
	120		64.6	507.4	2.374		91.9		1.04093	95.7
	130		64.5	506.6	2.378		92.1		1.04093	95.9
	140		64.3	505.0	2.385		92.4		1.04093	96.2
	150		64.2	504.2	2.389		92.5		1.04093	96.3
	152	1204.6	64.2	504.2	2.389	2.582	92.5	2.487	1.04093	96.3
2	0		82.9	651.1	1.893		73.3		1.03726	76.0
	8		73.6	578.1	2.132		82.6		1.03726	85.6
	10		72.9	572.6	2.152		83.3		1.03726	86.5
	20		70.8	556.1	2.216		85.8		1.03726	89.0
	30		69.7	547.4	2.251		87.2		1.03726	90.4
	40		68.9	541.1	2.277		88.2		1.03726	91.5
	50		68.4	537.2	2.294		88.8		1.03726	92.1
	60		68.0	534.1	2.307		89.4		1.03726	92.7
	70		67.6	530.9	2.321		89.9		1.03726	93.2
	80		67.3	528.6	2.331		90.3		1.03726	93.6
	90		67.1	527.0	2.338		90.5		1.03726	93.9
	96		67.0	526.2	2.342		90.7		1.03726	94.1
	100		66.9	525.4	2.345		90.8		1.03726	94.2
	110		66.7	523.9	2.352		91.1		1.03726	94.5
	120		66.6	523.1	2.356		91.2		1.03726	94.6
	130		66.4	521.5	2.363		91.5		1.03726	94.9
	140		66.3	520.7	2.366		91.6		1.03726	95.1
	150		66.2	519.9	2.370		91.8		1.03726	95.2
	152	1232.2	66.1	519.1	2.374	2.582	91.9	2.462	1.03726	95.3

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.5	632.2	1.875		72.6		1.04271	75.7
	8		70.8	556.1	2.131		82.5		1.04271	86.1
	10		70.1	550.6	2.153		83.4		1.04271	86.9
	20		68.0	534.1	2.219		85.9		1.04271	89.6
	30		66.9	525.4	2.256		87.4		1.04271	91.1
	40		66.2	519.9	2.280		88.3		1.04271	92.1
	50		65.6	515.2	2.300		89.1		1.04271	92.9
	60		65.2	512.1	2.314		89.6		1.04271	93.5
	70		64.8	508.9	2.329		90.2		1.04271	94.0
	80		64.6	507.4	2.336		90.5		1.04271	94.3
	90		64.3	505.0	2.347		90.9		1.04271	94.8
	96		64.2	504.2	2.351		91.0		1.04271	94.9
	100		64.1	503.4	2.354		91.2		1.04271	95.1
	110		64.0	502.7	2.358		91.3		1.04271	95.2
	120		63.8	501.1	2.365		91.6		1.04271	95.5
	130		63.7	500.3	2.369		91.7		1.04271	95.7
	140		63.6	499.5	2.373		91.9		1.04271	95.8
	148	1185.2	63.5	498.7	2.376	2.582	92.0	2.478	1.04271	96.0
2	0		79.3	622.8	1.870		72.4		1.05328	76.3
	8		70.6	554.5	2.101		81.4		1.05328	85.7
	10		69.9	549.0	2.122		82.2		1.05328	86.6
	20		67.7	531.7	2.191		84.8		1.05328	89.4
	30		66.5	522.3	2.230		86.4		1.05328	91.0
	40		65.8	516.8	2.254		87.3		1.05328	91.9
	50		65.2	512.1	2.275		88.1		1.05328	92.8
	60		64.8	508.9	2.289		88.6		1.05328	93.4
	70		64.5	506.6	2.300		89.1		1.05328	93.8
	80		64.2	504.2	2.310		89.5		1.05328	94.2
	90		64.0	502.7	2.317		89.8		1.05328	94.5
	96		63.9	501.9	2.321		89.9		1.05328	94.7
	100		63.8	501.1	2.325		90.0		1.05328	94.8
	110		63.6	499.5	2.332		90.3		1.05328	95.1
	117	1164.9	63.5	498.7	2.336	2.582	90.5	2.460	1.05328	95.3

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		147.7	2610.1	1.948		74.6		1.03200	77.0
	8		131.4	2322.0	2.189		83.9		1.03200	86.6
	10		130.0	2297.3	2.213		84.8		1.03200	87.5
	20		126.1	2228.4	2.281		87.4		1.03200	90.2
	30		124.0	2191.3	2.320		88.9		1.03200	91.7
	40		122.6	2166.5	2.347		89.9		1.03200	92.8
	50		121.6	2148.8	2.366		90.6		1.03200	93.5
	60		120.8	2134.7	2.381		91.2		1.03200	94.1
	70		120.2	2124.1	2.393		91.7		1.03200	94.6
	80		119.6	2113.5	2.405		92.1		1.03200	95.1
	90		119.2	2106.4	2.413		92.5		1.03200	95.4
	96		118.9	2101.1	2.420		92.7		1.03200	95.7
	100		118.8	2099.4	2.422		92.8		1.03200	95.7
	110		118.4	2092.3	2.430		93.1		1.03200	96.1
	120		118.1	2087.0	2.436		93.3		1.03200	96.3
	130		117.8	2081.7	2.442		93.6		1.03200	96.5
	140		117.6	2078.2	2.446		93.7		1.03200	96.7
	150		117.4	2074.6	2.450		93.9		1.03200	96.9
	152	5083.8	117.4	2074.6	2.450	2.610	93.9	2.529	1.03200	96.9
2	0		144.8	2558.8	1.942		74.4		1.02596	76.3
	8		128.3	2267.2	2.192		84.0		1.02596	86.1
	10		127.0	2244.3	2.214		84.8		1.02596	87.0
	20		123.2	2177.1	2.282		87.4		1.02596	89.7
	30		121.1	2140.0	2.322		88.9		1.02596	91.3
	40		119.7	2115.3	2.349		90.0		1.02596	92.3
	50		118.8	2099.4	2.367		90.7		1.02596	93.0
	60		118.0	2085.2	2.383		91.3		1.02596	93.7
	70		117.4	2074.6	2.395		91.7		1.02596	94.1
	80		116.8	2064.0	2.407		92.2		1.02596	94.6
	90		116.4	2057.0	2.416		92.5		1.02596	94.9
	96		116.2	2053.4	2.420		92.7		1.02596	95.1
	100		116.0	2049.9	2.424		92.9		1.02596	95.3
	110		115.7	2044.6	2.430		93.1		1.02596	95.5
	120		115.4	2039.3	2.437		93.3		1.02596	95.8
	130		115.1	2034.0	2.443		93.6		1.02596	96.0
	140		114.8	2028.7	2.449		93.8		1.02596	96.3
	150		114.6	2025.1	2.454		94.0		1.02596	96.4
	152	4968.8	114.6	2025.1	2.454	2.610	94.0	2.517	1.02596	96.4

County: Blount
Mix: 307-S

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Blount

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.6	656.6	1.904		72.9		1.04112	75.9
	8		73.9	580.4	2.154		82.5		1.04112	85.9
	10		73.2	574.9	2.174		83.3		1.04112	86.7
	20		71.0	557.6	2.242		85.9		1.04112	89.4
	30		69.8	548.2	2.280		87.3		1.04112	90.9
	40		69.1	542.7	2.303		88.2		1.04112	91.9
	50		68.5	538.0	2.323		89.0		1.04112	92.7
	60		68.1	534.9	2.337		89.5		1.04112	93.2
	70		67.7	531.7	2.351		90.1		1.04112	93.8
	80		67.4	529.4	2.361		90.5		1.04112	94.2
	90		67.2	527.8	2.368		90.7		1.04112	94.5
	96		67.1	527.0	2.372		90.9		1.04112	94.6
	100		67.0	526.2	2.375		91.0		1.04112	94.7
	110		66.8	524.6	2.383		91.3		1.04112	95.0
	120		66.6	523.1	2.390		91.5		1.04112	95.3
	130		66.5	522.3	2.393		91.7		1.04112	95.5
	140		66.3	520.7	2.401		92.0		1.04112	95.7
	150		66.2	519.9	2.404		92.1		1.04112	95.9
	152	1250.0	66.2	519.9	2.404	2.610	92.1	2.503	1.04112	95.9
2	0		82.5	648.0	1.916		73.4		1.04561	76.7
	8		73.4	576.5	2.153		82.5		1.04561	86.3
	10		72.7	571.0	2.174		83.3		1.04561	87.1
	20		70.5	553.7	2.242		85.9		1.04561	89.8
	30		69.3	544.3	2.281		87.4		1.04561	91.4
	40		68.6	538.8	2.304		88.3		1.04561	92.3
	50		68.0	534.1	2.324		89.0		1.04561	93.1
	60		67.6	530.9	2.338		89.6		1.04561	93.7
	70		67.3	528.6	2.349		90.0		1.04561	94.1
	80		67.0	526.2	2.359		90.4		1.04561	94.5
	90		66.7	523.9	2.370		90.8		1.04561	94.9
	96		66.6	523.1	2.373		90.9		1.04561	95.1
	100		66.5	522.3	2.377		91.1		1.04561	95.2
	110		66.3	520.7	2.384		91.3		1.04561	95.5
	120		66.1	519.1	2.391		91.6		1.04561	95.8
	130		65.9	517.6	2.398		91.9		1.04561	96.1
	140		65.8	516.8	2.402		92.0		1.04561	96.2
	150		65.7	516.0	2.406		92.2		1.04561	96.4
	152	1241.4	65.7	516.0	2.406	2.610	92.2	2.516	1.04561	96.4

Percent G_{mm} Summary

Mix: 307-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		152.8	2700.2	1.669		71.9		1.03096	74.2
	8		134.6	2378.6	1.894		81.7		1.03096	84.2
	10		133.2	2353.8	1.914		82.5		1.03096	85.1
	20		128.9	2277.9	1.978		85.3		1.03096	87.9
	30		126.5	2235.4	2.015		86.9		1.03096	89.6
	40		125.0	2208.9	2.040		87.9		1.03096	90.7
	50		123.9	2189.5	2.058		88.7		1.03096	91.5
	60		123.0	2173.6	2.073		89.4		1.03096	92.1
	70		122.3	2161.2	2.085		89.9		1.03096	92.7
	80		121.7	2150.6	2.095		90.3		1.03096	93.1
	90		121.2	2141.8	2.104		90.7		1.03096	93.5
	96		121.0	2138.2	2.107		90.9		1.03096	93.7
	100		120.8	2134.7	2.111		91.0		1.03096	93.8
	110		120.5	2129.4	2.116		91.2		1.03096	94.1
	120		120.1	2122.3	2.123		91.5		1.03096	94.4
	130		119.8	2117.0	2.128		91.8		1.03096	94.6
	140		119.6	2113.5	2.132		91.9		1.03096	94.8
	150		119.4	2110.0	2.135		92.1		1.03096	94.9
	152	4505.4	119.3	2108.2	2.137	2.319	92.2	2.203	1.03096	95.0
2	0		153.3	2709.0	1.664		71.7		1.03239	74.1
	8		134.8	2382.1	1.892		81.6		1.03239	84.2
	10		133.4	2357.4	1.912		82.4		1.03239	85.1
	20		129.1	2281.4	1.975		85.2		1.03239	87.9
	30		126.8	2240.7	2.011		86.7		1.03239	89.5
	40		125.2	2212.5	2.037		87.8		1.03239	90.7
	50		124.1	2193.0	2.055		88.6		1.03239	91.5
	60		123.2	2177.1	2.070		89.3		1.03239	92.1
	70		122.5	2164.8	2.082		89.8		1.03239	92.7
	80		122.0	2155.9	2.090		90.1		1.03239	93.1
	90		121.5	2147.1	2.099		90.5		1.03239	93.4
	96		121.2	2141.8	2.104		90.7		1.03239	93.7
	100		121.1	2140.0	2.106		90.8		1.03239	93.7
	110		120.7	2132.9	2.113		91.1		1.03239	94.1
	120		120.4	2127.6	2.118		91.3		1.03239	94.3
	130		120.1	2122.3	2.123		91.6		1.03239	94.5
	140		119.9	2118.8	2.127		91.7		1.03239	94.7
	150		119.6	2113.5	2.132		91.9		1.03239	94.9
	152	4506.6	119.6	2113.5	2.132	2.319	91.9	2.201	1.03239	94.9

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 411-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		142.8	2523.5	0.427		18.4		4.13305	76.1
	8		125.1	2210.7	0.488		21.0		4.13305	86.9
	10		123.7	2186.0	0.493		21.3		4.13305	87.9
	20		119.5	2111.7	0.510		22.0		4.13305	91.0
	30		117.2	2071.1	0.520		22.4		4.13305	92.8
	40		115.7	2044.6	0.527		22.7		4.13305	94.0
	47	1078.0	114.9	2030.5	0.531	2.319	22.9	2.194	4.13305	94.6
2	0		142.4	2516.4	0.427		18.4		4.13357	76.1
	8		125.0	2208.9	0.487		21.0		4.13357	86.7
	10		123.6	2184.2	0.492		21.2		4.13357	87.7
	20		119.5	2111.7	0.509		21.9		4.13357	90.7
	30		117.3	2072.9	0.519		22.4		4.13357	92.4
	40		115.9	2048.1	0.525		22.6		4.13357	93.5
	50	1074.9	114.8	2028.7	0.530	2.319	22.8	2.190	4.13357	94.4

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		86.4	678.6	1.634		70.5		1.04378	73.5
	8		75.5	593.0	1.870		80.6		1.04378	84.2
	10		74.7	586.7	1.890		81.5		1.04378	85.1
	20		72.2	567.1	1.956		84.3		1.04378	88.0
	30		70.9	556.8	1.991		85.9		1.04378	89.6
	40		70.1	550.6	2.014		86.8		1.04378	90.7
	50		69.5	545.9	2.032		87.6		1.04378	91.4
	60		69.0	541.9	2.046		88.2		1.04378	92.1
	70		68.6	538.8	2.058		88.7		1.04378	92.6
	80		68.3	536.4	2.067		89.1		1.04378	93.0
	90		68.1	534.9	2.073		89.4		1.04378	93.3
	96		67.9	533.3	2.079		89.7		1.04378	93.6
	100		67.8	532.5	2.082		89.8		1.04378	93.7
	110		67.7	531.7	2.086		89.9		1.04378	93.9
	120		67.5	530.1	2.092		90.2		1.04378	94.1
	130		67.3	528.6	2.098		90.5		1.04378	94.4
	140		67.2	527.8	2.101		90.6		1.04378	94.6
	150		67.1	527.0	2.104		90.7		1.04378	94.7
	152	1108.9	67.1	527.0	2.104	2.319	90.7	2.196	1.04378	94.7
2	0		87.3	685.7	1.609		69.4		1.06080	73.6
	8		76.1	597.7	1.845		79.6		1.06080	84.4
	10		75.3	591.4	1.865		80.4		1.06080	85.3
	20		72.8	571.8	1.929		83.2		1.06080	88.2
	30		71.5	561.6	1.964		84.7		1.06080	89.8
	40		70.7	555.3	1.986		85.7		1.06080	90.9
	50		70.0	549.8	2.006		86.5		1.06080	91.8
	60		69.6	546.6	2.018		87.0		1.06080	92.3
	70		69.2	543.5	2.029		87.5		1.06080	92.8
	80		68.9	541.1	2.038		87.9		1.06080	93.2
	90		68.6	538.8	2.047		88.3		1.06080	93.6
	96		68.5	538.0	2.050		88.4		1.06080	93.8
	100		68.4	537.2	2.053		88.5		1.06080	93.9
	110		68.2	535.6	2.059		88.8		1.06080	94.2
	120		68.0	534.1	2.065		89.1		1.06080	94.5
	130		67.9	533.3	2.068		89.2		1.06080	94.6
	140		67.7	531.7	2.074		89.4		1.06080	94.9
	150		67.6	530.9	2.077		89.6		1.06080	95.0
	152	1103.0	67.6	530.9	2.077	2.319	89.6	2.204	1.06080	95.0

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 411-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.8	634.6	1.699		73.2		1.01326	74.2
	8		70.7	555.3	1.941		83.7		1.01326	84.8
	10		69.9	549.0	1.964		84.7		1.01326	85.8
	20		67.5	530.1	2.033		87.7		1.01326	88.8
	30		66.2	519.9	2.073		89.4		1.01326	90.6
	40		65.3	512.9	2.102		90.6		1.01326	91.8
	50		64.7	508.2	2.121		91.5		1.01326	92.7
	60		64.3	505.0	2.135		92.0		1.01326	93.3
	70		63.9	501.9	2.148		92.6		1.01326	93.8
	80		63.6	499.5	2.158		93.1		1.01326	94.3
	85	1078.0	63.5	498.7	2.161	2.319	93.2	2.190	1.01326	94.4
2	0		80.3	630.7	1.704		73.5		1.01326	74.5
	8		70.3	552.1	1.947		83.9		1.01326	85.1
	10		69.5	545.9	1.969		84.9		1.01326	86.0
	20		67.1	527.0	2.040		88.0		1.01326	89.1
	30		65.8	516.8	2.080		89.7		1.01326	90.9
	40		65.0	510.5	2.106		90.8		1.01326	92.0
	50		64.4	505.8	2.125		91.6		1.01326	92.9
	60		63.9	501.9	2.142		92.4		1.01326	93.6
	70		63.6	499.5	2.152		92.8		1.01326	94.0
	73	1074.9	63.5	498.7	2.155	2.319	92.9	2.184	1.01326	94.2

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		146.5	2588.9	1.789		75.0		1.02121	76.6
	8		128.7	2274.3	2.036		85.4		1.02121	87.2
	10		127.3	2249.6	2.059		86.3		1.02121	88.1
	20		123.1	2175.4	2.129		89.2		1.02121	91.1
	30		120.7	2132.9	2.171		91.0		1.02121	92.9
	40		119.2	2106.4	2.198		92.2		1.02121	94.1
	50		118.1	2087.0	2.219		93.0		1.02121	95.0
	60		117.3	2072.9	2.234		93.7		1.02121	95.6
	70		116.7	2062.3	2.245		94.1		1.02121	96.1
	80		116.2	2053.4	2.255		94.5		1.02121	96.5
	90		115.8	2046.4	2.263		94.9		1.02121	96.9
	96		115.6	2042.8	2.267		95.0		1.02121	97.0
	100		115.4	2039.3	2.271		95.2		1.02121	97.2
	110		115.1	2034.0	2.277		95.4		1.02121	97.5
	120		114.9	2030.5	2.281		95.6		1.02121	97.6
	130		114.7	2026.9	2.285		95.8		1.02121	97.8
	140		114.5	2023.4	2.289		95.9		1.02121	98.0
	150		114.3	2019.8	2.293		96.1		1.02121	98.1
	152	4630.8	114.3	2019.8	2.293	2.385	96.1	2.341	1.02121	98.1
2	0		146.7	2592.4	1.788		75.0		1.02595	76.9
	8		128.9	2277.9	2.035		85.3		1.02595	87.5
	10		127.5	2253.1	2.057		86.2		1.02595	88.5
	20		123.3	2178.9	2.128		89.2		1.02595	91.5
	30		120.9	2136.5	2.170		91.0		1.02595	93.3
	40		119.4	2110.0	2.197		92.1		1.02595	94.5
	50		118.2	2088.8	2.219		93.0		1.02595	95.4
	60		117.4	2074.6	2.234		93.7		1.02595	96.1
	70		116.7	2062.3	2.248		94.2		1.02595	96.7
	80		116.2	2053.4	2.258		94.6		1.02595	97.1
	90		115.7	2044.6	2.267		95.0		1.02595	97.5
	96		115.5	2041.1	2.271		95.2		1.02595	97.7
	100		115.3	2037.5	2.275		95.4		1.02595	97.9
	110		115.0	2032.2	2.281		95.6		1.02595	98.1
	120		114.7	2026.9	2.287		95.9		1.02595	98.4
	130		114.5	2023.4	2.291		96.0		1.02595	98.5
	140		114.2	2018.1	2.297		96.3		1.02595	98.8
	150		114.0	2014.5	2.301		96.5		1.02595	99.0
	152	4635.7	114.0	2014.5	2.301	2.385	96.5	2.361	1.02595	99.0

