FINAL REPORT

SPS-1 PROJECT 0101
STRATEGIC STUDY OF STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS
US-280 WESTBOUND
LEE COUNTY, ALABAMA

FHWA/LTPP

SOUTHERN REGION COORDINATION OFFICE

FEBRUARY 1996

BRENT RAUHUT ENGINEERING INC.

8240 Mopac, Suite 220 • Austin, Texas 78759 • (512) 346-0870 • FAX (512) 346-8750

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FINAL REPORT - SPS-1 PROJECT 0101

STRATEGIC STUDY OF STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS US-280, WESTBOUND LEE COUNTY, ALABAMA

INTRODUCTION

A Strategic Highway Research Program (SHRP) Specific Pavement Study (SPS-1) project was constructed on US-280 in the westbound lane, east of Opelika, Alabama, between the months of June 1992 and February 1993. This report will cover the coordination and monitoring activities for pre-construction, construction and post-construction of the SPS-1 site. Detailed construction data has been collected on behalf of the Long-Term Pavement Performance program (LTPP) and is stored at the Southern Region Coordination Office (RCOC), which will be loaded and stored in the LTPP data base on the Regional Information Management System (RIMS) in Austin, Texas and the National Information Management System (NIMS), in Washington, DC.

SPS-1 General Experiment Design

The objective of the SPS-1 experiment study, as stated in SHRP's experimental design and research plan for SPS-1 experiments, is to more precisely determine the relative influence of strategic factors that influence the performance of flexible pavements. These factors include drainage, base type and thickness, and asphalt layer thickness. The experimental design factorial for the SPS-1 experiment is shown in Table 1. The Alabama experiment meets the requirements for the wet no-freeze environment on a fine-grained subgrade. The design experiment has been developed, so that 12 test sections will be built at each project site. Table 2 details the combination of the design factors for the 12 test sections built as part of the Alabama project, which includes three state supplemental test sections. Studying the combination of these factors will significantly enhance the understanding of the long-term pavement performance of flexible pavements built with different environmental regions and soil types.

For additional information on the experimental design for SPS-1, please refer to "Specific Pavement Studies in the Experimental Design and Research Plan for Experiment SPS-1, Strategic Study of Structural Factors for Flexible Pavements", dated February 1990.

Selection/Nomination of US-280

The SPS-1 project on US-280 in Lee County, Alabama was nominated on November 9, 1990. Appendix A includes the project identification and description forms which were used to nominate the project. This section of US-280 was a two-lane roadway, which facilitated 16% trucks, requiring the addition of two new lanes in the westbound direction. The project for consideration was 3.8 miles long, consisting of 15 test sections which include three state supplemental test sections. Variability in cut and fill areas of the project required a 3,000'

TABLE 1. EXPERIMENT DESIGN FOR SPS-1

PAVEMENT STRUCTURE COMBINATIONS				FACTORS FOR MOISTURE, TEMPERATURE, SUBGRADE TYPE AND LOCATION															
				WET								DRY							
				FREEZE				NO FREEZE				FREEZE				NO FREEZE			
				FINE		COARSE		FINE		COARSE		FINE		COARSE		FINE		COARSE	
DRAINAGE	BASE TYPE	TOTAL BASE THICK	SURF THICK	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
NO	AGG	8"	4"		K1		M1		O1		Q1		S1		U1		W1		Y1
			7"	J1		L1		N1		P1		R1		T1		V1		X1	
		12"	4"	J2		L2		N2		P2		R2		T2		V2		X2	
			7"		K2		M2		O2		Q2		S2		U2		W2		Y2
	ATB	8"	4"	J3		L3		N3		P3		R3		T3		V3		X3	
			7"		K3		M3		O3		Q3		S3		U3		W3		Y3
		12"	4"		K4		M4		O4		Q4		S4		U4		W4		Y4
			7"	J4		L4		N4		P4		R4		T4		V4		X4	
	ATB / 4" AGG	8"	4"	J5		L5		N5		P5		R5		T5		V5		X5	
			7"		K5		M5		O5		Q5		S5		U5		W5		Y5
		12"	4"		K6		M6		O6		Q6		S6		U6		W6		Y6
			7"	J6		L6		N6		P6		R6		T6		V6		X6	
YES	PATB / AGG	8"	4"	J7		L7		N7		P7		R7		T7		V7		X7	
			7"		K7		M7		O7		Q7		S7		U7		W7		Y7
		12"	4"		K8		M8		O8		Q8		S8		U8		W8		Y8
			7"	J8		L8		N8		P8		R8		T8		V8		X8	
		16'	4"		K9		M9		O9		Q9		S9		U9		W9		Y9
			7"	J9		L9		N9		P9		R9		T9		V9		X9	
	ATB / PATB	8"	4"		K10		M10		O10		Q10		S10		U10		W10		Y10
			7"	J10		L10		N10		P10		R10		T10		V10		X10	
		12"	4"	J11		L11		N11		P11		R11		T11		V11		X11	
			7"		K11		M11		O11		Q11		S11		U11		W11		Y11
		16"	4"	J12		L12		N12		P12		R12		T12		V12		X12	
			7"		K12		M12		O12		Q12		S12		U12		W12		Y12

AGG = Dense-graded Untreated Aggregate Base
ATB = Dense-graded Asphalt Treated Base
PATB = 4" Thick Open-graded Permeable Asphalt-treated Drainage Layer Underneath ATB or Over AGG Base
4" AGG = 4" Thick Dense-graded Untreated Aggregate Base Layer Underneath ATB

TABLE 2. PROPOSED TEST SECTION LAYOUT

Section	Cross Section	Begin Station	End Station	Transition (Ft.)
010107 (N7)	4″ AC Surf. 4″ PATB 4″ Cr. Agg.	470+00	465+00	225
010108 (N8)	7″ AC Surf. 4″ PATB 8″ Cr. Agg.	462+75	457+75	125
010109 (N9)	7″ AC Surf. 4″ PATB 12″ Cr. Agg.	456+50	451+50	250
010163 (Suppl.)	4″ AC Surf. 6″ AC Base 4″ PATB 6″ Cr. Agg.	449+00	444+00	600
010110 (N10)	7″ AC Surf. 4″ AC Base 4″ PATB	438+00	433+00	350
010111 (N11)	4″ AC Surf. 8″ AC Base 4″ PATB	429+50	424+50	400
010112* (N12)	4″ AC Surf. 12″ AC Base 4″ PATB	420+50	415+50	3150
010106 (N6)	7″ AC Surf. 8″ AC Base 4″ Cr. Agg.	384+00	379+00	450
010104* (N4)	7″ AC Surf. 12″ AC Base	374+50	369+50	250
010162 (Suppl.)	4″ AC Surf. 10″ AC Base	367+00	362+00	200
010103* (N3)	4″ AC Surf. 8″ AC Base	360+00	355+00	200

TABLE 2. PROPOSED TEST SECTION LAYOUT (Continued)

Section	Cross Section	Begin Station	End Station	Transition (Ft.)
010105 (N5)	4″ AC Surf. 4″ AC Base 4″ Cr. Agg.	353+00	348+00	350
010101 (N1)	7″ AC Surf. 8″ Cr. Agg.	344+50	339+50	4925
010102 (N2)	4″ AC Surf. 12″ Cr. Agg.	290+25	285+25	---
010161 (Suppl.)	4″ AC Surf. 6″ ATB 6″ Soil Agg.	281+00	276+00	---

Indicates Change from Original Plan

segment to separate two of the 15 test sections within the project. Figure 1 details the typical cross-section for this project. This, of course, required additional sampling and testing for a better representation of the fine red clay subgrade soil.

Review of the project site exhibited a project in a rural area, slightly north and west of Phoenix City, Alabama, near Opelika, Alabama, which was consistent of a rolling terrain. Residential homes sporadically located along the project provided very little influence to the uniform uncontrolled flow over the entire project length.

Acceptance of the project occurred on December 5, 1990, less than one month after nomination. The original let date for this project was to occur in November 1991, however, was moved back to April 1991, ultimately to Newell Brothers Construction Company of Montgomery, Alabama.

PRECONSTRUCTION MONITORING

The proposed test section layout was reviewed following the cut and fill construction along with placement of embankment to subgrade elevation. The location of test sections were adjusted only slightly, in the event of an unanticipated culvert or median turn-around.

Material Sampling and Testing

Subgrade sampling and field testing was conducted during July 13-14, 1992. Bulk samples of the fine red clay subgrade were obtained along with nuclear density test results. Shoulder probes were conducted outside of the test lane within the area of the shoulder at each of the test section locations. Due to the density and nature of the subgrade material, split-spoon samples to 4′ below the top of subgrade were obtained at six locations throughout the project, consisting of 36 samples. Moisture samples were obtained from the split-spoon sampling locations and the subgrade material type to 4′ below top of subgrade was classified and found to be a medium stiff red-tan clay with silt and chert.

CONSTRUCTION

Subgrade preparation for this site began in September 1991 and upon completion the Alabama Highway Department allowed the subgrade to sit undisturbed for approximately one year. Pavement layer placement began in June 1992. Construction continued throughout the summer and fall, whereupon all pavement layers were constructed except for the wearing course. East of the project, existing lanes were undergoing an overlay rehabilitation and the state elected to complete that overlay prior to constructing the wearing layer on the SPS project. In early March 1993, preparations were made to complete the SPS project by placing the wearing layer beginning at the eastern-most part of the section and moving to the west towards Opelika. Placement of the wearing layer occurred without notification of the SRCO. Therefore, no SHRP personnel were present on-site during the placement of this layer in the outside lane.

Overall construction of the SPS-1 went very well with the exception of a few minor problems encountered. The following will describe the construction phases throughout the building

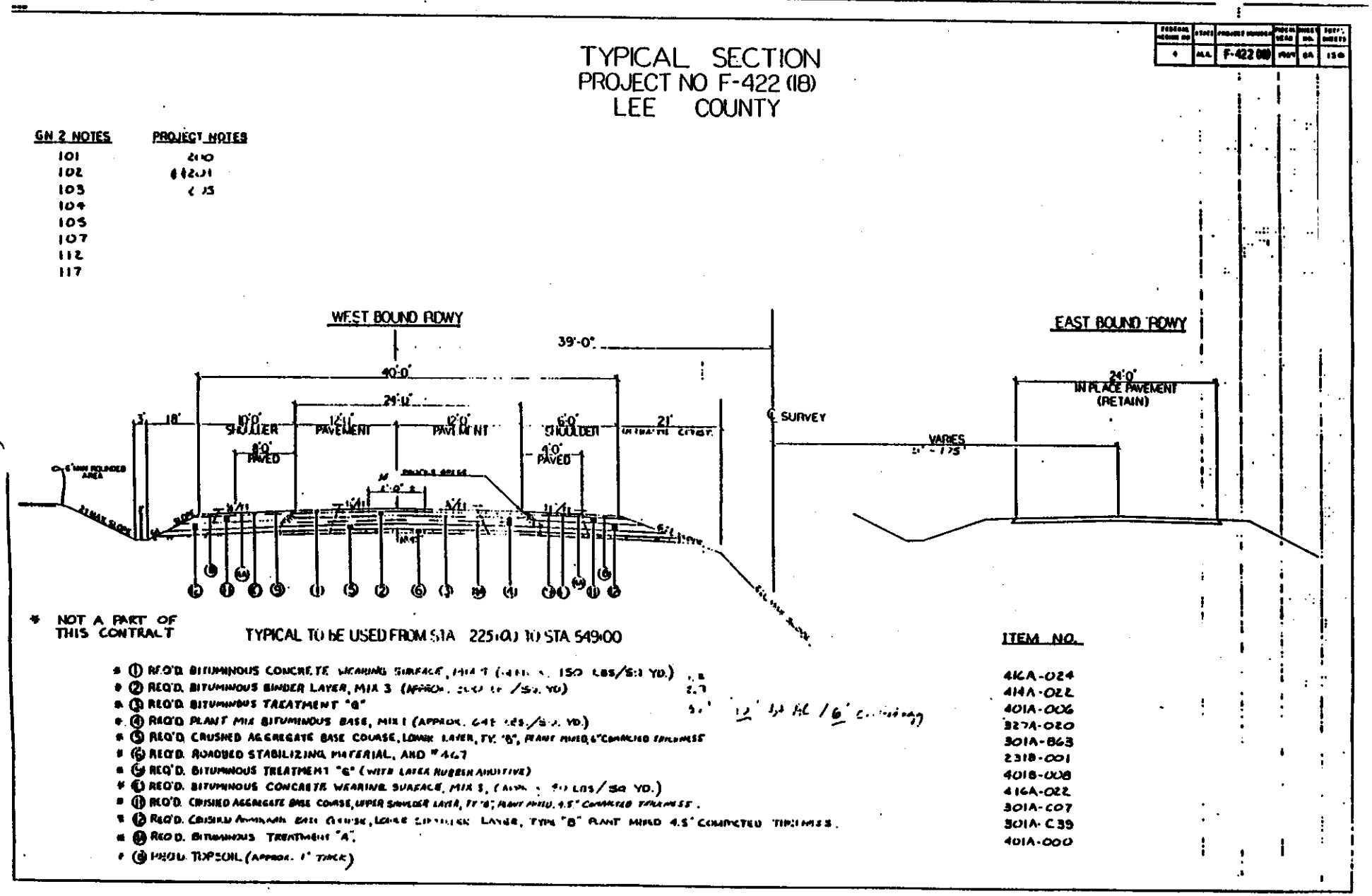

FIGURE 1. TYPICAL SECTION

process of the SPS-1. The state is required by law to include a certain percentage of Recycled Asphalt Pavement (RAP) in their new construction. Therefore, RAP was placed in the transition sections between test sections and on the shoulders. During the construction of the SPS-1, it was crucial that good communication between the paving format and the asphalt plant be maintained so that the RAP was not placed in any of the test sections. The paving contractor did a very good job in maintaining this communication. However, SHRP personnel discovered on one occasion that the paving contractor had begun the process of placing a RAP mixture in test sections 010104 and 010106 on September 3, 1992. SHRP personnel, however, were able bring this error to the attention of the contractor before the RAP mixture was placed within the test section itself.

As per requirements of the SPS-1 construction guidelines, a track paver is to be used when constructing the bituminous base (ATB) on top of the permeable asphalt treated base (PATB). The paving contractor borrowed a track paver from another contractor be used for this purpose. On September 22, 1992, the contractor was in the process of placing the ATB on top of the PATB when the track paver broke down. This occurred at the end of test section 010112 (west end) due to mechanical failure of the transmission. The contractor was able to get the track paver moving again, however, several trucks had accumulated by this time. More than half an hour passed before the paver was operational again. Immediately after the paver began placing more asphalt concrete, rain began to fall further delaying construction. Several trucks did not have tarps protecting the loads and thus, due to the combination of delay and rain, laydown temperatures reached below the optimum compaction range. During the same paving operation, the track paver eventually broke down again. Efforts failed to bring the track paver back on line for a continued paving operation. This occurred during the construction of the first lift of ATB on top of the PATB in Section 010111 at Station 426+50. Therefore, a construction joint exists in the lower lift of the ATB layer at this point. Damage to the track paver due to the mechanical failure was extensive and the paver was not able to be repaired in time to complete construction for this SPS project. Therefore, the state, in conjunction with SHRP personnel, made the decision to use the rubber-tired paver to complete the treated base application on top of the permeable asphalt-treated base. No significant damage was observed due to this technique, however, it is recommended that the PATB layer be allowed to cure for at least 24-hours before paving of this nature begins. Surface temperature (PATB) also became critical, as the surface did show some deflection when temperatures reached 85°F. The rubber tire paver was used extensively throughout the rest of the paving operation.

In regards to the PATB layer, SHRP personnel did observe several trucks and heavy equipment driving on top of the layers unnecessarily. This was brought to the attention of the contractor in an effort to help minimize permanent deformation on these layers until a more stable layer could be placed on top of the PATB. The paving contractor made an admirable attempt to stay off the PATB until it had been sufficiently protected with the asphalt-treated base. Other damage was noticed by SHRP personnel from paving trucks entering and exiting the paving lanes. The damage occurred at the edges of the PATB layer and was due to lateral flow under the truck tires. Other than the above mentioned, no other construction difficulties were observed at this site.

POSTCONSTRUCTION MONITORING

Pavement Surface Distress

Upon completion of construction of the SPS-1 project, each of the test sections were video-taped to document the condition of each test section.

In March 1994, all test sections were also filmed by the PASCO ROADRECON unit.

Surface Profile

Surface profile data was obtained from each test section in August 1993 and August 1994, using the K.J. LAW high-speed profilometer. International Roughness Index (IRI) Mean values are available in Table 3.

Structural Capacity

Due to the timing of construction of this particular SPS-1 project, which preceded the development of the P59 Protocol (Subgrade and Unbound Base Deflection Testing), postconstruction deflection testing was performed only, in March 1993.

Material Sampling and Testing

Postconstruction coring began on February 2, 1993. The coring operation was performed successfully without much incident with the exception of those cores obtained from test sections constructed with the permeable asphalt treated base (PATB). Most of the cores withdrawn from those test sections with PATB, were extracted successfully with the exception of the PATB material itself due to the relatively small amount of AC-20 (2½%) used to bind the #57 limestone. A few of the cores extracted were done so successfully with the permeable asphalt treated base intact, which did provide us an indication of the PATB layer thickness. A total of 69 cores were retrieved, which will undergo a variety of testing to be conducted by both the Alabama Highway Department and FHWA testing facility (LAW Engineering). Specific samples and the corresponding tests to be performed are designated in the materials sampling plan, which appears in Appendix B.

SUMMARY

An SPS-1 project was constructed on US-280 in the westbound lane near Opelika, Alabama. Through the coordinated efforts of the Alabama Highway Department, the Alabama Division Office of the FHWA, SHRP, the SHRP SRCO and the construction contractor. The SPS-1 project was completed in March 1993, including all test section designation signs and weigh-in-motion (WIM) facilities. Throughout the construction process, representatives from the Alabama Highway Department and the SRCO were on-site to observe and monitor progress.

The monitoring efforts that were undertaken to document this project were facilitated through the cooperation of the District 4 Alabama Highway Department personnel, who

TABLE 3. PROFILE READINGS
INTERNATIONAL ROUGHNESS INDEX (IRI) IN INCHES/MILE

Test Section	Mean Values Postconstruction Date Surveyed: Aug 93		Mean Values Postconstruction Date Surveyed: Aug 94	
	(LWP)	(RWP)	(LWP)	(RWP)
010107	52.5	60.4	41.9	62.3
010108	52.7	57.3	45.7	66.5
010109	50.5	54.8	44.5	58.9
010163	48.0	56.5	45.9	63.3
010110	47.2	54.5	42.7	68.1
101011	43.6	52.1	35.3	52.2
010112	48.5	53.8	39.0	63.7
010106	50.6	46.0	35.6	61.1
010104	47.9	58.2	36.3	65.5
010162	52.0	63.1	42.6	71.2
010103	52.0	61.9	48.7	66.2
010105	44.4	52.9	36.8	57.5
010101	49.1	58.7	38.1	63.2
010102	62.0	76.5	58.4	60.8
010161	47.4	53.5	41.8	49.0
Average	**49.8**	**57.3**	**42.2**	**62.0**

provided invaluable assistance. All monitoring construction activities were conducted in accordance with applicable SHRP guidelines available at that time.

All personnel representing the general contractor (Newell Brothers) and personnel representing the paving subcontractor (East Alabama Paving) performed all construction activities in a conscientious manner. It was evident that representatives of both the contractors and the Alabama Highway Department held in high regard the successful completion, per SHRP guidelines, this SPS-1 project.

Having completed the construction and initial monitoring of these test sections, it would appear that the test sections on US-280 in Lee County, Alabama will contribute significantly to the Evaluation of the Study of Structural Factors for Flexible Pavements. Now that the construction has been completed, monitoring efforts will continue on these test sections with time, noting changes in the surface distress, surface profile and structural capacity, to enable us to compare the like results with other projects such as this, located in other parts of the country, to improve upon existing structural design methods.

APPENDIX A

SITE BACKGROUND DATA

Recd 8-23-89

NATIONAL RESEARCH COUNCIL

STRATEGIC HIGHWAY RESEARCH PROGRAM

818 Connecticut Avenue N.W. Washington D.C. 20006 Tel (202) 334 3774 Fax (202) 223 2875

DARMAN J. KULASH
Executive Director

August 21, 1989

Mr. Stanley Armstrong
Assistant Materials and Test Engineer
Alabama Highway Department
1409 Coliseum Blvd.
Montgomery, Alabama 36130

Subject: Nomination for SPS-5, "Rehabilitation of Asphalt Concrete Pavements"

Dear Stan:

Once again thank you for your nomination of a candidate project for SPS-5, "Rehabilitation of Asphalt Concrete Pavements".

From further review of your nomination (US 280, District 4), it appears that this project meets the acceptance criteria for SPS-5 experimental design cell for asphalt concrete pavements in the wet-no freeze environmental zone. Mr. Homer Wheeler, SHRP Regional Engineer for the Southern Region, will contact you or your staff shortly concerning this nomination.

Thanks again for your continued participation and support of the Long Term Pavement Performance studies.

Very truly yours,

Amir N. Hanna

ANH:cb

cc. Homer Wheeler
N.F. Hawks

Brent Rauhut Engineering Inc.

November 9, 1990

Dr. Shiraz Tayabji
PCS/Law Engineering
12240 Indian Creek Court, Suite 120
Beltsville, MD 20705-1242

Subject: Project nominated by Alabama for SPS-1.

Dear Dr. Tayabji:

The Alabama Highway Department (AHD) has nominated a project on US 280 for SPS-1. Through correspondence, the Southern Region Office and AHD have reached an agreement on a test section schedule, which enables us to submit the documentation needed to evaluate its utility for this study. The attached nomination forms provide you with some the necessary information, while the remainder of this letter should answer most or all other questions you may have.

Table 1 (two pages) shows the schedule for test sections for this project which has been agreed upon. The "test sections" referred to are the segments in which a particular pavement layer configuration is constructed, of which 500 ft. will be monitored. Note that the minimum length for any test section is 600 ft. The transition lengths are the distances over which a change in the pavement structure occurs. In the past, SHRP has been referring to the distance between successive test sections as "transitions", which is an inappropriate use of the word.

The horizontal and vertical alignments, and the locations of intersections are illustrated in the straight-line diagram (Figure 1). As you can see, all of the standard SPS-1 test sections are in tangents or right-hand curves with respect to the direction of travel. To make the drainage area for each test section constant, I have proposed to AHD that they modify their typical section (Figure 2) to have a constant cross-slope rather than a crowned surface in tangent segments of the project containing test sections.

Although it was difficult to accomplish, each test section is entirely within a cut or a fill to the best of our knowledge. This was determined from examining the project cross-sections, which is more accurate than relying on plan/profile sheets. According to the project soil profile sheets, the entire segment of the project proposed for test sections is founded on fine-grained soil, mostly AASHTO Classification A-4, with some A-5 and A-7-5. There are no large (> 36 in. dia.) drainage structures located within any of the standard SPS-1 test sections.

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There are several minor intersections with unpaved county and local roads within the project segment considered as shown in Fig. 1. However, none of these appear to have a significant affect on traffic volumes, weights, or speeds.

This project appears to meet the criteria described in the project nomination guidelines and should be accepted for inclusion in the SPS-1 study.

Quite recently, I was advised that the projected letting date of this project has been changed from November 1991 to April 1991. This means that a decision must be reached on this nomination by the beginning of December. If you require any additional information or have any questions, please do not hesitate to contact me.

Sincerely,

Gary L. Fitts

Gary L. Fitts, P.E.
Project Engineer, SRCO

Attachments: As stated.

cc: Dr. Amir Hanna, SHRP-DC
Mr. W.E. Page, AHD
Mr. Stanley R. Armstrong, AHD

PROPOSED TEST SECTION LAYOUT
SHRP SPS-1, STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS
US-280 WBL, LEE CO. ALABAMA
SITES WITH SUBSURFACE DRAINAGE

SECTION (CELL ID)	CROSS SECTION	BEGIN STATION	END STATION	TRANSITION (FT.)
010107 (N7)	4" AC Surf. 4" PATB 4" Cr. Agg.	470+00	465+00	225
010109 (N9)	7" AC Surf. 4" PATB 8" Cr. Agg.	462+75	457+75	125
010108 (N8)	7" AC Surf. 4" PATB 12" Cr. Agg.	456+50	451+50	250
0101S3 (Suppl.)	4" AC Surf. 6" AC Base 4" PATB 6" Cr. Agg.	449+00	444+00	600
010110 (N10)	7" AC Surf. 4" AC Base 4" PATB	438+00	433+00	350
010111 (N11)	4" AC Surf. 8" AC Base 4" PATB	429+50	424+50	500
010112 (N12)	4" AC Surf. 12" AC Base 4" PATB	419+50	414+50	3050

PROPOSED TEST SECTION LAYOUT
SHRP SPS-1, STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS
US-280 WBL, LEE CO. ALABAMA
SITES WITH SUBSURFACE DRAINAGE

SECTION (CELL ID)	CROSS SECTION	BEGIN STATION	END STATION	TRANSITION (FT.)
010106 (N6)	7" AC Surf. 8" AC Base 4" Cr. Agg.	384+00	379+00	500
010104 (N4)	7" AC Surf. 12" AC Base	374+00	369+00	200
0101S2 (Suppl.)	4" AC Surf. 10" AC Base	367+00	362+00	150
010103 (N3)	4" AC Surf. 8" AC Base	360+50	355+50	250
010105 (N5)	4" AC Surf. 4" AC Base 4" Cr. Agg.	353+00	348+00	350
010101 (N1)	7" AC Surf. 8" Cr. Agg.	344+50	339+50	4900
010102 (N2)	4" AC Surf. 4" AC Base 12" Cr. Agg.	290+50	285+50	---

NOTES

1. The material types and thicknesses shown reflect what is in the SPS-1 experiment design. The arrangement of test sections assumes that there will be minimal differences, if any, between the binder mix and the base mix, as is often the case in Alabama.

2. The "begin" and "end" stations indicate limits for the construction of a pavement cross section. The transition length shown is the distance over which thickness or material type changes occur.

3. The sequence of test sections and transition lengths are by no means fixed, and should be considered as something to work from. However, the station limits shown were selected considering factors such as cut/fill and significant drainage structures (> 36" dia.), and thus are subject to very little modification.

4. Three proposed supplemental sections are distinguished by the letter "S" as the third character from the left in the Section ID. No station limits are given for the test section with the project typical section, since its location will not affect the layout of the other sites. Additional supplemental test sections which include different layer thicknesses or materials should be considered.

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APPENDIX A

CANDIDATE PROJECT NOMINATION AND INFORMATION FORMS FOR SPS-1, STRATEGIC STUDY OF STRUCTURAL FACTORS FOR FLEXIBLE PAVEMENTS

SHEET A. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE AL SHRP SECTION NO 0101

GENERAL PROJECT INFORMATION

PROJECT LOCATION

ROUTE NUMBER 280

ROUTE SIGNING [] Interstate [✓] U.S. [] State [] County

Other US 431 is coalligned

141.07 I 85
132.7

PROJECT LOCATION Start Milepost 141.07 End Milepost 132.7

Start Station 123+25 End Station 549+00

DIRECTION OF TRAVEL [] North B. [] South B. [✓] West B. [] East B.

PROJECT LOCATION DESCRIPTION E. of Opelika, between I85 and Salem.

COUNTY Lee

HIGHWAY AGENCY DISTRICT NUMBER 4

SHRP ENVIRONMENTAL ZONE

[] WET FREEZE [✓] WET NO-FREEZE [] DRY FREEZE [] DRY NO-FREEZE

SIGNIFICANT DATES

All these dates could change they are only Tentative.

LATEST DATE OF APPROVAL NOTIFICATION FROM SHRP 12-31-90 *

CONTRACT LETTING DATE 11-8-91

ESTIMATED CONSTRUCTION START DATE 1-92

ESTIMATED DATE TEST SECTIONS OPENED TO TRAFFIC ?

ESTIMATED CONSTRUCTION COMPLETION DATE ?

PROJECT DESCRIPTION

PROJECT TYPE [] New Route [] Removal and Reconstruction [✓] Parallel Roadway

Other

FACILITY [✓] Divided [] Undivided NUMBER OF LANES (One Way) 2

DESIGN TRAFFIC DATA

ANNUAL AVERAGE DAILY TRAFFIC (TWO DIRECTIONS) 8210

% HEAVY TRUCKS AND COMBINATIONS (OF AADT) 16

ESTIMATED 18K ESAL RATE IN STUDY LANE (1,000 ESAL/YR) 237

TOTAL DESIGN 18K ESAL APPLICATIONS IN DESIGN LANE 4,745

DESIGN PERIOD (Years) 20

* According to Mr. Armstrong, these dates have changed. The latest date of approval is now 12-01-90, and the projected letting date is 04/91.

SHEET B. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE AL SHRP SECTION NO 0101

AGENCY'S PAVEMENT STRUCTURE DESIGN FOR SITE

LAYER[1] NO.	LAYER[2] DESCRIPTION CODE	MATERIAL TYPE[3] CLASS CODE	THICKNESS[4] (INCHES)	STRUCTURAL[5] COEFFICIENT
1	SUBGRADE (7)	5 2		
2	0 6	2 6	5.0	0.05
3	0 5	2 3	6.0	0.12
4	0 4	2 8	6.0	0.30
5	0 4	2 8	2.7	0.44
6	0 3	0 1	1.3	0.44
7			.	0.
8			.	0.
9			.	0.

STRUCTURAL DESIGN METHOD [X] 1972 AASHTO [] 1986 AASHTO [] Modified AASHTO

Other

AASHTO DESIGN RELIABILITY FACTORS R% S_o

OUTSIDE SHOULDER TYPE

[] Turf [] Granular [X] Asphalt Concrete [] Surface Treatment

[] PCC [] Curb and Gutter Other A chip seal will be placed on the shoulder.

OUTSIDE SHOULDER WIDTH (Feet) 10 ft, Based 8 ft

SUBSURFACE EDGE DRAINS [] Yes [X] No

NOTES

1. Layer 1 is the natural occurring subgrade soil. The pavement surface will have the largest assigned layer number.

2. Layer description codes:

Surface Layer 03	Base Layer 05	Subgrade 07
Subsurface HMAC .. 04	Subbase Layer 06	Embankment (Fill) 11

3. Refer to Tables 1 through 4 for material class codes.

4. If subgrade depth to a rigid layer is known, enter this depth for subgrade thickness, otherwise leave subgrade layer thickness blank.

5. Enter AASHTO structural layer coefficient value, as appropriately modified, used in pavement design or typical coefficient used by agency for this material. For the subgrade, enter either AASHTO soil support value or resilient modulus value (psi) used in design.

SHEET C. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE AL SHRP SECTION NO 0101

TEST SECTION LAYOUT

NUMBER OF TEST SECTIONS ENTIRELY ON: FILL 6 CUT 6

SHORTEST TRANSITION BETWEEN CONSECUTIVE TEST SECTIONS (Feet) 50ft

VERTICAL GRADE (Avg %) (+ upgrade; - downgrade) _____

HORIZONTAL CURVATURE (Degrees) [] Tangent _____

COMMENTS ON DEVIATIONS FROM DESIRED SITE LOCATION CRITERIA

Test Section layout has not been completed

OTHER SHRP TEST SECTIONS

DOES AGENCY DESIGN CONFORM TO GPS-1 OR GPS-2 PROJECT CRITERIA? [✓] YES [] NO

DISTANCE TO NEAREST GPS TEST SECTION ON SAME ROUTE (Miles) ~8

TEST SECTION NUMBER OF NEAREST GPS SECTION 11001

SUPPLEMENTAL TEST SECTIONS

IF SUPPLEMENTAL EXPERIMENTAL TEST SECTIONS ARE PROPOSED, COMPLETE THE FOLLOWING

TOTAL NUMBER OF SUPPLEMENTAL TEST SECTIONS UNKNOWN

FACTORS TO BE INVESTIGATED There will be some sections how many and what type is yet to be decided

Note:

Three supplemental sections have been defined in the proposed schedule.

SHEET B. SPS-1 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE AL SHRP SECTION NO 0101

AGENCY'S PAVEMENT STRUCTURE DESIGN FOR SITE

LAYER[1] NO.	LAYER[2] DESCRIPTION CODE	MATERIAL TYPE[3] CLASS CODE	THICKNESS[4] (INCHES)	STRUCTURAL[5] COEFFICIENT
1	SUBGRADE (7)	5 2		
2	0 6	2 6	5.0	0.05
3	0 5	2 3	6.0	0.12
4	0 4	2 8	6.0	0.30
5	0 4	2 8	2.7	0.44
6	0 3	0 1	1.3	0.44
7			.	0.
8			.	0.
9			.	0.

STRUCTURAL DESIGN METHOD [X] 1972 AASHTO [] 1986 AASHTO [] Modified AASHTO

Other

AASHTO DESIGN RELIABILITY FACTORS R% S_o

OUTSIDE SHOULDER TYPE

[] Turf [] Granular [X] Asphalt Concrete [] Surface Treatment

[] PCC [] Curb and Gutter Other A chip seal will be placed on the shoulder.

OUTSIDE SHOULDER WIDTH (Feet) 10 ft, Bren 3 ft

SUBSURFACE EDGE DRAINS [] Yes [X] No

NOTES

1. Layer 1 is the natural occurring subgrade soil. The pavement surface will have the largest assigned layer number.

2. Layer description codes:
   Surface Layer .... 03 Base Layer ..... 05 Subgrade 07
   Subsurface HMAC .. 04 Subbase Layer ..... 06 Embankment (Fill) 11

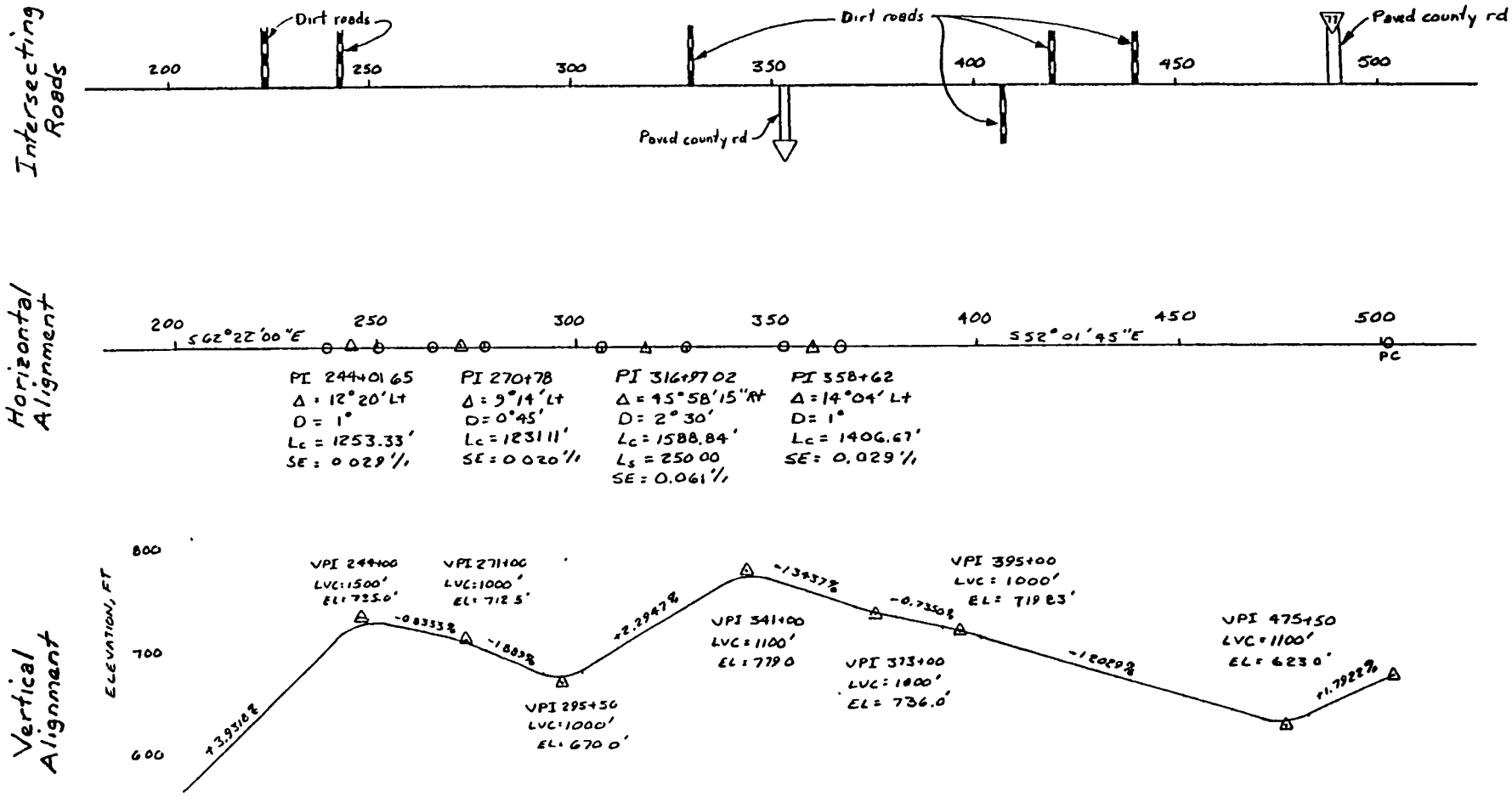
3. Refer to Tables 1 through 4 for material class codes.

4. If subgrade depth to a rigid layer is known, enter this depth for subgrade thickness, otherwise leave subgrade layer thickness blank.

5. Enter AASHTO structural layer coefficient value, as appropriately modified, used in pavement design or typical coefficient used by agency for this material. For the subgrade, enter either AASHTO soil support value or resilient modulus value (psi) used in design.

Figure 1

Straight-line Diagram of Project
Segment Considered for SPS-1
US 280, Alabama



Notes:
1. See Table 1 for test section schedule.
2. Traffic on the test sections will be moving against the direction of the stationing, i.e., from right to left on this page.

NATIONAL RESEARCH COUNCIL

STRATEGIC HIGHWAY RESEARCH PROGRAM

818 Connecticut Avenue, N.W., Washington, D.C., 20006, Tel: (202) 334-3774, Fax: (202) 223-2875

PROGRAM CORRESPONDENCE

ADDRESS REPLY TO

December 5, 1990

MEMORANDUM

TO: Homer Wheeler, Southern Region

FROM: Amir N. Hanna

SUBJECT: Nomination for an SPS-1 from Alabama

We have completed the review of the nomination from Alabama Highway Department for an SPS-1 site on U.S. 280 (BRE's submission of November 9, 1990).

The proposed site meets the requirement for the SPS-1 experimental cell for roadways in the "wet-no freeze" environmental zone. Therefore, the test site is acceptable and will be included in the experiment unless discrepancies arise during site verification. Also, this approval stipulates the agreement of the Alabama Highway Department to conform to all design and participation requirements for the experiment.

Please notify Alabama Highway Department staff of the acceptance of the proposed test site and proceed with coordination of related activities.

cc: N. F. Hawks
D. Donnelly
P-008 (S. Tayabji)

NATIONAL RESEARCH COUNCIL

STRATEGIC HIGHWAY RESEARCH PROGRAM

Southern Region, 8240 MoPac Expressway, Suite 250, Austin, TX 78759 Tel (512) 346-7477 Fax (512) 346-8750

HOMER G. WHEELER
Regional Engineer

December 6, 1990

Mr. William E. Page
Assistant Chief Engineer
Operations Division
Alabama Highway Department
1409 Coliseum Boulevard
Montgomery, Alabama 36130

Subject: SPS-1 Project on US-280.

Dear Bill,

Alabama's nomination of the subject has been reviewed and is approved by SHRP.

The proposed site meets the SHRP requirements for SPS-1 projects in the "wet no-freeze" environmental zone and will be included in the SPS-1 experiment, unless discrepancies arise during site verification. Also, this approval is contingent on the Alabama Highway Department to conform to all design and participation requirements for this experiment.

Mr. Gary Fitts of the Southern Region Coordination Office is available to assist the Alabama Highway Department in site verification, design and in other ways to help the SPS-1 project move forward.

Bill, I wish to thank you and your staff for your support of SHRP and your commitment to the Specific Pavement Studies Program.

Sincerely,

Homer

Homer G. Wheeler, P.E.
SHRP Regional Engineer, SRCO

cc: Neil Hawks, SHRP-DC
Amir Hanna, SHRP-DC
Brent Rauhut, PM-SRCO

HGW:dmj

bcc Gary Fitts

THE NATIONAL RESEARCH COUNCIL IS THE PRINCIPAL OPERATING AGENCY OF THE NATIONAL ACADEMY OF SCIENCES AND THE NATIONAL ACADEMY OF ENGINEERING TO SERVE GOVERNMENT AND OTHER ORGANIZATIONS

STATE OF ALABAMA
HIGHWAY DEPARTMENT

MONTGOMERY, ALABAMA 36130

GUY HUNT
GOVERNOR

February 10, 1992

PERRY A. HAN
HIGHWAY DIRECT

Attn: Tim Johnson
East Alabama Paving Co., Inc.
Box 11, Old Columbus Road
Opelika, AL 36801

RE: Job Mix Formula
Ref. Sec. 410.02 Std. Specs.

Proj. No. F-422 (25)
County Lee

Dear Sir:

The Job mix shown below may be used only at the plant noted and for materials listed. mix will remain in effect until approval is withdrawn by written order. The plant mix will manufactured in compliance with the applicable specifications and special provisions.

PLANT: East Alabama Paving Co. Inc., Opelika, AL

TYPE: Section 327 MIX: E PATB PAY ITEM: Section 327-E

MATERIALS:	% (Approx.)	DESCRIPTION	SOURCE
	100	#57 Limestone 1 1/2" down	Dravo Basic Materials, Auburn, AL
		AC-20	Hunt Refinery, Tuscaloosa, AL

JOB MIX: SIEVES	% PASS
1 1/2	100
1	100(-)
3/4	
1/2	27
3/8	
4	2
8	1
16	
30	
50	
100	
200	0.6

OTHER INFORMATION	
% AC Reqd.	2.25
AC Req./ton (lbs.)	45.0
Max. Sp. Gr. Mix	
% Clay	Nil
% Anti Strip	N/A
Wt./Cu. Ft. (lbs.)	
Stability	
TSR	

2-25-92
TCL
JK

RECEIVED
MAR 02 1992
Fourth Division - Sixth District

Floyd Strickland
Bituminous Engineer

cc: Bituminous Engineer
4th Division

ST-E/gfr

STATE OF ALABAMA
HIGHWAY DEPARTMENT

MONTGOMERY, ALABAMA 36130

/ HUNT
VERNOR

February 6, 1992

PERRY A. HAND
HIGHWAY DIRECTOR

/ Alabama Paving Co., Inc.
11, Old Columbus Road
lika, AL 36801

ATB

RE: Job Mix Formula
Ref. Sec. 410.02 Std. Specs.

Proj. No. F-422(25)
County Lee

Sir:

The Job mix shown below may be used only at the plant noted and for materials listed. This will remain in effect until approval is withdrawn by written order. The plant mix will be factured in compliance with the applicable specifications and special provisions.

T: East Alabama Paving Co. Inc., Opelika, AL

Section 327 MIX: 1 ATB PAY ITEM: Section 327 A,B,C & D

RIALS:	% (Approx.)	DESCRIPTION	SOURCE
	32 11 1/2	#57 Limestone 1 1/2 dwn	Dravo Basic Materials, Auburn, AL
	31 11	#78 Limestone 3/4 dwn	Dravo Basic Materials, Auburn, AL
	20 7 1/4"	Blended Sand	(60% Lawler, 40% Tuskegee)
	17 6 1/8	M-10 Granite	Vulcan Materials, Columbus, GA
		AC-20	Hunt Refinery, Tuscaloosa, AL

MIX: SIEVES	% PASS
1 1/2	100
1	100(-)
3/4	92
1/2	73
3/8	61
4	41
8	35
16	29
30	20
50	12
100	7
200	4.4

OTHER INFORMATION	(50 Blow)
% AC Reqd.	4.75
AC Req./ton (lbs.)	95.0
Max. Sp. Gr. Mix	2.572
% Clay	0.24
% Anti Strip	N/A
Wt./Cu. Ft. (lbs.)	153.0
Stability	2200
TSR	0.89

2-25-92
TCF
AK

Bituminous Engineer
4th Division

Floyd Strickland
Bituminous Engineer

/gfr

STATE OF ALABAMA
HIGHWAY DEPARTMENT

MONTGOMERY, ALABAMA 36130

GUY HUNT
GOVERNOR

February 7, 1992

PERRY A. HAND
HIGHWAY DIRECTOR

.st Alabama Paving Co., Inc.
Box 11, Old Columbus Road
Opelika, AL 36801

RE: Job Mix Formula
Ref. Sec. 410.02 Std. Specs.

Proj. No. F-422 (25)
County Lee

Dear Sir:

The Job mix shown below may be used only at the plant noted and for materials listed. T. mix will remain in effect until approval is withdrawn by written order. The plant mix will b. manufactured in compliance with the applicable specifications and special provisions.

PLANT: East Alabama Paving Co. Inc., Opelika, AL

TYPE: Section 414 MIX: 3 Binder PAY ITEM: Section 414 A,B,C & D

MATERIALS:	% (Approx.)	DESCRIPTION	SOURCE
	32	#57 Limestone 1½" down	Dravo Basic Materials, Auburn, AL
	31	#78 Limestone 3/4" down	Dravo Basic Materials, Auburn, AL
	20	Blended Sand	(60% Lawler, 40% Tuskegee)
	17	M-10 Granite 3/4" down	Vulcan Materials Co., Columbus, GA
	100	AC-20	Hunt Oil Co., Tuscaloosa, AL

JOB MIX: SIEVES	% PASS
1 1/2	100
1	100(-)
3/4	92
1/2	
3/8	61
4	41
8	35
16	29
30	20
50	12
100	7
200	4.4

OTHER INFORMATION	(75 Blow)
% AC Reqd.	4.40
AC Req./ton (lbs.)	88.0
Max. Sp. Gr. Mix	2.588
% Clay	0.24
% Anti Strip	N/A
Wt./Cu. Ft. (lbs.)	154.3
Stability	3215
TSR	0.83

2-25-92 TCE

cc: Bituminous Engineer
4th Division

Floyd Strickland
Bituminous Engineer

st14s/gfr

STATE OF ALABAMA
HIGHWAY DEPARTMENT

MONTGOMERY, ALABAMA 36130

GUY HUNT
GOVERNOR

January 8, 1992

PERRY A. HAND
HIGHWAY DIRECTC

.st Alabama Paving Co., Inc.
Box 11, Old Columbus Road
Opelika, AL 36801

RE: Job Mix Formula
Ref. Sec. 410.02 Std. Specs.

Proj. No. F-422 (25)
County Lee

Dear Sir:

The Job mix shown below may be used only at the plant noted and for materials listed. T mix will remain in effect until approval is withdrawn by written order. The plant mix will b manufactured in compliance with the applicable specifications and special provisions.

PLANT: East Alabama Paving Co. Inc., Opelika, AL

TYPE: Section 416 MIX: 5 WEARING PAY ITEM: Section 416 A,B,C & D

MATERIALS:	% (Approx.)	DESCRIPTION	SOURCE
	38	#67 Granite 1" down	Vulcan Materials, LaGrange, GA
	30	M-10 Granite 3/8" down	Vulcan Materials, Columbus, GA
	20	#8910 Limestone 1/2 down	Dravo Basic Mat'ls, Auburn, AL
	12	Coarse Sand	Tuskegee S&G, Tuskegee, AL
		AC-20	Hunt Oil Co., Tuscaloosa, AL

JOB MIX: SIEVES	% PASS
1 1/2	
1	100
3/4	98
1/2	83
3/8	74
4	63
8	48
16	35
30	24
50	16
100	9
200	5.1

OTHER INFORMATION	(75 Blow)
% AC Reqd.	5.25
AC Req./ton (lbs.)	105.0
Max. Sp. Gr. Mix	2.499
% Clay	0.55
% Anti Strip (Pave Bond LP)	0.50
Wt./Cu. Ft. (lbs.)	148.9
Stability	3100
TSR	0.80