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Dyer

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.8	642.5	1.745		73.1		1.03256	75.5
	8		71.5	561.6	1.996		83.7		1.03256	86.4
	10		70.7	555.3	2.019		84.6		1.03256	87.4
	20		68.3	536.4	2.090		87.6		1.03256	90.5
	30		67.0	526.2	2.130		89.3		1.03256	92.2
	40		66.1	519.1	2.159		90.5		1.03256	93.5
	50		65.5	514.4	2.179		91.3		1.03256	94.3
	60		65.0	510.5	2.196		92.1		1.03256	95.0
	70		64.6	507.4	2.209		92.6		1.03256	95.6
	80		64.3	505.0	2.220		93.1		1.03256	96.1
	90		64.0	502.7	2.230		93.5		1.03256	96.5
	96		63.9	501.9	2.234		93.6		1.03256	96.7
	100		63.8	501.1	2.237		93.8		1.03256	96.8
	110		63.6	499.5	2.244		94.1		1.03256	97.1
	120		63.4	497.9	2.251		94.4		1.03256	97.4
	130		63.3	497.2	2.255		94.5		1.03256	97.6
	140		63.1	495.6	2.262		94.8		1.03256	97.9
	150		63.0	494.8	2.266		95.0		1.03256	98.1
	152	1121.0	63.0	494.8	2.266	2.385	95.0	2.339	1.03256	98.1
2	0		83.5	655.8	1.724		72.3		1.03784	75.0
	8		73.1	574.1	1.970		82.6		1.03784	85.7
	10		72.3	567.8	1.992		83.5		1.03784	86.6
	20		69.8	548.2	2.063		86.5		1.03784	89.7
	30		68.4	537.2	2.105		88.2		1.03784	91.6
	40		67.5	530.1	2.133		89.4		1.03784	92.8
	50		66.8	524.6	2.156		90.4		1.03784	93.8
	60		66.3	520.7	2.172		91.0		1.03784	94.5
	70		65.9	517.6	2.185		91.6		1.03784	95.1
	80		65.6	515.2	2.195		92.0		1.03784	95.5
	90		65.3	512.9	2.205		92.4		1.03784	95.9
	96		65.2	512.1	2.208		92.6		1.03784	96.1
	100		65.1	511.3	2.212		92.7		1.03784	96.2
	110		64.9	509.7	2.219		93.0		1.03784	96.5
	120		64.7	508.2	2.226		93.3		1.03784	96.8
	130		64.5	506.6	2.232		93.6		1.03784	97.1
	140		64.4	505.8	2.236		93.7		1.03784	97.3
	150		64.3	505.0	2.239		93.9		1.03784	97.4
	152	1130.9	64.3	505.0	2.239	2.385	93.9	2.324	1.03784	97.4

Appendix C

Percent G_{mm} Summary

County: Dyer
Mix: 307-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.8	634.6	1.750		73.4		1.04555	76.7
	8		70.7	555.3	2.000		83.8		1.04555	87.6
	10		69.9	549.0	2.023		84.8		1.04555	88.7
	20		67.5	530.1	2.095		87.8		1.04555	91.8
	30		66.2	519.9	2.136		89.5		1.04555	93.6
	40		65.3	512.9	2.165		90.8		1.04555	94.9
	50		64.7	508.2	2.185		91.6		1.04555	95.8
	60		64.3	505.0	2.199		92.2		1.04555	96.4
	70		63.9	501.9	2.213		92.7		1.04555	97.0
	80		63.6	499.5	2.223		93.2		1.04555	97.4
	85	1110.4	63.5	498.7	2.226	2.385	93.3	2.328	1.04555	97.6
2	0		80.3	630.7	1.757		73.7		1.04819	77.2
	8		70.3	552.1	2.007		84.1		1.04819	88.2
	10		69.5	545.9	2.030		85.1		1.04819	89.2
	20		67.1	527.0	2.103		88.1		1.04819	92.4
	30		65.8	516.8	2.144		89.9		1.04819	94.2
	40		65.0	510.5	2.171		91.0		1.04819	95.4
	50		64.4	505.8	2.191		91.8		1.04819	96.3
	60		63.9	501.9	2.208		92.6		1.04819	97.0
	70		63.6	499.5	2.218		93.0		1.04819	97.5
	73	1108.1	63.5	498.7	2.222	2.385	93.1	2.329	1.04819	97.6

Appendix C

Percent G_{mm} Summary

County: Grundy
Mix: 307-BM

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		144.6	2555.3	1.913		76.0		1.01452	77.1
	8		128.2	2265.5	2.158		85.7		1.01452	86.9
	10		126.9	2242.5	2.180		86.6		1.01452	87.8
	20		123.0	2173.6	2.249		89.3		1.01452	90.6
	30		120.9	2136.5	2.288		90.9		1.01452	92.2
	40		119.5	2111.7	2.315		91.9		1.01452	93.3
	50		118.4	2092.3	2.337		92.8		1.01452	94.1
	60		117.6	2078.2	2.353		93.4		1.01452	94.8
	70		117.0	2067.6	2.365		93.9		1.01452	95.3
	80		116.4	2057.0	2.377		94.4		1.01452	95.8
	90		116.0	2049.9	2.385		94.7		1.01452	96.1
	96		115.7	2044.6	2.391		95.0		1.01452	96.3
	100		115.6	2042.8	2.393		95.0		1.01452	96.4
	110		115.3	2037.5	2.399		95.3		1.01452	96.7
	120		114.9	2030.5	2.408		95.6		1.01452	97.0
	130		114.7	2026.9	2.412		95.8		1.01452	97.2
	140		114.4	2021.6	2.418		96.0		1.01452	97.4
2	150		114.2	2018.1	2.423		96.2		1.01452	97.6
	152	4888.9	114.2	2018.1	2.423	2.518	96.2	2.458	1.01452	97.6
	0		145.2	2565.9	1.905		75.7		1.03217	78.1
	8		128.6	2272.5	2.151		85.4		1.03217	88.2
	10		127.3	2249.6	2.173		86.3		1.03217	89.1
	20		123.4	2180.7	2.242		89.0		1.03217	91.9
	30		121.2	2141.8	2.283		90.7		1.03217	93.6
	40		119.8	2117.0	2.309		91.7		1.03217	94.7
	50		118.7	2097.6	2.331		92.6		1.03217	95.5
	60		117.9	2083.5	2.347		93.2		1.03217	96.2
	70		117.3	2072.9	2.359		93.7		1.03217	96.7
	80		116.7	2062.3	2.371		94.2		1.03217	97.2
	90		116.3	2055.2	2.379		94.5		1.03217	97.5
	96		116.0	2049.9	2.385		94.7		1.03217	97.8
	100		115.9	2048.1	2.387		94.8		1.03217	97.9
	110		115.5	2041.1	2.395		95.1		1.03217	98.2
	120		115.2	2035.8	2.402		95.4		1.03217	98.4
	130		114.9	2030.5	2.408		95.6		1.03217	98.7
	140		114.7	2026.9	2.412		95.8		1.03217	98.9
	150		114.4	2021.6	2.418		96.0		1.03217	99.1
	152	4889.2	114.4	2021.6	2.418	2.518	96.0	2.496	1.03217	99.1

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Grundy
Mix: 307-BM

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		82.0	644.0	1.860		73.9		1.02857	76.0
	8		72.1	566.3	2.116		84.0		1.02857	86.4
	10		71.4	560.8	2.137		84.9		1.02857	87.3
	20		69.1	542.7	2.208		87.7		1.02857	90.2
	30		67.9	533.3	2.247		89.2		1.02857	91.8
	40		67.0	526.2	2.277		90.4		1.02857	93.0
	50		66.4	521.5	2.297		91.2		1.02857	93.8
	60		65.9	517.6	2.315		91.9		1.02857	94.6
	70		65.5	514.4	2.329		92.5		1.02857	95.1
	80		65.1	511.3	2.343		93.1		1.02857	95.7
	90		64.9	509.7	2.350		93.3		1.02857	96.0
	96		64.7	508.2	2.358		93.6		1.02857	96.3
	100		64.6	507.4	2.361		93.8		1.02857	96.5
	110		64.4	505.8	2.369		94.1		1.02857	96.8
	120		64.2	504.2	2.376		94.4		1.02857	97.1
	130		64.0	502.7	2.384		94.7		1.02857	97.4
	140		63.9	501.9	2.387		94.8		1.02857	97.5
2	150		63.8	501.1	2.391		95.0		1.02857	97.7
	152	1198.1	63.7	500.3	2.395	2.518	95.1	2.463	1.02857	97.8
	0		80.8	634.6	1.881		74.7		1.02819	76.8
	8		71.2	559.2	2.134		84.8		1.02819	87.2
	10		70.5	553.7	2.156		85.6		1.02819	88.0
	20		68.2	535.6	2.228		88.5		1.02819	91.0
	30		67.0	526.2	2.268		90.1		1.02819	92.6
	40		66.2	519.9	2.296		91.2		1.02819	93.7
	50		65.6	515.2	2.317		92.0		1.02819	94.6
	60		65.1	511.3	2.334		92.7		1.02819	95.3
	70		64.7	508.2	2.349		93.3		1.02819	95.9
	80		64.4	505.8	2.360		93.7		1.02819	96.4
	90		64.2	504.2	2.367		94.0		1.02819	96.7
	96		64.0	502.7	2.375		94.3		1.02819	97.0
	100		63.9	501.9	2.378		94.5		1.02819	97.1
	110		63.7	500.3	2.386		94.7		1.02819	97.4
	120		63.6	499.5	2.390		94.9		1.02819	97.6
	130		63.4	497.9	2.397		95.2		1.02819	97.9
	140		63.3	497.2	2.401		95.3		1.02819	98.0
	150		63.1	495.6	2.408		95.7		1.02819	98.3
	152	1193.6	63.1	495.6	2.408	2.518	95.7	2.476	1.02819	98.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Grundy

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		142.5	2518.2	1.767		76.9		1.02448	78.8
	8		127.2	2247.8	1.980		86.2		1.02448	88.3
	10		126.1	2228.4	1.997		86.9		1.02448	89.1
	20		122.7	2168.3	2.052		89.3		1.02448	91.5
	30		120.8	2134.7	2.085		90.7		1.02448	93.0
	40		119.6	2113.5	2.106		91.6		1.02448	93.9
	50		118.7	2097.6	2.121		92.3		1.02448	94.6
	60		118.0	2085.2	2.134		92.9		1.02448	95.2
	70		117.4	2074.6	2.145		93.4		1.02448	95.7
	80		117.0	2067.6	2.152		93.7		1.02448	96.0
	90		116.5	2058.7	2.162		94.1		1.02448	96.4
	96		116.3	2055.2	2.165		94.3		1.02448	96.6
	100		116.2	2053.4	2.167		94.3		1.02448	96.6
	110		115.8	2046.4	2.175		94.7		1.02448	97.0
	120		115.6	2042.8	2.178		94.8		1.02448	97.1
	130		115.3	2037.5	2.184		95.1		1.02448	97.4
	140		115.1	2034.0	2.188		95.2		1.02448	97.6
	150		114.8	2028.7	2.194		95.5		1.02448	97.8
	152	4450.0	114.8	2028.7	2.194	2.297	95.5	2.247	1.02448	97.8
2	0		142.0	2509.3	1.774		77.2		1.01966	78.7
	8		126.7	2239.0	1.988		86.6		1.01966	88.3
	10		125.6	2219.5	2.006		87.3		1.01966	89.0
	20		122.2	2159.5	2.062		89.7		1.01966	91.5
	30		120.3	2125.9	2.094		91.2		1.01966	93.0
	40		119.1	2104.7	2.115		92.1		1.01966	93.9
	50		118.2	2088.8	2.131		92.8		1.01966	94.6
	60		117.5	2076.4	2.144		93.3		1.01966	95.2
	70		116.9	2065.8	2.155		93.8		1.01966	95.7
	80		116.4	2057.0	2.164		94.2		1.01966	96.1
	90		116.0	2049.9	2.172		94.5		1.01966	96.4
	96		115.8	2046.4	2.176		94.7		1.01966	96.6
	100		115.7	2044.6	2.178		94.8		1.01966	96.6
	110		115.3	2037.5	2.185		95.1		1.01966	97.0
	120		115.1	2034.0	2.189		95.3		1.01966	97.2
	130		114.8	2028.7	2.195		95.5		1.01966	97.4
	140		114.6	2025.1	2.198		95.7		1.01966	97.6
	150		114.4	2021.6	2.202		95.9		1.01966	97.7
	152	4452.1	114.3	2019.8	2.204	2.297	95.9	2.248	1.01966	97.8

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Grundy

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		78.7	618.1	1.758		76.5		1.02549	78.5
	8		70.1	550.6	1.974		85.9		1.02549	88.1
	10		69.5	545.9	1.991		86.7		1.02549	88.9
	20		67.6	530.9	2.047		89.1		1.02549	91.4
	30		66.6	523.1	2.077		90.4		1.02549	92.7
	40		65.9	517.6	2.099		91.4		1.02549	93.7
	50		65.4	513.7	2.115		92.1		1.02549	94.4
	60		65.0	510.5	2.128		92.6		1.02549	95.0
	70		64.7	508.2	2.138		93.1		1.02549	95.5
	80		64.4	505.8	2.148		93.5		1.02549	95.9
	90		64.2	504.2	2.155		93.8		1.02549	96.2
	96		64.1	503.4	2.158		93.9		1.02549	96.3
	100		64.0	502.7	2.162		94.1		1.02549	96.5
	110		63.8	501.1	2.168		94.4		1.02549	96.8
	120		63.7	500.3	2.172		94.5		1.02549	96.9
	130		63.5	498.7	2.179		94.8		1.02549	97.3
	140		63.4	497.9	2.182		95.0		1.02549	97.4
2	150		63.3	497.2	2.186		95.1		1.02549	97.6
	152	1086.6	63.3	497.2	2.186	2.297	95.1	2.241	1.02549	97.6
	0		79.6	625.2	1.746		76.0		1.03452	78.6
	8		71.1	558.4	1.955		85.1		1.03452	88.0
	10		70.5	553.7	1.971		85.8		1.03452	88.8
	20		68.6	538.8	2.026		88.2		1.03452	91.2
	30		67.6	530.9	2.056		89.5		1.03452	92.6
	40		66.9	525.4	2.077		90.4		1.03452	93.5
	50		66.4	521.5	2.093		91.1		1.03452	94.2
	60		66.0	518.4	2.106		91.7		1.03452	94.8
	70		65.7	516.0	2.115		92.1		1.03452	95.3
	80		65.4	513.7	2.125		92.5		1.03452	95.7
	90		65.2	512.1	2.132		92.8		1.03452	96.0
	96		65.1	511.3	2.135		92.9		1.03452	96.1
	100		65.0	510.5	2.138		93.1		1.03452	96.3
	110		64.8	508.9	2.145		93.4		1.03452	96.6
	120		64.6	507.4	2.151		93.6		1.03452	96.9
	130		64.5	506.6	2.155		93.8		1.03452	97.0
	140		64.4	505.8	2.158		93.9		1.03452	97.2
	150		64.2	504.2	2.165		94.2		1.03452	97.5
	152	1091.5	64.2	504.2	2.165	2.297	94.2	2.239	1.03452	97.5

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Madison
Mix: 307-BM/2

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		133.4	2357.4	2.064		82.5		1.01355	83.6
	8		120.7	2132.9	2.281		91.2		1.01355	92.4
	10		119.8	2117.0	2.298		91.8		1.01355	93.1
	20		117.2	2071.1	2.349		93.9		1.01355	95.2
	30		115.9	2048.1	2.376		94.9		1.01355	96.2
	40		115.0	2032.2	2.394		95.7		1.01355	97.0
	50		114.5	2023.4	2.405		96.1		1.01355	97.4
	60		114.0	2014.5	2.415		96.5		1.01355	97.8
	70		113.7	2009.2	2.422		96.8		1.01355	98.1
	80		113.4	2003.9	2.428		97.0		1.01355	98.3
	90		113.2	2000.4	2.432		97.2		1.01355	98.5
	96		113.1	1998.6	2.435		97.3		1.01355	98.6
	100		113.0	1996.9	2.437		97.4		1.01355	98.7
	110		112.9	1995.1	2.439		97.5		1.01355	98.8
	120		112.8	1993.3	2.441		97.5		1.01355	98.9
	130		112.7	1991.6	2.443		97.6		1.01355	99.0
	140		112.6	1989.8	2.445		97.7		1.01355	99.0
	150		112.6	1989.8	2.445		97.7		1.01355	99.0
	152	4865.9	112.6	1989.8	2.445	2.502	97.7	2.479	1.01355	99.0
2	0		133.8	2364.4	2.053		82.1		1.01372	83.2
	8		120.9	2136.5	2.272		90.8		1.01372	92.1
	10		120.0	2120.6	2.289		91.5		1.01372	92.7
	20		117.4	2074.6	2.340		93.5		1.01372	94.8
	30		116.0	2049.9	2.368		94.6		1.01372	95.9
	40		115.1	2034.0	2.387		95.4		1.01372	96.7
	50		114.5	2023.4	2.399		95.9		1.01372	97.2
	60		114.0	2014.5	2.410		96.3		1.01372	97.6
	70		113.7	2009.2	2.416		96.6		1.01372	97.9
	80		113.4	2003.9	2.423		96.8		1.01372	98.1
	90		113.1	1998.6	2.429		97.1		1.01372	98.4
	96		113.0	1996.9	2.431		97.2		1.01372	98.5
	100		112.9	1995.1	2.433		97.2		1.01372	98.6
	110		112.7	1991.6	2.438		97.4		1.01372	98.8
	120		112.6	1989.8	2.440		97.5		1.01372	98.8
	130		112.5	1988.0	2.442		97.6		1.01372	98.9
	140		112.3	1984.5	2.446		97.8		1.01372	99.1
	150		112.2	1982.7	2.449		97.8		1.01372	99.2
	152	4855.0	112.2	1982.7	2.449	2.502	97.8	2.482	1.01372	99.2