2-25-92
TOI
JK

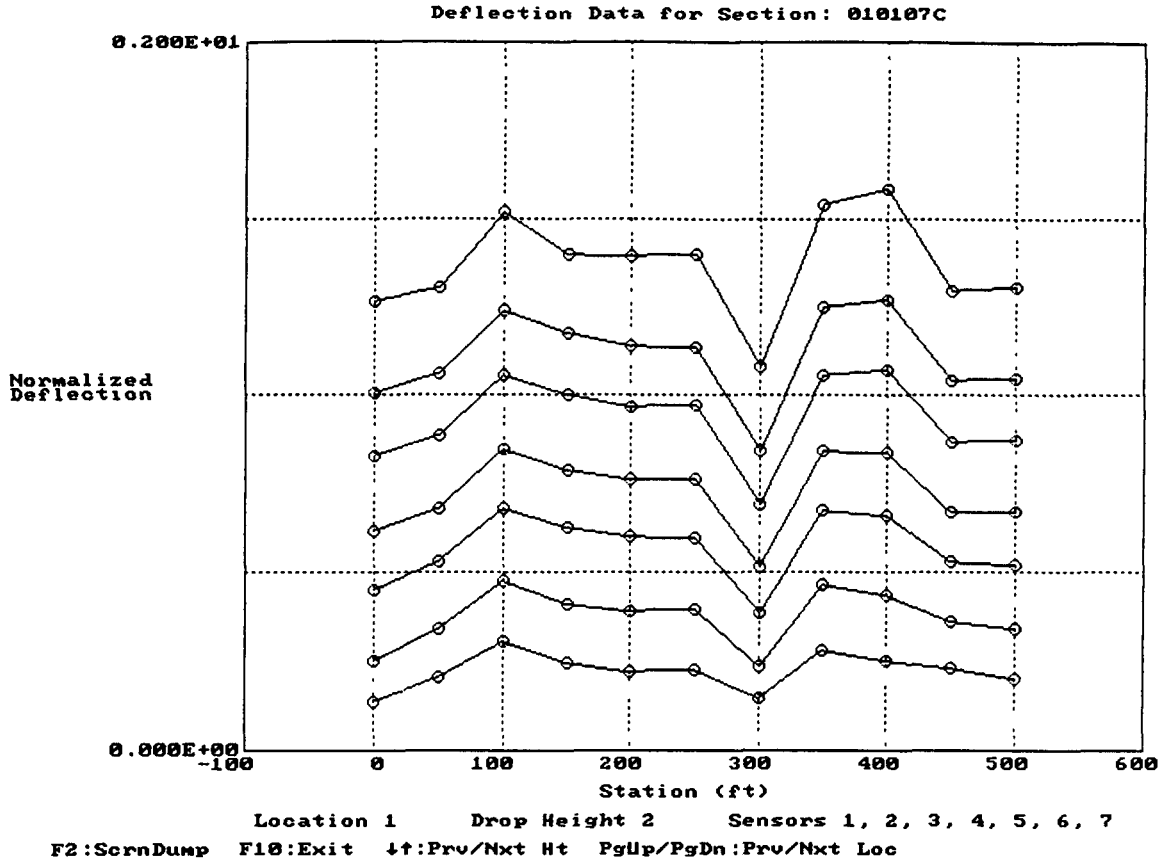
cc: Bituminous Engineer
4th Division

st2s/gfr

Floyd Strickland
Bituminous Engineer

APPENDIX B

DEFLECTION PLOTS - POSTCONSTRUCTION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300
400
500
600
Station (ft)
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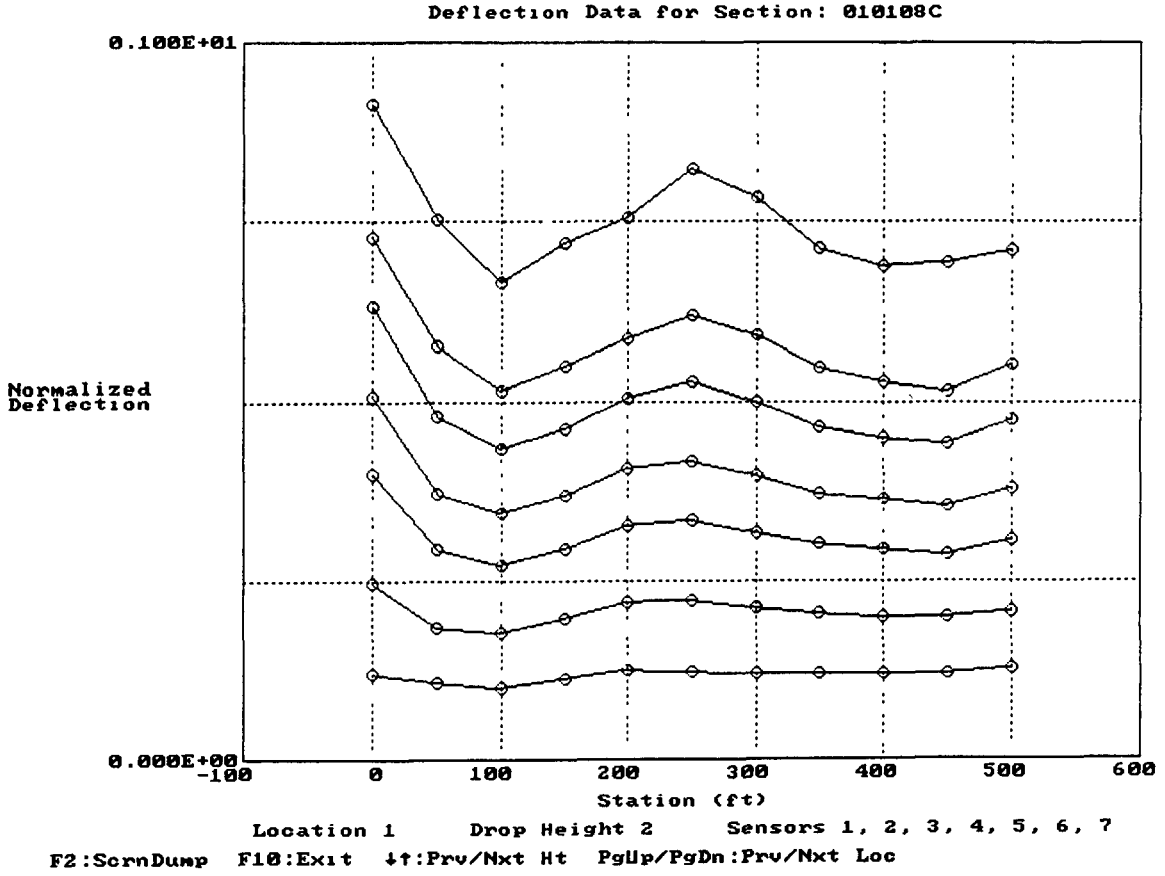
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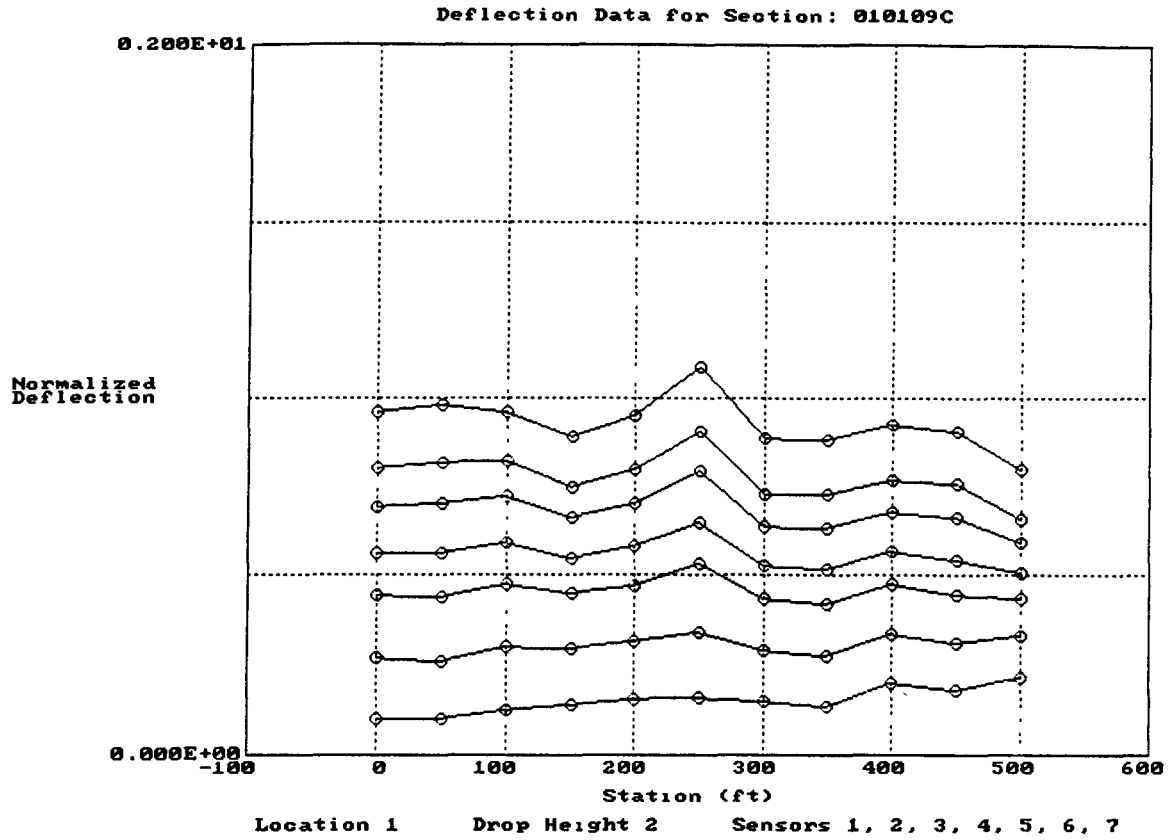
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Station (ft)
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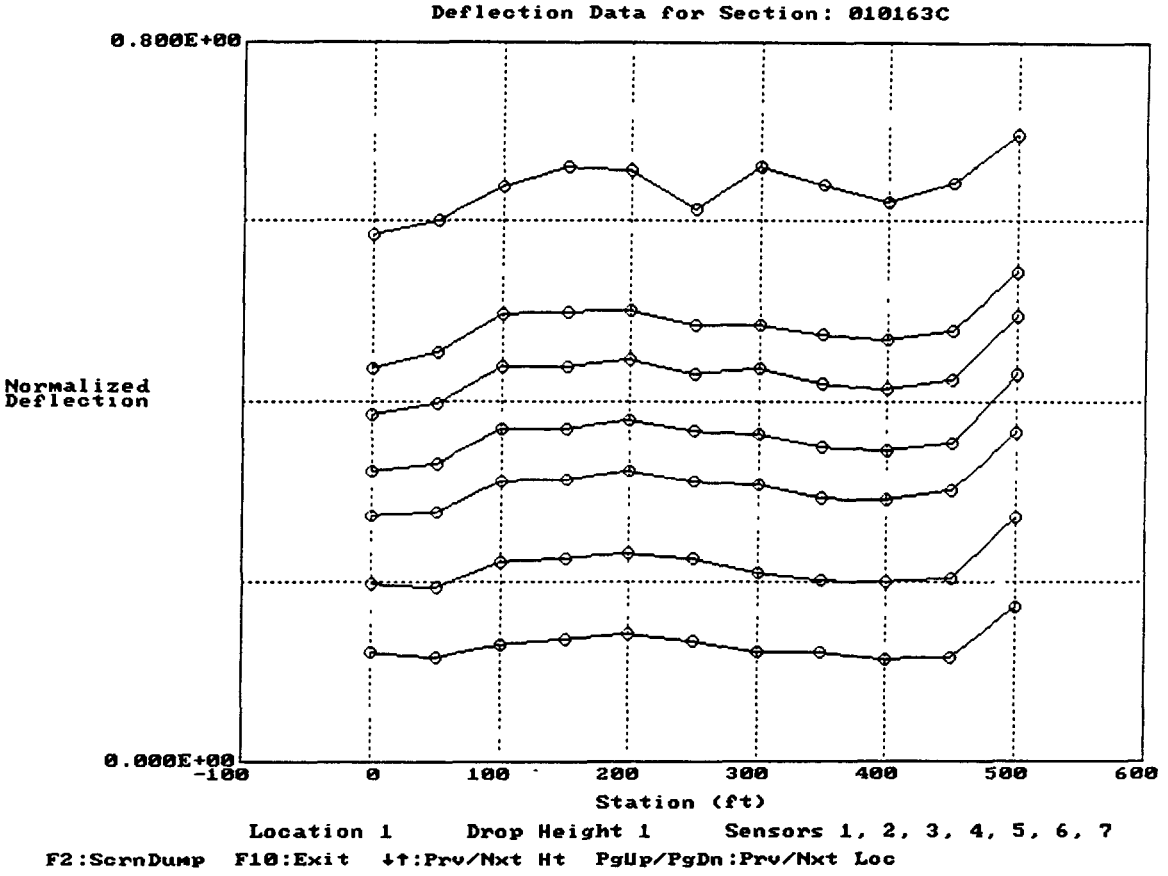
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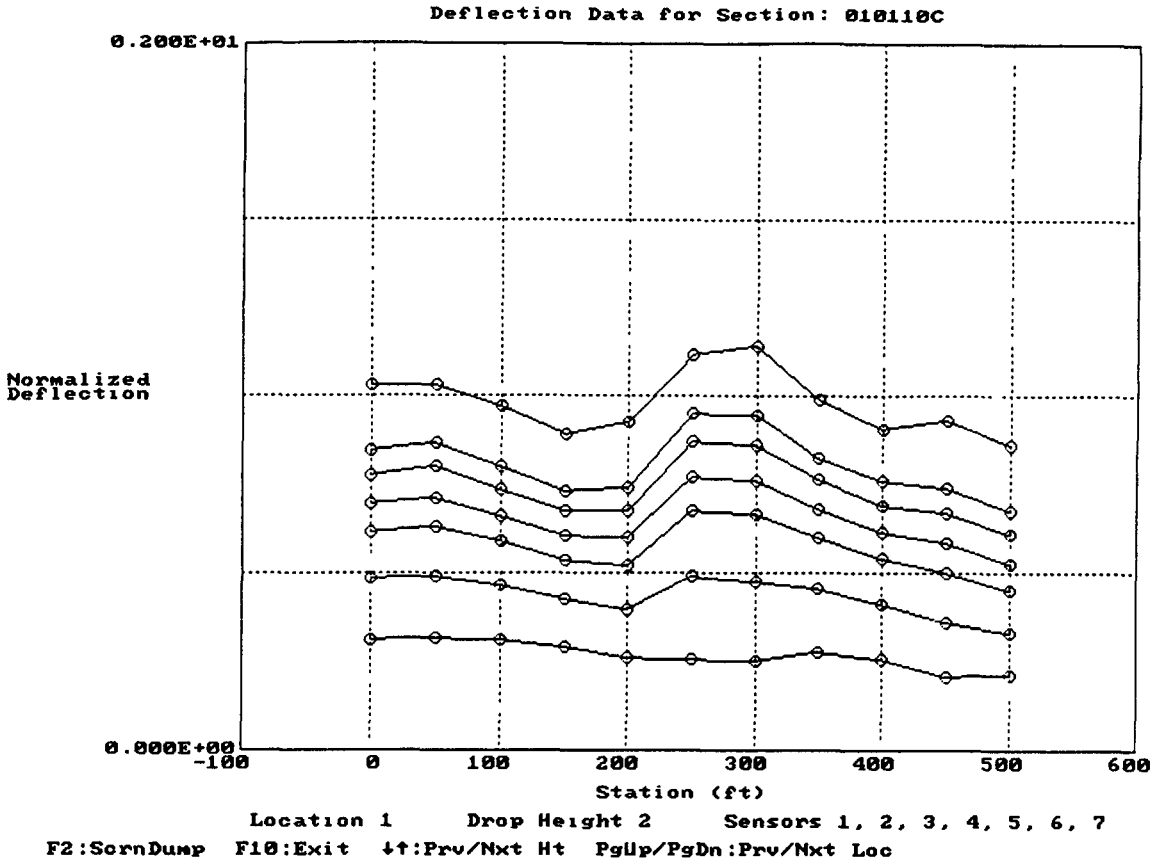
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100
200
300
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500
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Station (ft)
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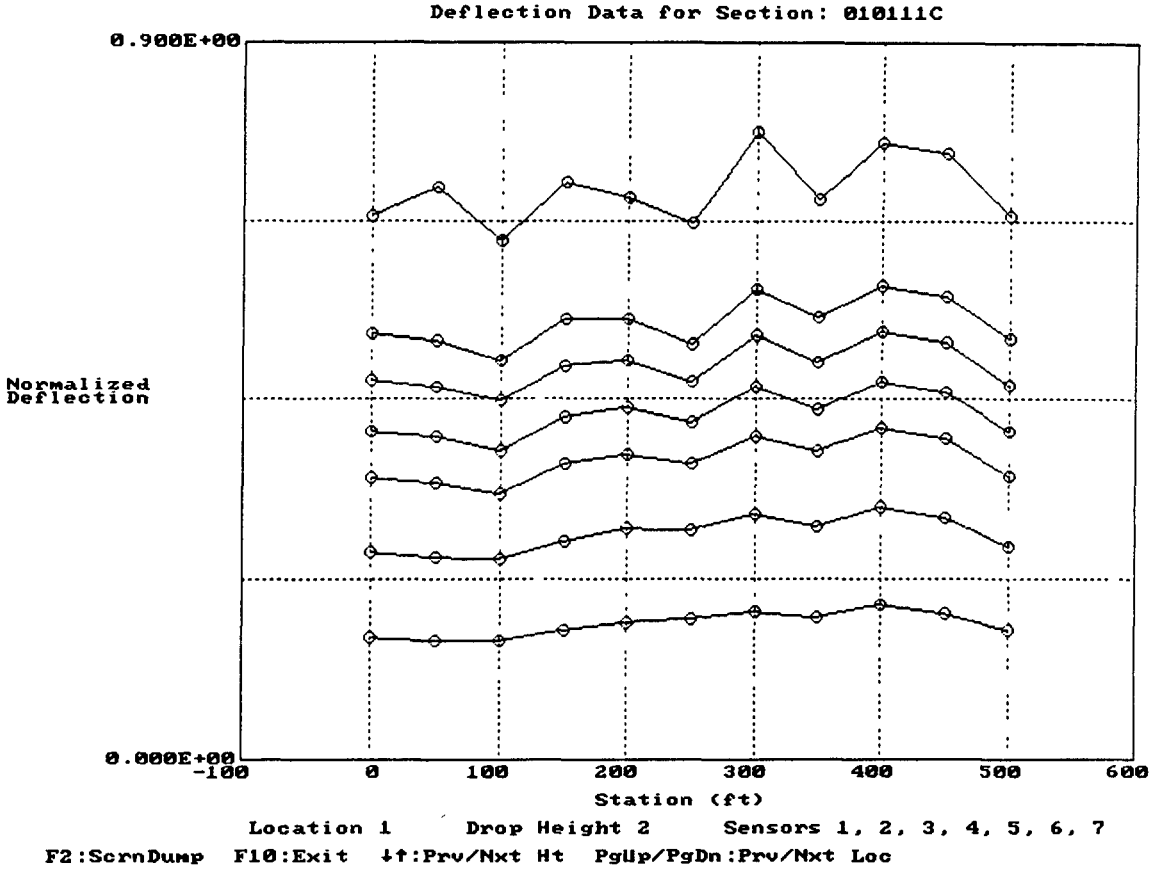
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100
200
300
400
500
600
Station (ft)
Location 1 Drop Height 2 Sensors 1, 2, 3, 4, 5, 6, 7
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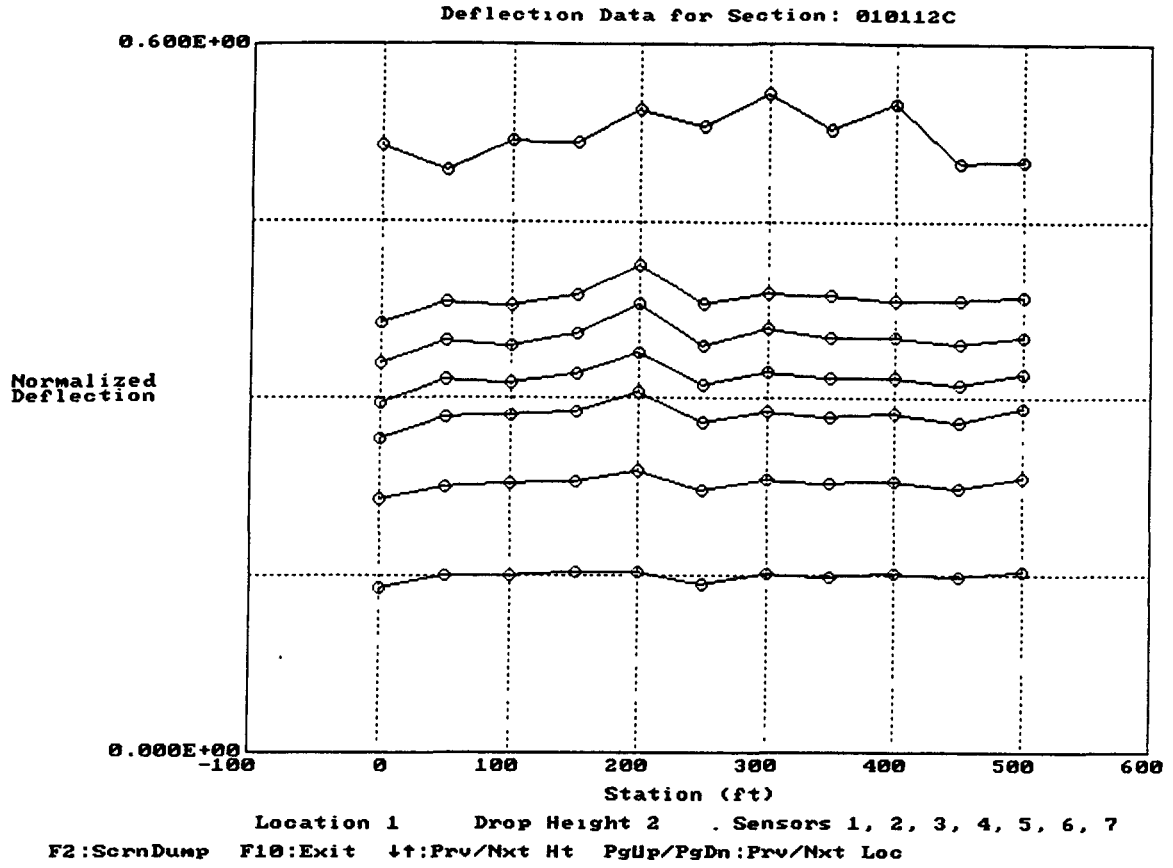
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300
400
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600
Station (ft)
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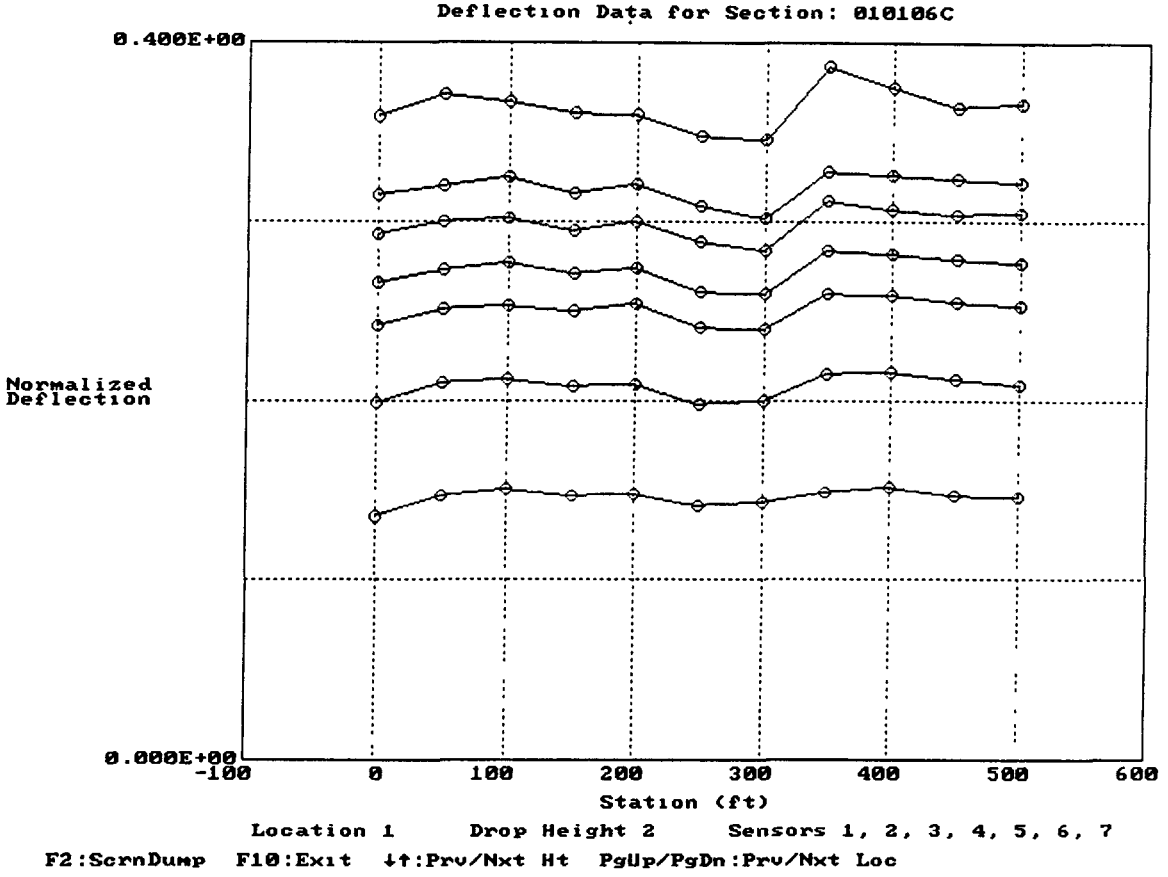
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Station (ft)
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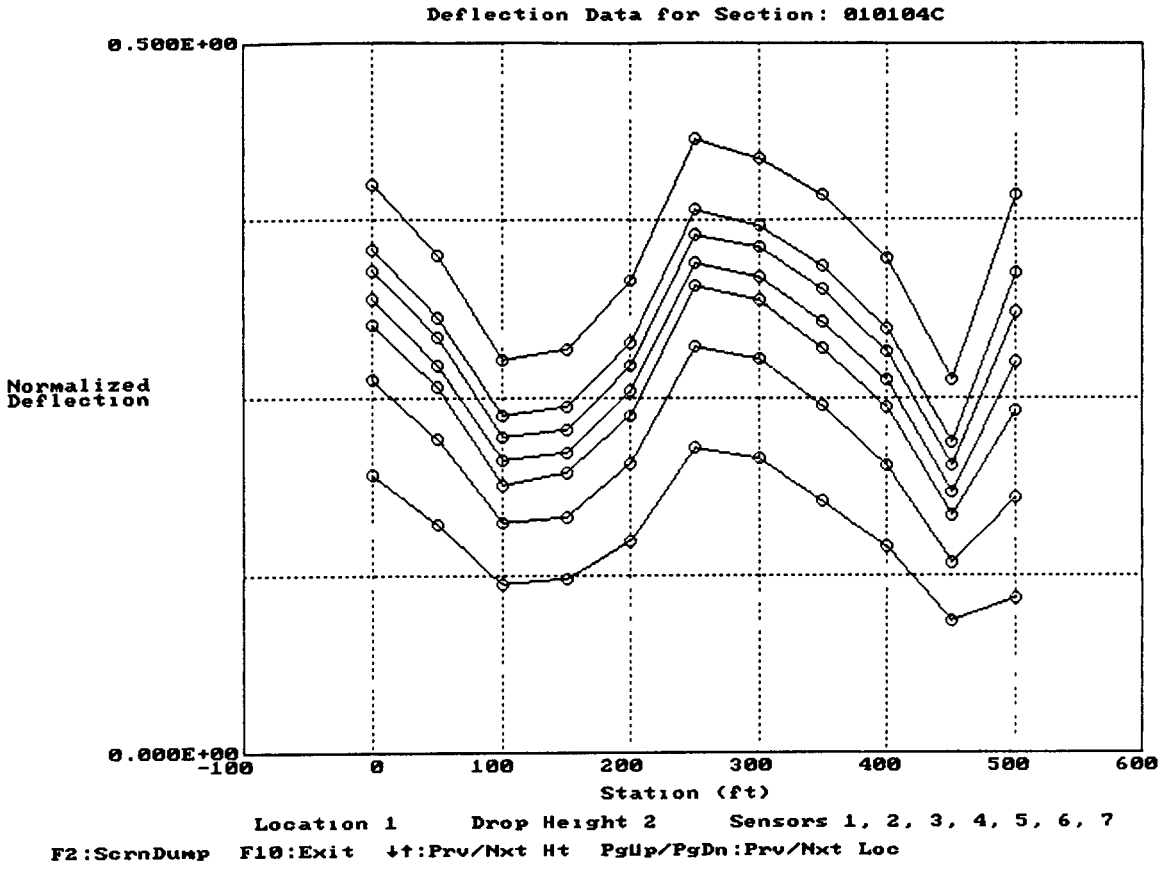
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500
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Station (ft)
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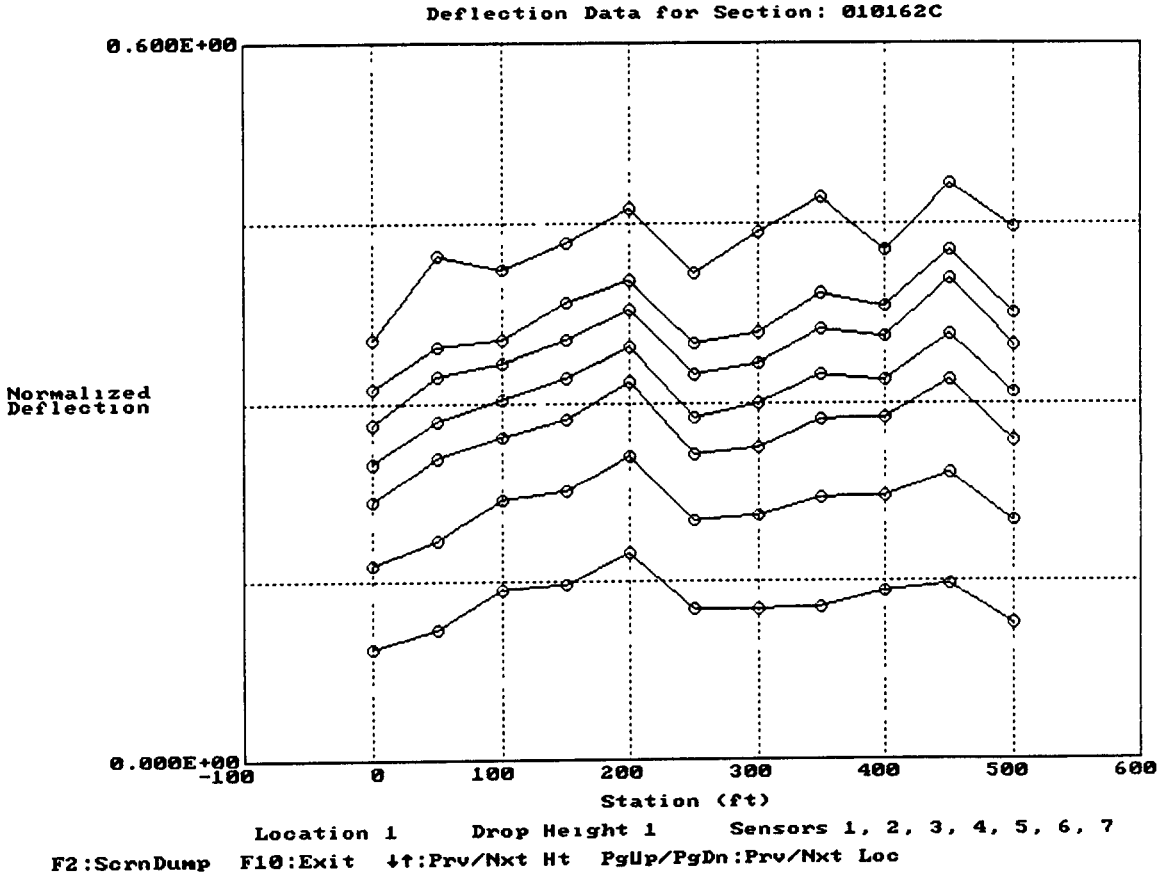
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200
300
400
500
600
Station (ft)
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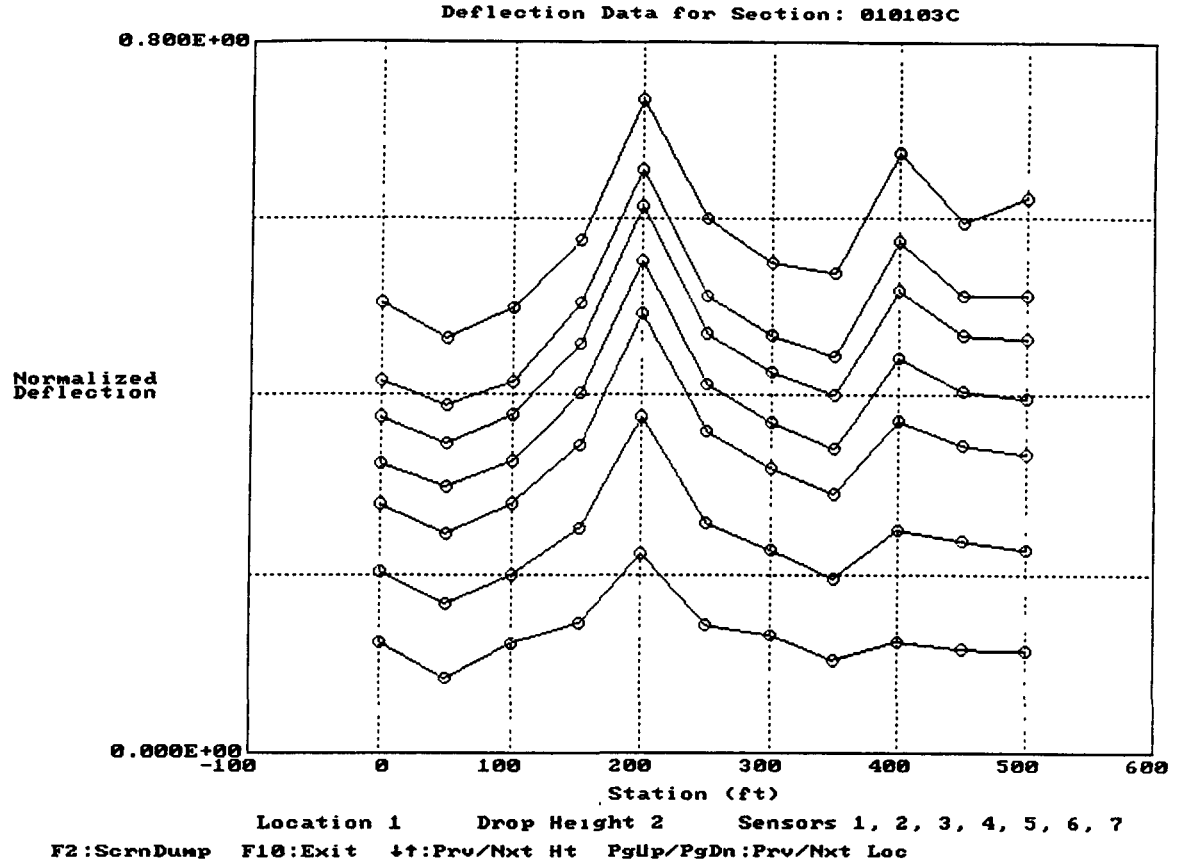
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Station (ft)
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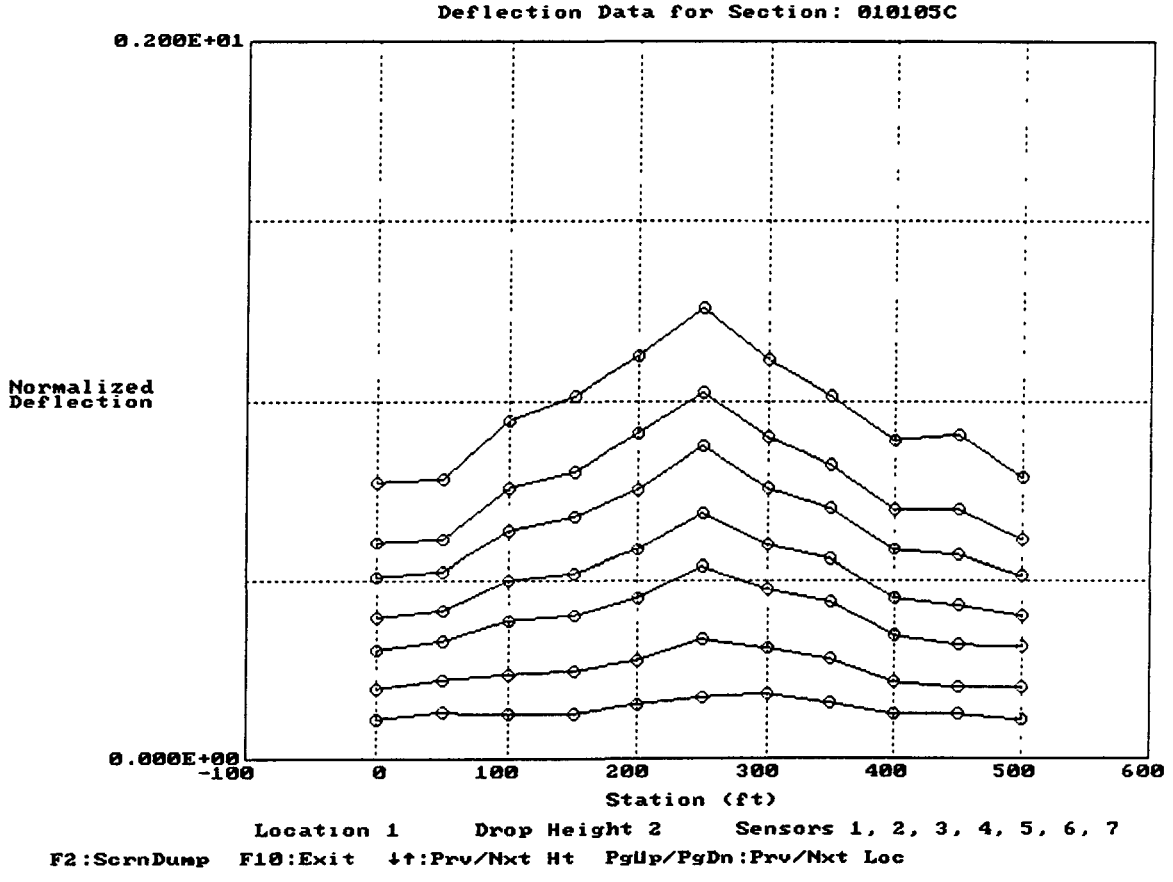
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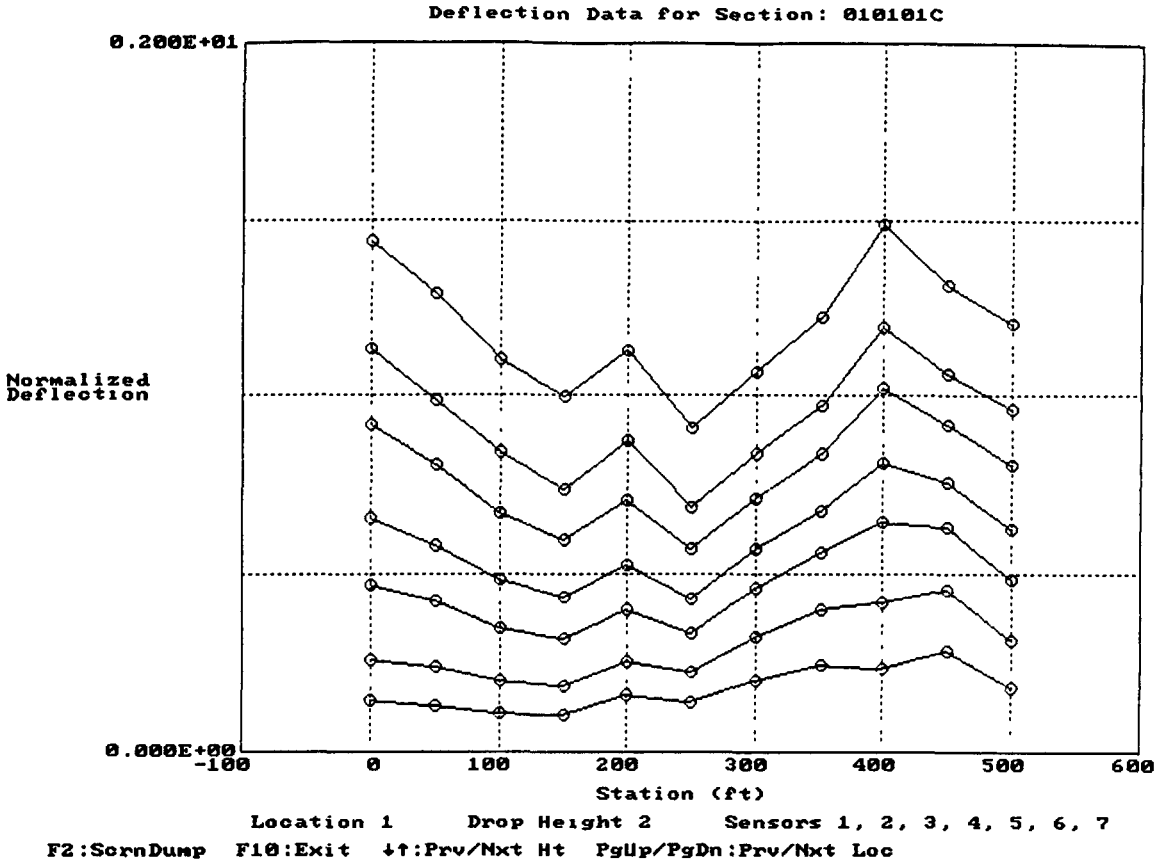
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc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400
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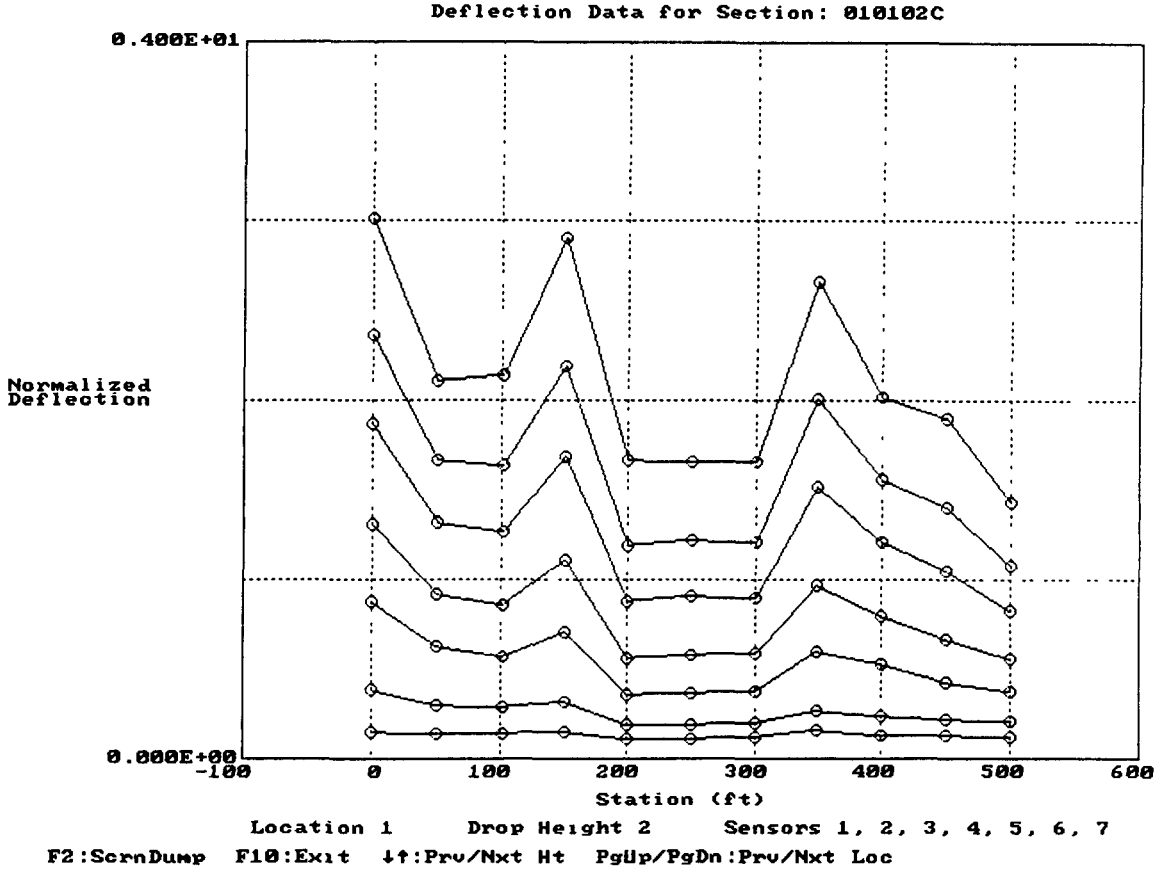
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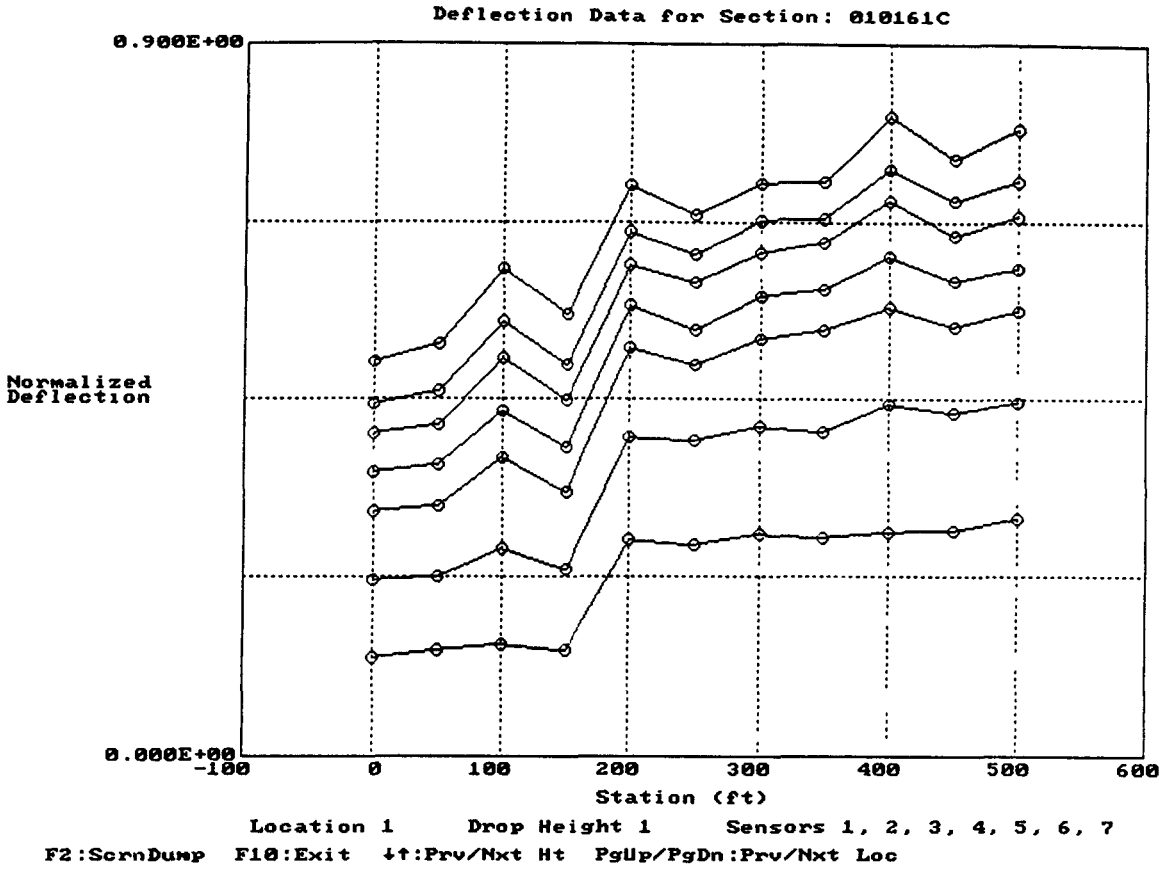
600
Station (ft)
Location 1 Drop Height 2 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc