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Madison
Mix: 307-BM/2

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		73.4	576.5	2.069		82.7		1.01141	83.6
	8		66.2	519.9	2.294		91.7		1.01141	92.7
	10		65.7	516.0	2.311		92.4		1.01141	93.4
	20		64.4	505.8	2.358		94.2		1.01141	95.3
	30		63.7	500.3	2.384		95.3		1.01141	96.3
	40		63.2	496.4	2.403		96.0		1.01141	97.1
	50		62.9	494.0	2.414		96.5		1.01141	97.6
	60		62.7	492.4	2.422		96.8		1.01141	97.9
	70		62.5	490.9	2.430		97.1		1.01141	98.2
	80		62.3	489.3	2.437		97.4		1.01141	98.5
	90		62.2	488.5	2.441		97.6		1.01141	98.7
	96		62.2	488.5	2.441		97.6		1.01141	98.7
	100		62.1	487.7	2.445		97.7		1.01141	98.8
	110		62.0	486.9	2.449		97.9		1.01141	99.0
	120		62.0	486.9	2.449		97.9		1.01141	99.0
	130		61.9	486.2	2.453		98.0		1.01141	99.1
	140		61.9	486.2	2.453		98.0		1.01141	99.1
	150		61.8	485.4	2.457		98.2		1.01141	99.3
	152	1192.6	61.8	485.4	2.457	2.502	98.2	2.485	1.01141	99.3
2	0		74.8	587.5	2.022		80.8		1.01543	82.1
	8		67.1	527.0	2.254		90.1		1.01543	91.5
	10		66.5	522.3	2.275		90.9		1.01543	92.3
	20		64.9	509.7	2.331		93.1		1.01543	94.6
	30		64.1	503.4	2.360		94.3		1.01543	95.8
	40		63.6	499.5	2.379		95.0		1.01543	96.5
	50		63.2	496.4	2.394		95.6		1.01543	97.1
	60		62.9	494.0	2.405		96.1		1.01543	97.6
	70		62.7	492.4	2.413		96.4		1.01543	97.9
	80		62.5	490.9	2.420		96.7		1.01543	98.2
	90		62.3	489.3	2.428		97.0		1.01543	98.5
	96		62.3	489.3	2.428		97.0		1.01543	98.5
	100		62.2	488.5	2.432		97.2		1.01543	98.7
	110		62.1	487.7	2.436		97.3		1.01543	98.8
	120		62.0	486.9	2.440		97.5		1.01543	99.0
	130		61.9	486.2	2.444		97.7		1.01543	99.2
	140		61.9	486.2	2.444		97.7		1.01543	99.2
	150		61.8	485.4	2.448		97.8		1.01543	99.3
	152	1188.1	61.8	485.4	2.448	2.502	97.8	2.486	1.01543	99.3

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		156.6	2767.4	1.765		70.5		1.02386	72.2
	8		136.0	2403.3	2.032		81.2		1.02386	83.1
	10		134.3	2373.3	2.058		82.2		1.02386	84.2
	20		129.1	2281.4	2.141		85.5		1.02386	87.6
	30		126.2	2230.1	2.190		87.5		1.02386	89.6
	40		124.3	2196.6	2.224		88.8		1.02386	90.9
	50		122.9	2171.8	2.249		89.8		1.02386	92.0
	60		121.8	2152.4	2.269		90.7		1.02386	92.8
	70		120.9	2136.5	2.286		91.3		1.02386	93.5
	80		120.2	2124.1	2.299		91.9		1.02386	94.1
	90		119.6	2113.5	2.311		92.3		1.02386	94.5
	96		119.2	2106.4	2.319		92.6		1.02386	94.8
	100		119.0	2102.9	2.323		92.8		1.02386	95.0
	110		118.6	2095.8	2.330		93.1		1.02386	95.3
	120		118.2	2088.8	2.338		93.4		1.02386	95.6
	130		117.8	2081.7	2.346		93.7		1.02386	96.0
	140		117.5	2076.4	2.352		94.0		1.02386	96.2
	150		117.2	2071.1	2.358		94.2		1.02386	96.5
	152	4884.3	117.1	2069.3	2.360	2.503	94.3	2.417	1.02386	96.5
2	0		155.9	2755.0	1.769		70.6		1.02514	72.4
	8		135.4	2392.7	2.036		81.3		1.02514	83.4
	10		133.7	2362.7	2.062		82.4		1.02514	84.5
	20		128.6	2272.5	2.144		85.6		1.02514	87.8
	30		125.8	2223.1	2.192		87.6		1.02514	89.8
	40		123.9	2189.5	2.225		88.9		1.02514	91.1
	50		122.5	2164.8	2.251		89.9		1.02514	92.2
	60		121.4	2145.3	2.271		90.7		1.02514	93.0
	70		120.5	2129.4	2.288		91.4		1.02514	93.7
	80		119.8	2117.0	2.301		91.9		1.02514	94.2
	90		119.2	2106.4	2.313		92.4		1.02514	94.7
	96		118.9	2101.1	2.319		92.6		1.02514	95.0
	100		118.7	2097.6	2.323		92.8		1.02514	95.1
	110		118.2	2088.8	2.333		93.2		1.02514	95.5
	120		117.8	2081.7	2.340		93.5		1.02514	95.8
	130		117.4	2074.6	2.348		93.8		1.02514	96.2
	140		117.1	2069.3	2.354		94.1		1.02514	96.4
	150		116.8	2064.0	2.361		94.3		1.02514	96.7
	152	4872.2	116.8	2064.0	2.361	2.503	94.3	2.420	1.02514	96.7

Percent G_{mm} Summary

Mix: 307-S (with Fiber)

[illegible]

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		88.0	691.2	1.727		69.0		1.03642	71.5
	8		76.1	597.7	1.997		79.8		1.03642	82.7
	10		75.1	589.8	2.024		80.8		1.03642	83.8
	20		72.1	566.3	2.108		84.2		1.03642	87.3
	30		70.4	552.9	2.159		86.2		1.03642	89.4
	40		69.3	544.3	2.193		87.6		1.03642	90.8
	50		68.5	538.0	2.219		88.6		1.03642	91.9
	60		67.9	533.3	2.238		89.4		1.03642	92.7
	70		67.4	529.4	2.255		90.1		1.03642	93.4
	80		67.0	526.2	2.268		90.6		1.03642	93.9
	90		66.6	523.1	2.282		91.2		1.03642	94.5
	96		66.5	522.3	2.286		91.3		1.03642	94.6
	100		66.4	521.5	2.289		91.4		1.03642	94.8
	110		66.1	519.1	2.299		91.9		1.03642	95.2
	120		65.9	517.6	2.306		92.1		1.03642	95.5
	130		65.7	516.0	2.313		92.4		1.03642	95.8
	140		65.5	514.4	2.320		92.7		1.03642	96.1
	150		65.4	513.7	2.324		92.8		1.03642	96.2
	152	1193.7	65.4	513.7	2.324	2.503	92.8	2.409	1.03642	96.2
2	0		87.7	688.8	1.731		69.1		1.04223	72.1
	8		76.1	597.7	1.994		79.7		1.04223	83.0
	10		75.2	590.6	2.018		80.6		1.04223	84.0
	20		72.3	567.8	2.099		83.9		1.04223	87.4
	30		70.7	555.3	2.147		85.8		1.04223	89.4
	40		69.7	547.4	2.177		87.0		1.04223	90.7
	50		68.9	541.1	2.203		88.0		1.04223	91.7
	60		68.3	536.4	2.222		88.8		1.04223	92.5
	70		67.8	532.5	2.238		89.4		1.04223	93.2
	80		67.4	529.4	2.252		90.0		1.04223	93.8
	90		67.1	527.0	2.262		90.4		1.04223	94.2
	96		66.9	525.4	2.269		90.6		1.04223	94.5
	100		66.8	524.6	2.272		90.8		1.04223	94.6
	110		66.5	522.3	2.282		91.2		1.04223	95.0
	120		66.3	520.7	2.289		91.4		1.04223	95.3
	130		66.1	519.1	2.296		91.7		1.04223	95.6
	140		65.9	517.6	2.303		92.0		1.04223	95.9
	150		65.7	516.0	2.310		92.3		1.04223	96.2
	152	1192.0	65.7	516.0	2.310	2.503	92.3	2.408	1.04223	96.2

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 307-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		85.3	669.9	1.733		69.2		1.03784	71.9
	8		73.7	578.8	2.006		80.1		1.03784	83.2
	10		72.7	571.0	2.034		81.2		1.03784	84.3
	20		69.9	549.0	2.115		84.5		1.03784	87.7
	30		68.4	537.2	2.162		86.4		1.03784	89.6
	40		67.4	529.4	2.194		87.6		1.03784	91.0
	50		66.6	523.1	2.220		88.7		1.03784	92.0
	60		66.0	518.4	2.240		89.5		1.03784	92.9
	70		65.5	514.4	2.257		90.2		1.03784	93.6
	80		65.1	511.3	2.271		90.7		1.03784	94.2
	90		64.8	508.9	2.282		91.2		1.03784	94.6
	96		64.7	508.2	2.285		91.3		1.03784	94.7
	100		64.6	507.4	2.289		91.4		1.03784	94.9
2	110		64.3	505.0	2.300		91.9		1.03784	95.3
	120		64.1	503.4	2.307		92.1		1.03784	95.6
	130		63.9	501.9	2.314		92.4		1.03784	95.9
	140		63.8	501.1	2.318		92.6		1.03784	96.1
	150		63.6	499.5	2.325		92.9		1.03784	96.4
	152	1161.3	63.6	499.5	2.325	2.503	92.9	2.413	1.03784	96.4
	0		85.0	667.6	1.729		69.1		1.04097	71.9
	8		73.7	578.8	1.995		79.7		1.04097	82.9
	10		72.8	571.8	2.019		80.7		1.04097	84.0
	20		70.0	549.8	2.100		83.9		1.04097	87.3
	30		68.5	538.0	2.146		85.7		1.04097	89.2
	40		67.4	529.4	2.181		87.1		1.04097	90.7
	50		66.6	523.1	2.207		88.2		1.04097	91.8
	60		66.0	518.4	2.227		89.0		1.04097	92.6
	70		65.6	515.2	2.241		89.5		1.04097	93.2
	80		65.2	512.1	2.255		90.1		1.04097	93.8
	90		64.8	508.9	2.268		90.6		1.04097	94.3
	96		64.7	508.2	2.272		90.8		1.04097	94.5
	100		64.5	506.6	2.279		91.0		1.04097	94.8
	110		64.3	505.0	2.286		91.3		1.04097	95.1
	120		64.1	503.4	2.293		91.6		1.04097	95.4
	130		63.9	501.9	2.300		91.9		1.04097	95.7
	140		63.7	500.3	2.308		92.2		1.04097	96.0
	150		63.6	499.5	2.311		92.3		1.04097	96.1
	152	1154.5	63.5	498.7	2.315	2.503	92.5	2.410	1.04097	96.3

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		149.5	2641.9	1.705		72.7		1.03279	75.1
	8		132.6	2343.2	1.923		81.9		1.03279	84.6
	10		131.3	2320.3	1.942		82.8		1.03279	85.5
	20		127.4	2251.3	2.001		85.3		1.03279	88.1
	30		125.3	2214.2	2.035		86.7		1.03279	89.6
	40		123.9	2189.5	2.058		87.7		1.03279	90.6
	50		122.8	2170.1	2.076		88.5		1.03279	91.4
	60		122.0	2155.9	2.090		89.1		1.03279	92.0
	70		121.4	2145.3	2.100		89.5		1.03279	92.4
	80		120.9	2136.5	2.109		89.9		1.03279	92.8
	90		120.4	2127.6	2.118		90.2		1.03279	93.2
	96		120.2	2124.1	2.121		90.4		1.03279	93.4
	100		120.0	2120.6	2.125		90.5		1.03279	93.5
	110		119.7	2115.3	2.130		90.8		1.03279	93.7
	120		119.4	2110.0	2.135		91.0		1.03279	94.0
	130		119.1	2104.7	2.141		91.2		1.03279	94.2
	140		118.9	2101.1	2.144		91.4		1.03279	94.4
	150		118.7	2097.6	2.148		91.5		1.03279	94.5
	152	4505.7	118.7	2097.6	2.148	2.347	91.5	2.218	1.03279	94.5
2	0		149.9	2649.0	1.713		73.0		1.02905	75.1
	8		133.2	2353.8	1.928		82.2		1.02905	84.6
	10		131.9	2330.9	1.947		83.0		1.02905	85.4
	20		128.1	2263.7	2.005		85.4		1.02905	87.9
	30		126.0	2226.6	2.038		86.9		1.02905	89.4
	40		124.6	2201.9	2.061		87.8		1.02905	90.4
	50		123.6	2184.2	2.078		88.6		1.02905	91.1
	60		122.8	2170.1	2.092		89.1		1.02905	91.7
	70		122.2	2159.5	2.102		89.6		1.02905	92.2
	80		121.6	2148.8	2.112		90.0		1.02905	92.6
	90		121.2	2141.8	2.119		90.3		1.02905	92.9
	96		120.9	2136.5	2.124		90.5		1.02905	93.2
	100		120.7	2132.9	2.128		90.7		1.02905	93.3
	110		120.4	2127.6	2.133		90.9		1.02905	93.5
	120		120.1	2122.3	2.139		91.1		1.02905	93.8
	130		119.8	2117.0	2.144		91.4		1.02905	94.0
	140		119.6	2113.5	2.148		91.5		1.02905	94.2
	150		119.3	2108.2	2.153		91.7		1.02905	94.4
	152	4538.9	119.3	2108.2	2.153	2.347	91.7	2.216	1.02905	94.4

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		146.1	2581.8	0.422		18.0		4.20343	75.6
	8		129.5	2288.5	0.476		20.3		4.20343	85.3
	10		128.3	2267.2	0.480		20.5		4.20343	86.1
	20		124.5	2200.1	0.495		21.1		4.20343	88.7
	30		122.5	2164.8	0.503		21.4		4.20343	90.1
	40		121.2	2141.8	0.509		21.7		4.20343	91.1
	50		120.3	2125.9	0.512		21.8		4.20343	91.8
	60		119.5	2111.7	0.516		22.0		4.20343	92.4
	70		118.9	2101.1	0.518		22.1		4.20343	92.9
	80		118.4	2092.3	0.521		22.2		4.20343	93.3
	90		118.0	2085.2	0.522		22.3		4.20343	93.6
	96		117.8	2081.7	0.523		22.3		4.20343	93.7
	100		117.6	2078.2	0.524		22.3		4.20343	93.9
	110		117.3	2072.9	0.526		22.4		4.20343	94.1
	120		117.0	2067.6	0.527		22.5		4.20343	94.4
	130		116.8	2064.0	0.528		22.5		4.20343	94.5
	140		116.6	2060.5	0.529		22.5		4.20343	94.7
	150		116.3	2055.2	0.530		22.6		4.20343	94.9
	152	1089.4	116.3	2055.2	0.530	2.347	22.6	2.228	4.20343	94.9
2	0		145.5	2571.2	0.424		18.1		4.17402	75.4
	8		128.9	2277.9	0.478		20.4		4.17402	85.1
	10		127.7	2256.6	0.483		20.6		4.17402	85.9
	20		124.0	2191.3	0.497		21.2		4.17402	88.5
	30		122.0	2155.9	0.506		21.5		4.17402	89.9
	40		120.7	2132.9	0.511		21.8		4.17402	90.9
	50		119.7	2115.3	0.515		22.0		4.17402	91.6
	60		119.0	2102.9	0.518		22.1		4.17402	92.2
	70		118.4	2092.3	0.521		22.2		4.17402	92.7
	80		117.9	2083.5	0.523		22.3		4.17402	93.0
	90		117.5	2076.4	0.525		22.4		4.17402	93.4
	96		117.3	2072.9	0.526		22.4		4.17402	93.5
	100		117.2	2071.1	0.526		22.4		4.17402	93.6
	110		116.8	2064.0	0.528		22.5		4.17402	93.9
	120		116.5	2058.7	0.529		22.6		4.17402	94.2
	130		116.3	2055.2	0.530		22.6		4.17402	94.3
	140		116.1	2051.7	0.531		22.6		4.17402	94.5
	150		115.8	2046.4	0.533		22.7		4.17402	94.7
	152	1089.9	115.8	2046.4	0.533	2.347	22.7	2.223	4.17402	94.7

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.3	654.2	1.683		71.7		1.03595	74.3
	8		73.4	576.5	1.910		81.4		1.03595	84.3
	10		72.6	570.2	1.931		82.3		1.03595	85.2
	20		70.4	552.9	1.991		84.8		1.03595	87.9
	30		69.2	543.5	2.026		86.3		1.03595	89.4
	40		68.4	537.2	2.049		87.3		1.03595	90.5
	50		67.9	533.3	2.064		88.0		1.03595	91.1
	60		67.5	530.1	2.077		88.5		1.03595	91.7
	70		67.1	527.0	2.089		89.0		1.03595	92.2
	80		66.8	524.6	2.098		89.4		1.03595	92.6
	90		66.6	523.1	2.105		89.7		1.03595	92.9
	96		66.5	522.3	2.108		89.8		1.03595	93.1
	100		66.4	521.5	2.111		90.0		1.03595	93.2
	110		66.2	519.9	2.117		90.2		1.03595	93.5
	120		66.1	519.1	2.121		90.4		1.03595	93.6
	130		65.9	517.6	2.127		90.6		1.03595	93.9
	140		65.8	516.8	2.130		90.8		1.03595	94.0
	150		65.7	516.0	2.133		90.9		1.03595	94.2
	152	1100.9	65.7	516.0	2.133	2.347	90.9	2.210	1.03595	94.2
2	0		84.7	665.2	1.665		71.0		1.04219	73.9
	8		74.5	585.1	1.893		80.7		1.04219	84.1
	10		73.8	579.6	1.911		81.4		1.04219	84.9
	20		71.5	561.6	1.972		84.0		1.04219	87.6
	30		70.3	552.1	2.006		85.5		1.04219	89.1
	40		69.5	545.9	2.029		86.5		1.04219	90.1
	50		68.9	541.1	2.047		87.2		1.04219	90.9
	60		68.5	538.0	2.059		87.7		1.04219	91.4
	70		68.1	534.9	2.071		88.2		1.04219	92.0
	80		67.9	533.3	2.077		88.5		1.04219	92.2
	90		67.6	530.9	2.086		88.9		1.04219	92.6
	96		67.5	530.1	2.089		89.0		1.04219	92.8
	100		67.4	529.4	2.092		89.2		1.04219	92.9
	110		67.2	527.8	2.099		89.4		1.04219	93.2
	120		67.1	527.0	2.102		89.6		1.04219	93.3
	130		66.9	525.4	2.108		89.8		1.04219	93.6
	140		66.8	524.6	2.111		90.0		1.04219	93.8
	150		66.7	523.9	2.114		90.1		1.04219	93.9
	152	1107.6	66.6	523.1	2.117	2.347	90.2	2.207	1.04219	94.0