Deflection Data for Section: 010161C
0.900E+00
Normalized Deflection
0.000E+00
-100
0
100
200
300
400
500
600
Station (ft)
Location 1 Drop Height 1 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc

APPENDIX C

LAYER THICKNESS

ALABAMA SPS 1, TEST SECTION 010107

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	PERMEABLE ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREAGATE BASE (MM)	PERMEABLE ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	101.6	101.6	106.7	3+00	0	106.7	96.5	94.0
	0.914	109.2	88.9	106.7		0.914	96.5	116.8	91.4
	1.83	119.4	78.7	109.2		1.83	101.6	109.2	94.0
	2.74	116.8	76.2	116.8		2.74	101.6	109.2	91.4
	3.66	121.9	73.7	109.2		3.66	106.7	109.2	88.9
0+50	0	104.1	104.1	96.5	3+50	0	96.5	78.7	104.1
	0.914	106.7	101.6	96.5		0.914	96.5	94.0	94.0
	1.83	106.7	96.5	101.6		1.83	101.6	86.4	96.5
	2.74	101.6	91.4	104.1		2.74	101.6	78.7	104.1
	3.66	96.5	101.6	96.5		3.66	104.1	88.9	94.0
1+00	0	104.1	101.6	106.7	4+00	0	96.5	88.9	106.7
	0.914	109.2	94.0	104.1		0.914	96.5	94.0	96.5
	1.83	106.7	94.0	101.6		1.83	101.6	91.4	94.0
	2.74	109.2	91.4	104.1		2.74	101.6	81.3	101.6
	3.66	109.2	104.1	94.0		3.66	104.1	78.7	101.6
1+50	0	96.5	104.1	106.7	4+50	0	106.7	78.7	124.5
	0.914	94.0	104.1	101.6		FRES	91.4	91.4	109.2
	1.83	104.1	94.0	104.1		1.83	94.0	88.9	106.7
	2.74	101.6	94.0	104.1		2.74	91.4	86.4	109.2
	3.66	101.6	96.5	101.6		3.66	94.0	91.4	104.1
2+00	0	109.2	104.1	101.6	5+00	0	104.1	71.1	124.5
	0.914	111.8	96.5	101.6		0.914	86.4	94.0	109.2
	1.83	119.4	91.4	104.1		1.83	96.5	91.4	106.7
	2.74	119.4	88.9	106.7		2.74	104.1	81.3	111.8
	3.66	119.4	91.4	104.1		3.66	109.2	94.0	96.5
2+50	0	96.5	106.7	96.5		AVG. THICK.			
	0.914	111.8	94.0	101.6		(MM)=	104.2	92.7	102.9
	1.83	111.8	86.4	106.7					
	2.74	109.2	86.4	106.7		REQUIRED			
	3.66	111.8	88.9	101.6		THICK. (MM) =	101.6	101.6	101.6

ALABAMA SPS 1, TEST SECTION 010108

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)
0+00	0	188.0	3+00	0	200.7
	0.914	193.0		0.914	200.7
	1.83	185.4		1.83	200.7
	2.74	193.0		2.74	203.2
	3.66	180.3		3.66	198.1
0+50	0	215.9	3+50	0	213.4
	0.914	215.9		0.914	210.8
	1.83	210.8		1.83	208.3
	2.74	203.2		2.74	200.7
	3.66	200.7		3.66	195.6
1+00	0	198.1	4+00	0	185.4
	0.914	200.7		0.914	185.4
	1.83	195.6		1.83	185.4
	2.74	188.0		2.74	185.4
	3.66	180.3		3.66	182.9
1+50	0	195.6	4+50	0	226.1
	0.914	195.6		0.914	215.9
	1.83	193.0		1.83	213.4
	2.74	198.1		2.74	223.5
	3.66	208.3		3.66	218.4
2+00	0	218.4	5+00	0	198.1
	0.914	223.5		0.914	188.0
	1.83	215.9		1.83	185.4
	2.74	213.4		2.74	195.6
	3.66	213.4		3.66	170.2
2+50	0	213.4		AVG. THICK.	
	0.914	198.1		(MM)=	199.8
	1.83	193.0			
	2.74	188.0		REQUIRED	
	3.66	180.3		THICK. (MM) =	203.2

ALABAMA SPS 1, TEST SECTION 010109

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	PERMEABLE ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREAGATE BASE (MM)	PERMEABLE ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	317.5	81.3	195.6	3+00	0	299.7	96.5	195.6
	0.914	309.9	101.6	185.4		0.914	304.8	104.1	188.0
	1.83	302.3	91.4	198.1		1.83	299.7	109.2	185.4
	2.74	294.6	86.4	208.3		2.74	294.6	106.7	188.0
	3.66	276.9	86.4	213.4		3.66	294.6	94.0	200.7
0+50	0	307.3	101.6	188.0	3+50	0	304.8	111.8	177.8
	0.914	315.0	106.7	180.3		0.914	294.6	111.8	180.3
	1.83	309.9	109.2	180.3		1.83	292.1	111.8	182.9
	2.74	315.0	104.1	185.4		2.74	289.6	111.8	185.4
	3.66	304.8	101.6	188.0		3.66	292.1	109.2	188.0
1+00	0	302.3	106.7	188.0	4+00	0	315.0	111.8	185.4
	0.914	309.9	111.8	182.9		0.914	315.0	111.8	182.9
	1.83	320.0	104.1	182.9		1.83	307.3	109.2	188.0
	2.74	317.5	101.6	195.6		2.74	302.3	106.7	195.6
	3.66	304.8	91.4	208.3		3.66	299.7	96.5	208.3
1+50	0	294.6	116.8	180.3	4+50	0	304.8	116.8	185.4
	0.914	307.3	109.2	180.3		0.914	304.8	124.5	180.3
	1.83	307.3	111.8	177.8		1.83	299.7	127.0	180.3
	2.74	307.3	104.1	188.0		2.74	294.6	119.4	193.0
	3.66	309.9	91.4	195.6		3.66	294.6	109.2	198.1
2+00	0	302.3	106.7	185.4	5+00	0	309.9	111.8	182.9
	0.914	299.7	109.2	185.4		0.914	315.0	121.9	170.2
	1.83	289.6	116.8	182.9		1.83	309.9	121.9	170.2
	2.74	284.5	106.7	195.6		2.74	309.9	111.8	180.3
	3 66	284.5	101.6	203.2		3.66	309.9	104.1	193.0
2+50	0	302.3	116.8	182.9		AVG. THICK.			
	0.914	304.8	111.8	182.9		(MM)=	302.8	106.7	188.4
	1.83	302.3	111.8	182.9					
	2.74	299.7	104.1	193.0		REQUIRED			
	3 66	292.1	94.0	200.7		THICK. (MM) =	304.8	101.6	177.8

ALABAMA SPS 1, TEST SECTION 010163

STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	109.2	152 4	119.4	3+00	0	94.0	154 9	109.2
	0 914	119.4	142.2	111 8		0.914	104.1	149.9	109.2
	1.83	121.9	142.2	111 8		1 83	104.1	149 9	106.7
	2 74	121.9	147.3	109 2		2 74	104 1	142.2	111.8
	3 66	109 2	165 1	111 8		3.66	91 4	154.9	111.8
0+50	0	104 1	142.2	124 5	3+50	0	91.4	154 9	119.4
	0 914	106.7	147.3	116 8		0.914	104.1	149.9	116.8
	1 83	109 2	147 3	116 8		1 83	104 1	147 3	116.8
	2 74	109 2	149 9	116 8		2 74	109.2	147.3	119.4
	3 66	91 4	157 5	116 8		3 66	104 1	147 3	121.9
1+00	0	104 1	152 4	121 9	4+00	0	101.6	152.4	121.9
	0 914	106 7	147 3	121 9		0.914	104.1	149.9	121.9
	1 83	109 2	142.2	119 4		1 83	106 7	139 7	124.5
	2 74	104 1	149.9	124 5		2 74	106.7	139.7	127.0
	3 66	88 9	165 1	127 0		3 66	96.5	152.4	132 1
1+50	0	111 8	137 2	124 5	4+50	0	101 6	149.9	121.9
	0 914	104 1	147 3	121 9		0.914	101 6	149 9	121.9
	1 83	104 1	147.3	121 9		1 83	96 5	147.3	121.9
	2.74	106 7	152.4	124 5		2 74	96 5	147 3	124.5
	3 66	94 0	162 6	127 0		3 66	94 0	154.9	127.0
2+00	0	91 4	157.5	111 8	5+00	0	101 6	154 9	119.4
	0 914	109 2	147.3	109.2		0 914	104 1	157 5	111.8
	1 83	106 7	149 9	111 8		1.83	104 1	152 4	119.4
	2 74	104 1	162 6	109 2		2 74	101 6	157 5	121.9
	3 66	86 4	167 6	116 8		3.66	104 1	154 9	127.0
2+50	0	96 5	147.3	116 8		AVG THICK (MM)=	102 9	150.4	118.2
	0 914	106 7	139 7	111 8					
	1 83	106 7	139 7	109 2					
	2 74	96 5	147 3	111.8		REQUIRED THICK (MM) =	101 6	152 4	101.6
	3 66	88 9	154 9	116 8					

ALABAMA SPS 1, TEST SECTION 010110

STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	86 4	121 9	167 6	3+00	0	86 4	119 4	177.8
	0.914	104 1	109 2	165 1		0 914	104 1	101.6	177.8
	1 83	111 8	96 5	165 1		1.83	109 2	94 0	180.3
	2 74	119 4	91 4	167 6		2 74	96.5	96.5	180.3
	3 66	94 0	116 8	170 2		3 66	81.3	116.8	180.3
0+50	0	76 2	121 9	167 6	3+50	0	81.3	109 2	188.0
	0 914	96 5	106 7	165 1		0 914	101 6	104.1	182.9
	1 83	106.7	101 6	165 1		1 83	106.7	96.5	182 9
	2 74	96 5	106 7	170 2		2 74	96 5	104 1	180.3
	3 66	81 3	119 4	172 7		3 66	81 3	121 9	180.3
1+00	0	86 4	124 5	170 2	4+00	0	81 3	127 0	172.7
	0.914	111 8	109 2	167 6		0 914	96 5	109 2	172 7
	1 83	104 1	106 7	167 6		1 83	104 1	104.1	172 7
	2 74	94 0	106 7	170 2		2 74	96.5	104.1	177.8
	3 66	76 2	116 8	180 3		3 66	94 0	109.2	177 8
1+50	0	86 4	119 4	180 3	4+50	0	106.7	111.8	167.6
	0 914	94 0	101 6	177 8		0 914	119 4	104.1	170.2
	1 83	101 6	91 4	180 3		1 83	121.9	101.6	172.7
	2 74	91 4	96 5	182 9		2 74	116.8	104.1	172.7
	3 66	76 2	116 8	185 4		3 66	111 8	104 1	177 8
2+00	0	81 3	121 9	172 7	5+00	0	94 0	116 8	165.1
	0 914	96 5	96 5	172 7		0 914	96 5	106 7	165.1
	1 83	96 5	96 5	172 7		1 83	104 1	96 5	167.6
	2 74	91 4	109 2	172 7		2 74	106.7	96 5	165.1
	3 66	81 3	119 4	180 3		3 66	101 6	106 7	167.6
2+50	0	86 4	119 4	177 8		AVG THICK			
	0 914	101 6	101 6	170 2		(MM)=	96 6	107 6	173 6
	1 83	106 7	91 4	172 7					
	2 74	96 5	96 5	170 2		REQUIRED			
	3 66	81 3	116 8	172 7		THICK (MM) =	101 6	101 6	177 8

ALABAMA SPS 1, TEST SECTION 010111

STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	76 2	208.3	109 2	3+00	0	88.9	195.6	132 1
	0 914	101.6	198 1	104 1		0 914	104.1	182 9	121.9
	1 83	101.6	195.6	106.7		1 83	106.7	180.3	132.1
	2.74	88 9	203 2	109 2		2 74	96.5	193 0	127.0
	3 66	73 7	210 8	116 8		3 66	81.3	198 1	132.1
0+50	0	86 4	213 4	109 2	3+50	0	88 9	200 7	121.9
	0 914	111.8	195 6	101 6		0.914	101.6	198 1	111.8
	1 83	101 6	198 1	101 6		1 83	101.6	198.1	116.8
	2 74	101.6	195 6	104 1		2 74	94 0	208 3	116.8
	3 66	81 3	213 4	104 1		3 66	78.7	215.9	119.4
1+00	0	81 3	213 4	111 8	4+00	0	96 5	198.1	111.8
	0.914	104 1	200 7	106 7		0 914	104.1	195 6	104.1
	1 83	104 1	198 1	104 1		1 83	106.7	195.6	104.1
	2 74	94 0	203 2	106 7		2.74	101 6	198.1	109.2
	3 66	81 3	208 3	111 8		3.66	78 7	203.2	111.8
1+50	0	86 4	200 7	111 8	4+50	0	88 9	198.1	116.8
	0 914	109 2	180 3	109 2		0 914	96 5	195 6	111 8
	1 83	111 8	177 8	106 7		1 83	96 5	195 6	109.2
	2 74	106 7	182 9	109 2		2.74	91 4	198 1	111.8
	3 66	88 9	198 1	111 8		3 66	78 7	203 2	121.9
2+00	0	76 2	210 8	119.4	5+00	0	78 7	210.8	116.8
	0 914	109 2	188 0	116 8		0 914	101 6	200 7	109.2
	1 83	106 7	188 0	116 8		1 83	109 2	193 0	109 2
	2 74	101 6	193 0	119 4		2.74	104 1	198 1	111.8
	3 66	78 7	210 8	119 4		3 66	86 4	208 3	119.4
2+50	0	71 1	213 4	116 8		AVG THICK. (MM)=	93 4	200 2	113 0
	0 914	88 9	203 2	109 2					
	1 83	91 4	208 3	109 2					
	2 74	88 9	213 4	109 2		REQUIRED THICK (MM) =	101 6	203 2	101 6
	3 66	71 1	223 5	111 8					

ALABAMA SPS 1, TEST SECTION 010112

STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	PERMEABLE ASPHALT TREATED BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	86 4	322.6	94 0	3+00	0	76.2	320.0	106 7
	0 914	101 6	315 0	88 9		0 914	91 4	320 0	96.5
	1 83	101 6	315 0	94 0		1 83	88.9	322 6	96.5
	2 74	94 0	317.5	96 5		2 74	88 9	322 6	101.6
	3 66	71 1	325 1	111 8		3 66	71 1	322 6	111.8
0+50	0	78 7	335 3	86 4	3+50	0	86.4	304 8	106.7
	0 914	91 4	325 1	78 7		0 914	91 4	317 5	94.0
	1 83	91 4	330 2	81 3		1 83	94.0	320 0	96.5
	2 74	78 7	335 3	86.4		2 74	91 4	320 0	106.7
	3 66	66 0	335 3	96 5		3 66	78.7	325 1	116 8
1+00	0	86 4	309 9	96 5	4+00	0	76.2	317.5	106 7
	0 914	88 9	309 9	88 9		0.914	81 3	320.0	94 0
	1 83	94 0	309 9	88 9		1 83	81.3	322 6	101.6
	2 74	88 9	320 0	86 4		2 74	78.7	322 6	104 1
	3 66	71 1	322 6	101 6		3 66	63 5	325 1	116 8
1+50	0	88 9	317 5	104 1	4+50	0			109 2
	0.914	96 5	317 5	88 9		0 914			73.7
	1 83	94 0	317 5	91 4		1 83			101.6
	2 74	94 0	320 0	88 9		2 74			106.7
	3 66	71 1	320 0	104 1		3 66			119.4
2+00	0	88 9	309 9	101 6	5+00	0			109 2
	0 914	96 5	317 5	86 4		0 914			104 1
	1 83	101 6	320 0	81 3		1 83			109 2
	2 74	86 4	320 0	94 0		2 74			116 8
	3 66	73 7	322 6	104 1		3 66			111.8
2+50	0	76 2	315 0	106 7		AVG THICK			
	0 914	81 3	315 0	96 5		(MM)=	84 5	320 2	99 1
	1 83	81 3	320 0	96 5					
	2 74	78 7	320 0	101 6		REQUIRED			
	3 66	63 5	322 6	106 7		THICK (MM) =	101 6	304 8	101.6

ALABAMA SPS 1, TEST SECTION 010106

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	104 1	203 2	193 0	3+00	0	88.9	215.9	195.6
	0.914	109 2	195 6	188.0		0.914	81.3	223 5	182.9
	1 83	111 8	198 1	185 4		1.83	88 9	223.5	182.9
	2.74	109 2	200 7	182.9		2 74	88 9	215 9	188.0
	3 66	106 7	193.0	193 0		3.66	94 0	208 3	193 0
0+50	0	94.0	203 2	193.0	3+50	0	101 6	215 9	188.0
	0 914	96 5	203 2	188 0		0 914	106.7	215.9	182.9
	1 83	101 6	198 1	188 0		1 83	96 5	223 5	182.9
	2 74	96 5	205 7	188 0		2 74	101.6	223.5	180.3
	3.66	88 9	203 2	188 0		3 66	94.0	213 4	185 4
1+00	0	88 9	200 7	195 6	4+00	0	88.9	218 4	198.1
	0 914	91 4	213 4	172.7		0 914	91 4	213 4	193.0
	1.83	91.4	213 4	172.7		1 83	88 9	213 4	182.9
	2 74	88 9	210 8	177 8		2 74	91 4	215 9	180.3
	3.66	81 3	203 2	182 9		3 66	91 4	200 7	188.0
1+50	0	101 6	198 1	200 7	4+50	0	91.4	213 4	198.1
	0 914	91 4	200 7	188.0		0 914	78 7	218.4	188.0
	1 83	104 1	195 6	188 0		1 83	81 3	213.4	185.4
	2.74	96 5	203 2	182 9		2.74	81 3	215 9	182.9
	3 66	101 6	188 0	185 4		3 66	96 5	195 6	193.0
2+00	0	96 5	198 1	193.0	5+00	0	88 9	203 2	203.2
	0 914	96 5	193 0	185 4		0.914	96.5	203 2	193 0
	1 83	94 0	198 1	182 9		1 83	91 4	200.7	193.0
	2 74	96 5	200 7	177 8		2 74	94 0	200 7	193.0
	3 66	104 1	193 0	182 9		3 66	91 4	198 1	188 0
2+50	0	94 0	198 1	208 3		AVG THICK (MM)=	95.3	205 5	188.2
	0 914	106 7	195 6	195 6					
	1 83	101 6	195 6	188.0					
	2 74	96 5	200 7	188 0		REQUIRED THICK (MM) =	101 6	203 2	177 8
	3 66	111 8	193 0	193 0					

ALABAMA SPS 1, TEST SECTION 010104

STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	292.1	180.3	3+00	0	284.5	193.0
	0.914	307.3	170.2		0.914	294.6	170.2
	1.83	307.3	165.1		1.83	299.7	165.1
	2.74	304.8	162.6		2.74	304.8	162.6
	3.66	302.3	165.1		3.66	284.5	165.1
0+50	0	289.6	185.4	3+50	0	287.0	172.7
	0.914	299.7	170.2		0.914	302.3	162.6
	1.83	304.8	162.6		1.83	309.9	157.5
	2.74	304.8	162.6		2.74	315.0	154.9
	3.66	294.6	167.6		3.66	307.3	157.5
1+00	0	287.0	193.0	4+00	0	294.6	170.2
	0.914	304.8	172.7		0.914	304.8	157.5
	1.83	292.1	170.2		1.83	307.3	154.9
	2.74	299.7	167.6		2.74	309.9	149.9
	3.66	299.7	167.6		3.66	309.9	152.4
1+50	0	287.0	185.4	4+50	0	299.7	170.2
	0.914	299.7	170.2		0.914	304.8	157.5
	1.83	299.7	170.2		1.83	307.3	152.4
	2.74	299.7	167.6		2.74	320.0	147.3
	3.66	294.6	165.1		3.66	315.0	149.9
2+00	0	287.0	185.4	5+00	0		
	0.914	292.1	172.7		0.914		
	1.83	292.1	172.7		1.83		
	2.74	289.6	165.1		2.74		
	3.66	287.0	167.6		3.66		
2+50	0	287.0	188.0		AVG. THICK.		
	0.914	287.0	177.8		(MM)=	298.7	167.6
	1 83	292.1	170.2				
	2.74	294.6	167.6		REQUIRED		
	3 66	289 6	167.6		THICK. (MM) =	304.8	177.8

ALABAMA SPS 1, TEST SECTION 010162

STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	256.5	116.8	3+00	0	246.4	109.2
	0.914	254.0	106.7		0.914	261.6	96.5
	1.83	254.0	106.7		1.83	261.6	96.5
	2.74	246.4	106.7		2.74	264.2	88.9
	3.66	264.2	101.6		3.66	256.5	88.9
0+50	0	248.9	111.8	3+50	0	246.4	111.8
	0.914	261.6	104.1		0.914	248.9	104.1
	1.83	269.2	101.6		1.83	248.9	101.6
	2.74	269.2	94.0		2.74	254.0	94.0
	3.66	264.2	94.0		3.66	243.8	101.6
1+00	0	274.3	116.8	4+00	0	246.4	124.5
	0.914	284.5	104.1		0.914	259.1	116.8
	1.83	287.0	101.6		1.83	256.5	106.7
	2.74	274.3	101.6		2.74	256.5	104.1
	3.66	274.3	101.6		3.66	233.7	111.8
1+50	0	203.2	198.1	4+50	0	241.3	121.9
	0.914	213.4	182.9		0.914	241.3	106.7
	1.83	203.2	177.8		1.83	246.4	101.6
	2.74	193.0	172.7		2.74	246.4	101.6
	3.66	185.4	170.2		3.66	243.8	106.7
2+00	0	248.9	132.1	5+00	0	246.4	127.0
	0.914	243.8	119.4		0.914	241.3	121.9
	1.83	231.1	111.8		1.83	238.8	4.6
	2.74	243.8	104.1		2.74	243.8	116.8
	3.66	241.3	104.1		3.66	233.7	121.9
2+50	0	243.8	116.8		AVG. THICK.		
	0.914	256.5	104.1		(MM)=	248.6	111.6
	1.83	256.5	96.5				
	2.74	259.1	94.0		REQUIRED		
	3.66	259.1	94.0		THICK. (MM) =	254.0	101.6

ALABAMA SPS 1, TEST SECTION 010103

STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	ASPHALT TREATED BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	195.6	116.8	3+00	0	185.4	116.8
	0.914	203.2	106.7		0.914	195.6	106.7
	1.83	193.0	104.1		1.83	195.6	106.7
	2.74	195.6	101.6		2.74	193.0	109.2
	3.66	182.9	101.6		3.66	170.2	109.2
0+50	0	195.6	119.4	3+50	0	180.3	121.9
	0.914	188.0	111.8		0.914	177.8	111.8
	1.83	195.6	109.2		1.83	177.8	111.8
	2.74	195.6	106.7		2.74	180.3	116.8
	3.66	182.9	104.1		3.66	162.6	119.4
1+00	0	188.0	121.9	4+00	0	182.9	116.8
	0.914	198.1	116.8		0.914	188.0	109.2
	1.83	198.1	111.8		1.83	182.9	106.7
	2.74	193.0	111.8		2.74	180.3	109.2
	3.66	180.3	111.8		3.66	165.1	116.8
1+50	0	195.6	106.7	4+50	0	182.9	111.8
	0.914	195.6	106.7		0.914	180.3	101.6
	1.83	200.7	104.1		1.83	182.9	96.5
	2.74	195.6	106.7		2.74	185.4	104.1
	3.66	193.0	106.7		3.66	167.6	109.2
2+00	0	193.0	104.1	5+00	0	180.3	119.4
	0.914	198.1	91.4		0.914	185.4	109.2
	1.83	193.0	91.4		1.83	188.0	111.8
	2.74	195.6	88.9		2.74	193.0	111.8
	3.66	185.4	94.0		3.66	170.2	119.4
2+50	0	193.0	106.7		AVG. THICK.		
	0.914	185.4	104.1		(MM)=	187.0	108.3
	1.83	182.9	101.6				
	2.74	185.4	101.6		REQUIRED		
	3.66	172.7	101.6		THICK. (MM) =	203.2	101.6

ALABAMA SPS 1, TEST SECTION 010105

STATION NUMBER	OFFSET (METERS)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	SURFACE AND BINDER (MM)
0+00	0	119.4	3+00	0	96.5
	0.914	119.4		0.914	86.4
	1.83	121.9		1.83	88.9
	2.74	116.8		2.74	88.9
	3.66	119.4		3.66	91.4
0+50	0	127.0	3+50	0	94.0
	0.914	127.0		0.914	91.4
	1.83	121.9		1.83	88.9
	2.74	121.9		2.74	88.9
	3.66	124.5		3.66	96.5
1+00	0	121.9	4+00	0	101.6
	0.914	121.9		0.914	91.4
	1.83	116.8		1.83	127.0
	2.74	111.8		2.74	94.0
	3.66	109.2		3.66	101.6
1+50	0	116.8	4+50	0	106.7
	0.914	109.2		0.914	104.1
	1.83	106.7		1.83	104.1
	2.74	106.7		2.74	106.7
	3.66	106.7		3.66	119.4
2+00	0	104.1	5+00	0	106.7
	0.914	94.0		0.914	106.7
	1.83	91.4		1.83	106.7
	2.74	88.9		2.74	111.8
	3.66	91.4		3.66	111.8
2+50	0	104.1		AVG. THICK. (MM)=	105.2
	0.914	91.4			
	1.83	88.9			
	2.74	86.4		REQUIRED THICK. (MM) =	101.6
	3.66	86.4			

ALABAMA SPS1, TEST SECTION 010101

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREAGATE BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	218.4	162.6	3+00	0	198.1	170.2
	0.914	218.4	162.6		0.914	198.1	172.7
	1.83	215.9	165.1		1.83	193.0	177.8
	2.74	215.9	165.1		2.74	188.0	180.3
	3.66	210.8	167.6		3.66	193.0	177.8
0+50	0	218.4	165.1	3+50	0	195.6	172.7
	0.914	215.9	162.6		0.914	195.6	177.8
	1.83	203.2	165.1		1.83	193.0	180.3
	2.74	203.2	167.6		2.74	188.0	182.9
	3.66	203.2	170.2		3.66	195.6	177.8
1+00	0	208.3	167.6	4+00	0	188.0	172.7
	0.914	198.1	165.1		0.914	198.1	172.7
	1.83	193.0	170.2		1.83	198.1	172.7
	2.74	193.0	167.6		2.74	188.0	180.3
	3.66	193.0	167.6		3.66	193.0	172.7
1+50	0	200.7	177.8	4+50	0	193.0	177.8
	0.914	198.1	170.2		0.914	210.8	172.7
	1.83	198.1	167.6		1.83	203.2	180.3
	2.74	198.1	172.7		2.74	205.7	180.3
	3.66	198.1	170.2		3.66	188.0	180.3
2+00	0	213.4	167.6	5+00	0	208.3	177.8
	0.914	198.1	172.7		0.914	208.3	180.3
	1.83	200.7	177.8		1.83	203.2	180.3
	2.74	213.4	177.8		2.74	200.7	182.9
	3.66	198.1	177.8		3.66	218.4	180.3
2+50	0	203.2	170.2		AVG. THICK.		
	0.914	198.1	177.8		(MM)=	201.1	173.5
	1.83	198.1	180.3				
	2.74	193.0	182.9		REQUIRED		
	3.66	198.1	172.7		THICK. (MM) =	203.2	177.8

ALABAMA SPS1, TEST SECTION 010102

STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREGATE BASE (MM)	SURFACE AND BINDER (MM)	STATION NUMBER	OFFSET (METERS)	DENSE GRADED AGGREAGATE BASE (MM)	SURFACE AND BINDER (MM)
0+00	0	299.7	111.8	3+00	0	315.0	96.5
	0.914	304.8	109.2		0.914	299.7	96.5
	1.83	299.7	111.8		1.83	322.6	88.9
	2.74	302.3	111.8		2.74	322.6	91.4
	3.66	302.3	106.7		3.66	322.6	86.4
0+50	0	294.6	111.8	3+50	0	287.0	88.9
	0.914	304.8	111.8		0.914	289.6	88.9
	1.83	302.3	109.2		1.83	294.6	81.3
	2.74	307.3	111.8		2.74	292.1	86.4
	3.66	317.5	104.1		3.66	294.6	81.3
1+00	0	292.1	106.7	4+00	0	304.8	96.5
	0.914	307.3	104.1		0.914	292.1	94.0
	1.83	304.8	106.7		1.83	294.6	96.5
	2.74	304.8	106.7		2.74	294.6	195.6
	3.66	304.8	104.1		3.66	292.1	96.5
1+50	0	299.7	101.6	4+50	0	292.1	106.7
	0.914	302.3	101.6		0.914	299.7	104.1
	1.83	304.8	96.5		1.83	302.3	106.7
	2.74	304.8	96.5		2.74	307.3	101.6
	3.66	302.3	101.6		3.66	302.3	104.1
2+00	0	292.1	96.5	5+00	0	307.3	104.1
	0.914	304.8	86.4		0.914	299.7	96.5
	1.83	309.9	91.4		1.83	292.1	96.5
	2.74	307.3	94.0		2.74	294.6	96.5
	3.66	307.3	94.0		3.66	294.6	96.5
2+50	0	294.6	96.5		AVG. THICK.		
	0.914	302.3	94.0		(MM)=	302.0	101.0
	1.83	307.3	96.5				
	2.74	304.8	96.5		REQUIRED		
	3.66	304.8	101.6		THICK. (MM) =	304.8	101.6

APPENDIX D

MATERIAL SAMPLING AND FIELD TESTING PLAN

MATERIAL SAMPLING
AND
FIELD TESTING PLAN

ALABAMA SPS-1 PROJECT 010100
US-280 WBL, LEE COUNTY, ALABAMA

PREPARED BY:

BRENT RAUHUT ENGINEERING INC.
SHRP SOUTHERN REGION COORDINATION OFFICE
8240 MOPAC, SUITE 220
AUSTIN, TEXAS 78759

REVISED
JULY 1993

ALABAMA SPS-1 PROJECT (010100)

MATERIALS SAMPLING AND FIELD TESTING PLAN

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PROPOSED TEST SECTION LAYOUT SITES WITH SUBSURFACE DRAINAGE

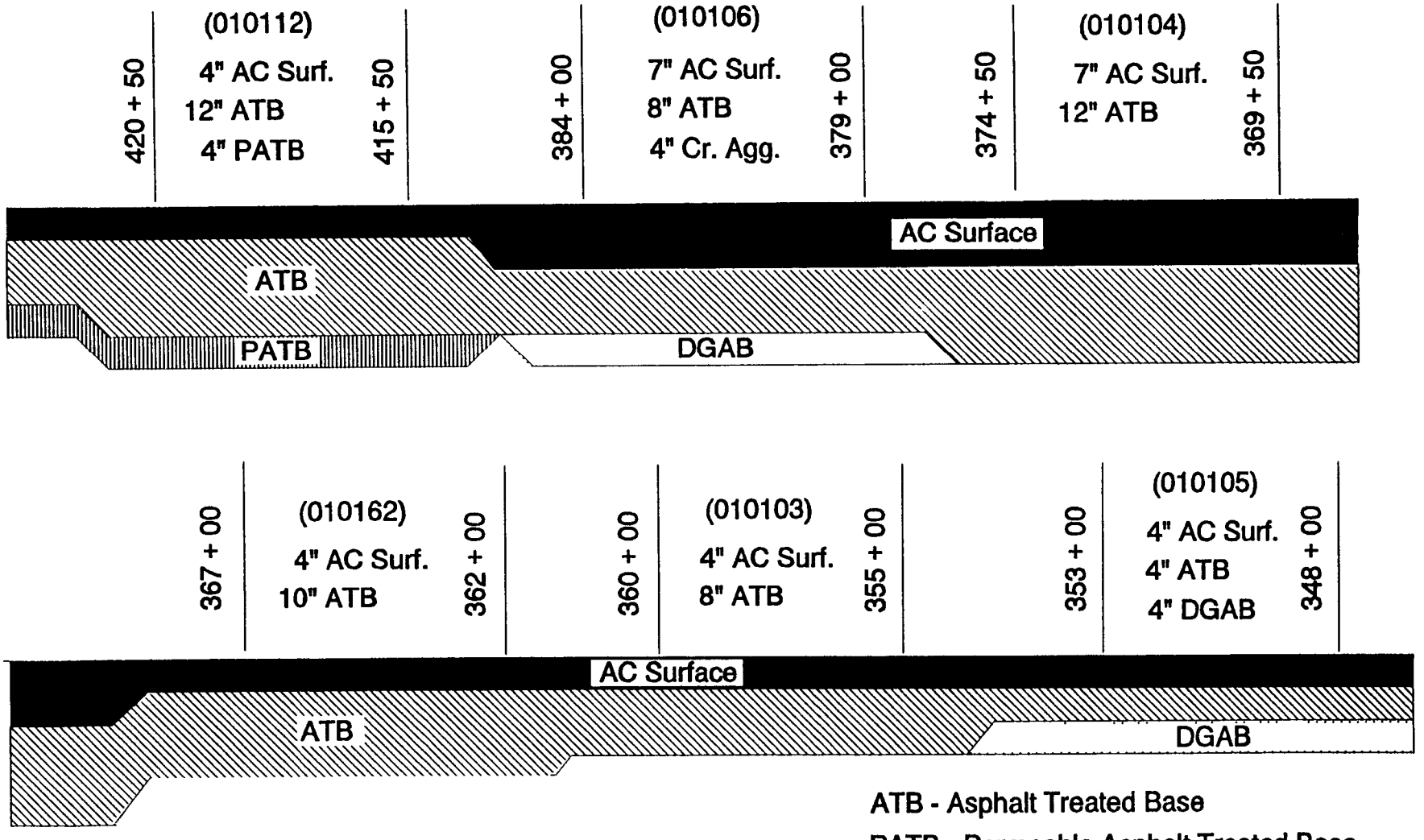
Section	Cross Section	Begin Station	End Station	Transition (Ft.)
010107 (N7)	4″ AC Surf. 4″ PATB 4″ Cr. Agg.	470+00	465+00	225
010108 (N8)	7″ AC Surf. 4″ PATB 8″ Cr. Agg.	462+75	457+75	125
010109 (N9)	7″ AC Surf. 4″ PATB 12″ Cr. Agg.	456+50	451+50	250
010163 (Suppl.)	4″ AC Surf. 6″ AC Base 4″ PATB 6″ Cr. Agg.	449+00	444+00	600
010110 (N10)	7″ AC Surf. 4″ AC Base 4″ PATB	438+00	433+00	350
010111 (N11)	4″ AC Surf. 8″ AC Base 4″ PATB	429+50	424+50	400
010112* (N12)	4″ AC Surf. 12″ AC Base 4″ PATB	420+50	415+50	3150
010106 (N6)	7″ AC Surf. 8″ AC Base 4″ Cr. Agg.	384+00	379+00	450
010104* (N4)	7″ AC Surf. 12″ AC Base	374+50	369+50	250
010162 (Suppl.)	4″ AC Surf. 10″ AC Base	367+00	362+00	200
010103* (N3)	4″ AC Surf. 8″ AC Base	360+00	355+00	200

PROPOSED TEST SECTION LAYOUT SITES WITH SUBSURFACE DRAINAGE (Continued)

Section	Cross Section	Begin Station	End Station	Transition (Ft.)
010105 (N5)	4″ AC Surf. 4″ AC Base 4″ Cr. Agg.	353+00	348+00	350
010101 (N1)	7″ AC Surf. 8″ Cr. Agg.	344+50	339+50	4925
010102 (N2)	4″ AC Surf. 12″ Cr. Agg.	290+25	285+25	---
010161 (Suppl.)	4″ AC Surf. 6″ ATB 6″ Soil Agg.	281+00	276+00	---

* **Indicates Change from Original Plan**

SPS - 1 ALABAMA US-280 WBL
Lee County, Alabama

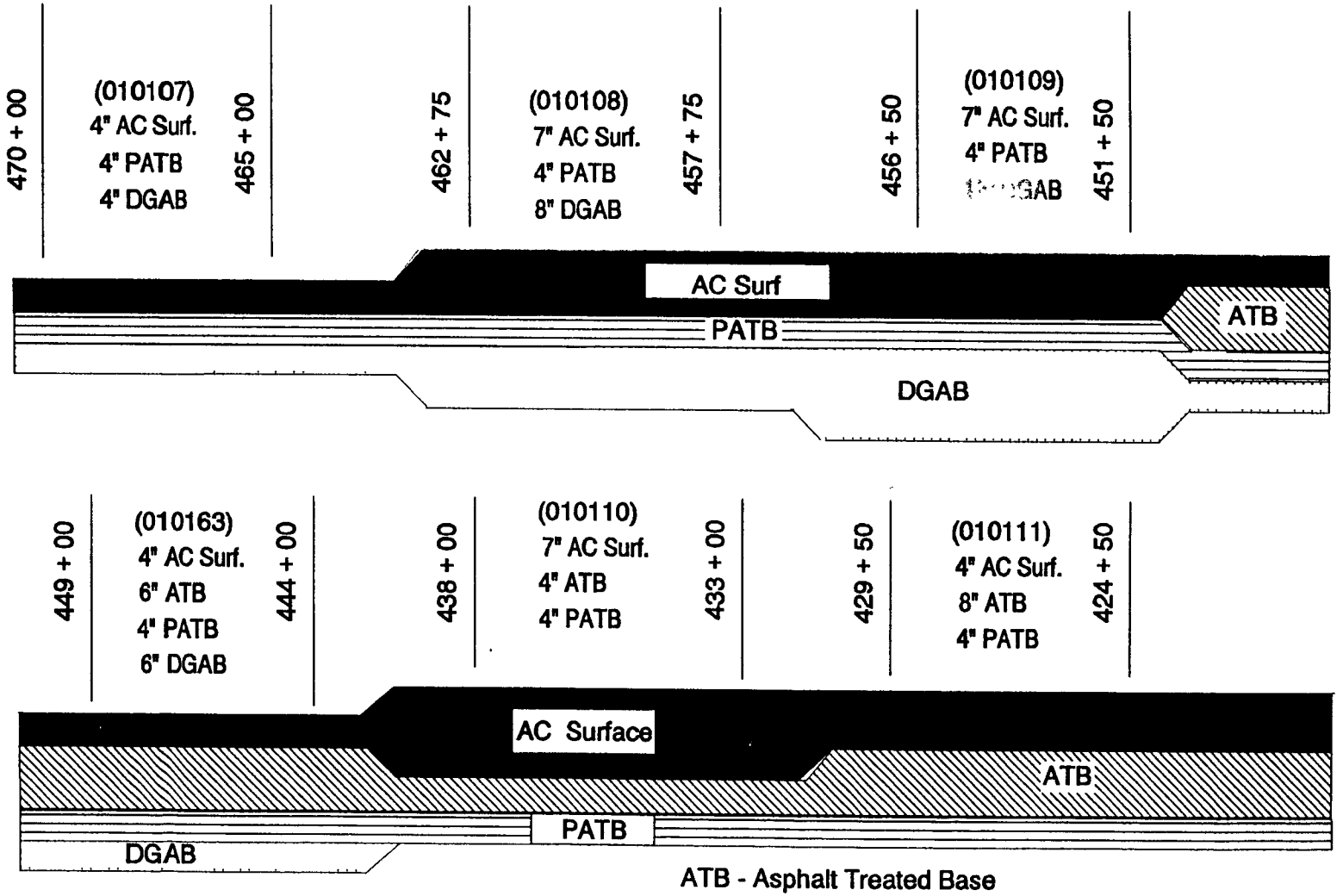


ATB - Asphalt Treated Base

PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

SPS-1 ALABAMA US-280 WBL
Lee County, Alabama

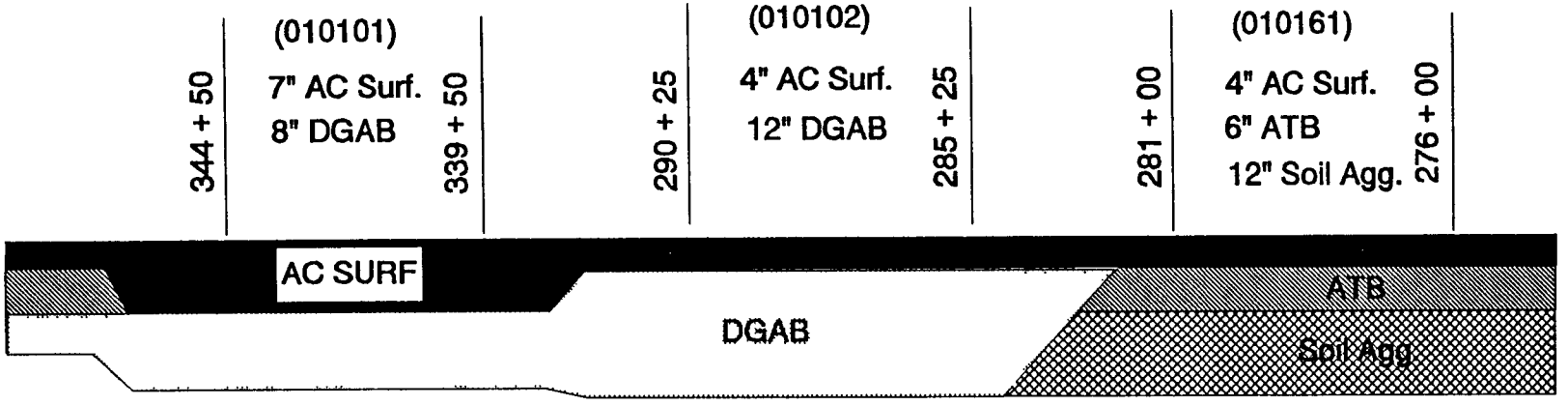


ATB - Asphalt Treated Base

PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

SPS - 1 ALABAMA US-280 WBL
Lee County, Alabama



ATB - Asphalt Treated Base
DGAB - Dense Graded Aggregate Base
Soil Agg. - Soil Aggregate Mixture

SCOPE OF MATERIALS SAMPLING

Material And Sample Description	Number Of Tests	Sample Location
Asphalt Concrete		
Coring - 4" Diameter Cores	68	C1-C68
Bulk Sampling (100 Lbs. of Each Mix, Uncompacted)	3	B23, B24, B25 (From Plant)
Unbound Base/Subbase Layers (Per Layer)		
Bulk Sampling	3	B8-B10
Moisture Content Samples	3	B8-B10
Asphalt Treated Base		
Coring - 4" Diameter Cores	42	C17-C58
Bulk Sampling (100 Lbs. Per Sample, Uncompacted)	3	B20, B21, B22 (From Plant)
Permeable Asphalt Treated Base		
Coring - 4" Diameter Cores	34	C1-C34
Bulk Sampling (100 Lbs. Per Sample, Uncompacted)	3	B11, B12, B13 (From Plant)
Subgrade		
Splitspoon Sampling	36*	A1-A18
Thin-Walled Tube Sampling (*2 Tubes or 2 Spoons or Combination Per Hole)	36*	A1-A18
Bulk Sampling (400 Lbs. Each Sample)	7	B1-B7
Moisture Content Samples	25	A1-A18, B1-B7
Permeability	3	A3, A9, A18
Shoulder Auger Probes (Depth to Rigid Layer)	14	S1-S14
Asphalt Cement (5 Gallons Each Sample)	3	B26, B27, B28 (From Plant)

NOTE: If different AC mixes are used for the surface course and binder course, bulk samples should be obtained from each mix.

SCOPE OF FIELD TESTING

Material And Sample Description	Number Of Tests	Sample Location
Asphalt Concrete In Situ Density	70	T94-T135, SA1-SA28 (T156-T183)
Unbound Base/Subbase Layers (Per Layer) In Situ Density, Moisture Content (Nuclear Gauge) Moisture Content Samples	 24 3	 T43-T66 B8-B10
Asphalt Treated Base In Situ Density	47	T67-T93, SA7-SA24 (T136-T153), SA27, SA28
Subgrade In Situ Density, Moisture Content (Nuclear Gauge)	48	T1-T42, B1-B7

FIELD AND LABORATORY MATERIALS TESTING PLAN

Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Subgrade				
Sieve Analysis	SS01	P51	7	B1-B7
Hydrometer to 0.01mm	SS02	P42	7	B1-B7
Atterberg Limits	SS03	P43	7	B1-B7
Classification	SS04	P52	24	B1-B7, A1-A18 --- Note 1
Moisture-Density Relations	SS05	P55	7	B1-B7
Resilient Modulus (At In-Situ Density and Moisture)	SS07	P46	6	A2, A5, A8, A11, A14, A17
Unit Weight	SS08	P56	7	B1-B7
Natural Moisture Content	SS09	P49	7	B1-B7
Unconfined Comp. Strength	SS10	P54	6	A1, A4, A7, A10, A13, A16
In-Place Density		SHRP-LTPP Method	49	T1-T42, B1-B7
Depth to Rigid Layer		SHRP-LTPP Method	14	S1-S14
Permeability	SS11	P57	3	A3, A9, A18
Unbound Granular Base				
Particle Size Analysis	UG01	P41	3	B8, B9, B10
Sieve Analysis (Washed)	UG02	P41	3	B8, B9, B10
Atterberg Limits	UG04	P43	3	B8, B9, B10
Moisture-Density Relations	UG05	P44	3	B8, B9, B10
Resilient Modulus (At In-Situ Density and Moisture)	UG07	P46	3	B8, B9, B10
Classification	UG08	P47	3	B8, B9, B10
Permeability	UG09	P48	3	B8, B9, B10
Natural Moisture Content	UG10	P49	3	B8, B9, B10
In-Place Density and Moisture		SHRP-LTPP Method	24	T43-T66

FIELD AND LABORATORY MATERIALS TESTING PLAN
(CONTINUED)

Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Permeable Treated Asphalt Base				
Core Examination/Thickness	AC01	P01	34	C1-C34
Bulk Specific Gravity	AC02	P02	15	C5-C8, C15-C16, C18-C22, C25, C26, C31, C32
Maximum Specific Gravity	AC03	P03	3	B11,B12,B13 - From Plant
Asphalt Content (Extraction)	AC04	P04	3	B11,B12,B13 - From Plant
Moisture Susceptibility	AC05	P05	3	B11,B12,B13 - From Plant
Permeability/Flow	AC08	P08	1	BT02 --- Note 2
Resilient Modulus	AC09	P09	6	C1-C3, C11-C13 --- Note 3
Tensile Strength	AC09	P09	8	C1-C4, C11-C14
Extracted Aggregate -				
Specific Gravity:				
Coarse Aggregate	AG01	P11	3	B11,B12,B13
Fine Aggregate	AG02	P12	3	B11,B12,B13
Type and Classification:				
Coarse Aggregate	AG03	P13	3	B11,B12,B13
Fine Aggregate	AG03	P13	3	B11,B12,B13
Gradation of Aggregate	AG04	P14	3	B11,B12,B13
NAA Test for Fine Aggregate Particle Shape	AG05	P14A	3	B11,B12,B13
Coarse Aggregate Shape	AG06	P14B	3	B11,B12,B13
Asphalt Cement -				
Abson Recovery	AE01	P21	3	B11,B12,B13
Penetration at 50F, 77F, 90F	AE02	P22	3	B11,B12,B13
Specific Gravity (60F)	AE03	P23	3	B11,B12,B13
Viscosity at 77F	AE04	P24	3	B11,B12,B13
Viscosity at 140F, 275F	AE05	P25	3	B11,B12,B13

FIELD AND LABORATORY MATERIALS TESTING PLAN
(CONTINUED)

Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Asphalt Treated Base				
Core Examination/Thickness	AC01	P01	42	C17-C58
Bulk Specific Gravity	AC02	P02	42	C17-C58
Maximum Specific Gravity	AC03	P03	3	B20,B21,B22
Asphalt Content (Extraction)	AC04	P04	3	B20,B21,B22
Moisture Susceptibility	AC05	P05	1	B21
Resilient Modulus	AC07	P07	9	C29-C31, C35-C37, C49-C51
Tensile Strength	AC07	P07	12	C29-C32, C35-C38, C49-C52
In-Place Density		SHRP-LTPP Method	45	T67-T93, SA7-SA24
Extracted Aggregate -				
Specific Gravity:				
Coarse Aggregate	AG01	P11	3	B20,B21,B22
Fine Aggregate	AG02	P12	3	B20,B21,B22
Type and Classification:				
Coarse Aggregate	AG03	P13	3	B20,B21,B22
Fine Aggregate	AG03	P13	3	B20,B21,B22
Gradation of Aggregate	AG04	P14	3	B20,B21,B22
NAA Test for Fine Aggregate Particle Shape	AG05	P14A	3	B20,B21,B22
Coarse Aggregate Shape	AG06	P14B	3	B20,B21,B22
Asphalt Cement -				
Abson Recovery	AE01	P21	3	B20,B21,B22
Penetration at 50F, 77F, 90F	AE02	P22	3	B20,B21,B22
Specific Gravity (60F)	AE03	P23	3	B20,B21,B22
Viscosity at 77F	AE04	P24	3	B20,B21,B22
Viscosity at 140F, 275F	AE05	P25	3	B20,B21,B22

FIELD AND LABORATORY MATERIALS TESTING PLAN
(CONTINUED)

Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Asphalt Treated Base (Continued)				
Asphalt Cement (From Tanker) -				
Penetration at 50F, 77F, 90F	AE02	P22	3	B26,B27,B28 - From Plant
Specific Gravity (60F)	AE03	P23	3	B26,B27,B28 - From Plant
Viscosity at 77F	AE04	P24	3	B26,B27,B28 - From Plant
Viscosity at 140F, 275F	AE05	P25	3	B26,B27,B28 - From Plant

FIELD AND LABORATORY MATERIALS TESTING PLAN
(CONTINUED)

Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Asphaltic Concrete Surface and Binder				
Core Examination/Thickness	AC01	P01	68	C1-C68 --- Note 4
Bulk Specific Gravity	AC02	P02	68	C1-C68
Maximum Specific Gravity	AC03	P03	3	B23,B24,B25 - From Plant
Asphalt Content (Extraction)	AC04	P04	3	B23,B24,B25 - From Plant
Moisture Susceptibility	AC05	P05	3	B23,B24,B25 - From Plant
Creep Modulus	AC06	P06	1	C3, C23, C47
Resilient Modulus	AC07	P07	24	C1-C3, C11-C13, C29-C31, C35-C37, C49-C51, C55-C57, C58-C61, C65-C67
Tensile Strength	AC07	P07	31	C1-C4, C11-C14, C29-C32, C35-C38, C49-C52, C55-C58, C59-C62, C66-C68
In-Place Density		SHRP-LTPP Method	70	SA1-SA28 (T156-T183), T94-T135
Extracted Aggregate -				
Bulk Specific Gravity:				
Coarse Aggregate	AG01	P11	3	B23,B24,B25
Fine Aggregate	AG02	P12	3	B23,B24,B25
Type and Classification:				
Coarse Aggregate	AG03	P13	3	B23,B24,B25
Fine Aggregate	AG03	P13	3	B23,B24,B25
Gradation of Aggregate	AG04	P14	3	B23,B24,B25
NAA Test for Fine Aggregate Particle Shape	AG05	P14A	3	B23,B24,B25
Coarse Aggregate Shape	AG06	P14B	3	B23,B24,B25

FIELD AND LABORATORY MATERIALS TESTING PLAN
(CONTINUED)

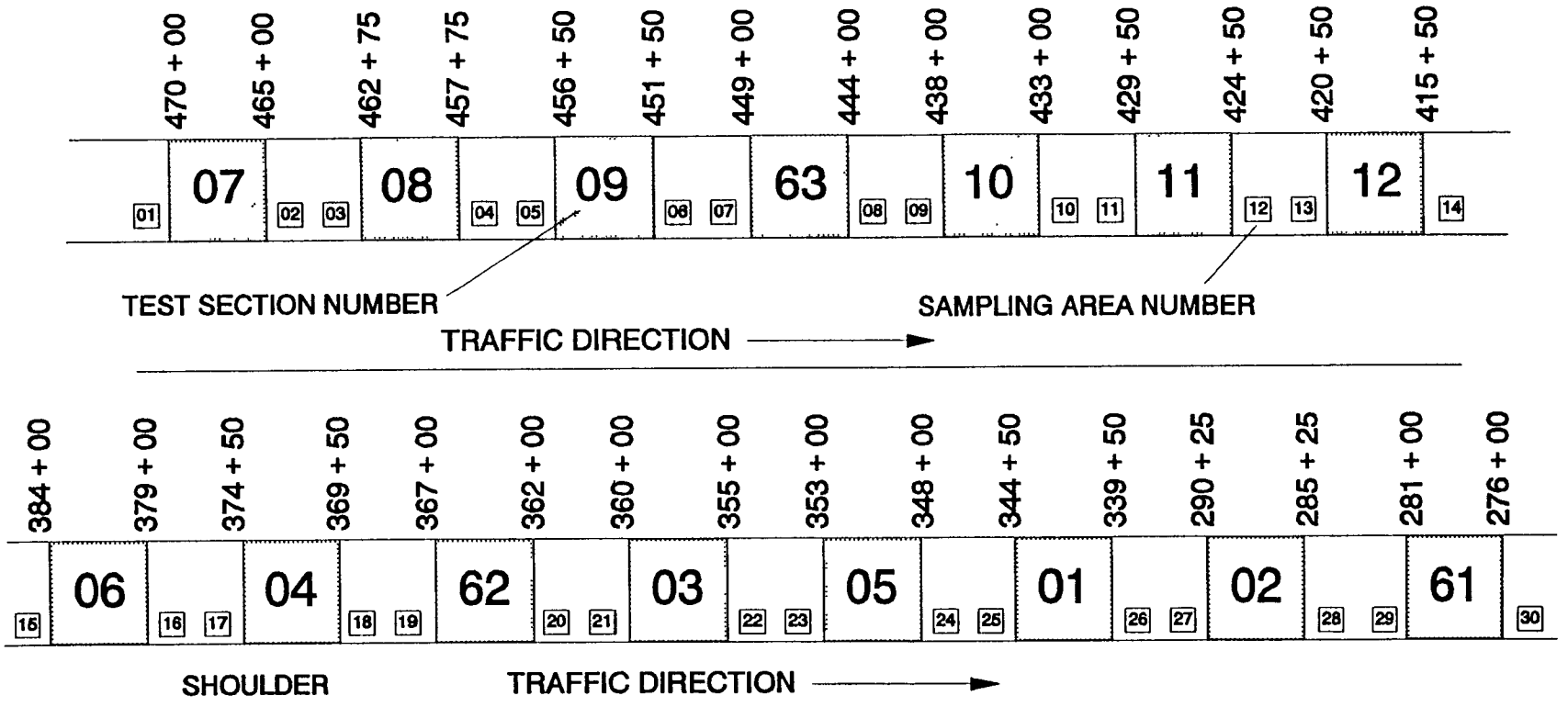
Material Type And Properties	SHRP Des.	SHRP Protocol	Tests	Material Source/ Test Location
Asphaltic Concrete Surface and Binder (Continued)				
Asphalt Cement -				
Abson Recovery	AE01	P21	3	B26,B27,B28
Penetration at 50F, 77F, 90F	AE02	P22	3	B26,B27,B28
Specific Gravity (60F)	AE03	P23	3	B26,B27,B28
Viscosity at 77F	AE04	P24	3	B26,B27,B28
Viscosity at 140F, 275F	AE05	P25	3	B26,B27,B28

NOTE 1 - Visual-manual classification ONLY.
NOTE 2 - Laboratory permeability test to be developed.
NOTE 3 - Revision to existing P07 protocol or develop new protocol P09.
NOTE 4 - Does NOT include cores or bulk sampling requirements for SHRP Asphalt Research Program.

MATERIAL SAMPLING FOR SHRP ASPHALT RESEARCH PROGRAM

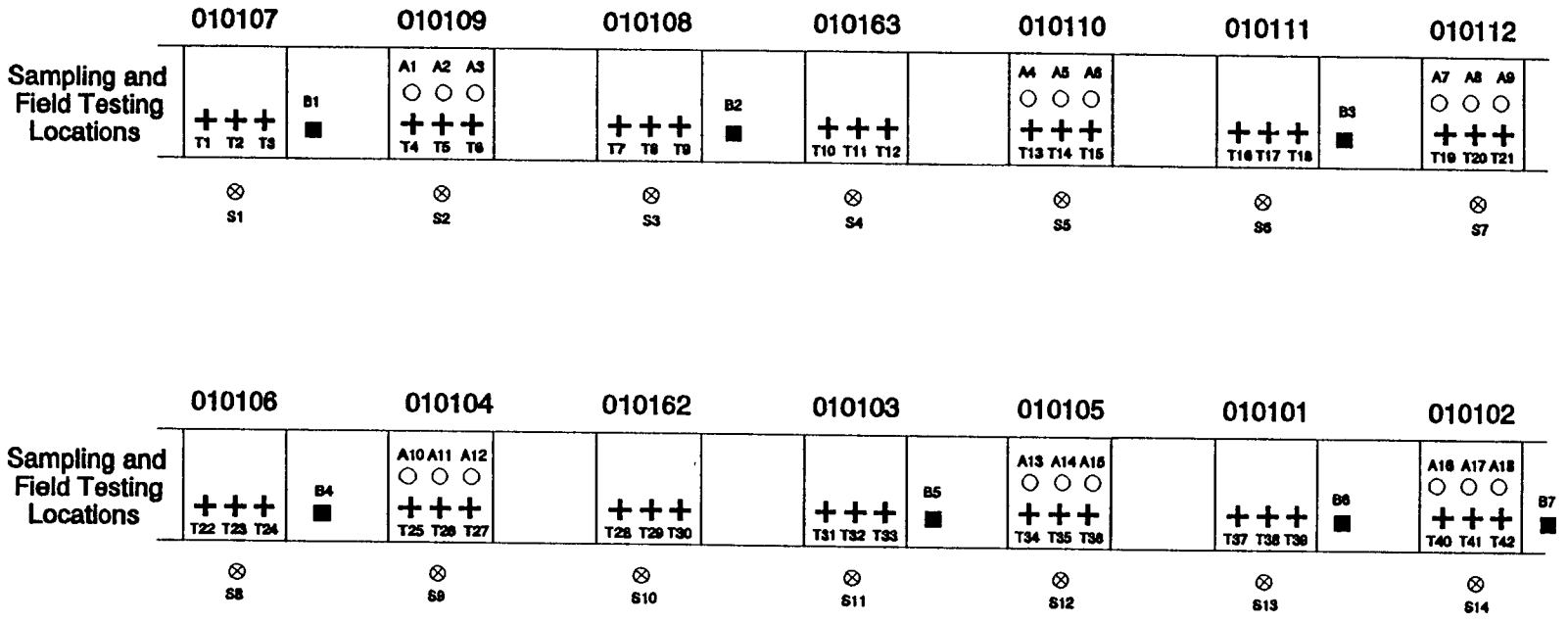
Material And Sample Description	Number Of Samples	Material Source
Asphalt Cement (5 Gallon Containers)	11	Plant
Aggregate (55 Gallon Drums)	2	Plant
Finished Asphaltic Concrete Mix (200 Lbs. Each - Surface, Binder, ATB, PATB)	4	Plant
Asphalt Concrete - 4″ Diameter Cores	24	C69-C92

SPS - 1 ALABAMA US 280 WBL
Lee County, Alabama
SITE LAYOUT WITH SAMPLING AREAS



SPS - 1 ALABAMA US-280 WBL
Lee County, Alabama

Sampling and Testing Locations for Subgrade



■ 2 x 2 bulk sampling location (B1 - B7) to 12" below top of subgrade

○ Shelby tube/splitspoon sampling to 4' below top of subgrade (A1 - A18)

⊗ Shoulder probe (S1 - S14)

+ Location of field testing (T1 - T42)

SPS - 1 ALABAMA US-280 WBL
Lee County, Alabama

Sampling and Testing Locations for DGAB

Stage of Construction	DGAB Prep. Sg.		DGAB Prep. Sg.		DGAB Prep. Sg.		DGAB Prep. Sg.						
Section No.	010107		010109		010108		010163		010110		010111		010112
Sampling and Field Testing Locations	+ + + T43 T44 T45		+ + + T46 T47 T48		+ + + T49 T50 T51	B8 ■	+ + + T52 T53 T54		N/A		N/A		N/A

Stage of Construction	DGAB Prep. Sg.								DGAB Prep. Sg.		DGAB Prep. Sg.		DGAB Prep. Sg.	
Section No.	010106		010104		010162		010103		010105		010101		010102	
Sampling and Field Testing Locations	+ + + T55 T56 T57	B9 ■	N/A		N/A		N/A		+ + + T58 T59 T60		+ + + T61 T62 T63	B10 ■	+ + + T64 T65 T66	

LEGEND

+ Location of field testing (T43 - T66)

■ Location of bulk sampling of DGAB (B8 - B10)

Prep. Sg. -Prepared Subgrade

PATB - Permeabel Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

SPS - 1 ALABAMA US 280 WBL
Lee County, Alabama
Testing Locations for ATB

Stage of Construction							ATB PATB DGAB Prep. Sg.		ATB PATB Prep. Sg.		ATB PATB Prep. Sg.		ATB PATB Prep. Sg.
Section No.	010107		010109		010108		010163		010110		010111		010112
Sampling and Field Testing Locations	N/A		N/A		N/A		+++ T67 T68 T69		+++ T70 T71 T72		+++ T73 T74 T75		+++ T76 T77 T78