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.7	641.7	1.698		72.3		1.04033	75.3
	8		72.0	565.5	1.926		82.1		1.04033	85.4
	10		71.3	560.0	1.945		82.9		1.04033	86.2
	20		69.2	543.5	2.004		85.4		1.04033	88.9
	30		68.1	534.9	2.037		86.8		1.04033	90.3
	40		67.4	529.4	2.058		87.7		1.04033	91.2
	50		66.8	524.6	2.076		88.5		1.04033	92.1
	60		66.4	521.5	2.089		89.0		1.04033	92.6
	70		66.1	519.1	2.098		89.4		1.04033	93.0
	80		65.8	516.8	2.108		89.8		1.04033	93.5
	90		65.5	514.4	2.118		90.2		1.04033	93.9
	96		65.4	513.7	2.121		90.4		1.04033	94.0
	100		65.3	512.9	2.124		90.5		1.04033	94.2
	110		65.1	511.3	2.131		90.8		1.04033	94.5
	120		65.0	510.5	2.134		90.9		1.04033	94.6
2	130		64.8	508.9	2.141		91.2		1.04033	94.9
	140		64.7	508.2	2.144		91.4		1.04033	95.0
	150		64.6	507.4	2.147		91.5		1.04033	95.2
	152	1089.4	64.6	507.4	2.147	2.347	91.5	2.234	1.04033	95.2
	0		81.8	642.5	1.696		72.3		1.04332	75.4
	8		72.2	567.1	1.922		81.9		1.04332	85.5
	10		71.5	561.6	1.941		82.7		1.04332	86.3
	20		69.4	545.1	2.000		85.2		1.04332	88.9
	30		68.2	535.6	2.035		86.7		1.04332	90.5
	40		67.4	529.4	2.059		87.7		1.04332	91.5
	50		66.9	525.4	2.074		88.4		1.04332	92.2
	60		66.4	521.5	2.090		89.1		1.04332	92.9
	70		66.1	519.1	2.099		89.5		1.04332	93.3
	80		65.8	516.8	2.109		89.9		1.04332	93.8
	90		65.6	515.2	2.115		90.1		1.04332	94.0
	96		65.5	514.4	2.119		90.3		1.04332	94.2
	100		65.4	513.7	2.122		90.4		1.04332	94.3
	110		65.2	512.1	2.128		90.7		1.04332	94.6
	120		65.0	510.5	2.135		91.0		1.04332	94.9
	130		64.9	509.7	2.138		91.1		1.04332	95.1
	140		64.8	508.9	2.142		91.3		1.04332	95.2
	150		64.7	508.2	2.145		91.4		1.04332	95.4
	152	1089.9	64.6	507.4	2.148	2.347	91.5	2.241	1.04332	95.5

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		142.4	2516.4	1.788		77.3		1.02194	79.0
	8		127.1	2246.0	2.004		86.6		1.02194	88.5
	10		126.0	2226.6	2.021		87.4		1.02194	89.3
	20		122.7	2168.3	2.076		89.7		1.02194	91.7
	30		121.0	2138.2	2.105		91.0		1.02194	93.0
	40		119.9	2118.8	2.124		91.8		1.02194	93.8
	50		119.0	2102.9	2.140		92.5		1.02194	94.5
	60		118.4	2092.3	2.151		93.0		1.02194	95.0
	70		117.9	2083.5	2.160		93.4		1.02194	95.4
	80		117.5	2076.4	2.167		93.7		1.02194	95.7
	90		117.1	2069.3	2.175		94.0		1.02194	96.1
	96		116.9	2065.8	2.179		94.2		1.02194	96.2
	100		116.8	2064.0	2.180		94.2		1.02194	96.3
	110		116.5	2058.7	2.186		94.5		1.02194	96.6
	120		116.3	2055.2	2.190		94.7		1.02194	96.7
	130		116.1	2051.7	2.194		94.8		1.02194	96.9
	140		115.9	2048.1	2.197		95.0		1.02194	97.1
	150		115.7	2044.6	2.201		95.1		1.02194	97.2
	152	4500.4	115.7	2044.6	2.201	2.314	95.1	2.249	1.02194	97.2
2	0		141.8	2505.8	1.787		77.2		1.02411	79.1
	8		126.7	2239.0	2.000		86.4		1.02411	88.5
	10		125.6	2219.5	2.017		87.2		1.02411	89.3
	20		122.4	2163.0	2.070		89.5		1.02411	91.6
	30		120.7	2132.9	2.099		90.7		1.02411	92.9
	40		119.6	2113.5	2.119		91.6		1.02411	93.8
	50		118.8	2099.4	2.133		92.2		1.02411	94.4
	60		118.1	2087.0	2.146		92.7		1.02411	95.0
	70		117.6	2078.2	2.155		93.1		1.02411	95.4
	80		117.2	2071.1	2.162		93.5		1.02411	95.7
	90		116.9	2065.8	2.168		93.7		1.02411	96.0
	96		116.7	2062.3	2.171		93.9		1.02411	96.1
	100		116.6	2060.5	2.173		93.9		1.02411	96.2
	110		116.3	2055.2	2.179		94.2		1.02411	96.4
	120		116.1	2051.7	2.183		94.3		1.02411	96.6
	130		115.8	2046.4	2.188		94.6		1.02411	96.9
	140		115.6	2042.8	2.192		94.7		1.02411	97.0
	150		115.5	2041.1	2.194		94.8		1.02411	97.1
	152	4477.9	115.5	2041.1	2.194	2.314	94.8	2.247	1.02411	97.1

Percent G_{max} Summary

Mix: 411-S (with Fiber)

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Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		80.2	629.9	1.750		75.6		1.03931	78.6
	8		71.5	561.6	1.962		84.8		1.03931	88.2
	10		70.8	556.1	1.982		85.7		1.03931	89.0
	20		69.0	541.9	2.033		87.9		1.03931	91.4
	30		68.0	534.1	2.063		89.2		1.03931	92.7
	40		67.3	528.6	2.085		90.1		1.03931	93.7
	50		66.8	524.6	2.100		90.8		1.03931	94.4
	60		66.5	522.3	2.110		91.2		1.03931	94.8
	70		66.2	519.9	2.120		91.6		1.03931	95.2
	80		66.0	518.4	2.126		91.9		1.03931	95.5
	90		65.8	516.8	2.132		92.2		1.03931	95.8
	96		65.7	516.0	2.136		92.3		1.03931	95.9
	100		65.6	515.2	2.139		92.5		1.03931	96.1
	110		65.5	514.4	2.142		92.6		1.03931	96.2
	120		65.3	512.9	2.149		92.9		1.03931	96.5
	130		65.2	512.1	2.152		93.0		1.03931	96.7
	140		65.1	511.3	2.155		93.2		1.03931	96.8
	150		65.0	510.5	2.159		93.3		1.03931	97.0
	152	1102.0	65.0	510.5	2.159	2.314	93.3	2.243	1.03931	97.0
2	0		79.7	626.0	1.752		75.7		1.03102	78.1
	8		71.0	557.6	1.967		85.0		1.03102	87.6
	10		70.4	552.9	1.983		85.7		1.03102	88.4
	20		68.5	538.0	2.038		88.1		1.03102	90.8
	30		67.5	530.1	2.069		89.4		1.03102	92.2
	40		66.9	525.4	2.087		90.2		1.03102	93.0
	50		66.4	521.5	2.103		90.9		1.03102	93.7
	60		66.1	519.1	2.112		91.3		1.03102	94.1
	70		65.8	516.8	2.122		91.7		1.03102	94.6
	80		65.6	515.2	2.129		92.0		1.03102	94.9
	90		65.4	513.7	2.135		92.3		1.03102	95.2
	96		65.3	512.9	2.138		92.4		1.03102	95.3
	100		65.2	512.1	2.142		92.6		1.03102	95.4
	110		65.1	511.3	2.145		92.7		1.03102	95.6
	120		65.0	510.5	2.148		92.9		1.03102	95.7
	130		64.8	508.9	2.155		93.1		1.03102	96.0
	140		64.7	508.2	2.158		93.3		1.03102	96.2
	150		64.6	507.4	2.162		93.4		1.03102	96.3
	152	1096.7	64.6	507.4	2.162	2.314	93.4	2.229	1.03102	96.3

Appendix C

Percent G_{mm} Summary

County: Madison

Mix: 411-S (with Fiber)

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		78.1	613.4	1.754		75.8		1.03471	78.5
	8		69.5	545.9	1.972		85.2		1.03471	88.2
	10		68.9	541.1	1.989		86.0		1.03471	88.9
	20		67.1	527.0	2.042		88.3		1.03471	91.3
	30		66.1	519.1	2.073		89.6		1.03471	92.7
	40		65.5	514.4	2.092		90.4		1.03471	93.6
	50		65.1	511.3	2.105		91.0		1.03471	94.1
	60		64.7	508.2	2.118		91.5		1.03471	94.7
	70		64.5	506.6	2.124		91.8		1.03471	95.0
	80		64.2	504.2	2.134		92.3		1.03471	95.5
	90		64.0	502.7	2.141		92.5		1.03471	95.8
	96		63.9	501.9	2.144		92.7		1.03471	95.9
	100		63.9	501.9	2.144		92.7		1.03471	95.9
	110		63.7	500.3	2.151		93.0		1.03471	96.2
2	120		63.6	499.5	2.154		93.1		1.03471	96.4
	129	1076.2	63.5	498.7	2.158	2.314	93.3	2.233	1.03471	96.5
	0		78.1	613.4	1.748		75.6		1.03513	78.2
	8		69.3	544.3	1.970		85.2		1.03513	88.2
	10		68.7	539.6	1.988		85.9		1.03513	88.9
	20		66.9	525.4	2.041		88.2		1.03513	91.3
	30		65.9	517.6	2.072		89.6		1.03513	92.7
	40		65.3	512.9	2.091		90.4		1.03513	93.6
	50		64.8	508.9	2.107		91.1		1.03513	94.3
	60		64.4	505.8	2.120		91.7		1.03513	94.9
	70		64.1	503.4	2.130		92.1		1.03513	95.3
	80		63.9	501.9	2.137		92.4		1.03513	95.6
	90		63.7	500.3	2.144		92.7		1.03513	95.9
	96		63.6	499.5	2.147		92.8		1.03513	96.1
	100		63.5	498.7	2.150		93.0		1.03513	96.2
	102	1072.5	63.5	498.7	2.150	2.314	93.0	2.226	1.03513	96.2

Appendix C

Percent G_{mm} Summary

County: Maury

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		151.3	2673.7	1.750		71.8		1.02572	73.7
	8		131.9	2330.9	2.008		82.4		1.02572	84.5
	10		130.2	2300.8	2.034		83.5		1.02572	85.6
	20		125.0	2208.9	2.118		86.9		1.02572	89.2
	30		122.2	2159.5	2.167		88.9		1.02572	91.2
	40		120.3	2125.9	2.201		90.3		1.02572	92.6
	50		118.9	2101.1	2.227		91.4		1.02572	93.7
	60		117.8	2081.7	2.248		92.2		1.02572	94.6
	70		116.9	2065.8	2.265		93.0		1.02572	95.3
	80		116.2	2053.4	2.279		93.5		1.02572	95.9
	90		115.7	2044.6	2.289		93.9		1.02572	96.3
	96		115.3	2037.5	2.297		94.2		1.02572	96.7
	100		115.2	2035.8	2.299		94.3		1.02572	96.7
	110		114.7	2026.9	2.309		94.7		1.02572	97.2
	120		114.3	2019.8	2.317		95.1		1.02572	97.5
	130		114.0	2014.5	2.323		95.3		1.02572	97.8
	140		113.7	2009.2	2.329		95.6		1.02572	98.0
	150		113.5	2005.7	2.333		95.7		1.02572	98.2
	152	4679.6	113.4	2003.9	2.335	2.437	95.8	2.395	1.02572	98.3
2	0		150.4	2657.8	1.765		72.4		1.02919	74.5
	8		132.7	2345.0	2.000		82.1		1.02919	84.5
	10		131.1	2316.7	2.024		83.1		1.02919	85.5
	20		126.3	2231.9	2.101		86.2		1.02919	88.7
	30		123.6	2184.2	2.147		88.1		1.02919	90.7
	40		121.7	2150.6	2.181		89.5		1.02919	92.1
	50		120.3	2125.9	2.206		90.5		1.02919	93.2
	60		119.2	2106.4	2.227		91.4		1.02919	94.0
	70		118.4	2092.3	2.242		92.0		1.02919	94.7
	80		117.6	2078.2	2.257		92.6		1.02919	95.3
	90		117.0	2067.6	2.268		93.1		1.02919	95.8
	96		116.6	2060.5	2.276		93.4		1.02919	96.1
	100		116.4	2057.0	2.280		93.6		1.02919	96.3
	110		115.9	2048.1	2.290		94.0		1.02919	96.7
	120		115.5	2041.1	2.298		94.3		1.02919	97.0
	130		115.1	2034.0	2.306		94.6		1.02919	97.4
	140		114.8	2028.7	2.312		94.9		1.02919	97.6
	150		114.5	2023.4	2.318		95.1		1.02919	97.9
	152	4690.0	114.5	2023.4	2.318	2.437	95.1	2.386	1.02919	97.9

Appendix C

Percent G_{mm} Summary

County: Maury

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		151.1	2670.2	0.430		17.6		4.22007	74.4
	8		132.5	2341.5	0.490		20.1		4.22007	84.8
	10		131.0	2315.0	0.496		20.3		4.22007	85.8
	20		126.1	2228.4	0.515		21.1		4.22007	89.1
	30		123.4	2180.7	0.526		21.6		4.22007	91.1
	40		121.5	2147.1	0.534		21.9		4.22007	92.5
	50		120.2	2124.1	0.540		22.2		4.22007	93.5
	60		119.1	2104.7	0.545		22.4		4.22007	94.4
	70		118.2	2088.8	0.549		22.5		4.22007	95.1
	80		117.5	2076.4	0.552		22.7		4.22007	95.7
	90		116.9	2065.8	0.555		22.8		4.22007	96.2
	96		116.5	2058.7	0.557		22.9		4.22007	96.5
	100		116.3	2055.2	0.558		22.9		4.22007	96.7
	110		115.9	2048.1	0.560		23.0		4.22007	97.0
	120		115.5	2041.1	0.562		23.1		4.22007	97.3
	130		115.1	2034.0	0.564		23.1		4.22007	97.7
	134	1147.2	115.0	2032.2	0.565	2.437	23.2	2.382	4.22007	97.8
2	0		151.9	2684.3	0.429		17.6		4.21106	74.1
	8		132.5	2341.5	0.491		20.2		4.21106	84.9
	10		130.9	2313.2	0.497		20.4		4.21106	85.9
	20		125.9	2224.8	0.517		21.2		4.21106	89.3
	30		123.2	2177.1	0.528		21.7		4.21106	91.3
	40		121.4	2145.3	0.536		22.0		4.21106	92.7
	50		120.0	2120.6	0.542		22.3		4.21106	93.7
	60		119.0	2102.9	0.547		22.4		4.21106	94.5
	70		118.1	2087.0	0.551		22.6		4.21106	95.2
	80		117.4	2074.6	0.555		22.8		4.21106	95.8
	90		116.8	2064.0	0.557		22.9		4.21106	96.3
	96		116.5	2058.7	0.559		22.9		4.21106	96.6
	100		116.3	2055.2	0.560		23.0		4.21106	96.7
	110		115.9	2048.1	0.562		23.0		4.21106	97.1
	120		115.5	2041.1	0.564		23.1		4.21106	97.4
	130		115.1	2034.0	0.566		23.2		4.21106	97.7
	135	1150.4	115.0	2032.2	0.566	2.437	23.2	2.384	4.21106	97.8

Appendix C

Percent G_{mm} Summary

County: Maury

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.9	666.8	1.718		70.5		1.03578	73.0
	8		73.7	578.8	1.979		81.2		1.03578	84.1
	10		72.7	571.0	2.007		82.3		1.03578	85.3
	20		69.9	549.0	2.087		85.6		1.03578	88.7
	30		68.4	537.2	2.133		87.5		1.03578	90.6
	40		67.4	529.4	2.164		88.8		1.03578	92.0
	50		66.6	523.1	2.190		89.9		1.03578	93.1
	60		66.0	518.4	2.210		90.7		1.03578	93.9
	70		65.6	515.2	2.224		91.2		1.03578	94.5
	80		65.2	512.1	2.237		91.8		1.03578	95.1
	90		64.8	508.9	2.251		92.4		1.03578	95.7
	96		64.6	507.4	2.258		92.7		1.03578	96.0
	100		64.5	506.6	2.262		92.8		1.03578	96.1
	110		64.3	505.0	2.269		93.1		1.03578	96.4
	120		64.1	503.4	2.276		93.4		1.03578	96.7
	130		63.9	501.9	2.283		93.7		1.03578	97.0
	140		63.7	500.3	2.290		94.0		1.03578	97.3
	150		63.6	499.5	2.294		94.1		1.03578	97.5
	152	1145.7	63.5	498.7	2.297	2.437	94.3	2.379	1.03578	97.6
2	0		86.4	678.6	1.729		70.9		1.04263	74.0
	8		75.7	594.5	1.973		81.0		1.04263	84.4
	10		74.8	587.5	1.997		81.9		1.04263	85.4
	20		72.0	565.5	2.075		85.1		1.04263	88.8
	30		70.5	553.7	2.119		86.9		1.04263	90.6
	40		69.5	545.9	2.149		88.2		1.04263	92.0
	50		68.8	540.4	2.171		89.1		1.04263	92.9
	60		68.2	535.6	2.190		89.9		1.04263	93.7
	70		67.7	531.7	2.206		90.5		1.04263	94.4
	80		67.3	528.6	2.220		91.1		1.04263	95.0
	90		66.9	525.4	2.233		91.6		1.04263	95.5
	96		66.7	523.9	2.240		91.9		1.04263	95.8
	100		66.6	523.1	2.243		92.0		1.04263	96.0
	110		66.3	520.7	2.253		92.5		1.04263	96.4
	120		66.1	519.1	2.260		92.7		1.04263	96.7
	130		65.9	517.6	2.267		93.0		1.04263	97.0
	140		65.7	516.0	2.274		93.3		1.04263	97.3
	150		65.5	514.4	2.281		93.6		1.04263	97.6
	152	1173.2	65.5	514.4	2.281	2.437	93.6	2.378	1.04263	97.6

Appendix C

Percent G_{mm} Summary

County: Maury

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.8	666.0	1.722		70.7		1.03784	73.4
	8		73.7	578.8	1.982		81.3		1.03784	84.4
	10		72.8	571.8	2.006		82.3		1.03784	85.4
	20		70.0	549.8	2.087		85.6		1.03784	88.9
	30		68.5	538.0	2.132		87.5		1.03784	90.8
	40		67.5	530.1	2.164		88.8		1.03784	92.2
	50		66.7	523.9	2.190		89.9		1.03784	93.3
	60		66.1	519.1	2.210		90.7		1.03784	94.1
	70		65.6	515.2	2.227		91.4		1.03784	94.8
	80		65.2	512.1	2.240		91.9		1.03784	95.4
	90		64.9	509.7	2.251		92.4		1.03784	95.8
	96		64.7	508.2	2.258		92.6		1.03784	96.1
	100		64.6	507.4	2.261		92.8		1.03784	96.3
	110		64.4	505.8	2.268		93.1		1.03784	96.6
	120		64.1	503.4	2.279		93.5		1.03784	97.0
2	130		63.9	501.9	2.286		93.8		1.03784	97.3
	140		63.8	501.1	2.289		93.9		1.03784	97.5
	150		63.6	499.5	2.297		94.2		1.03784	97.8
	152	1147.2	63.6	499.5	2.297	2.437	94.2	2.384	1.03784	97.8
	0		84.5	663.7	1.733		71.1		1.03790	73.8
	8		74.1	582.0	1.977		81.1		1.03790	84.2
	10		73.2	574.9	2.001		82.1		1.03790	85.2
	20		70.5	553.7	2.078		85.3		1.03790	88.5
	30		68.9	541.1	2.126		87.2		1.03790	90.5
	40		67.9	533.3	2.157		88.5		1.03790	91.9
	50		67.1	527.0	2.183		89.6		1.03790	93.0
	60		66.5	522.3	2.203		90.4		1.03790	93.8
	70		66.1	519.1	2.216		90.9		1.03790	94.4
	80		65.7	516.0	2.229		91.5		1.03790	94.9
	90		65.3	512.9	2.243		92.0		1.03790	95.5
	96		65.1	511.3	2.250		92.3		1.03790	95.8
	100		65.0	510.5	2.253		92.5		1.03790	96.0
	110		64.8	508.9	2.260		92.8		1.03790	96.3
	120		64.5	506.6	2.271		93.2		1.03790	96.7
	130		64.4	505.8	2.274		93.3		1.03790	96.9
	140		64.2	504.2	2.282		93.6		1.03790	97.2
	150		64.0	502.7	2.289		93.9		1.03790	97.5
	152	1150.4	64.0	502.7	2.289	2.437	93.9	2.375	1.03790	97.5

Appendix C

Percent G_{mm} Summary

County: Pickett

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		146.0	2580.0	1.875		75.2		1.02014	76.8
	8		129.0	2279.6	2.122		85.2		1.02014	86.9
	10		127.7	2256.6	2.144		86.0		1.02014	87.8
	20		123.9	2189.5	2.210		88.7		1.02014	90.5
	30		121.7	2150.6	2.249		90.3		1.02014	92.1
	40		120.2	2124.1	2.278		91.4		1.02014	93.2
	50		119.2	2106.4	2.297		92.2		1.02014	94.0
	60		118.3	2090.5	2.314		92.9		1.02014	94.7
	70		117.6	2078.2	2.328		93.4		1.02014	95.3
	80		117.0	2067.6	2.340		93.9		1.02014	95.8
	90		116.5	2058.7	2.350		94.3		1.02014	96.2
	96		116.2	2053.4	2.356		94.5		1.02014	96.4
	100		116.0	2049.9	2.360		94.7		1.02014	96.6
	110		115.6	2042.8	2.368		95.0		1.02014	97.0
	120		115.3	2037.5	2.374		95.3		1.02014	97.2
	130		115.0	2032.2	2.381		95.5		1.02014	97.5
	140		114.7	2026.9	2.387		95.8		1.02014	97.7
	150		114.4	2021.6	2.393		96.0		1.02014	98.0
	152	4837.7	114.4	2021.6	2.393	2.492	96.0	2.441	1.02014	98.0
2	0		146.7	2592.4	1.869		75.0		1.02152	76.6
	8		129.6	2290.2	2.116		84.9		1.02152	86.7
	10		128.3	2267.2	2.137		85.8		1.02152	87.6
	20		124.3	2196.6	2.206		88.5		1.02152	90.4
	30		122.2	2159.5	2.244		90.0		1.02152	92.0
	40		120.7	2132.9	2.272		91.2		1.02152	93.1
	50		119.7	2115.3	2.291		91.9		1.02152	93.9
	60		118.8	2099.4	2.308		92.6		1.02152	94.6
	70		118.1	2087.0	2.322		93.2		1.02152	95.2
	80		117.6	2078.2	2.332		93.6		1.02152	95.6
	90		117.1	2069.3	2.342		94.0		1.02152	96.0
	96		116.8	2064.0	2.348		94.2		1.02152	96.2
	100		116.6	2060.5	2.352		94.4		1.02152	96.4
	110		116.2	2053.4	2.360		94.7		1.02152	96.7
	120		115.9	2048.1	2.366		94.9		1.02152	97.0
	130		115.6	2042.8	2.372		95.2		1.02152	97.2
	140		115.3	2037.5	2.378		95.4		1.02152	97.5
	150		115.1	2034.0	2.382		95.6		1.02152	97.7
	152	4845.6	115.0	2032.2	2.384	2.492	95.7	2.436	1.02152	97.7

Percent G_{max} Summary

County: Pickett

Mix: 411-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Pickett

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.1	637.0	1.862		74.7		1.02598	76.7
	8		71.7	563.1	2.106		84.5		1.02598	86.7
	10		71.0	557.6	2.127		85.4		1.02598	87.6
	20		68.7	539.6	2.198		88.2		1.02598	90.5
	30		67.5	530.1	2.238		89.8		1.02598	92.1
	40		66.7	523.9	2.264		90.9		1.02598	93.2
	50		66.1	519.1	2.285		91.7		1.02598	94.1
	60		65.6	515.2	2.302		92.4		1.02598	94.8
	70		65.2	512.1	2.316		93.0		1.02598	95.4
	80		64.9	509.7	2.327		93.4		1.02598	95.8
	90		64.6	507.4	2.338		93.8		1.02598	96.3
	96		64.5	506.6	2.342		94.0		1.02598	96.4
	100		64.4	505.8	2.345		94.1		1.02598	96.6
	110		64.2	504.2	2.353		94.4		1.02598	96.9
	120		64.0	502.7	2.360		94.7		1.02598	97.2
	130		63.8	501.1	2.367		95.0		1.02598	97.5
	140		63.7	500.3	2.371		95.1		1.02598	97.6
	150		63.5	498.7	2.378		95.4		1.02598	97.9
	152	1186.2	63.5	498.7	2.378	2.492	95.4	2.440	1.02598	97.9
2	0		81.2	637.7	1.860		74.6		1.02387	76.4
	8		71.6	562.3	2.110		84.7		1.02387	86.7
	10		70.8	556.1	2.133		85.6		1.02387	87.7
	20		68.6	538.8	2.202		88.4		1.02387	90.5
	30		67.4	529.4	2.241		89.9		1.02387	92.1
	40		66.6	523.1	2.268		91.0		1.02387	93.2
	50		66.0	518.4	2.289		91.8		1.02387	94.0
	60		65.5	514.4	2.306		92.5		1.02387	94.8
	70		65.2	512.1	2.317		93.0		1.02387	95.2
	80		64.8	508.9	2.331		93.5		1.02387	95.8
	90		64.6	507.4	2.338		93.8		1.02387	96.1
	96		64.4	505.8	2.345		94.1		1.02387	96.4
	100		64.4	505.8	2.345		94.1		1.02387	96.4
	110		64.2	504.2	2.353		94.4		1.02387	96.7
	120		64.0	502.7	2.360		94.7		1.02387	97.0
	130		63.8	501.1	2.367		95.0		1.02387	97.3
	140		63.7	500.3	2.371		95.2		1.02387	97.4
	150		63.5	498.7	2.379		95.5		1.02387	97.7
	152	1186.3	63.5	498.7	2.379	2.492	95.5	2.435	1.02387	97.7

Percent G_{mm} Summary

Mix: 411-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Sequatchie

Mix: 411-D

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		140.6	2484.6	1.808		78.2		1.01409	79.3
	8		126.0	2226.6	2.018		87.3		1.01409	88.5
	10		124.9	2207.2	2.035		88.1		1.01409	89.3
	20		121.7	2150.6	2.089		90.4		1.01409	91.6
	30		119.9	2118.8	2.120		91.7		1.01409	93.0
	40		118.7	2097.6	2.142		92.7		1.01409	94.0
	50		117.9	2083.5	2.156		93.3		1.01409	94.6
	60		117.2	2071.1	2.169		93.8		1.01409	95.2
	70		116.6	2060.5	2.180		94.3		1.01409	95.6
	80		116.2	2053.4	2.188		94.6		1.01409	96.0
	90		115.8	2046.4	2.195		95.0		1.01409	96.3
	96		115.5	2041.1	2.201		95.2		1.01409	96.6
	100		115.4	2039.3	2.203		95.3		1.01409	96.6
	110		115.1	2034.0	2.209		95.5		1.01409	96.9
	120		114.8	2028.7	2.214		95.8		1.01409	97.1
	130		114.6	2025.1	2.218		96.0		1.01409	97.3
	140		114.3	2019.8	2.224		96.2		1.01409	97.6
	150		114.1	2016.3	2.228		96.4		1.01409	97.7
	152	4492.3	114.1	2016.3	2.228	2.312	96.4	2.259	1.01409	97.7
2	0		139.3	2461.6	1.818		78.6		1.01776	80.0
	8		125.5	2217.8	2.018		87.3		1.01776	88.8
	10		124.4	2198.3	2.036		88.1		1.01776	89.6
	20		121.3	2143.5	2.088		90.3		1.01776	91.9
	30		119.6	2113.5	2.117		91.6		1.01776	93.2
	40		118.5	2094.1	2.137		92.5		1.01776	94.1
	50		117.7	2079.9	2.152		93.1		1.01776	94.7
	60		117.0	2067.6	2.164		93.6		1.01776	95.3
	70		116.5	2058.7	2.174		94.0		1.01776	95.7
	80		116.0	2049.9	2.183		94.4		1.01776	96.1
	90		115.6	2042.8	2.191		94.8		1.01776	96.5
	96		115.4	2039.3	2.194		94.9		1.01776	96.6
	100		115.3	2037.5	2.196		95.0		1.01776	96.7
	110		115.0	2032.2	2.202		95.3		1.01776	97.0
	120		114.7	2026.9	2.208		95.5		1.01776	97.2
	130		114.5	2023.4	2.212		95.7		1.01776	97.4
	140		114.2	2018.1	2.218		95.9		1.01776	97.6
	150		114.0	2014.5	2.221		96.1		1.01776	97.8
	152	4475.1	114.0	2014.5	2.221	2.312	96.1	2.261	1.01776	97.8

Percent G_{mm} Summary

Mix: 411-D

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Appendix C

Percent G_{mm} Summary

County: Sequatchie

Mix: 411-D

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		77.8	611.0	1.797		77.7		1.02006	79.3
	8		69.5	545.9	2.012		87.0		1.02006	88.8
	10		68.9	541.1	2.029		87.8		1.02006	89.5
	20		67.1	527.0	2.083		90.1		1.02006	91.9
	30		66.1	519.1	2.115		91.5		1.02006	93.3
	40		65.5	514.4	2.134		92.3		1.02006	94.2
	50		65.0	510.5	2.151		93.0		1.02006	94.9
	60		64.6	507.4	2.164		93.6		1.02006	95.5
	70		64.3	505.0	2.174		94.1		1.02006	95.9
	80		64.0	502.7	2.184		94.5		1.02006	96.4
	90		63.8	501.1	2.191		94.8		1.02006	96.7
	96		63.7	500.3	2.195		94.9		1.02006	96.9
	100		63.6	499.5	2.198		95.1		1.02006	97.0
	110		63.5	498.7	2.202		95.2		1.02006	97.2
	120		63.3	497.2	2.209		95.5		1.02006	97.5
	130		63.2	496.4	2.212		95.7		1.02006	97.6
	140		63.1	495.6	2.216		95.8		1.02006	97.8
	150		63.0	494.8	2.219		96.0		1.02006	97.9
	152	1098.0	62.9	494.0	2.223	2.312	96.2	2.267	1.02006	98.1
2	0		78.6	617.3	1.784		77.2		1.02646	79.2
	8		70.3	552.1	1.995		86.3		1.02646	88.6
	10		69.7	547.4	2.012		87.0		1.02646	89.3
	20		67.9	533.3	2.065		89.3		1.02646	91.7
	30		66.9	525.4	2.096		90.7		1.02646	93.1
	40		66.2	519.9	2.118		91.6		1.02646	94.1
	50		65.7	516.0	2.134		92.3		1.02646	94.8
	60		65.4	513.7	2.144		92.8		1.02646	95.2
	70		65.1	511.3	2.154		93.2		1.02646	95.7
	80		64.8	508.9	2.164		93.6		1.02646	96.1
	90		64.6	507.4	2.171		93.9		1.02646	96.4
	96		64.5	506.6	2.174		94.1		1.02646	96.5
	100		64.4	505.8	2.178		94.2		1.02646	96.7
	110		64.2	504.2	2.184		94.5		1.02646	97.0
	120		64.1	503.4	2.188		94.6		1.02646	97.1
	130		64.0	502.7	2.191		94.8		1.02646	97.3
	140		63.8	501.1	2.198		95.1		1.02646	97.6
	150		63.7	500.3	2.201		95.2		1.02646	97.8
	152	1101.4	63.7	500.3	2.201	2.312	95.2	2.260	1.02646	97.8

Percent G_{mm} Summary

Mix: 411-D

[illegible]

Appendix C

Percent G_{mm} Summary

County: Knox

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		150.4	2657.8	1.830		72.8		1.02888	74.9
	8		131.9	2330.9	2.086		83.0		1.02888	85.4
	10		130.4	2304.4	2.110		84.0		1.02888	86.4
	20		125.5	2217.8	2.193		87.2		1.02888	89.7
	30		122.7	2168.3	2.243		89.2		1.02888	91.8
	40		120.9	2136.5	2.276		90.5		1.02888	93.2
	50		119.6	2113.5	2.301		91.5		1.02888	94.2
	60		118.5	2094.1	2.322		92.4		1.02888	95.0
	70		117.6	2078.2	2.340		93.1		1.02888	95.8
	80		116.9	2065.8	2.354		93.6		1.02888	96.4
	90		116.3	2055.2	2.366		94.1		1.02888	96.8
	96		116.0	2049.9	2.372		94.4		1.02888	97.1
	100		115.8	2046.4	2.376		94.5		1.02888	97.3
	110		115.3	2037.5	2.387		94.9		1.02888	97.7
	120		114.9	2030.5	2.395		95.3		1.02888	98.0
	130		114.6	2025.1	2.401		95.5		1.02888	98.3
	140		114.3	2019.8	2.407		95.8		1.02888	98.5
	150		114.0	2014.5	2.414		96.0		1.02888	98.8
	152	4862.6	114.0	2014.5	2.414	2.514	96.0	2.483	1.02888	98.8
2	0		150.6	2661.3	1.825		72.6		1.03226	74.9
	8		132.6	2343.2	2.072		82.4		1.03226	85.1
	10		131.1	2316.7	2.096		83.4		1.03226	86.1
	20		126.4	2233.7	2.174		86.5		1.03226	89.3
	30		123.7	2186.0	2.221		88.4		1.03226	91.2
	40		121.8	2152.4	2.256		89.8		1.03226	92.6
	50		120.4	2127.6	2.282		90.8		1.03226	93.7
	60		119.4	2110.0	2.301		91.6		1.03226	94.5
	70		118.5	2094.1	2.319		92.3		1.03226	95.2
	80		117.8	2081.7	2.333		92.8		1.03226	95.8
	90		117.2	2071.1	2.345		93.3		1.03226	96.3
	96		116.9	2065.8	2.351		93.5		1.03226	96.5
	100		116.7	2062.3	2.355		93.7		1.03226	96.7
	110		116.3	2055.2	2.363		94.0		1.03226	97.0
	120		115.9	2048.1	2.371		94.3		1.03226	97.4
	130		115.5	2041.1	2.379		94.7		1.03226	97.7
	140		115.2	2035.8	2.385		94.9		1.03226	98.0
	150		114.9	2030.5	2.392		95.1		1.03226	98.2
	152	4855.9	114.9	2030.5	2.392	2.514	95.1	2.469	1.03226	98.2

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Knox

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		85.2	669.2	1.771		70.5		1.05158	74.1
	8		74.2	582.8	2.034		80.9		1.05158	85.1
	10		73.3	575.7	2.059		81.9		1.05158	86.1
	20		70.5	553.7	2.140		85.2		1.05158	89.5
	30		68.9	541.1	2.190		87.1		1.05158	91.6
	40		67.9	533.3	2.222		88.4		1.05158	93.0
	50		67.1	527.0	2.249		89.5		1.05158	94.1
	60		66.5	522.3	2.269		90.3		1.05158	94.9
	70		66.1	519.1	2.283		90.8		1.05158	95.5
	80		65.7	516.0	2.297		91.4		1.05158	96.1
	90		65.3	512.9	2.311		91.9		1.05158	96.7
	96		65.1	511.3	2.318		92.2		1.05158	97.0
	100		65.0	510.5	2.322		92.4		1.05158	97.1
	110		64.8	508.9	2.329		92.6		1.05158	97.4
	120		64.5	506.6	2.340		93.1		1.05158	97.9
	130		64.3	505.0	2.347		93.4		1.05158	98.2
	140		64.2	504.2	2.351		93.5		1.05158	98.3
	150		64.0	502.7	2.358		93.8		1.05158	98.6
	152	1185.2	64.0	502.7	2.358	2.514	93.8	2.479	1.05158	98.6
2	0		84.6	664.4	1.784		71.0		1.04948	74.5
	8		73.8	579.6	2.045		81.4		1.04948	85.4
	10		73.0	573.3	2.067		82.2		1.04948	86.3
	20		70.4	552.9	2.144		85.3		1.04948	89.5
	30		69.0	541.9	2.187		87.0		1.04948	91.3
	40		68.1	534.9	2.216		88.2		1.04948	92.5
	50		67.4	529.4	2.239		89.1		1.04948	93.5
	60		66.8	524.6	2.259		89.9		1.04948	94.3
	70		66.3	520.7	2.276		90.6		1.04948	95.0
	80		65.9	517.6	2.290		91.1		1.04948	95.6
	90		65.6	515.2	2.301		91.5		1.04948	96.1
	96		65.4	513.7	2.308		91.8		1.04948	96.3
	100		65.3	512.9	2.311		91.9		1.04948	96.5
	110		65.1	511.3	2.318		92.2		1.04948	96.8
	120		64.9	509.7	2.325		92.5		1.04948	97.1
	130		64.7	508.2	2.333		92.8		1.04948	97.4
	140		64.5	506.6	2.340		93.1		1.04948	97.7
	150		64.3	505.0	2.347		93.4		1.04948	98.0
	152	1185.3	64.3	505.0	2.347	2.514	93.4	2.463	1.04948	98.0