Stage of Construction	ATB DGAB Prep Sg.		ATB Prep. Sg		ATB Prep Sg		ATB Prep. Sg.		ATB DGAB Prep. Sg.				
Section No.	010106		010104		010162		010103		010105		010101		010102
Sampling and Field Testing Locations	+++ T79 T80 T81		+++ T82 T83 T84		+++ T85 T86 T87		+++ T88 T89 T90		+++ T91 T92 T93		N/A		N/A

LEGEND

+ Location fo field testin (T67-T93, T136-T153)

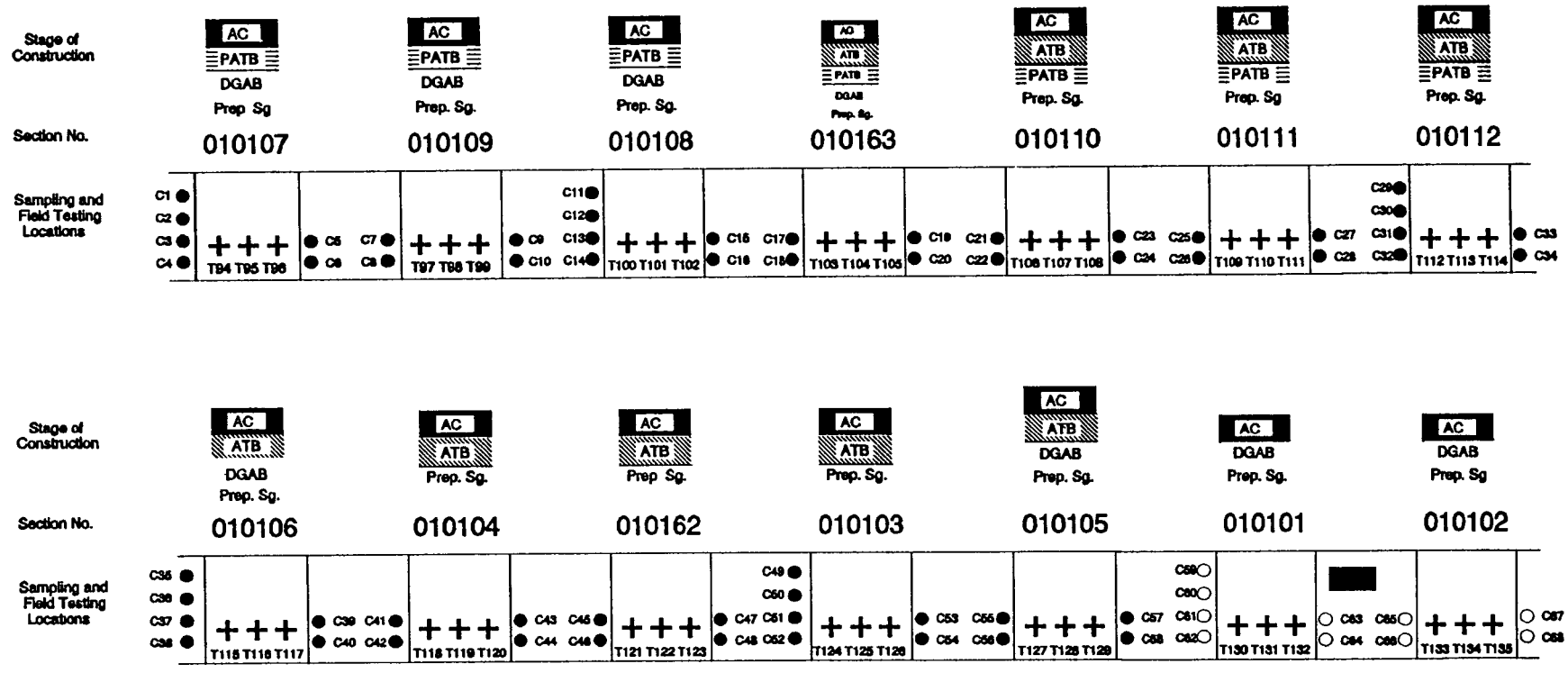
Prep. Sg. - Prepared Subgrade

PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

ATB - Asphalt Treated Base

SPS - 1 ALABAMA US-280 WBL
Lee County, Alabama
Sampling and Testing Locations for AC Surface



LEGEND

- ○ 4" OD Core of Asphalt Concrete Surface (C59 - C68)
- ● 4" OD Core of Asphalt Concrete Surface and Treated Base (C1 - C58)
- + Location of field testing within section (T94 - T135, T156 - T183)
- ■ SHRP Asphalt Research Cores (C69-C92)

Prep. Sg. - Prepared Subgrade

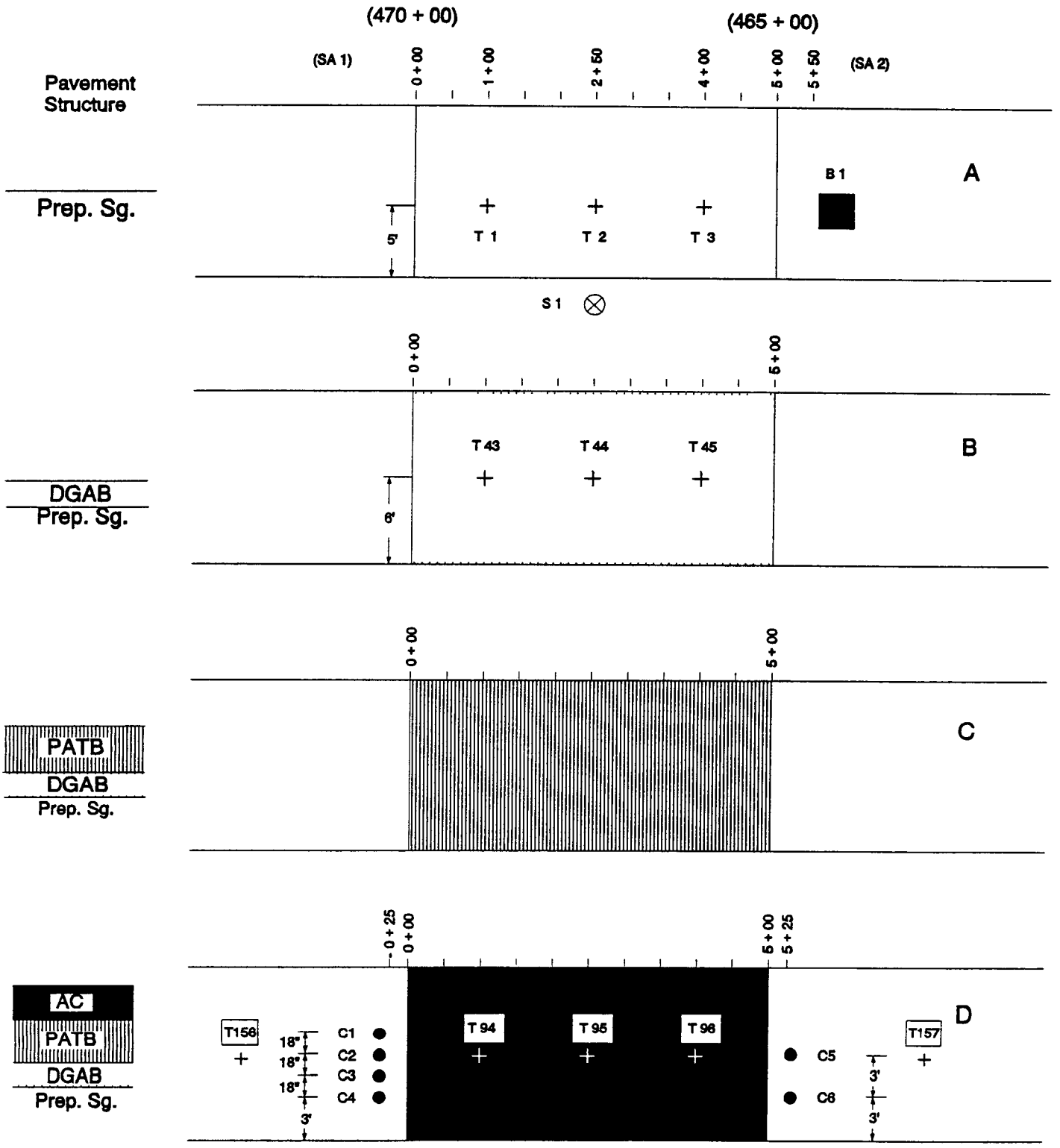
PATB - Permeable Asphalt Treated Base

DGAB - Dense Graded Aggregate Base

ATB - Asphalt Treated Base

AC - Asphalt Concrete Surface

SAMPLING AND TESTING PLAN FOR TEST SECTION 010107



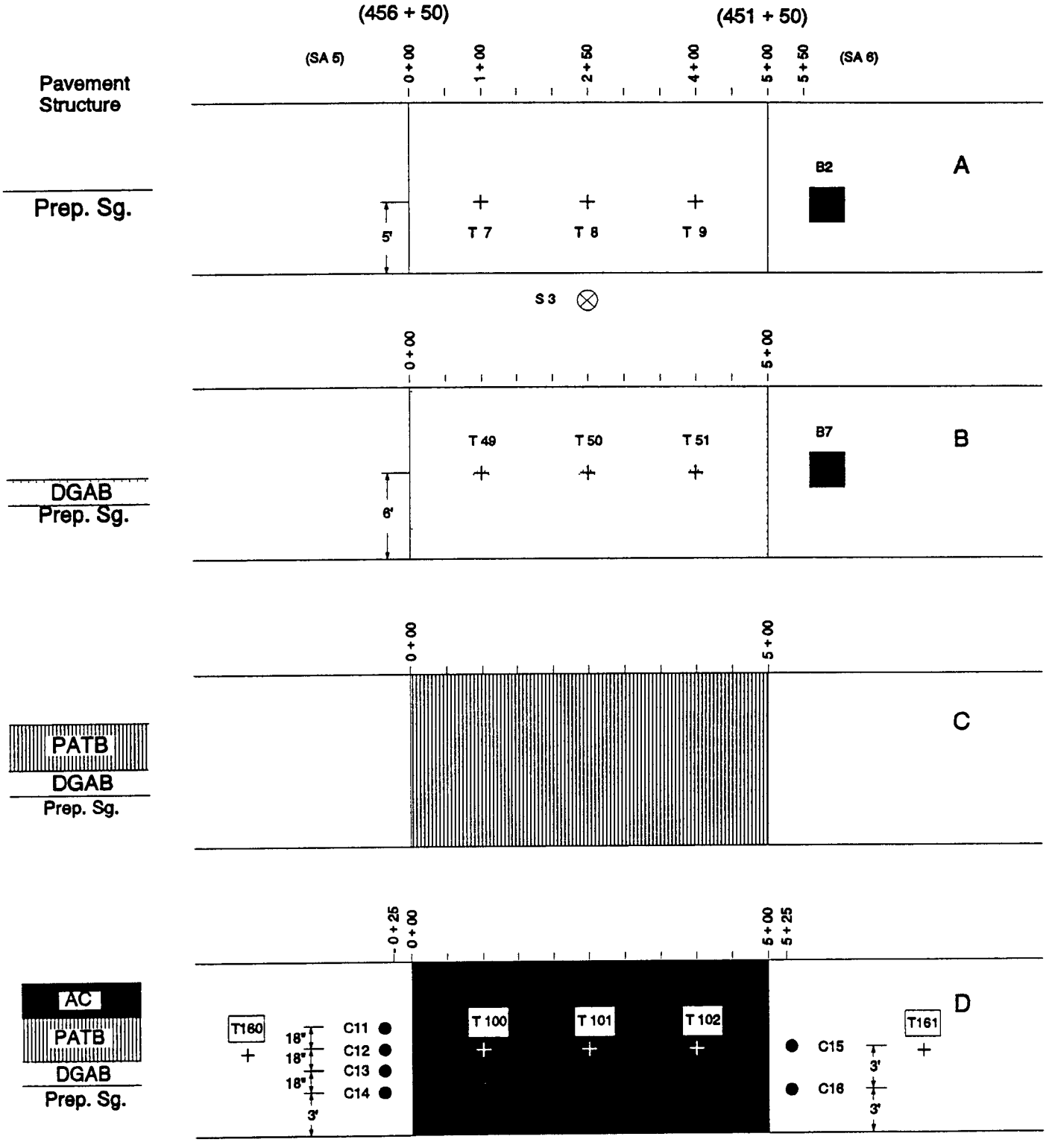
A Testing on prepared Subgrade (T1 - T3, B1, S1)

B Testing on compacted DGAB (T43 - T45)

C No testing on compacted PATB

D Testing on finished AC Surface (T94 - T96, T158, T159)
Coring AC Surface and bound layers (C1 - C6)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010108



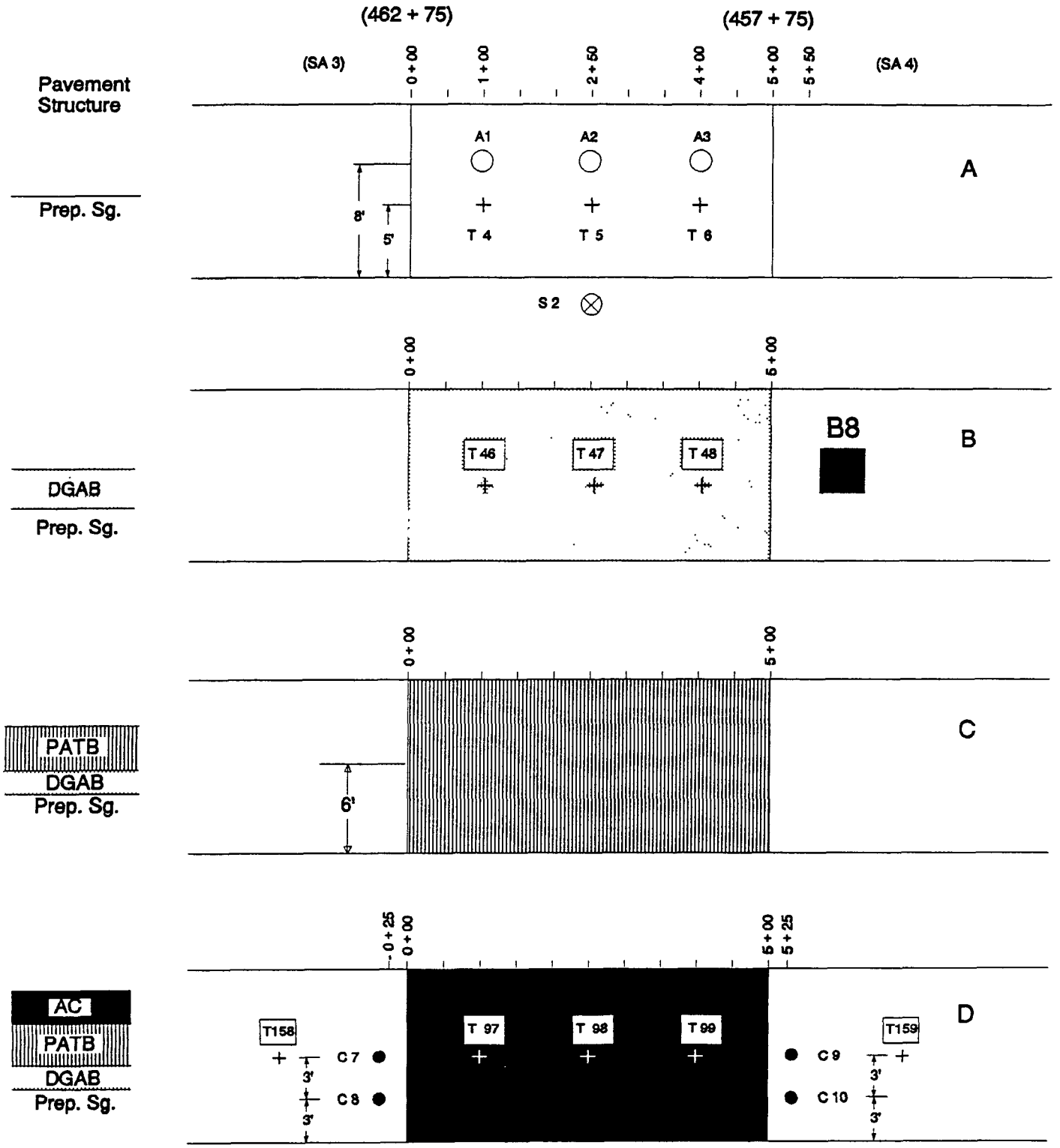
A Testing on prepared Subgrade (T7 - T9, B2, S3)

B Testing on compacted DGAB (T49 - T51,B7)

C No testing on compacted PATB

D Testing on finished AC Surface (T100 - T102,T160,T161)
Coring AC Surface and bound layers (C11 - C16)

SAMPLING AND TEST SECTION PLAN FOR TEST SECTION 010109



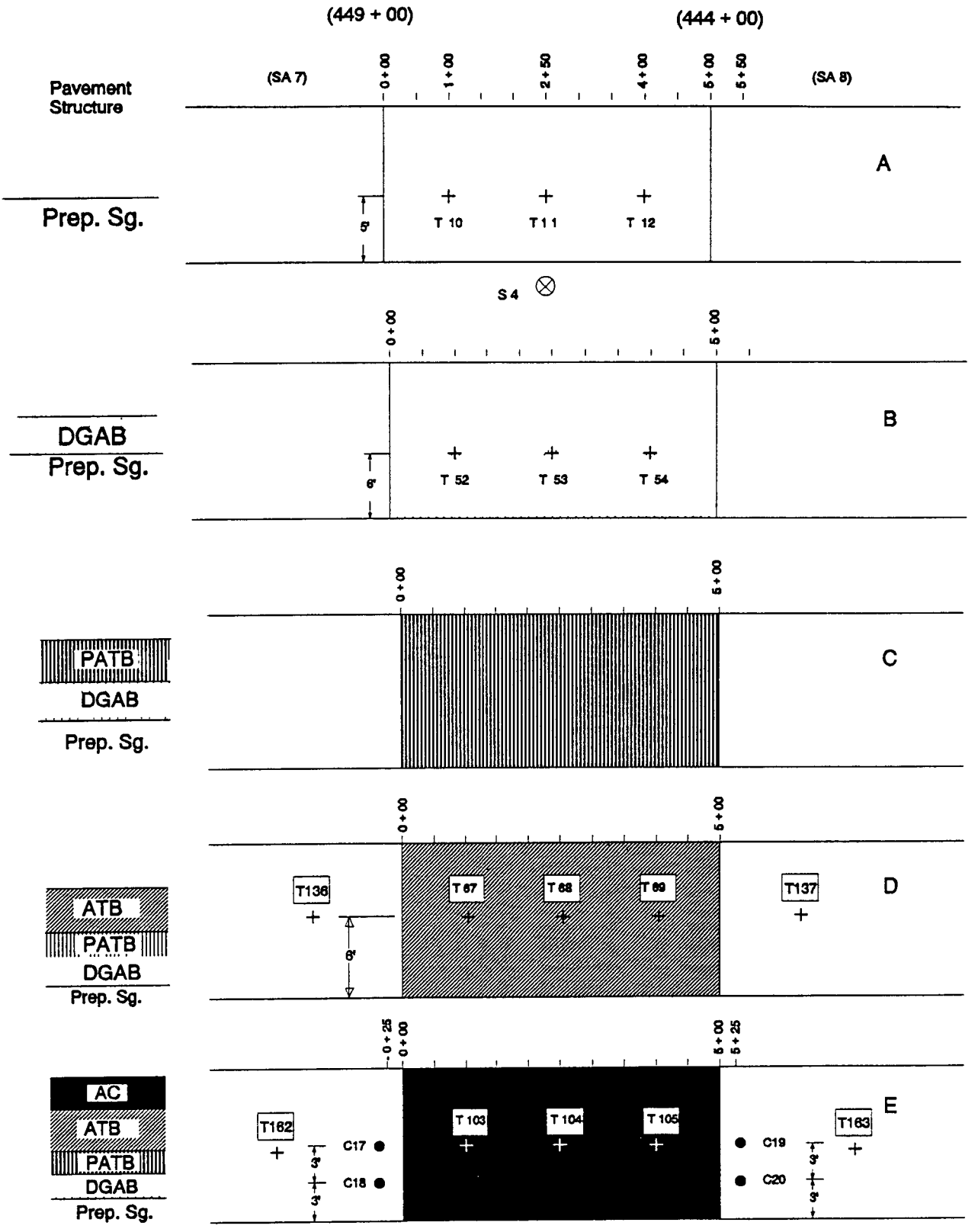
A Testing on prepared Subgrade (T4 - T6, A1- A3,S2)

B Testing on compacted DGAB (T46 - T48, B8)

C No testing on compacted PATB

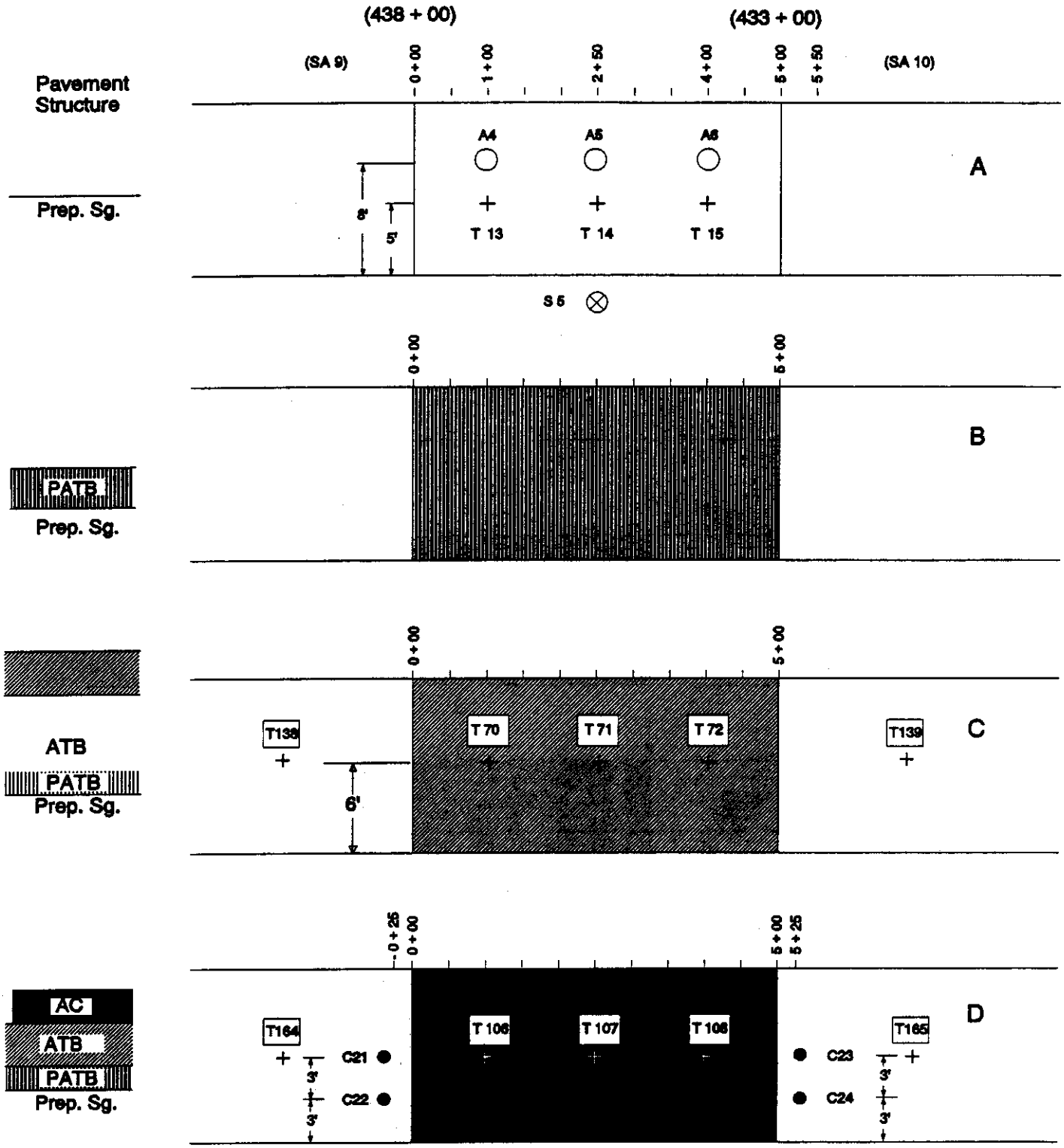
D Testing on finished AC Surface (T97 - T99, T158, T159)
Coring AC Surface and bound layers (C7 - C10)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010163



A Testing on prepared Subgrade (T10 - T12, S4)
B Testing on DGAB (T52 - T54)
C No testing on compacted PATB
D Testing on compacted ATB (T67 - T69, T136, T137)
E Testing on finished AC Surface (T103 - T105, T162, T163)
Coring AC Surface and bound layers (C17 - C20)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010110



A Testing on prepared Subgrade (T13 - T15, A4- A6,S5)

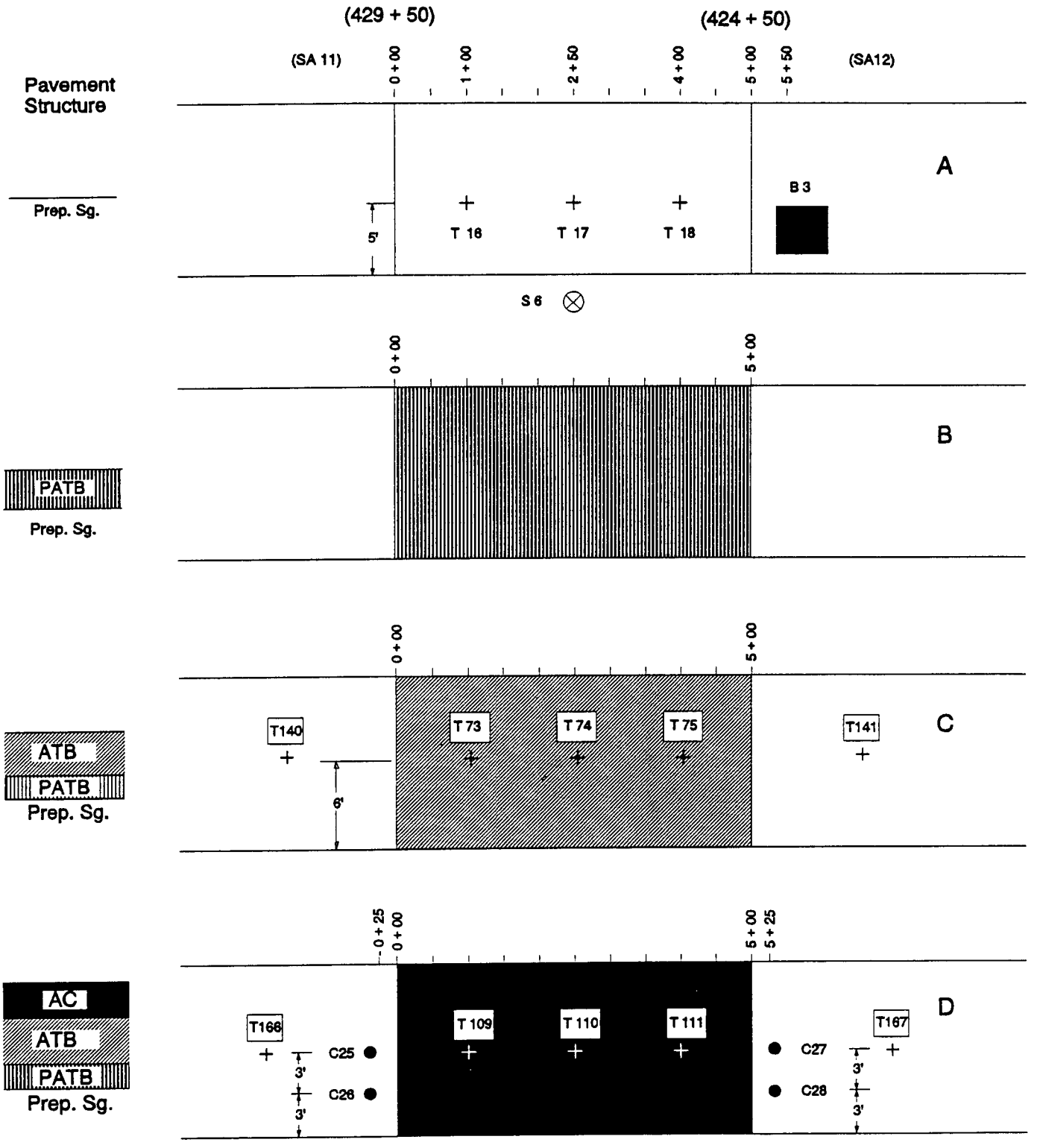
B No testing on compacted PATB

C Testing on compacted ATB (T70 - T72, T138, T139)

D Testing on finished AC Surface (T106 - T108, T164, T165)

Coring AC Surface and bound layers (C21 - C24)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010111



A Testing on prepared Subgrade (T16 - T18, B3, S6)

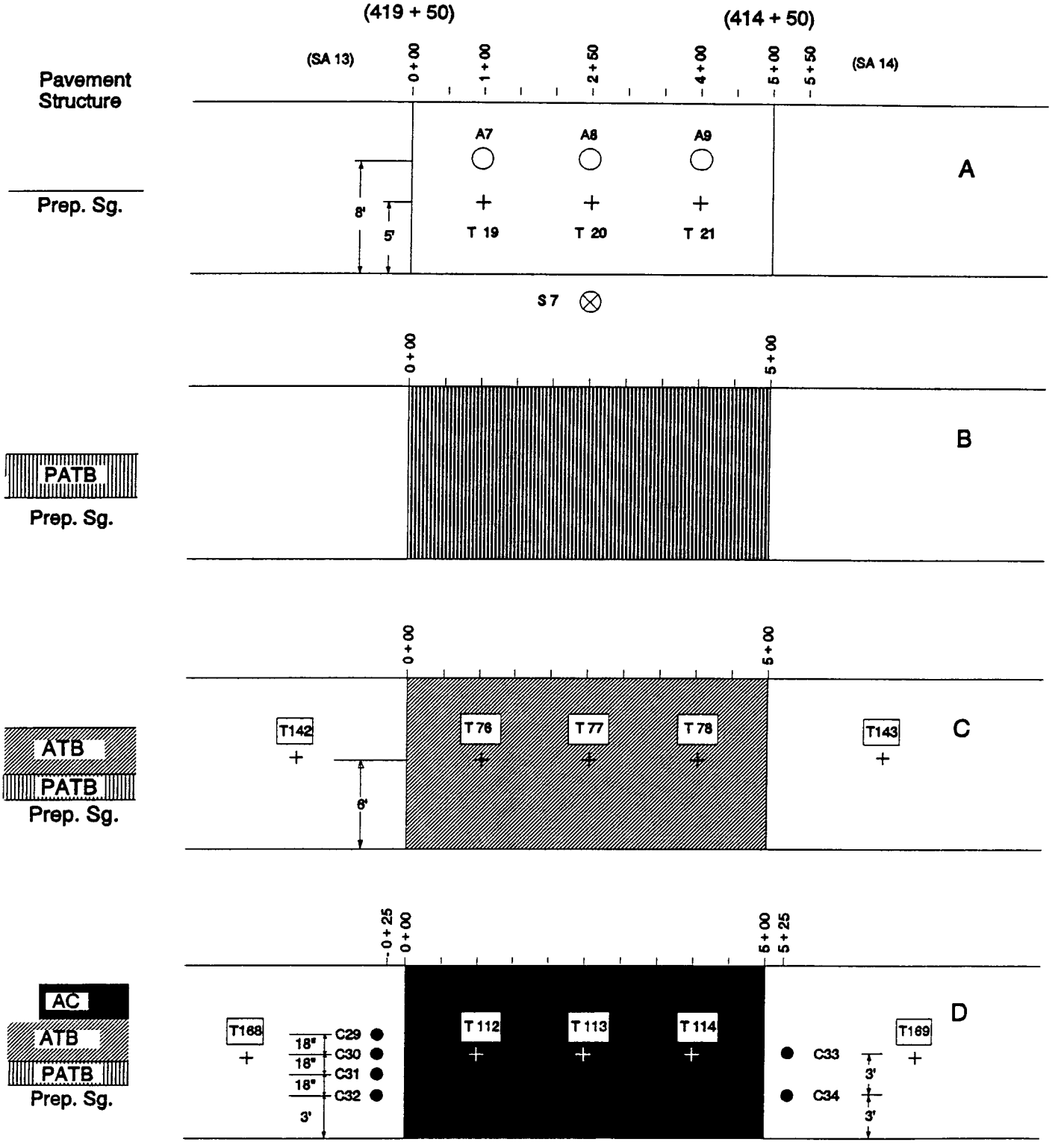
B No testing on compacted PATB

C Testing on compacted ATB(T73 - T75, T140, T141)