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Montgomery

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		156.4	2763.8	1.727		69.5		1.03086	71.6
	8		136.2	2406.9	1.983		79.8		1.03086	82.2
	10		134.6	2378.6	2.006		80.7		1.03086	83.2
	20		129.5	2288.5	2.085		83.9		1.03086	86.5
	30		126.7	2239.0	2.132		85.8		1.03086	88.4
	40		124.8	2205.4	2.164		87.1		1.03086	89.7
	50		123.3	2178.9	2.190		88.1		1.03086	90.8
	60		122.2	2159.5	2.210		88.9		1.03086	91.7
	70		121.3	2143.5	2.226		89.6		1.03086	92.3
	80		120.5	2129.4	2.241		90.2		1.03086	93.0
	90		119.8	2117.0	2.254		90.7		1.03086	93.5
	96		119.4	2110.0	2.262		91.0		1.03086	93.8
	100		119.2	2106.4	2.266		91.2		1.03086	94.0
	110		118.7	2097.6	2.275		91.5		1.03086	94.4
	120		118.3	2090.5	2.283		91.8		1.03086	94.7
	130		117.9	2083.5	2.291		92.2		1.03086	95.0
	140		117.5	2076.4	2.298		92.5		1.03086	95.3
	150		117.2	2071.1	2.304		92.7		1.03086	95.6
	152	4772.5	117.2	2071.1	2.304	2.486	92.7	2.375	1.03086	95.6
2	0		155.9	2755.0	1.739		70.0		1.03456	72.4
	8		136.7	2415.7	1.984		79.8		1.03456	82.6
	10		135.0	2385.6	2.009		80.8		1.03456	83.6
	20		130.1	2299.1	2.084		83.9		1.03456	86.7
	30		127.4	2251.3	2.128		85.6		1.03456	88.6
	40		125.6	2219.5	2.159		86.9		1.03456	89.9
	50		124.2	2194.8	2.183		87.8		1.03456	90.9
	60		123.1	2175.4	2.203		88.6		1.03456	91.7
	70		122.3	2161.2	2.217		89.2		1.03456	92.3
	80		121.6	2148.8	2.230		89.7		1.03456	92.8
	90		120.9	2136.5	2.243		90.2		1.03456	93.3
	96		120.6	2131.2	2.248		90.5		1.03456	93.6
	100		120.4	2127.6	2.252		90.6		1.03456	93.7
	110		119.9	2118.8	2.262		91.0		1.03456	94.1
	120		119.5	2111.7	2.269		91.3		1.03456	94.4
	130		119.1	2104.7	2.277		91.6		1.03456	94.8
	140		118.8	2099.4	2.282		91.8		1.03456	95.0
	150		118.5	2094.1	2.288		92.1		1.03456	95.2
	152	4791.7	118.4	2092.3	2.290	2.486	92.1	2.369	1.03456	95.3

Appendix C

Percent G_{mm} Summary

County: Montgomery

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		150.5	2659.6	0.426		17.1		4.25023	72.8
	8		131.3	2320.3	0.488		19.6		4.25023	83.4
	10		129.8	2293.8	0.494		19.9		4.25023	84.4
	20		125.0	2208.9	0.513		20.6		4.25023	87.6
	30		122.4	2163.0	0.523		21.1		4.25023	89.5
	40		120.6	2131.2	0.531		21.4		4.25023	90.8
	50		119.3	2108.2	0.537		21.6		4.25023	91.8
	60		118.3	2090.5	0.542		21.8		4.25023	92.6
	70		117.4	2074.6	0.546		22.0		4.25023	93.3
	80		116.7	2062.3	0.549		22.1		4.25023	93.9
	90		116.1	2051.7	0.552		22.2		4.25023	94.4
	96		115.8	2046.4	0.553		22.3		4.25023	94.6
	100		115.6	2042.8	0.554		22.3		4.25023	94.8
	110		115.2	2035.8	0.556		22.4		4.25023	95.1
	115	1132.1	115.0	2032.2	0.557	2.486	22.4	2.368	4.25023	95.3
2	0		152.3	2691.4	0.417		16.8		4.32170	72.4
	8		133.6	2360.9	0.475		19.1		4.32170	82.6
	10		132.0	2332.6	0.481		19.3		4.32170	83.6
	20		127.3	2249.6	0.498		20.0		4.32170	86.6
	30		124.6	2201.9	0.509		20.5		4.32170	88.5
	40		122.9	2171.8	0.516		20.8		4.32170	89.8
	50		121.6	2148.8	0.522		21.0		4.32170	90.7
	60		120.5	2129.4	0.526		21.2		4.32170	91.5
	70		119.6	2113.5	0.530		21.3		4.32170	92.2
	80		118.9	2101.1	0.534		21.5		4.32170	92.8
	90		118.3	2090.5	0.536		21.6		4.32170	93.2
	96		117.9	2083.5	0.538		21.6		4.32170	93.6
	100		117.7	2079.9	0.539		21.7		4.32170	93.7
	110		117.3	2072.9	0.541		21.8		4.32170	94.0
	120		116.8	2064.0	0.543		21.9		4.32170	94.4
	130		116.5	2058.7	0.545		21.9		4.32170	94.7
	140		116.1	2051.7	0.546		22.0		4.32170	95.0
	150		115.8	2046.4	0.548		22.0		4.32170	95.3
	152	1121.1	115.8	2046.4	0.548	2.486	22.0	2.368	4.32170	95.3

Appendix C

Percent G_{mm} Summary

County: Montgomery

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		86.8	681.7	1.714		69.0		1.03338	71.3
	8		75.7	594.5	1.966		79.1		1.03338	81.7
	10		74.8	587.5	1.990		80.0		1.03338	82.7
	20		72.2	567.1	2.061		82.9		1.03338	85.7
	30		70.7	555.3	2.105		84.7		1.03338	87.5
	40		69.6	546.6	2.138		86.0		1.03338	88.9
	50		68.9	541.1	2.160		86.9		1.03338	89.8
	60		68.3	536.4	2.179		87.7		1.03338	90.6
	70		67.9	533.3	2.192		88.2		1.03338	91.1
	80		67.5	530.1	2.205		88.7		1.03338	91.7
	90		67.2	527.8	2.215		89.1		1.03338	92.1
	96		67.0	526.2	2.221		89.4		1.03338	92.3
	100		66.9	525.4	2.224		89.5		1.03338	92.5
	110		66.6	523.1	2.234		89.9		1.03338	92.9
	120		66.4	521.5	2.241		90.2		1.03338	93.2
	130		66.2	519.9	2.248		90.4		1.03338	93.5
	140		66.0	518.4	2.255		90.7		1.03338	93.7
	150		65.9	517.6	2.258		90.9		1.03338	93.9
	152	1168.8	65.8	516.8	2.262	2.486	91.0	2.337	1.03338	94.0
2	0		87.0	683.3	1.710		68.8		1.04550	71.9
	8		76.4	600.0	1.947		78.3		1.04550	81.9
	10		75.5	593.0	1.970		79.3		1.04550	82.9
	20		72.7	571.0	2.046		82.3		1.04550	86.1
	30		71.1	558.4	2.092		84.2		1.04550	88.0
	40		70.0	549.8	2.125		85.5		1.04550	89.4
	50		69.2	543.5	2.150		86.5		1.04550	90.4
	60		68.6	538.8	2.169		87.2		1.04550	91.2
	70		68.1	534.9	2.185		87.9		1.04550	91.9
	80		67.6	530.9	2.201		88.5		1.04550	92.6
	90		67.3	528.6	2.210		88.9		1.04550	93.0
	96		67.1	527.0	2.217		89.2		1.04550	93.3
	100		67.0	526.2	2.220		89.3		1.04550	93.4
	110		66.7	523.9	2.230		89.7		1.04550	93.8
	120		66.5	522.3	2.237		90.0		1.04550	94.1
	130		66.3	520.7	2.244		90.3		1.04550	94.4
	140		66.1	519.1	2.251		90.5		1.04550	94.7
	150		65.9	517.6	2.257		90.8		1.04550	95.0
	152	1168.4	65.8	516.8	2.261	2.486	91.0	2.364	1.04550	95.1

Appendix C

Percent G_{mm} Summary

County: Montgomery

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.8	658.2	1.720		69.2		1.04994	72.7
	8		73.4	576.5	1.964		79.0		1.04994	83.0
	10		72.5	569.4	1.988		80.0		1.04994	84.0
	20		70.0	549.8	2.059		82.8		1.04994	87.0
	30		68.5	538.0	2.104		84.7		1.04994	88.9
	40		67.5	530.1	2.135		85.9		1.04994	90.2
	50		66.8	524.6	2.158		86.8		1.04994	91.1
	60		66.2	519.9	2.177		87.6		1.04994	92.0
	70		65.8	516.8	2.191		88.1		1.04994	92.5
	80		65.4	513.7	2.204		88.7		1.04994	93.1
	90		65.1	511.3	2.214		89.1		1.04994	93.5
	96		64.9	509.7	2.221		89.4		1.04994	93.8
	100		64.8	508.9	2.224		89.5		1.04994	94.0
	110		64.5	506.6	2.235		89.9		1.04994	94.4
	120		64.3	505.0	2.242		90.2		1.04994	94.7
	130		64.1	503.4	2.249		90.5		1.04994	95.0
	140		63.9	501.9	2.256		90.8		1.04994	95.3
	150		63.8	501.1	2.259		90.9		1.04994	95.4
	152	1132.1	63.7	500.3	2.263	2.486	91.0	2.376	1.04994	95.6
2	0		84.4	662.9	1.691		68.0		1.05246	71.6
	8		74.2	582.8	1.924		77.4		1.05246	81.5
	10		73.3	575.7	1.947		78.3		1.05246	82.5
	20		70.7	555.3	2.019		81.2		1.05246	85.5
	30		69.2	543.5	2.063		83.0		1.05246	87.3
	40		68.1	534.9	2.096		84.3		1.05246	88.8
	50		67.3	528.6	2.121		85.3		1.05246	89.8
	60		66.7	523.9	2.140		86.1		1.05246	90.6
	70		66.3	520.7	2.153		86.6		1.05246	91.2
	80		65.8	516.8	2.169		87.3		1.05246	91.9
	90		65.4	513.7	2.183		87.8		1.05246	92.4
	96		65.2	512.1	2.189		88.1		1.05246	92.7
	100		65.1	511.3	2.193		88.2		1.05246	92.8
	110		64.8	508.9	2.203		88.6		1.05246	93.3
	120		64.6	507.4	2.210		88.9		1.05246	93.6
	130		64.4	505.8	2.217		89.2		1.05246	93.9
	140		64.2	504.2	2.223		89.5		1.05246	94.1
	150		64.0	502.7	2.230		89.7		1.05246	94.4
	152	1121.1	64.0	502.7	2.230	2.486	89.7	2.347	1.05246	94.4

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		150.0	2650.7	1.855		73.3		1.03232	75.7
	8		133.3	2355.6	2.087		82.5		1.03232	85.1
	10		132.0	2332.6	2.107		83.3		1.03232	86.0
	20		127.6	2254.9	2.180		86.2		1.03232	89.0
	30		125.2	2212.5	2.222		87.8		1.03232	90.7
	40		123.5	2182.4	2.252		89.0		1.03232	91.9
	50		122.2	2159.5	2.276		90.0		1.03232	92.9
	60		121.2	2141.8	2.295		90.7		1.03232	93.7
	70		120.4	2127.6	2.310		91.3		1.03232	94.3
	80		119.7	2115.3	2.324		91.9		1.03232	94.8
	90		119.1	2104.7	2.336		92.3		1.03232	95.3
	96		118.8	2099.4	2.342		92.6		1.03232	95.5
	100		118.6	2095.8	2.346		92.7		1.03232	95.7
	110		118.2	2088.8	2.353		93.0		1.03232	96.0
	120		117.8	2081.7	2.361		93.3		1.03232	96.4
	130		117.4	2074.6	2.370		93.7		1.03232	96.7
	140		117.1	2069.3	2.376		93.9		1.03232	96.9
	150		116.8	2064.0	2.382		94.1		1.03232	97.2
	152	4915.9	116.8	2064.0	2.382	2.530	94.1	2.459	1.03232	97.2
2	0		151.9	2684.3	1.826		72.2		1.04614	75.5
	8		135.3	2390.9	2.050		81.0		1.04614	84.7
	10		133.9	2366.2	2.071		81.9		1.04614	85.6
	20		129.6	2290.2	2.140		84.6		1.04614	88.5
	30		127.2	2247.8	2.180		86.2		1.04614	90.1
	40		125.6	2219.5	2.208		87.3		1.04614	91.3
	50		124.3	2196.6	2.231		88.2		1.04614	92.2
	60		123.3	2178.9	2.249		88.9		1.04614	93.0
	70		122.4	2163.0	2.266		89.5		1.04614	93.7
	80		121.7	2150.6	2.279		90.1		1.04614	94.2
	90		121.1	2140.0	2.290		90.5		1.04614	94.7
	96		120.8	2134.7	2.296		90.7		1.04614	94.9
	100		120.6	2131.2	2.299		90.9		1.04614	95.1
	110		120.1	2122.3	2.309		91.3		1.04614	95.5
	120		119.7	2115.3	2.317		91.6		1.04614	95.8
	130		119.3	2108.2	2.324		91.9		1.04614	96.1
	140		118.9	2101.1	2.332		92.2		1.04614	96.4
	150		118.6	2095.8	2.338		92.4		1.04614	96.7
	152	4900.3	118.6	2095.8	2.338	2.530	92.4	2.446	1.04614	96.7

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		145.2	2565.9	0.452		17.8		4.24776	75.8
	8		128.4	2269.0	0.511		20.2		4.24776	85.7
	10		127.0	2244.3	0.516		20.4		4.24776	86.7
	20		122.8	2170.1	0.534		21.1		4.24776	89.6
	30		120.4	2127.6	0.545		21.5		4.24776	91.4
	40		118.8	2099.4	0.552		21.8		4.24776	92.7
	50		117.6	2078.2	0.558		22.0		4.24776	93.6
	60		116.7	2062.3	0.562		22.2		4.24776	94.3
	70		115.9	2048.1	0.566		22.4		4.24776	95.0
	80		115.3	2037.5	0.569		22.5		4.24776	95.5
	87	1158.6	115.0	2032.2	0.570	2.530	22.5	2.422	4.24776	95.7
2	0		146.0	2580.0	0.450		17.8		4.25402	75.6
	8		129.3	2284.9	0.508		20.1		4.25402	85.3
	10		127.9	2260.2	0.513		20.3		4.25402	86.3
	20		123.6	2184.2	0.531		21.0		4.25402	89.3
	30		121.3	2143.5	0.541		21.4		4.25402	91.0
	40		119.6	2113.5	0.549		21.7		4.25402	92.3
	50		118.4	2092.3	0.554		21.9		4.25402	93.2
	60		117.5	2076.4	0.559		22.1		4.25402	93.9
	70		116.7	2062.3	0.562		22.2		4.25402	94.6
	80		116.1	2051.7	0.565		22.3		4.25402	95.0
	90		115.5	2041.1	0.568		22.5		4.25402	95.5
	96		115.2	2035.8	0.570		22.5		4.25402	95.8
	100		115.1	2034.0	0.570		22.5		4.25402	95.9
	103	1159.8	115.0	2032.2	0.571	2.530	22.6	2.428	4.25402	96.0

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.9	666.8	1.805		71.3		1.04255	74.4
	8		75.2	590.6	2.038		80.6		1.04255	84.0
	10		74.4	584.3	2.060		81.4		1.04255	84.9
	20		72.0	565.5	2.129		84.1		1.04255	87.7
	30		70.6	554.5	2.171		85.8		1.04255	89.5
	40		69.7	547.4	2.199		86.9		1.04255	90.6
	50		69.0	541.9	2.221		87.8		1.04255	91.5
	60		68.4	537.2	2.241		88.6		1.04255	92.3
	70		67.9	533.3	2.257		89.2		1.04255	93.0
	80		67.6	530.9	2.267		89.6		1.04255	93.4
	90		67.2	527.8	2.281		90.1		1.04255	94.0
	96		67.0	526.2	2.287		90.4		1.04255	94.3
	100		66.9	525.4	2.291		90.5		1.04255	94.4
	110		66.6	523.1	2.301		91.0		1.04255	94.8
	120		66.4	521.5	2.308		91.2		1.04255	95.1
	130		66.2	519.9	2.315		91.5		1.04255	95.4
	140		66.0	518.4	2.322		91.8		1.04255	95.7
	150		65.8	516.8	2.329		92.1		1.04255	96.0
	152	1203.7	65.8	516.8	2.329	2.530	92.1	2.428	1.04255	96.0
2	0		84.8	666.0	1.801		71.2		1.05071	74.8
	8		75.2	590.6	2.031		80.3		1.05071	84.3
	10		74.5	585.1	2.050		81.0		1.05071	85.1
	20		72.0	565.5	2.121		83.8		1.05071	88.1
	30		70.6	554.5	2.163		85.5		1.05071	89.8
	40		69.6	546.6	2.194		86.7		1.05071	91.1
	50		68.9	541.1	2.216		87.6		1.05071	92.0
	60		68.3	536.4	2.236		88.4		1.05071	92.9
	70		67.9	533.3	2.249		88.9		1.05071	93.4
	80		67.5	530.1	2.262		89.4		1.05071	94.0
	90		67.2	527.8	2.273		89.8		1.05071	94.4
	96		67.0	526.2	2.279		90.1		1.05071	94.7
	100		66.9	525.4	2.283		90.2		1.05071	94.8
	110		66.7	523.9	2.290		90.5		1.05071	95.1
	120		66.4	521.5	2.300		90.9		1.05071	95.5
	130		66.2	519.9	2.307		91.2		1.05071	95.8
	140		66.1	519.1	2.310		91.3		1.05071	95.9
	150		65.9	517.6	2.317		91.6		1.05071	96.2
	152	1199.4	65.9	517.6	2.317	2.530	91.6	2.435	1.05071	96.2

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		81.6	640.9	1.808		71.5		1.04358	74.6
	8		71.7	563.1	2.057		81.3		1.04358	84.9
	10		70.9	556.8	2.081		82.2		1.04358	85.8
	20		68.6	538.8	2.150		85.0		1.04358	88.7
	30		67.4	529.4	2.189		86.5		1.04358	90.3
	40		66.5	522.3	2.218		87.7		1.04358	91.5
	50		65.9	517.6	2.239		88.5		1.04358	92.3
	60		65.4	513.7	2.256		89.2		1.04358	93.0
	70		65.0	510.5	2.270		89.7		1.04358	93.6
	80		64.7	508.2	2.280		90.1		1.04358	94.0
	90		64.4	505.8	2.291		90.5		1.04358	94.5
	96		64.2	504.2	2.298		90.8		1.04358	94.8
	100		64.2	504.2	2.298		90.8		1.04358	94.8
	110		63.9	501.9	2.309		91.2		1.04358	95.2
	120		63.7	500.3	2.316		91.5		1.04358	95.5
	130		63.5	498.7	2.323		91.8		1.04358	95.8
	132	1158.6	63.5	498.7	2.323	2.530	91.8	2.424	1.04358	95.8
2	0		82.0	644.0	1.801		71.2		1.05551	75.1
	8		72.4	568.6	2.040		80.6		1.05551	85.1
	10		71.6	562.3	2.062		81.5		1.05551	86.0
	20		69.3	544.3	2.131		84.2		1.05551	88.9
	30		67.9	533.3	2.175		86.0		1.05551	90.7
	40		67.0	526.2	2.204		87.1		1.05551	91.9
	50		66.3	520.7	2.227		88.0		1.05551	92.9
	60		65.7	516.0	2.248		88.8		1.05551	93.8
	70		65.3	512.9	2.261		89.4		1.05551	94.3
	80		64.9	509.7	2.275		89.9		1.05551	94.9
	90		64.6	507.4	2.286		90.3		1.05551	95.4
	96		64.4	505.8	2.293		90.6		1.05551	95.7
	100		64.3	505.0	2.297		90.8		1.05551	95.8
	110		64.1	503.4	2.304		91.1		1.05551	96.1
	120		63.9	501.9	2.311		91.3		1.05551	96.4
	130		63.7	500.3	2.318		91.6		1.05551	96.7
	140		63.6	499.5	2.322		91.8		1.05551	96.9
	146	1159.8	63.5	498.7	2.326	2.530	91.9	2.455	1.05551	97.0

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		136.8	2417.5	2.019		80.0		1.01585	81.3
	8		122.2	2159.5	2.260		89.6		1.01585	91.0
	10		121.1	2140.0	2.281		90.4		1.01585	91.8
	20		117.9	2083.5	2.343		92.9		1.01585	94.3
	30		116.3	2055.2	2.375		94.1		1.01585	95.6
	40		115.2	2035.8	2.398		95.0		1.01585	96.5
	50		114.3	2019.8	2.417		95.8		1.01585	97.3
	60		113.7	2009.2	2.429		96.3		1.01585	97.8
	70		113.2	2000.4	2.440		96.7		1.01585	98.3
	80		112.7	1991.6	2.451		97.1		1.01585	98.7
	90		112.4	1986.3	2.458		97.4		1.01585	99.0
	96		112.2	1982.7	2.462		97.6		1.01585	99.1
	100		112.0	1979.2	2.466		97.8		1.01585	99.3
	110		111.8	1975.7	2.471		97.9		1.01585	99.5
	120		111.6	1972.1	2.475		98.1		1.01585	99.7
	130		111.4	1968.6	2.480		98.3		1.01585	99.8
	140		111.3	1966.8	2.482		98.4		1.01585	99.9
	150		111.2	1965.1	2.484		98.5		1.01585	100.0
	152	4881.4	111.2	1965.1	2.484	2.523	98.5	2.523	1.01585	100.0
2	0		136.7	2415.7	2.023		80.2		1.01787	81.6
	8		122.0	2155.9	2.267		89.9		1.01787	91.5
	10		120.9	2136.5	2.288		90.7		1.01787	92.3
	20		117.7	2079.9	2.350		93.2		1.01787	94.8
	30		116.1	2051.7	2.383		94.4		1.01787	96.1
	40		115.0	2032.2	2.405		95.3		1.01787	97.0
	50		114.2	2018.1	2.422		96.0		1.01787	97.7
	60		113.6	2007.5	2.435		96.5		1.01787	98.2
	70		113.1	1998.6	2.446		96.9		1.01787	98.7
	80		112.6	1989.8	2.457		97.4		1.01787	99.1
	90		112.3	1984.5	2.463		97.6		1.01787	99.4
	96		112.1	1981.0	2.468		97.8		1.01787	99.6
	100		112.0	1979.2	2.470		97.9		1.01787	99.6
	110		111.8	1975.7	2.474		98.1		1.01787	99.8
	120		111.6	1972.1	2.479		98.2		1.01787	100.0
	130		111.5	1970.4	2.481		98.3		1.01787	100.1
	140		111.4	1968.6	2.483		98.4		1.01787	100.2
	150		111.3	1966.8	2.485		98.5		1.01787	100.3
	152	4888.1	111.3	1966.8	2.485	2.523	98.5	2.530	1.01787	100.3

Percent G_{mm} Summary

Mix: 411-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Putnam

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		75.6	593.8	2.006		79.5		1.01648	80.8
	8		67.2	527.8	2.256		89.4		1.01648	90.9
	10		66.5	522.3	2.280		90.4		1.01648	91.9
	20		64.7	508.2	2.343		92.9		1.01648	94.4
	30		63.8	501.1	2.376		94.2		1.01648	95.7
	40		63.2	496.4	2.399		95.1		1.01648	96.7
	50		62.7	492.4	2.418		95.8		1.01648	97.4
	60		62.3	489.3	2.434		96.5		1.01648	98.1
	70		62.1	487.7	2.442		96.8		1.01648	98.4
	80		61.8	485.4	2.453		97.2		1.01648	98.8
	90		61.7	484.6	2.457		97.4		1.01648	99.0
	96		61.6	483.8	2.461		97.6		1.01648	99.2
	100		61.5	483.0	2.465		97.7		1.01648	99.3
	110		61.4	482.2	2.469		97.9		1.01648	99.5
	120		61.3	481.4	2.473		98.0		1.01648	99.7
	130		61.2	480.7	2.477		98.2		1.01648	99.8
	140		61.2	480.7	2.477		98.2		1.01648	99.8
	150		61.1	479.9	2.481		98.4		1.01648	100.0
	152	1190.8	61.1	479.9	2.481	2.523	98.4	2.522	1.01648	100.0
2	0		76.5	600.8	1.972		78.1		1.03025	80.5
	8		68.3	536.4	2.208		87.5		1.03025	90.2
	10		67.7	531.7	2.228		88.3		1.03025	91.0
	20		65.9	517.6	2.289		90.7		1.03025	93.5
	30		64.9	509.7	2.324		92.1		1.03025	94.9
	40		64.3	505.0	2.346		93.0		1.03025	95.8
	50		63.8	501.1	2.364		93.7		1.03025	96.5
	60		63.3	497.2	2.383		94.4		1.03025	97.3
	70		63.0	494.8	2.394		94.9		1.03025	97.8
	80		62.7	492.4	2.406		95.3		1.03025	98.2
	90		62.5	490.9	2.413		95.7		1.03025	98.5
	96		62.4	490.1	2.417		95.8		1.03025	98.7
	100		62.3	489.3	2.421		96.0		1.03025	98.9
	110		62.1	487.7	2.429		96.3		1.03025	99.2
	120		62.0	486.9	2.433		96.4		1.03025	99.3
	130		61.8	485.4	2.441		96.7		1.03025	99.7
	140		61.7	484.6	2.445		96.9		1.03025	99.8
	150		61.6	483.8	2.449		97.0		1.03025	100.0
	152	1184.6	61.6	483.8	2.449	2.523	97.0	2.523	1.03025	100.0

Percent G_{mm} Summary

Mix: 411-S

[illegible]

Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 307-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		147.4	2604.8	1.893		74.1		1.02447	76.0
	8		130.4	2304.4	2.140		83.8		1.02447	85.9
	10		128.9	2277.9	2.165		84.8		1.02447	86.9
	20		124.4	2198.3	2.243		87.9		1.02447	90.0
	30		121.9	2154.2	2.289		89.7		1.02447	91.8
	40		120.3	2125.9	2.320		90.8		1.02447	93.1
	50		119.0	2102.9	2.345		91.8		1.02447	94.1
	60		118.1	2087.0	2.363		92.5		1.02447	94.8
	70		117.3	2072.9	2.379		93.2		1.02447	95.4
	80		116.6	2060.5	2.393		93.7		1.02447	96.0
	90		116.1	2051.7	2.403		94.1		1.02447	96.4
	96		115.8	2046.4	2.410		94.4		1.02447	96.7
	100		115.6	2042.8	2.414		94.5		1.02447	96.9
	110		115.2	2035.8	2.422		94.9		1.02447	97.2
	120		114.9	2030.5	2.429		95.1		1.02447	97.4
	130		114.5	2023.4	2.437		95.4		1.02447	97.8
	140		114.2	2018.1	2.443		95.7		1.02447	98.0
	150		114.0	2014.5	2.448		95.9		1.02447	98.2
	152	4931.1	113.9	2012.8	2.450	2.553	96.0	2.510	1.02447	98.3
2	0		147.4	2604.8	1.884		73.8		1.02657	75.7
	8		130.4	2304.4	2.129		83.4		1.02657	85.6
	10		129.0	2279.6	2.153		84.3		1.02657	86.5
	20		124.5	2200.1	2.230		87.4		1.02657	89.7
	30		122.0	2155.9	2.276		89.1		1.02657	91.5
	40		120.4	2127.6	2.306		90.3		1.02657	92.7
	50		119.2	2106.4	2.330		91.2		1.02657	93.7
	60		118.2	2088.8	2.349		92.0		1.02657	94.5
	70		117.5	2076.4	2.363		92.6		1.02657	95.0
	80		116.8	2064.0	2.377		93.1		1.02657	95.6
	90		116.3	2055.2	2.388		93.5		1.02657	96.0
	96		116.0	2049.9	2.394		93.8		1.02657	96.2
	100		115.8	2046.4	2.398		93.9		1.02657	96.4
	110		115.4	2039.3	2.406		94.2		1.02657	96.7
	120		115.0	2032.2	2.415		94.6		1.02657	97.1
	130		114.7	2026.9	2.421		94.8		1.02657	97.3
	140		114.4	2021.6	2.427		95.1		1.02657	97.6
	150		114.1	2016.3	2.434		95.3		1.02657	97.8
	152	4907.1	114.0	2014.5	2.436	2.553	95.4	2.501	1.02657	97.9

Percent G_{mm} Summary

[illegible]

Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 307-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyrations	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		83.6	656.6	1.810		70.9		1.04862	74.4
	8		73.3	575.7	2.065		80.9		1.04862	84.8
	10		72.5	569.4	2.088		81.8		1.04862	85.7
	20		70.0	549.8	2.162		84.7		1.04862	88.8
	30		68.6	538.8	2.206		86.4		1.04862	90.6
	40		67.7	531.7	2.236		87.6		1.04862	91.8
	50		67.0	526.2	2.259		88.5		1.04862	92.8
	60		66.4	521.5	2.279		89.3		1.04862	93.6
	70		66.0	518.4	2.293		89.8		1.04862	94.2
	80		65.6	515.2	2.307		90.4		1.04862	94.8
	90		65.3	512.9	2.318		90.8		1.04862	95.2
	96		65.1	511.3	2.325		91.1		1.04862	95.5
	100		65.0	510.5	2.328		91.2		1.04862	95.6
	110		64.8	508.9	2.336		91.5		1.04862	95.9
	120		64.6	507.4	2.343		91.8		1.04862	96.2
	130		64.4	505.8	2.350		92.0		1.04862	96.5
	140		64.2	504.2	2.357		92.3		1.04862	96.8
	150		64.1	503.4	2.361		92.5		1.04862	97.0
	152	1188.7	64.1	503.4	2.361	2.553	92.5	2.476	1.04862	97.0
2	0		82.9	651.1	1.835		71.9		1.03923	74.7
	8		72.9	572.6	2.087		81.7		1.03923	84.9
	10		72.0	565.5	2.113		82.8		1.03923	86.0
	20		69.5	545.9	2.189		85.7		1.03923	89.1
	30		68.2	535.6	2.231		87.4		1.03923	90.8
	40		67.2	527.8	2.264		88.7		1.03923	92.2
	50		66.5	522.3	2.288		89.6		1.03923	93.1
	60		66.0	518.4	2.305		90.3		1.03923	93.8
	70		65.5	514.4	2.323		91.0		1.03923	94.5
	80		65.1	511.3	2.337		91.5		1.03923	95.1
	90		64.8	508.9	2.348		92.0		1.03923	95.6
	96		64.6	507.4	2.355		92.2		1.03923	95.9
	100		64.5	506.6	2.359		92.4		1.03923	96.0
	110		64.3	505.0	2.366		92.7		1.03923	96.3
	120		64.1	503.4	2.374		93.0		1.03923	96.6
	130		63.9	501.9	2.381		93.3		1.03923	96.9
	140		63.7	500.3	2.389		93.5		1.03923	97.2
	150		63.5	498.7	2.396		93.8		1.03923	97.5
	152	1195.0	63.5	498.7	2.396	2.553	93.8	2.490	1.03923	97.5

Percent G_{mm} Summary

Mix: 307-S

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Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		151.9	2684.3	1.777		72.3		1.02902	74.4
	8		134.2	2371.5	2.012		81.8		1.02902	84.2
	10		132.7	2345.0	2.035		82.8		1.02902	85.2
	20		128.2	2265.5	2.106		85.7		1.02902	88.1
	30		125.8	2223.1	2.146		87.3		1.02902	89.8
	40		124.2	2194.8	2.174		88.4		1.02902	91.0
	50		123.0	2173.6	2.195		89.3		1.02902	91.9
	60		122.1	2157.7	2.211		89.9		1.02902	92.6
	70		121.3	2143.5	2.226		90.5		1.02902	93.2
	80		120.7	2132.9	2.237		91.0		1.02902	93.6
	90		120.1	2122.3	2.248		91.4		1.02902	94.1
	96		119.8	2117.0	2.254		91.7		1.02902	94.3
	100		119.6	2113.5	2.257		91.8		1.02902	94.5
	110		119.2	2106.4	2.265		92.1		1.02902	94.8
	120		118.8	2099.4	2.273		92.4		1.02902	95.1
	130		118.5	2094.1	2.278		92.7		1.02902	95.4
	140		118.2	2088.8	2.284		92.9		1.02902	95.6
	150		117.9	2083.5	2.290		93.1		1.02902	95.8
	152	4771.0	117.8	2081.7	2.292	2.458	93.2	2.358	1.02902	95.9
2	0		151.9	2684.3	1.777		72.3		1.02902	74.4
	8		134.2	2371.5	2.012		81.8		1.02902	84.2
	10		132.7	2345.0	2.035		82.8		1.02902	85.2
	20		128.2	2265.5	2.106		85.7		1.02902	88.1
	30		125.8	2223.1	2.146		87.3		1.02902	89.8
	40		124.2	2194.8	2.174		88.4		1.02902	91.0
	50		123.0	2173.6	2.195		89.3		1.02902	91.9
	60		122.1	2157.7	2.211		89.9		1.02902	92.6
	70		121.3	2143.5	2.226		90.5		1.02902	93.2
	80		120.7	2132.9	2.237		91.0		1.02902	93.6
	90		120.1	2122.3	2.248		91.4		1.02902	94.1
	96		119.8	2117.0	2.254		91.7		1.02902	94.3
	100		119.6	2113.5	2.257		91.8		1.02902	94.5
	110		119.2	2106.4	2.265		92.1		1.02902	94.8
	120		118.8	2099.4	2.273		92.4		1.02902	95.1
	130		118.5	2094.1	2.278		92.7		1.02902	95.4
	140		118.2	2088.8	2.284		92.9		1.02902	95.6
	150		117.9	2083.5	2.290		93.1		1.02902	95.8
	152	4771.0	117.8	2081.7	2.292	2.458	93.2	2.358	1.02902	95.9

Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 411-S

Saturated Surface Dry Method-150mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		148.4	2622.4	0.429		17.5		4.21405	73.6
	8		130.5	2306.1	0.488		19.9		4.21405	83.7
	10		129.0	2279.6	0.494		20.1		4.21405	84.6
	20		124.6	2201.9	0.511		20.8		4.21405	87.6
	30		122.2	2159.5	0.521		21.2		4.21405	89.3
	40		120.6	2131.2	0.528		21.5		4.21405	90.5
	50		119.4	2110.0	0.533		21.7		4.21405	91.4
	60		118.5	2094.1	0.537		21.9		4.21405	92.1
	70		117.8	2081.7	0.541		22.0		4.21405	92.7
	80		117.2	2071.1	0.543		22.1		4.21405	93.2
	90		116.7	2062.3	0.546		22.2		4.21405	93.5
	96		116.4	2057.0	0.547		22.3		4.21405	93.8
	100		116.2	2053.4	0.548		22.3		4.21405	94.0
	110		115.8	2046.4	0.550		22.4		4.21405	94.3
2	120		115.4	2039.3	0.552		22.4		4.21405	94.6
	130		115.1	2034.0	0.553		22.5		4.21405	94.8
	134	1125.5	115.0	2032.2	0.554	2.458	22.5	2.334	4.21405	94.9
	0		148.0	2615.4	0.430		17.5		4.21843	73.8
	8		130.3	2302.6	0.489		19.9		4.21843	83.8
	10		128.8	2276.1	0.494		20.1		4.21843	84.8
	20		124.4	2198.3	0.512		20.8		4.21843	87.8
	30		121.9	2154.2	0.522		21.2		4.21843	89.6
	40		120.3	2125.9	0.529		21.5		4.21843	90.8
	50		119.2	2106.4	0.534		21.7		4.21843	91.6
	60		118.3	2090.5	0.538		21.9		4.21843	92.3
	70		117.5	2076.4	0.542		22.0		4.21843	93.0
	80		116.9	2065.8	0.545		22.2		4.21843	93.4
	90		116.4	2057.0	0.547		22.2		4.21843	93.8
	96		116.1	2051.7	0.548		22.3		4.21843	94.1
	100		116.0	2049.9	0.549		22.3		4.21843	94.2
	110		115.6	2042.8	0.551		22.4		4.21843	94.5
	120		115.2	2035.8	0.553		22.5		4.21843	94.8
	128	1125.0	115.0	2032.2	0.554	2.458	22.5	2.335	4.21843	95.0

Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - Nmax										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		84.0	659.7	1.745		71.0		1.04297	74.0
	8		74.4	584.3	1.970		80.1		1.04297	83.6
	10		73.6	578.1	1.992		81.0		1.04297	84.5
	20		71.3	560.0	2.056		83.6		1.04297	87.2
	30		70.0	549.8	2.094		85.2		1.04297	88.8
	40		69.2	543.5	2.118		86.2		1.04297	89.9
	50		68.6	538.8	2.137		86.9		1.04297	90.7
	60		68.1	534.9	2.153		87.6		1.04297	91.3
	70		67.6	530.9	2.168		88.2		1.04297	92.0
	80		67.3	528.6	2.178		88.6		1.04297	92.4
	90		67.0	526.2	2.188		89.0		1.04297	92.8
	96		66.8	524.6	2.194		89.3		1.04297	93.1
	100		66.7	523.9	2.198		89.4		1.04297	93.2
	110		66.5	522.3	2.204		89.7		1.04297	93.5
	120		66.3	520.7	2.211		89.9		1.04297	93.8
2	130		66.2	519.9	2.214		90.1		1.04297	93.9
	140		66.0	518.4	2.221		90.3		1.04297	94.2
	150		65.9	517.6	2.224		90.5		1.04297	94.4
	152	1151.3	65.8	516.8	2.228	2.458	90.6	2.324	1.04297	94.5
	0		85.1	668.4	1.740		70.8		1.04667	74.1
	8		75.3	591.4	1.966		80.0		1.04667	83.7
	10		74.5	585.1	1.987		80.8		1.04667	84.6
	20		72.1	566.3	2.054		83.5		1.04667	87.4
	30		70.9	556.8	2.088		84.9		1.04667	88.9
	40		70.0	549.8	2.115		86.0		1.04667	90.1
	50		69.3	544.3	2.137		86.9		1.04667	91.0
	60		68.8	540.4	2.152		87.5		1.04667	91.6
	70		68.4	537.2	2.165		88.1		1.04667	92.2
	80		68.0	534.1	2.177		88.6		1.04667	92.7
	90		67.7	531.7	2.187		89.0		1.04667	93.1
	96		67.6	530.9	2.190		89.1		1.04667	93.3
	100		67.5	530.1	2.194		89.2		1.04667	93.4
	110		67.2	527.8	2.203		89.6		1.04667	93.8
	120		67.0	526.2	2.210		89.9		1.04667	94.1
	130		66.8	524.6	2.217		90.2		1.04667	94.4
	140		66.7	523.9	2.220		90.3		1.04667	94.5
	150		66.5	522.3	2.227		90.6		1.04667	94.8
	152	1162.9	66.5	522.3	2.227	2.458	90.6	2.330	1.04667	94.8