D Testing on finished AC Surface (T109 - T111, T166, T167)

Coring AC Surface and bound layers (C25 - C28)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010112



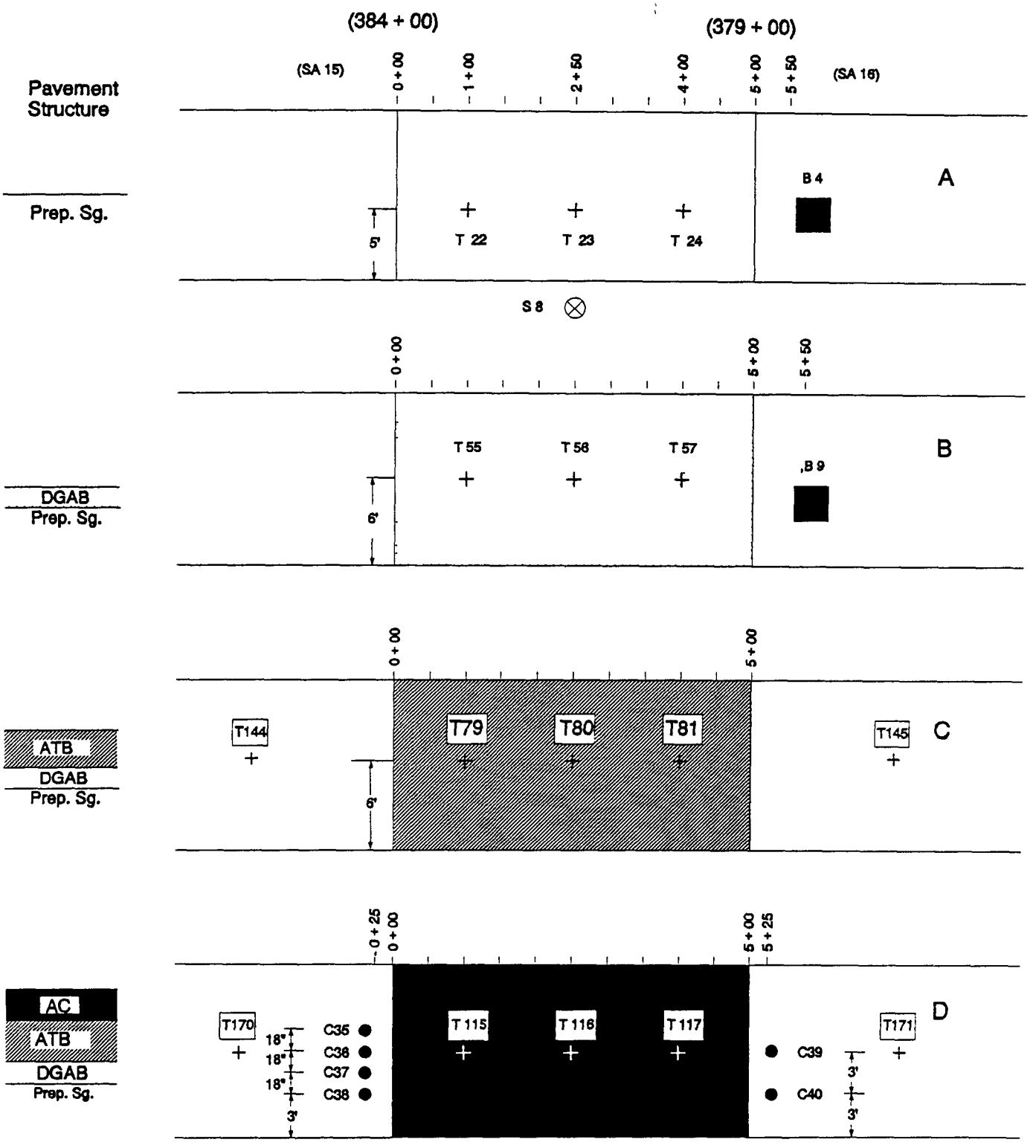
A Testing on prepared Subgrade (T19 - T21, A7- A9,S7)

B No testing on compacted PATB

C Testing on compacted ATB (T76 - T78, T142, T143)

D Testing on finished AC Surface (T112 - T114, T168, T169)
Coring AC Surface and bound layers (C29 - C34)

SAMPLING AND TEST PLAN FOR TEST SECTION 010106



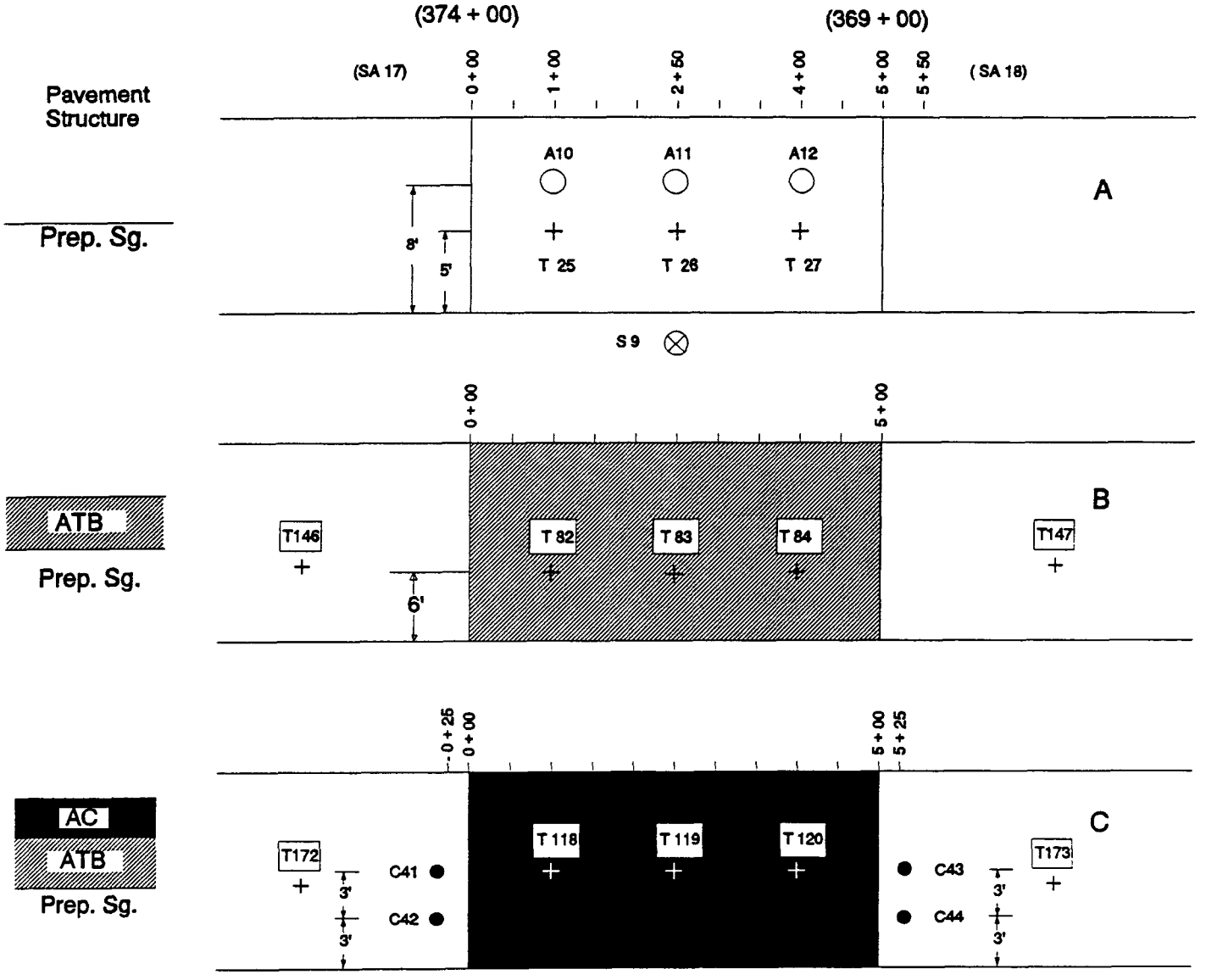
A Testing on prepared Subgrade (T22 - T24, B4, S8)

B Testing on compacted DGAB (T55 - T57,B9)

C Testing on compacted ATB (T79 - T81, T144, T145)

D Testing on finished AC Surface (T115 - T117, T170, T171)
Coring AC Surface and bound layers (C35 - C40)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010104



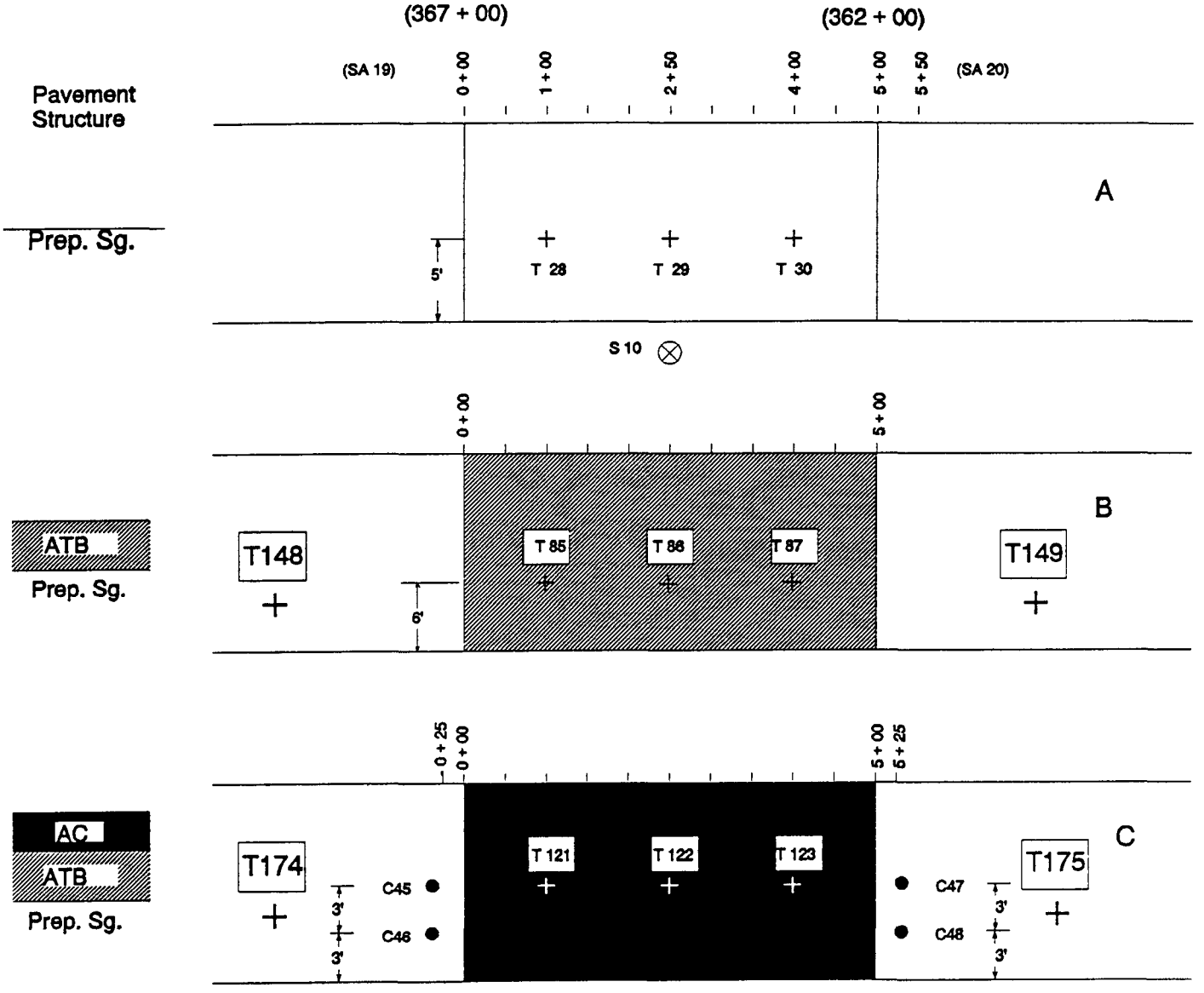
A Testing on prepared Subgrade (T25 - T27, A10 - A12, S9)

B Testing on compacted ATB (T82 - T84, T146, T147)

C Testing on finished AC Surgace (T118 - T120, T172, T173)

Coring AC Surface and bound layers (C41 - C44)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010162



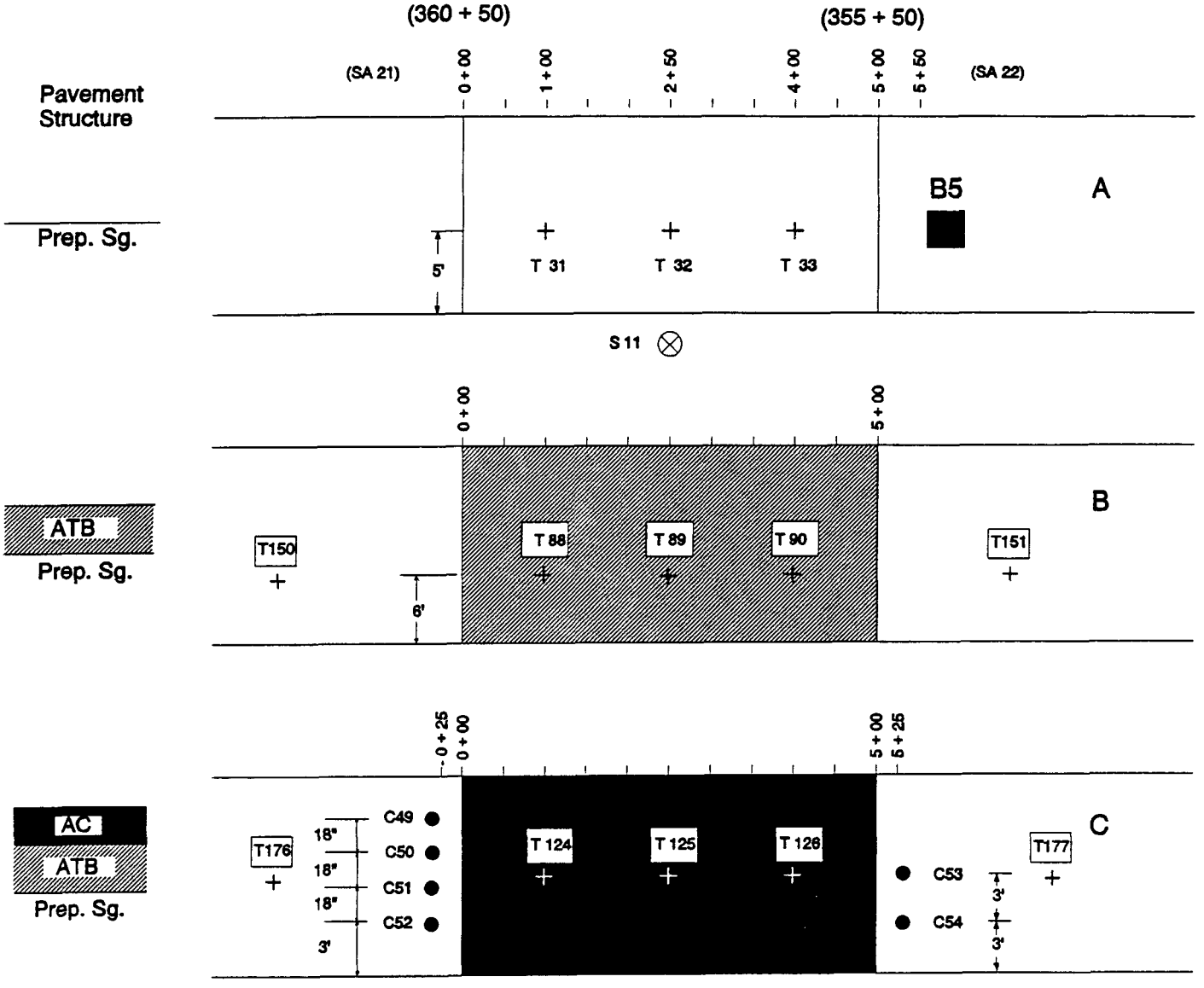
A Testing on prepared Subgrade (T28 - T30, S10)

B Testing on compacted ATB (T85 - T87, T148, T149)

C Testing on finished AC Surgace (T121 - T123), T174, T175)

Coring AC Surface and bound layers (C45 - C48)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010103



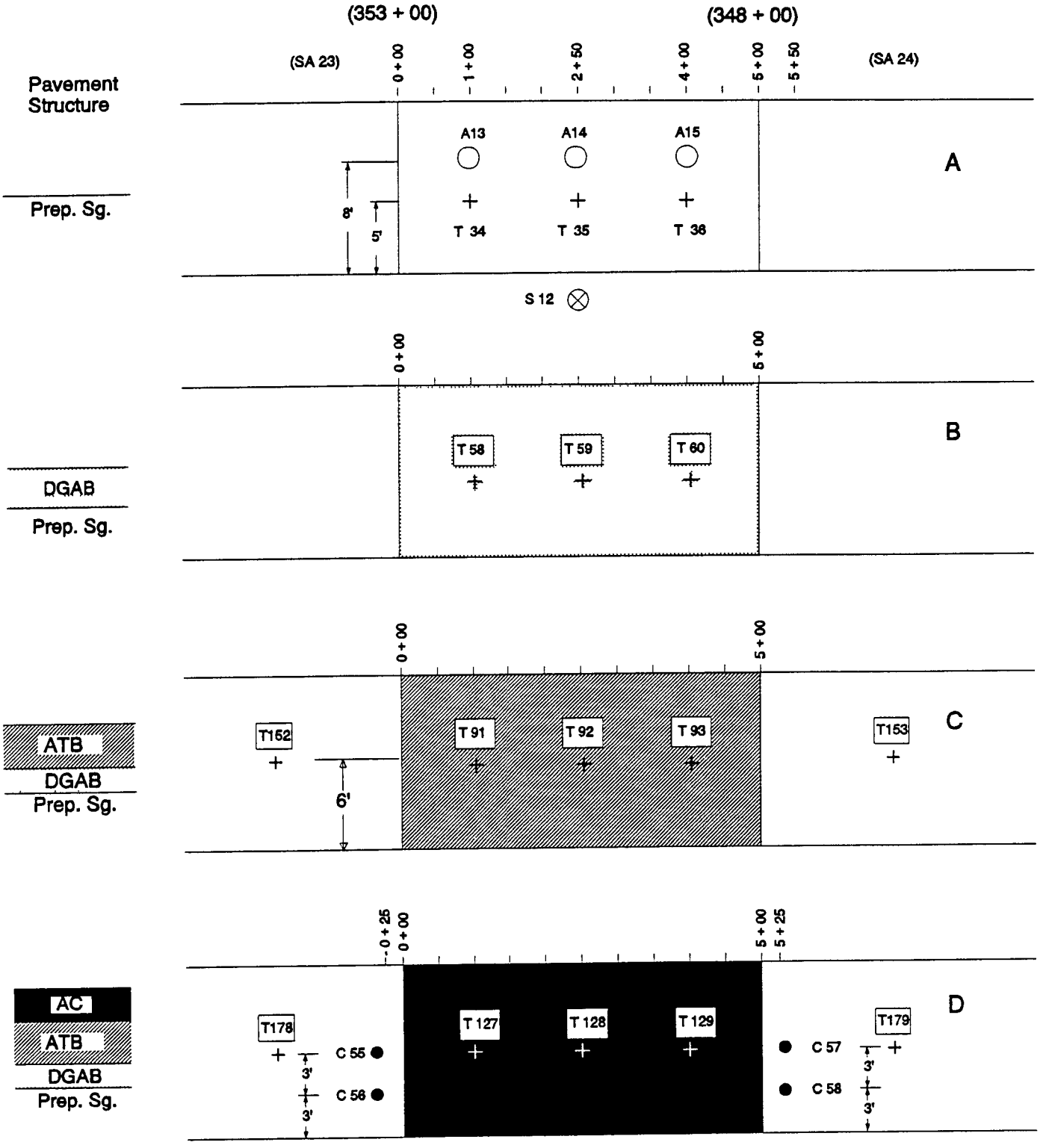
A Testing on prepared Subgrade (T31 - T33, B5, S11)

B Testing on compacted ATB (T88 - T90, T150, T151)

C Testing on finished AC Surgace (T124 - T126, T176, T177)

Coring AC Surface and bound layers (C49 - C54)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010105



A Testing on prepared Subgrade (T34 - T36, A13- A15,S12)

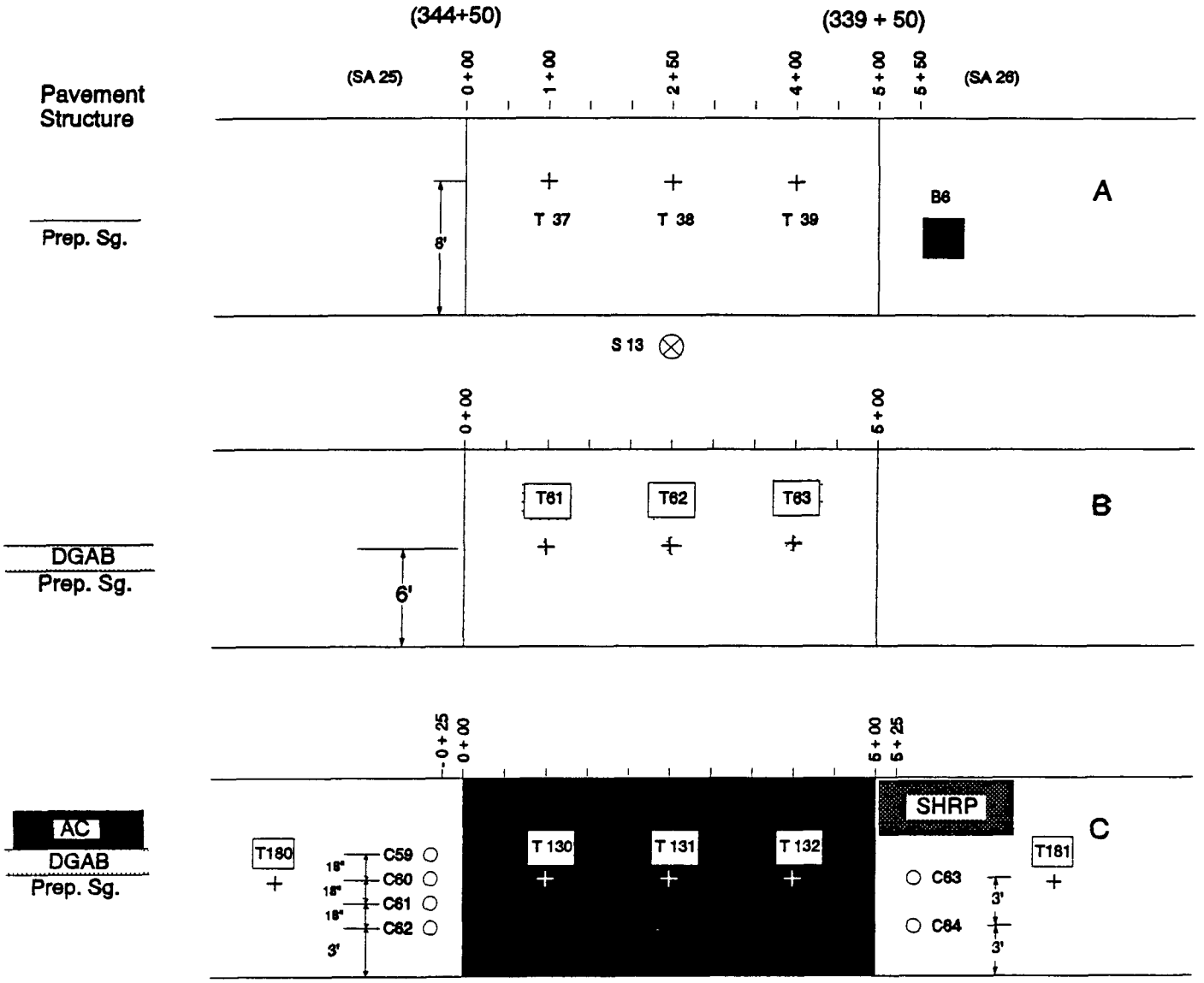
B Testing on compacted DGAB (T58 - T60)

C Testing on compacted ATB (T91 - T93, T152, T153)

D Testing on finished AC Surface (T127 - T129, T178, T179)

Coring AC Surface and bound layers (C7 - C10)

SAMPLING AND TESTING PLAN FOR TEST SECTION 010101



A Testing on prepared Subgrade (T37 - T39, B6, S13)

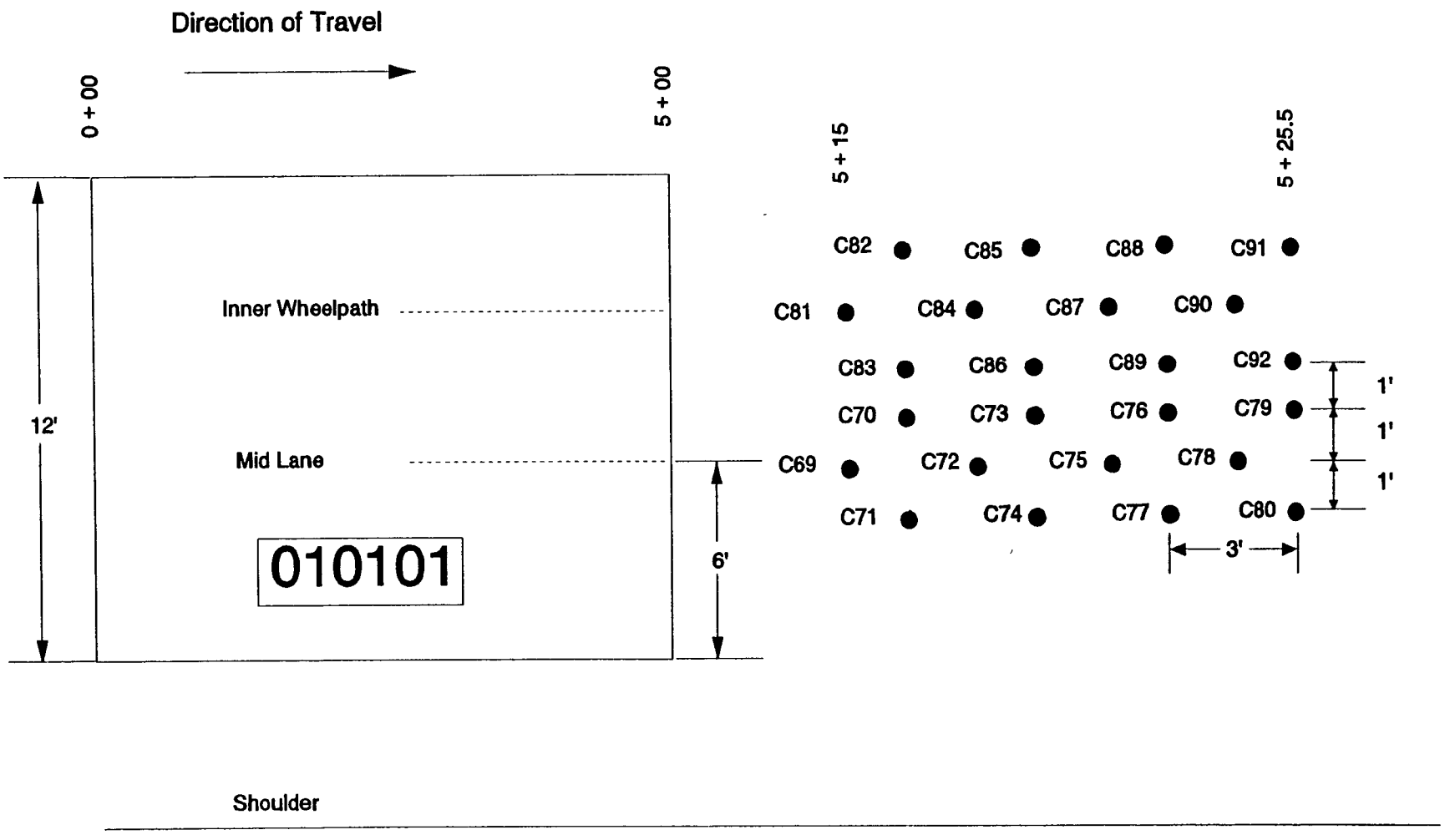
B Testing on compacted ATB (T61 - T63)

C Testing on finished AC Surface (T130 - T132, T180, T181)

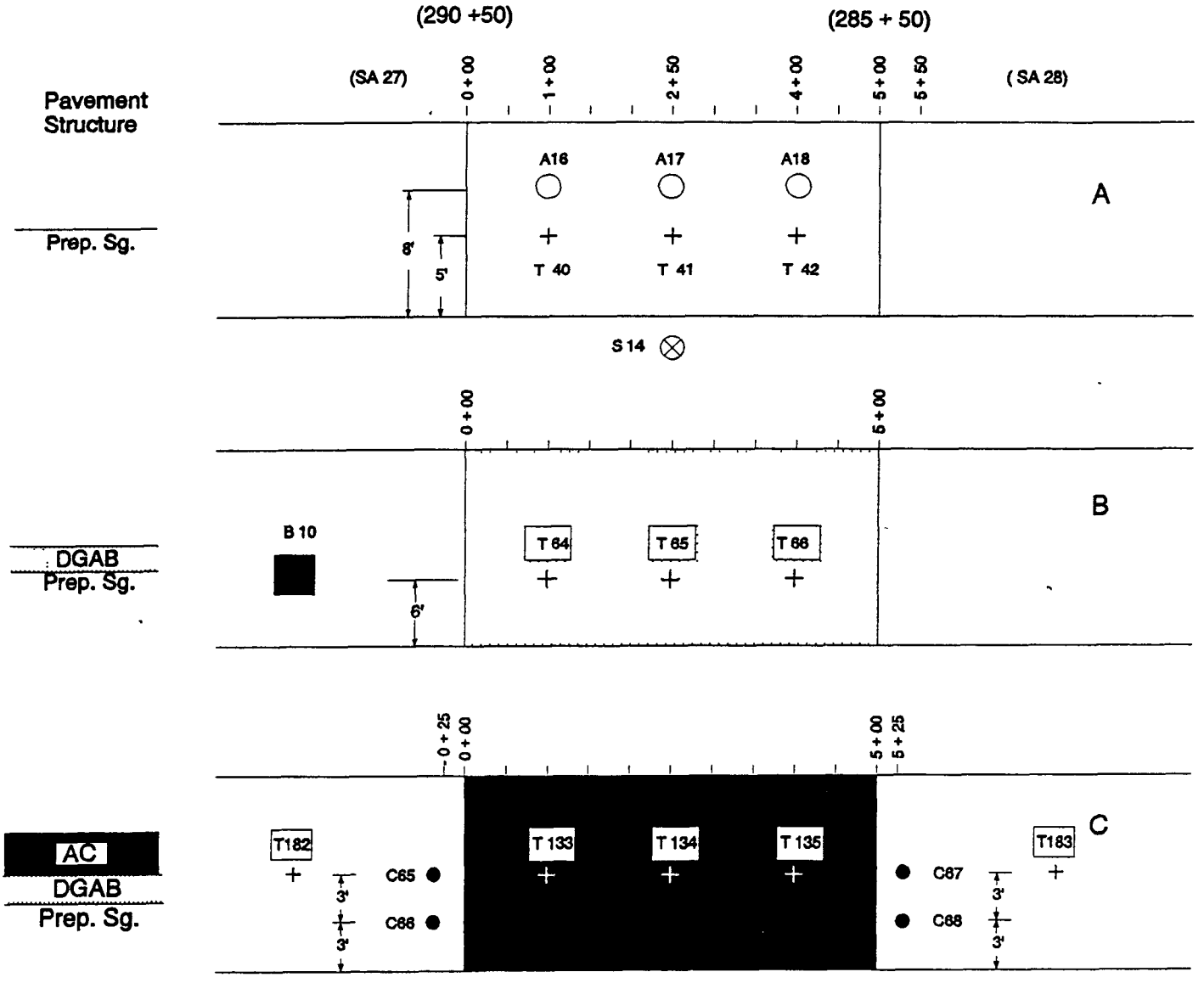
Coring AC Surface and bound layers (C59 - C64)