Appendix C

Percent G_{mm} Summary

County: Sevier

Mix: 411-S

Saturated Surface Dry Method-100mm Samples - 4% VTM										
Sample Number	Number of Gyration	Weight (gm)	Height (mm)	Volume (cm ³)	Estimated G_{mb}	G_{mm}	Uncorrected Density	Actual G_{mb}	Correction Factor	Corrected % G_{mm}
1	0		82.3	646.4	1.741		70.8		1.03444	73.3
	8		72.4	568.6	1.979		80.5		1.03444	83.3
	10		71.6	562.3	2.001		81.4		1.03444	84.2
	20		69.1	542.7	2.074		84.4		1.03444	87.3
	30		67.8	532.5	2.114		86.0		1.03444	88.9
	40		67.0	526.2	2.139		87.0		1.03444	90.0
	50		66.4	521.5	2.158		87.8		1.03444	90.8
	60		65.9	517.6	2.175		88.5		1.03444	91.5
	70		65.5	514.4	2.188		89.0		1.03444	92.1
	80		65.2	512.1	2.198		89.4		1.03444	92.5
	90		64.9	509.7	2.208		89.8		1.03444	92.9
	96		64.7	508.2	2.215		90.1		1.03444	93.2
	100		64.6	507.4	2.218		90.2		1.03444	93.3
	110		64.4	505.8	2.225		90.5		1.03444	93.6
	120		64.3	505.0	2.229		90.7		1.03444	93.8
	130		64.1	503.4	2.236		90.9		1.03444	94.1
	140		64.0	502.7	2.239		91.1		1.03444	94.2
	150		63.8	501.1	2.246		91.4		1.03444	94.5
	152	1125.5	63.8	501.1	2.246	2.458	91.4	2.323	1.03444	94.5
2	0		82.5	648.0	1.736		70.6		1.03818	73.3
	8		72.4	568.6	1.978		80.5		1.03818	83.5
	10		71.6	562.3	2.001		81.4		1.03818	84.5
	20		69.2	543.5	2.070		84.2		1.03818	87.4
	30		67.9	533.3	2.110		85.8		1.03818	89.1
	40		67.0	526.2	2.138		87.0		1.03818	90.3
	50		66.4	521.5	2.157		87.7		1.03818	91.1
	60		65.9	517.6	2.174		88.4		1.03818	91.8
	70		65.5	514.4	2.187		89.0		1.03818	92.3
	80		65.2	512.1	2.197		89.4		1.03818	92.8
	90		64.9	509.7	2.207		89.8		1.03818	93.2
	96		64.7	508.2	2.214		90.1		1.03818	93.5
	100		64.6	507.4	2.217		90.2		1.03818	93.6
	110		64.4	505.8	2.224		90.5		1.03818	93.9
	120		64.2	504.2	2.231		90.8		1.03818	94.2
	130		64.1	503.4	2.235		90.9		1.03818	94.4
	140		63.9	501.9	2.242		91.2		1.03818	94.7
	150		63.8	501.1	2.245		91.3		1.03818	94.8
	152	1125.0	63.7	500.3	2.249	2.458	91.5	2.335	1.03818	95.0

APPENDIX D

STATISTICAL ANALYSIS RESULTS

Appendix D

Statistical Analysis

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 %Gmm-150-mm	95.1707	756	3.5616	.1295
%Gmm-100-mm	94.8721	756	3.6432	.1325

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 %Gmm-150-mm & %Gmm-100-mm	756	.993	.000

Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 %Gmm-150-mm - %Gmm-100-mm	.2986	.4189	1.524E-02	.2687	.3285	19.600	755	.000

Figure 9. Paired T-Test Results for N_{max} Data

Appendix D

Statistical Analysis

Paired Samples Statistics

MIXCLASS	Pair 1	Mean	N	Std. Deviation	Std. Error Mean
1.00	%Grmm-150-mm	93.8808	360	3.7116	.1956
	%Grmm-100-mm	93.4635	360	3.6868	.1943
2.00	%Grmm-150-mm	96.3434	396	2.9715	.1493
	%Grmm-100-mm	96.1526	396	3.0924	.1554

Paired Samples Test

MIXCLASS	Pair 1	Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
					Lower	Upper	
1.00	%Grmm-150-mm - %Grmm-100-mm	.4173	.3988	2.102E-02	.3760	.4586	.359
2.00	%Grmm-150-mm - %Grmm-100-mm	.1907	.4080	2.050E-02	.1504	.2310	.395

Figure 10. Paired T-Test Results for N_{max} Data Grouped by Mix Type

Appendix D

Statistical Analysis

Paired Samples Statistics

GROUPS		Mean	N	Std. Deviation	Std. Error Mean
1.00	Pair 1	94.2244	216	3.6424	.2478
	%Gmm-150-mm				
	%Gmm-100-mm	93.9252	216	3.6213	.2464
2.00	Pair 1	93.3654	144	3.7672	.3139
	%Gmm-150-mm				
	%Gmm-100-mm	92.7709	144	3.6882	.3074
3.00	Pair 1	96.5138	198	2.8361	.2016
	%Gmm-150-mm				
	%Gmm-100-mm	96.3427	198	2.8778	.2045
4.00	Pair 1	96.1730	198	3.0989	.2202
	%Gmm-150-mm				
	%Gmm-100-mm	95.9626	198	3.2894	.2338

Paired Samples Test

GROUPS		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
1.00	Pair 1	.2992	.3098	2.108E-02	.2576	.3407	14.191	215	.000
	%Gmm-150-mm - %Gmm-100-mm								
2.00	Pair 1	.5945	.4496	3.747E-02	.5205	.6686	15.867	143	.000
	%Gmm-150-mm - %Gmm-100-mm								
3.00	Pair 1	.1711	.4023	2.859E-02	.1147	.2275	5.985	197	.000
	%Gmm-150-mm - %Gmm-100-mm								
4.00	Pair 1	.2104	.4136	2.939E-02	.1524	.2683	7.156	197	.000
	%Gmm-150-mm - %Gmm-100-mm								

Figure 11. Paired T-Test Results for N_{max} Data Grouped by Mix Design

Appendix D

Statistical Analysis

Independent: V3

Dependent	Mth	R ²	d.f.	F Sigf	b0	b1
V2	LIN	.987	75457374.8	.000	3.0266	.9712

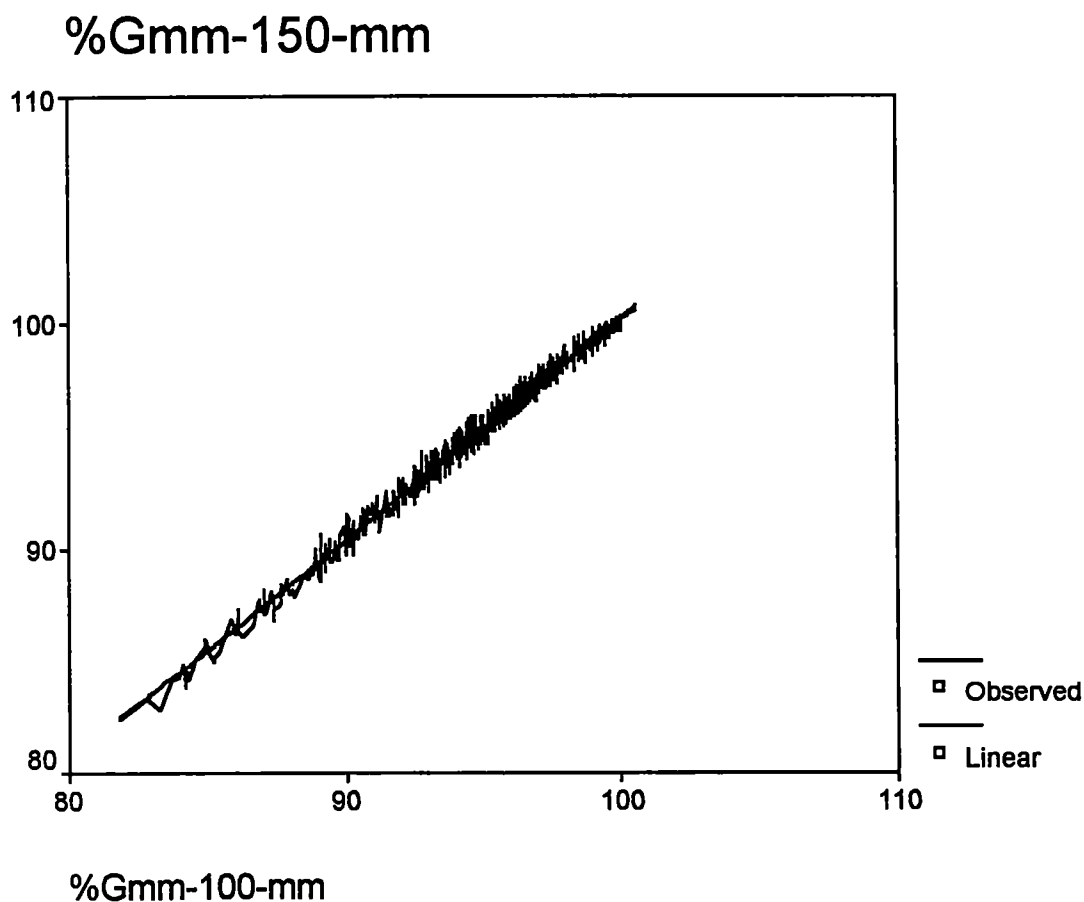


Figure 12. 150-mm vs. 100-mm Linear Regression Chart for $N_{\max}$ Data with Coefficient of Correlation (R^2)

Appendix D

Statistical Analysis

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	F2	93.3365	387	3.2797	.1667
	F3	92.9551	387	3.3510	.1703

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	F2 & F3	387	.991	.000

Paired Samples Test

		Paired Differences				
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	Sig. (2-tailed)
					Lower	Upper
Pair 1	F2 - F3	.3814	.4551	2.313E-02	.3359	.4269
				t	16.488	386
						.000

Figure 13. Paired T-Test Results for 4 +/- 1% VTM Data

Appendix D

Statistical Analysis

Paired Samples Statistics

MIXCLASS	Pair 1	F2	F3	N	Std. Deviation	Std. Error Mean
1.00				217	3.3607	.2281
				217	3.4105	.2315
2.00				170	2.7972	.2145
				170	2.8606	.2194

Paired Samples Test

		Paired Differences				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper	
MIXCLASS	Pair 1 F2 - F3	.4355	.4496	3.052E-02	.3754 .4957	.216
1.00						.000
2.00	Pair 1 F2 - F3	.3124	.4540	3.482E-02	.2436 .3811	.169
						.000

Figure 14. Paired T-Test Results for 4 +/- 1% VTM Data Grouped by Mix Type T-Test

Appendix D

Statistical Analysis

Paired Samples Statistics

GROUP		Mean	N	Std. Deviation	Std. Error Mean
1.00	Pair 1	92.4636	114	3.2549	.3048
	F2				
	F3	92.1448	114	3.3376	.3126
2.00	Pair 1	92.4302	103	3.4900	.3439
	F2				
	F3	91.8654	103	3.4999	.3449
3.00	Pair 1	94.5528	84	2.7538	.3005
	F2				
	F3	94.1975	84	2.7295	.2978
4.00	Pair 1	94.3912	86	2.8528	.3076
	F2				
	F3	94.1208	86	2.9987	.3234

Paired Samples Test

GROUP		Paired Differences		95% Confidence Interval of the Difference		Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper
1.00	Pair 1	.3188	.5236	4.904E-02	.2216	.4160
	F2 - F3					
	F2 - F3	.5647	.3038	2.993E-02	.5054	.6241
2.00	Pair 1	.3553	.4234	4.620E-02	.2634	.4472
	F2 - F3					
	F2 - F3	.2704	.4807	5.183E-02	.1674	.3735
3.00	Pair 1					
	F2 - F3					
4.00	Pair 1					
	F2 - F3					

Figure 15. Paired T-Test Results for 4 +/- 1% VTM Data Grouped by Mix Design

Appendix D

Statistical Analysis

Independent: F3

Dependent	Mth	R ²	d.f.	F Sigf	b0	b1
F2	LIN	.982	385 20657.3	.000	3.1955	.9697

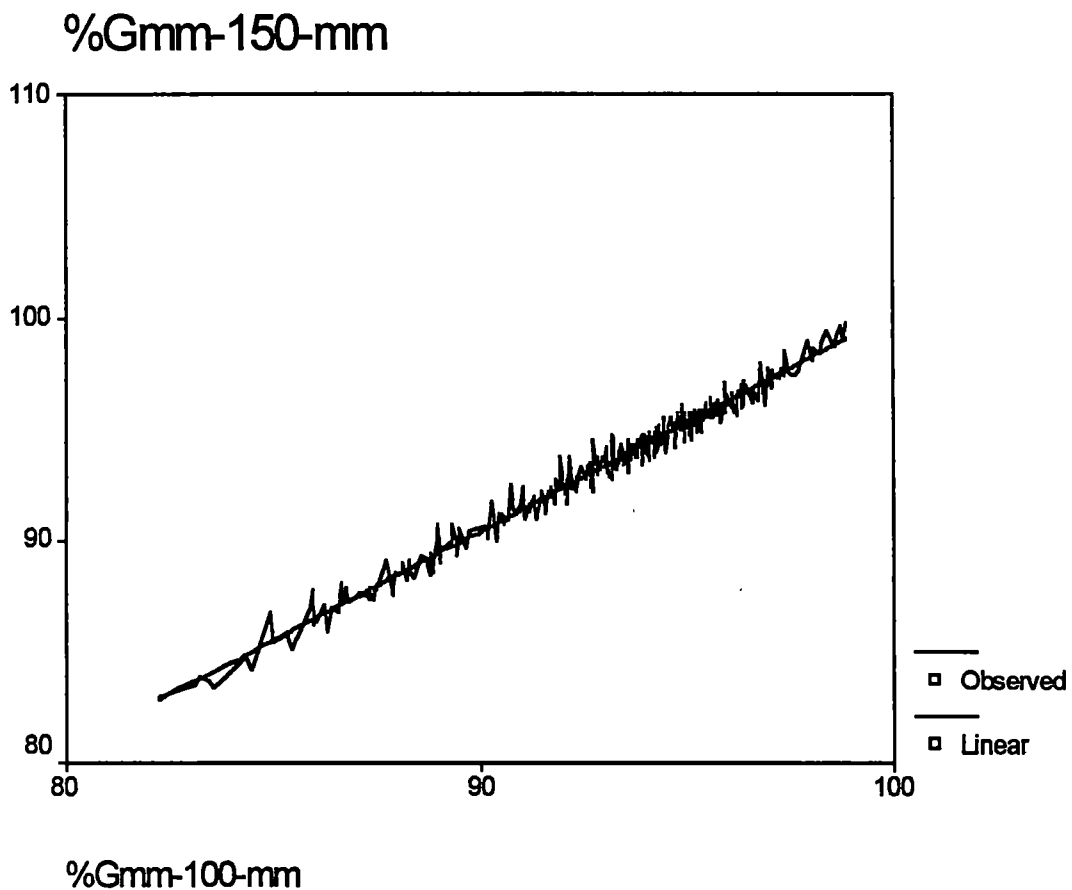


Figure 16. 150-mm vs. 100-mm Linear Regression Chart for 4 +/- 1% VTM Data with Coefficient of Correlation (R^2).

APPENDIX E
SAMPLE CALCULATIONS

Test Precision & Bias

Bulk Specific Gravity – ASTM D2726

	<u>Acceptable Range of Two Test Results</u>
Single Operator	0.035
Multiple Laboratory	0.076

Maximum Theoretical Specific Gravity – ASTM D2041

	<u>Acceptable Range of Two Test Results</u>
Single Operator	0.011
Multiple Laboratory	0.019

For Approximately 96% G_{mm} Assume:

$$G_{mb} = 2.385$$

$$G_{mm} = 2.485$$

$$\text{Range} = 2.350 - 2.420$$

$$\text{Range} = 2.474 - 2.496$$

Base Line Calculation

$$\%G_{mm} = (G_{mb}/G_{mm}) * 100 = (2.385/2.485) * 100 =$$

$$95.98\%$$

For Approximately 98% G_{mm} Assume:

$$G_{mb} = 2.485$$

$$G_{mm} = 2.540$$

$$\text{Range} = 2.450 - 2.520$$

$$\text{Range} = 2.529 - 2.551$$

Base Line Calculation

$$\%G_{mm} = (G_{mb}/G_{mm}) * 100 = (2.485/2.540) * 100 =$$

$$97.83\%$$

Table 7. Test Variation Range Sample Calculations - 96%G_{mm}

Error Type	Conditions	Calculation	Result (%G _{mm})	%G _{mm} Difference From Base Line
Compound				
	G _{mb} Low G _{mm} Low	(2.350/2.485)*100	94.99	0.99
	G _{mb} High G _{mm} High	(2.420/2.496)*100	96.96	0.98
	G _{mb} Low G _{mm} High	(2.350/2.496)*100	94.15	1.83
	G _{mb} High G _{mm} Low	(2.420/2.474)*100	97.82	1.84
Single				
	G _{mb} Low	(2.350/2.485)*100	94.57	1.41
	G _{mb} High	(2.420/2.485)*100	97.38	1.41
	G _{mm} Low	(2.385/2.474)*100	96.40	0.43
	G _{mm} High	(2.385/2.496)*100	95.55	0.42

Appendix E

Sample Calculations

Table 8. Test Variation Range Sample Calculations - 98%G_{mm}

Error Type	Conditions	Calculation	Result (%G _{mm})	%G _{mm} Difference From Base Line
Compound	G _{mb} Low	(2.450/2.529)*100	96.88	0.96
	G _{mm} Low			
	G _{mb} High	(2.520/2.551)*100	98.78	0.95
	G _{mm} High			
	G _{mb} Low	(2.450/2.551)*100	96.04	1.79
	G _{mm} High			
	G _{mb} High	(2.520/2.529)*100	99.64	1.81
	G _{mm} Low			
Single	G _{mb} Low	(2.450/2.540)*100	96.46	1.38
	G _{mb} High	(2.520/2.540)*100	99.21	1.38
	G _{mm} Low	(2.485/2.529)*100	98.26	0.43
	G _{mm} High	(2.485/2.551)*100	97.41	0.42

VITA

Lee J. Czor was born in Allentown, Pennsylvania on August 25, 1965. After moving to Richmond, KY with his family in 1977, he graduated from Madison Central High School in 1983.

From 1986 to 1994 Lee served in the United States Army National Guard as a tank crewman and tank commander. He received several awards and honors including: the U.S. Army Achievement Medal, TN National Guard Achievement Medal, Tank Commander of the Year Award, and Tank Gunnery "Top Gun" Award

After moving to Knoxville with his wife in 1988, Lee began attending the University of Tennessee, majoring in Civil Engineering. While at UTK, Lee served as ASCE student chapter vice-president and president, was awarded the Mark G. Jones Award as the Outstanding Senior in Civil Engineering, was initiated into Chi-Epsilon Civil Engineering Honor society, received Senior Recognition in Civil Engineering at graduation ceremonies, and was awarded the Tennessee Road Builders Scholarship in 1996 and 1997. After graduating with a Bachelor of Science Degree in Civil and Environmental Engineering from the University of Tennessee, Lee received a graduate research assistantship to work on a Master of Science in Civil Engineering, also at The University of Tennessee.

Upon graduating in August 1998, Lee has taken employment at Fuller, Mossbarger, Scott, and May Engineering in Lexington, KY as a staff engineer.

Lee has been married to Karen Rowe since 1987 and they have a daughter, Chelsea, born in 1992.