Coring AC Surface "SHRP" Asphalt Research (C69 - C92)

SHRP ASPHALT RESEARCH 4" CORES (C69 - C92)



SAMPLING AND TESTING PLAN FOR TEST SECTION 010102



A Testing on prepared Subgrade (T40 - T42, A16 - A18, S14)

B Testing on compacted ATB (T64 - T66, B10)

C Testing on finished AC Surgace (T133 - T135, T182, T183)
Coring AC Surface and bound layers (C65 - C68)

SUBGRADE MATERIALS FIELD SAMPLING AND TESTING

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
464+50	46 Lt	010107	5+50	5′ Lt	B1	Bulk
451+00	46 Lt	010109	5+50	5′ Lt	B2	Bulk
424+00	46 Lt	010111	5+50	5′ Lt	B3	Bulk
378+50	46 Lt	010106	5+50	5′ Lt	B4	Bulk
355+00	46 Lt	010103	5+50	5′ Lt	B5	Bulk
339+00	46 Lt	010101	5+50	5′ Lt	B6	Bulk
290 +00	46 Lt	010102	-50	5′ Lt	B7	Bulk
461+75	43 Lt	010108	1+00	8′ Lt	A1	Shelby Tube
460+25	43 Lt	010108	2+50	8′ Lt	A2	Shelby Tube
458+75	43 Lt	010108	4+00	8′ Lt	A3	Shelby Tube
437+00	43 Lt	010110	1+00	8′ Lt	A4	Shelby Tube
435+50	43 Lt	010110	2+50	8′ Lt	A5	Shelby Tube
434+00	43 Lt	010110	4+00	8′ Lt	A6	Shelby Tube
418+50	43 Lt	010112	1+00	8′ Lt	A7	Shelby Tube
417+00	43 Lt	010112	2+50	8′ Lt	A8	Shelby Tube
415+50	43 Lt	010112	4+00	8′ Lt	A9	Shelby Tube
373+00	43 Lt	010104	1+00	8′ Lt	A10	Shelby Tube
371+50	43 Lt	010104	2+50	8′ Lt	A11	Shelby Tube
370+00	43 Lt	010104	4+00	8′ Lt	A12	Shelby Tube
352+00	43 Lt	010105	1+00	8′ Lt	A13	Shelby Tube
350+50	43 Lt	010105	2+50	8′ Lt	A14	Shelby Tube
349+00	43 Lt	010105	4+00	8′ Lt	A15	Shelby Tube
289+50	43 Lt	010102	1+00	8′ Lt	A16	Shelby Tube
288+00	43 Lt	010102	2+50	8′ Lt	A17	Shelby Tube
286+50	43 Lt	010102	4+00	8′ Lt	A18	Shelby Tube

SUBGRADE MATERIALS FIELD SAMPLING AND TESTING
(Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
467+50	60 Lt	010107	2+50	9′ Rt	S1	Shoulder Probe
460+25	60 Lt	010108	2+50	9′ Rt	S2	Shoulder Probe
454+00	60 Lt	010109	2+50	9′ Rt	S3	Shoulder Probe
446+50	60 Lt	0101S3	2+50	9′ Rt	S4	Shoulder Probe
435+50	60 Lt	010110	2+50	9′ Rt	S5	Shoulder Probe
427+00	60 Lt	010111	2+50	9′ Rt	S6	Shoulder Probe
417+00	60 Lt	010112	2+50	9′ Rt	S7	Shoulder Probe
381+50	60 Lt	010106	2+50	9′ Rt	S8	Shoulder Probe
371+50	60 Lt	010104	2+50	9′ Rt	S9	Shoulder Probe
364+50	60 Lt	0101S2	2+50	9′ Rt	S10	Shoulder Probe
358+00	60 Lt	010103	2+50	9′ Rt	S11	Shoulder Probe
350+50	60 Lt	010105	2+50	9′ Rt	S12	Shoulder Probe
342+00	60 Lt	010101	2+50	9′ Rt	S13	Shoulder Probe
288+00	60 Lt	010102	2+50	9′ Rt	S14	Shoulder Probe
469+00	46 Lt	010107	1+00	5′ Lt	T1	Moisture Density
467+50	46 Lt	010107	2+50	5′ Lt	T2	Moisture Density
466+00	46 Lt	010107	4+00	5′ Lt	T3	Moisture Density
461+75	46 Lt	010108	1+00	5′ Lt	T4	Moisture Density
460+25	46 Lt	010108	2+50	5′ Lt	T5	Moisture Density
458+75	46 Lt	010108	4+00	5′ Lt	T6	Moisture Density
455+50	46 Lt	010109	1+00	5′ Lt	T7	Moisture Density
454+00	46 Lt	010109	2+50	5′ Lt	T8	Moisture Density
452+50	46 Lt	010109	4+00	5′ Lt	T9	Moisture Density
448+00	46 Lt	0101S3	1+00	5′ Lt	T10	Moisture Density

SUBGRADE MATERIALS FIELD SAMPLING AND TESTING (Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
446+50	46 Lt	0101S3	2+50	5′ Lt	T11	Moisture Density
445+00	46 Lt	0101S3	4+00	5′ Lt	T12	Moisture Density
437+00	46 Lt	010110	1+00	5′ Lt	T13	Moisture Density
435+50	46 Lt	010110	2+50	5′ Lt	T14	Moisture Density
434+00	46 Lt	010110	4+00	5′ Lt	T15	Moisture Density
428+50	46 Lt	010111	1+00	5′ Lt	T16	Moisture Density
427+00	46 Lt	010111	2+50	5′ Lt	T17	Moisture Density
425+50	46 Lt	010111	4+00	5′ Lt	T18	Moisture Density
418+50	46 Lt	010112	1+00	5′ Lt	T19	Moisture Density
417+00	46 Lt	010112	2+50	5′ Lt	T20	Moisture Density
415+50	46 Lt	010112	4+00	5′ Lt	T21	Moisture Density
383+00	46 Lt	010106	1+00	5′ Lt	T22	Moisture Density
381+50	46 Lt	010106	2+50	5′ Lt	T23	Moisture Density
380+00	46 Lt	010106	4+00	5′ Lt	T24	Moisture Density
373+00	46 Lt	010104	1+00	5′ Lt	T25	Moisture Density
371+50	46 Lt	010104	2+50	5′ Lt	T26	Moisture Density
370+00	46 Lt	010104	4+00	5′ Lt	T27	Moisture Density
366+00	46 Lt	0101S2	1+00	5′ Lt	T28	Moisture Density
364+50	46 Lt	0101S2	2+50	5′ Lt	T29	Moisture Density
363+00	46 Lt	0101S2	4+00	5′ Lt	T30	Moisture Density
359+50	46 Lt	010103	1+00	5′ Lt	T31	Moisture Density
358+00	46 Lt	010103	2+50	5′ Lt	T32	Moisture Density
356+50	46 Lt	010103	4+00	5′ Lt	T33	Moisture Density
352+00	46 Lt	010105	1+00	5′ Lt	T34	Moisture Density

SUBGRADE MATERIALS FIELD SAMPLING AND TESTING
(Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
350+50	46 Lt	010105	2+00	5′ Lt	T35	Moisture Density
349+00	46 Lt	010105	4+00	5′ Lt	T36	Moisture Density
343+50	46 Lt	010101	1+00	5′ Lt	T37	Moisture Density
342+00	46 Lt	010101	2+50	5′ Lt	T38	Moisture Density
340+50	46 Lt	010101	4+00	5′ Lt	T39	Moisture Density
289+50	46 Lt	010102	1+00	5′ Lt	T40	Moisture Density
288+00	46 Lt	010102	2+50	5′ Lt	T41	Moisture Density
286+50	46 Lt	010102	4+00	5′ Lt	T42	Moisture Density

DENSE GRADED AGGREGATE BASE
FIELD MATERIALS SAMPLING AND TESTING

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
469+00	45 Lt	010107	1+00	6′ Lt	T43	Density (IS)
467+50	45 Lt	010107	2+50	6′ Lt	T44	Density (IS)
466+00	45 Lt	010107	4+00	6′ Lt	T45	Density (IS)
461+75	45 Lt	010108	1+00	6′ Lt	T46	Density (IS
460+25	45 Lt	010108	2+50	6′ Lt	T47	Density (IS)
458+75	45 Lt	010108	4+00	6′ Lt	T48	Density (IS)
455+50	45 Lt	010109	1+00	6′ Lt	T49	Density (IS)
454+00	45 Lt	010109	2+50	6′ Lt	T50	Density (IS)
452+50	45 Lt	010109	4+00	6′ Lt	T51	Density (IS)
448+00	45 Lt	0101S3	1+00	6′ Lt	T52	Density (IS)
446+50	45 Lt	0101S3	2+50	6′ Lt	T53	Density (IS)
445+00	45 Lt	0101S3	4+00	6′ Lt	T54	Density (IS)
383+00	45 Lt	010106	1+00	6′ Lt	T55	Density (IS)
381+50	45 Lt	010106	2+50	6′ Lt	T56	Density (IS)
380+00	45 Lt	010106	4+00	6′ Lt	T57	Density (IS)
352+00	45 Lt	010105	1+00	6′ Lt	T58	Density (IS)
350+50	45 Lt	010105	2+50	6′ Lt	T59	Density (IS)
349+00	45 Lt	010105	4+00	6′ Lt	T60	Density (IS)
343+50	45 Lt	010101	1+00	6′ Lt	T61	Density (IS)
342+00	45 Lt	010101	2+50	6′ Lt	T62	Density (IS)
340+50	45 Lt	010101	4+00	6′ Lt	T63	Density (IS)
289+50	45 Lt	010102	1+00	6′ Lt	T64	Density (IS)
Density (IS) = In Situ Density (Nuclear Gauge)						

DENSE GRADED AGGREGATE BASE
FIELD MATERIALS SAMPLING AND TESTING
(Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
288+00	45 Lt	010102	2+50	6′ Lt	T65	Density (IS)
286+50	45 Lt	010102	4+00	6′ Lt	T66	Density (IS)
451+00	45 Lt	010109	5+50	6′ Lt	B8	Bulk
378+50	45 Lt	010106	5+50	6′ Lt	B9	Bulk
291+00	45 Lt	010102	-50	6′ Lt	B10	Bulk
Density (IS) = In Situ Density (Nuclear Gauge)						

ASPHALT TREATED BASE
FIELD MATERIALS SAMPLING AND TESTING

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
448+00	45 Lt	0101S3	1+00	6′ Lt	T67	Density (IS)
446+50	45 Lt	0101S3	2+50	6′ Lt	T68	Density (IS)
445+00	45 Lt	0101S3	4+00	6′ Lt	T69	Density (IS)
437+00	45 Lt	010110	1+00	6′ Lt	T70	Density (IS)
435+50	45 Lt	010110	2+50	6′ Lt	T71	Density (IS)
434+00	45 Lt	010110	4+00	6′ Lt	T72	Density (IS)
428+50	45 Lt	010111	1+00	6′ Lt	T73	Density (IS)
427+00	45 Lt	010111	2+50	6′ Lt	T74	Density (IS)
425+50	45 Lt	010111	4+00	6′ Lt	T75	Density (IS)
418+50	45 Lt	010112	1+00	6′ Lt	T76	Density (IS)
417+00	45 Lt	010112	2+50	6′ Lt	T77	Density (IS)
415+50	45 Lt	010112	4+00	6′ Lt	T78	Density (IS)
383+00	45 Lt	010106	1+00	6′ Lt	T79	Density (IS)
381+50	45 Lt	010106	2+50	6′ Lt	T80	Density (IS)
380+00	45 Lt	010106	4+00	6′ Lt	T81	Density (IS)
373+00	45 Lt	010104	1+00	6′ Lt	T82	Density (IS)
371+50	45 Lt	010104	2+50	6′ Lt	T83	Density (IS)
370+00	45 Lt	010104	4+00	6′ Lt	T84	Density (IS)
366+00	45 Lt	0101S2	1+00	6′ Lt	T85	Density (IS)
364+50	45 Lt	0101S2	2+50	6′ Lt	T86	Density (IS)
363+00	45 Lt	0101S2	4+00	6′ Lt	T87	Density (IS)
359+50	45 Lt	010103	1+00	6′ Lt	T88	Density (IS)
358+00	45 Lt	010103	2+50	6′ Lt	T89	Density (IS)
356+50	45 Lt	010103	4+00	6′ Lt	T90	Density (IS)
352+00	45 Lt	010105	1+00	6′ Lt	T91	Density (IS)
Density (IS) = In Situ Density (Nuclear Gauge)						

ASPHALT TREATED BASE
FIELD MATERIALS SAMPLING AND TESTING
(Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
350+50	45 Lt	010105	2+50	6′ Lt	T92	Density (IS)
349+00	45 Lt	010105	4+00	6′ Lt	T93	Density (IS)
449+50	45 Lt	0101S3	-50	6′ Lt	T136	Density (IS)
443+50	45 Lt	0101S3	+50	6′ Lt	T137	Density (IS)
438+50	45 Lt	010110	-50	6′ Lt	T138	Density (IS)
432+50	45 Lt	010110	+50	6′ Lt	T139	Density (IS)
430+00	45 Lt	010111	-50	6′ Lt	T140	Density (IS)
424+00	45 Lt	010111	+50	6′ Lt	T141	Density (IS)
420+00	45 Lt	010112	-50	6′ Lt	T142	Density (IS)
414+00	45 Lt	010112	+50	6′ Lt	T143	Density (IS)
384+50	45 Lt	010106	-50	6′ Lt	T144	Density (IS)
378+50	45 Lt	010106	+50	6′ Lt	T145	Density (IS)
374+50	45 Lt	010104	-50	6′ Lt	T146	Density (IS)
368+50	45 Lt	010104	+50	6′ Lt	T147	Density (IS)
367+50	45 Lt	0101S2	-50	6′ Lt	T148	Density (IS)
361+50	45 Lt	0101S2	+50	6′ Lt	T149	Density (IS)
361+00	45 Lt	010103	-50	6′ Lt	T150	Density (IS)
355+00	45 Lt	010103	+50	6′ Lt	T151	Density (IS)
353+50	45 Lt	010105	-50	6′ Lt	T152	Density (IS)
347+50	45 Lt	010105	+50	6′ Lt	T153	Density (IS)
Plant	---	---	---	---	BT20	Bulk
Plant	---	---	---	---	BT21	Bulk
Plant	---	---	---	---	BT22	Bulk
Density (IS) = In Situ Density (Nuclear Gauge)						

AC SURFACE FIELD MATERIALS SAMPLING AND TESTING

Approx. ℄ Sta.	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
470+25	010107	-25	3.0′,4.5′,6.0′,7.5′	C1,C2,C3,C4	4″ Cores
464+75	010107	5+25	3.0′,6.0′	C5,C6	4″ Cores
463+00	010108	-25	3.0′,6.0′	C7,C8	4″ Cores
457+50	010108	5+25	3.0′,6.0′	C9,C10	4″ Cores
456+75	010109	-25	3.0′,4.5,′6.0′,7.5′	C11,C12,C13,C14	4″ Cores
451+25	010109	5+25	3.0′,6.0′	C15,C16	4″ Cores
449+25	0101S3	-25	3.0′,6.0′	C17,C18	4″ Cores
443+75	0101S3	5+25	3.0′,6.0′	C19,C20	4″ Cores
438+25	010110	-25	3.0′,6.0′	C21,C22	4″ Cores
432+75	010110	5+25	3.0′,6.0′	C23,C24	4″ Cores
429+75	010111	-25	3.0′,6.0′	C25,C26	4″ Cores
424+25	010111	5+25	3.0′,6.0′	C27,C28	4″ Cores
419+75	010112	-25	3.0′,4.5′,6.0′,7.5′	C29,C30,C31,C32	4″ Cores
414+25	010112	5+25	3.0′,6.0′	C33,C34	4″ Cores
384+25	010106	-25	3.0′,4.5′,6.0′,7.5′	C35,C36,C37,C38	4″ Cores
378+75	010106	5+25	3.0′,6.0′	C39,C40	4″ Cores
374+25	010104	-25	3.0′,6.0′	C41,C42	4″ Cores
368+75	010104	5+25	3.0′,6.0′	C43,C44	4″ Cores
367+25	0101S2	-25	3.0′,6.0′	C45,C46	4″ Cores
361+75	0101S2	5+25	3.0′,6.0′	C47,C48	4″ Cores
360+75	010103	-25	3.0′,4.5′,6.0′,7.5′	C49,C50,C51,C52	4″ Cores
355+25	010103	5+25	3.0′,6.0′	C53,C54	4″ Cores
353+25	010105	-25	3.0′,6.0′	C55,C56	4″ Cores
347+75	010105	5+25	3.0′,4.5′,6.0′,7.5′	C57,C58,C59,C60	4″ Cores
344+75	010101	-25	3.0′,6.0′	C61,C62	4″ Cores

AC SURFACE FIELD MATERIALS SAMPLING AND TESTING (Continued)

Approx. ℄ Sta.	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
339+25	010101	5+25	3.0′,6.0′	C63,C64	4″ Cores
290+75	010102	-25	3.0′,6.0′	C65,C66	4″ Cores
285+25	010102	5+25	3.0′,6.0′	C67,C68	4″ Cores

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
469+00	45 Lt	010107	1+00	6′ Lt	T94	Density (IS)
467+50	45 Lt	010107	2+50	6′ Lt	T95	Density (IS)
466+00	45 Lt	010107	4+00	6′ Lt	T96	Density (IS)
461+75	45 Lt	010108	1+00	6′ Lt	T97	Density (IS)
460+25	45 Lt	010108	2+50	6′ Lt	T98	Density (IS)
458+75	45 Lt	010108	4+00	6′ Lt	T99	Density (IS)
455+50	45 Lt	010109	1+00	6′ Lt	T100	Density (IS)
454+00	45 Lt	010109	2+50	6′ Lt	T101	Density (IS)
452+50	45 Lt	010109	4+00	6′ Lt	T102	Density (IS)
448+00	45 Lt	0101S3	1+00	6′ Lt	T103	Density (IS)
446+50	45 Lt	0101S3	2+50	6′ Lt	T104	Density (IS)
445+00	45 Lt	0101S3	4+00	6′ Lt	T105	Density (IS)
437+00	45 Lt	010110	1+00	6′ Lt	T106	Density (IS)
435+50	45 Lt	010110	2+50	6′ Lt	T107	Density (IS)
434+00	45 Lt	010110	4+00	6′ Lt	T108	Density (IS)
428+50	45 Lt	010111	1+00	6′ Lt	T109	Density (IS)
427+00	45 Lt	010111	2+50	6′ Lt	T110	Density (IS)

AC SURFACE FIELD MATERIALS SAMPLING AND TESTING (Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
425+50	45 Lt	010111	4+00	6′ Lt	T111	Density (IS)
418+50	45 Lt	010112	1+00	6′ Lt	T112	Density (IS)
417+00	45 Lt	010112	2+50	6′ Lt	T113	Density (IS)
415+50	45 Lt	010112	4+00	6′ Lt	T114	Density (IS)
383+00	45 Lt	010106	1+00	6′ Lt	T115	Density (IS)
381+50	45 Lt	010106	2+50	6′ Lt	T116	Density (IS)
380+00	45 Lt	010106	4+00	6′ Lt	T117	Density (IS)
373+00	45 Lt	010104	1+00	6′ Lt	T118	Density (IS)
371+50	45 Lt	010104	2+50	6′ Lt	T119	Density (IS)
370+00	45 Lt	010104	4+00	6′ Lt	T120	Density (IS)
366+00	45 Lt	0101S2	1+00	6′ Lt	T121	Density (IS)
364+50	45 Lt	0101S2	2+50	6′ Lt	T122	Density (IS)
363+00	45 Lt	0101S2	4+00	6′ Lt	T123	Density (IS)
359+50	45 Lt	010103	1+00	6′ Lt	T124	Density (IS)
358+00	45 Lt	010103	2+50	6′ Lt	T125	Density (IS)
356+50	45 Lt	010103	4+00	6′ Lt	T126	Density (IS)
352+00	45 Lt	010105	1+00	6′ Lt	T127	Density (IS)
350+50	45 Lt	010105	2+50	6′ Lt	T128	Density (IS)
349+00	45 Lt	010105	4+00	6′ Lt	T129	Density (IS)
343+50	45 Lt	010101	1+00	6′ Lt	T130	Density (IS)
342+00	45 Lt	010101	2+50	6′ Lt	T131	Density (IS)
340+50	45 Lt	010101	4+00	6′ Lt	T132	Density (IS)
289+50	45 Lt	010102	1+00	6′ Lt	T133	Density (IS)
288+00	45 Lt	010102	2+50	6′ Lt	T134	Density (IS)

AC SURFACE FIELD MATERIALS SAMPLING AND TESTING (Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID Nº.	Section Sta.	O/S From Lane Edge	Sample ID Nº.	Sample Type
286+50	45 Lt	010102	4+00	6′ Lt	T135	Density (IS)
470+50	45 Lt	010107	-50	6′ Lt	T156	Density (IS)
464+50	45 Lt	010107	+50	6′ Lt	T157	Density (IS)
463+25	45 Lt	010108	-50	6′ Lt	T158	Density (IS)
455+25	45 Lt	010108	+50	6′ Lt	T159	Density (IS)
457+00	45 Lt	010109	-50	6′ Lt	T160	Density (IS)
451+00	45 Lt	010109	+50	6′ Lt	T161	Density (IS)
449+00	45 Lt	0101S3	-50	6′ Lt	T162	Density (IS)
443+50	45 Lt	0101S3	+50	6′ Lt	T163	Density (IS)
438+50	45 Lt	010110	-50	6′ Lt	T164	Density (IS)
432+50	45 Lt	010110	+50	6′ Lt	T165	Density (IS)
430+00	45 Lt	010111	-50	6′ Lt	T166	Density (IS)
424+00	45 Lt	010111	+50	6′ Lt	T167	Density (IS)
420+00	45 Lt	010112	-50	6′ Lt	T168	Density (IS)
414+00	45 Lt	010112	+50	6′ Lt	T169	Density (IS)
384+50	45 Lt	010106	-50	6′ Lt	T170	Density (IS)
378+50	45 Lt	010106	+50	6′ Lt	T171	Density (IS)
374+50	45 Lt	010104	-50	6′ Lt	T172	Density (IS)
368+50	45 Lt	010104	+50	6′ Lt	T173	Density (IS)
367+50	45 Lt	0101S2	-50	6′ Lt	T174	Density (IS)
361+50	45 Lt	0101S2	+50	6′ Lt	T175	Density (IS)
361+00	45 Lt	010103	-50	6′ Lt	T176	Density (IS)
355+00	45 Lt	010103	+50	6′ Lt	T177	Density (IS)
353+50	45 Lt	010105	-50	6′ Lt	T178	Density (IS)

AC SURFACE FIELD MATERIALS SAMPLING AND TESTING (Continued)

Approx. ℄ Sta.	Offset (Ft.)	Section ID №.	Section Sta.	O/S From Lane Edge	Sample ID №.	Sample Type
347+50	45 Lt	010105	+50	6′ Lt	T179	Density (IS)
345+00	45 Lt	010101	-50	6′ Lt	T180	Density (IS)
339+00	45 Lt	010101	+50	6′ Lt	T181	Density (IS)
291+00	45 Lt	010102	-50	6′ Lt	T182	Density (IS)
285+00	45 Lt	010102	+50	6′ Lt	T183	Density (IS)

TABLE 11. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING

Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum No. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
SUBGRADE						
Sieve Analysis	SS01	P51	6	B1-B7		X
Hydrometer to 0.001 mm	SS02	P42	6	B1-B7		X
Atterberg Limits	SS03	P43	6	B1-B7		X
Classification	SS04	P52	6	B1-B7		X
(Visual-manual only on thin-wall tubes)			18	A1-A18	X	X
Moisture-Density Relations	SS05	P55	6	B1-B7		X
Resilient Modulus	SS07	P46	6	A2, A5, A9, A11, A14, A17		X
(If thin-wall tube is not available)			6	B1-B7		X
Unit Weight (If thin-wall tube is not available, test is not conducted)	SS08	P56	6	A1, A4, A8, A10, A13, A16	X	
Natural Moisture Content	SS09	P49	6	B1-B7		X
Unconfined Comp. Strength (If thin-wall tube is not available, test is not conducted)	SS10	P54	6	A1, A4, A8, A10, A13, A16	X	
Permeability	SS11	P57	3	A3, A7, A18	X	
Permeability	UG09	P48	6	B1-B7	X	
UNBOUND GRANDULAR BASE						
Particle Size Analysis	UG01	P41	3	B8-B10		X
Sieve Analysis (Washed)	UG02	P41	3	B8-B10		X
Atterberg Limits	UG04	P43	3	B8-B10		X
Moisture-Density Relations	UG05	P44	3	B8-B10		X
Resilient Modulus	UG07	P46	3	B8-B10		X
Classification	UG08	P47	3	B8-B10		X
Permeability	UG09	P48	3	B8-B10	X	
Natural Moisture Content	UG10	P49	3	B8-B10		X
PERMEABLE ASPHALT TREATED BASE						
Asphalt Content (Extraction)	AC04	P04	3	B11-B13 From Paver	X	
Extracted Aggregate:						
Gradation of Aggregate	AG04	P14	3	B11-B13 From Paver	X	

NOTE: Asphalt cement samples (from tanker or plant) will be required if different grades are used for the remaining bound layers.

TABLE 11. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING (Continued)

Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum No. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
ASPHALT TREATED BASE						
Core Examination/Thickness	AC01	P01	34	C17-C58	X	X
Bulk Specific Gravity	AC02	P02	34	C17-58	X	X
Maximum Specific Gravity	AC03	P03	3	B20-B22 From Paver	X	
Asphalt Content (Extraction)	AC04	P04	3	B20-B22 From Paver	X	
Moisture Susceptibility	AC05	P05	3	B20-B22 From Paver	X	
Resilient Modulus	AC07	P07	9	C29-C31, C35-C37, C55-C57		X
Tensile Strength	AC07	P07	12	C29-C32, C35-C38, C55-C58		X
Extracted Aggregate:						
Specific Gravity:						
Coarse Aggregate	AG01	P11	3	B20-B22 From Paver	X	
Fine Aggregate	AG02	P12	3	B20-B22 From Paver	X	
Gradation of Aggregate	AG04	P14	3	B20-B22 From Paver	X	
NAA Test for Fine Aggregate	AG05	P14A	3	B20-B22 From Paver	X	
Particle Shape						
Asphalt Cement:						
Abson Recovery	AE01	P21	3	B20-B27 From Paver	X	
Penetration at 25°C, 46°C (77°F, 115°F)	AE02	P22	3	B20-B27 From Paver	X	
Specific Gravity 16°C (60°F)	AE03	P23	3	B20-B27 From Paver	X	
Viscosity at 25°C (77°F)	AE04	P24	3	B20-B27 From Paver	X	
Viscosity at 60°C, 135°C (140°F, 275°F)	AE05	P25	3	B20-B27 From Paver	X	
Asphalt Cement: (From Tanker or Plant)						
Penetration at 25°C, 46°C (77°F, 115°F)	AE02	P22	3	B26-B28 From Tanker	X	
Specific Gravity 16°C (60°F)	AE03	P23	3	B26-B28 From Tanker	X	
Viscosity at 25°C (77°F)	AE04	P24	3	B26-B28 From Tanker	X	
Viscosity at 60°C, 135°C (140°F, 275°F)	AE05	P25	3	B26-B28 From Tanker	X	

TABLE 11. SAMPLES TO BE USED FOR LABORATORY MATERIALS TESTING (Continued)

Material Type and Properties	LTPP Designation	LTPP Protocol	Minimum No. of Tests per Layer	Sampling Location	Test Conducted by: State	FHWA
ASPHALTIC CONCRETE SURFACE AND BINDER						
Core Examination/Thickness	AC01	P01	68	C1-C68	X	X
Bulk Specific Gravity	AC02	P02	68	C1-C68	X	X
Maximum Specific Gravity	AC03	P03	3	B23-B25 From Paver	X	
Asphalt Content (Extraction)	AC04	P04	3	B23-B25 From Paver	X	
Moisture Susceptibility	AC05	P05	3	B23-B25 From Paver	X	
Creep Compliance	AC06	P06	3	C5, C23, C49		X
Resilient Modulus	AC07	P07	21	C1-C3, C17-C19, C29-C31, C35-C37, C45-C47, C59-C61, C65-C67		X
Tensile Strength	AC07	P07	28	C1-C4, C17-C20, C29-C32, C35-C38, C45-C48, C59-C62, C65-C68		X
Extracted Aggregate:						
Specific Gravity:						
Coarse Aggregate	AG01	P11	3	B23-B25 From Paver	X	
Fine Aggregate	AG02	P12	3	B23-B25 From Paver	X	
Gradation of Aggregate	AG04	P14	3	B23-B25 From Paver	X	
NAA Test for Fine Aggregate Particle Shape	AG05	P14A	3	B23-B25 From Paver	X	
Asphalt Cement:						
Abson Recovery	AE01	P21	3	B23-B25 From Paver	X	
Penetration at 25°C, 46°C (77°F, 115°F)	AE02	P22	3	B23-B25 From Paver	X	
Specific Gravity 16°C (60°F)	AE03	P23	3	B23-B25 From Paver	X	
Viscosity at 25°C (77°F)	AE04	P24	3	B23-B25 From Paver	X	
Viscosity at 60°C, 135°C (140°F, 275°F)	AE05	P25	3	B23-B25 From Paver	X	
Asphalt Cement (From Tanker):						
Penetration at 25°C, 46°C (77°F, 115°F)	AE02	P22	3	B26-B28 From Tanker	X	
Specific Gravity 16°C (60°F)	AE03	P23	3	B26-B28 From Tanker	X	
Viscosity at 25°C (77°F)	AE04	P24	3	B26-B28 From Tanker	X	
Viscosity at 60°C, 135°C (140°F, 275°F)	AE05	P25	3	B26-B28 From Tanker	X	

TABLE 12. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C6	CA06	2	AC01/P01	AC02/P02			Yes	(a)	No
C9	CA09	2	AC01/P01	AC02/P02			Yes	(a)	No
C10	CA10	2	AC01/P01	AC02/P02			Yes	(a)	No
C13	CA13	1	AC01/P01	AC02/P02			Yes	(a)	No
C14	CA14	1	AC01/P01	AC02/P02			Yes	(a)	No
C15	CA15	2	AC01/P01	AC02/P02			Yes	(a)	No
C16	CA16	2	AC01/P01	AC02/P02			Yes	(a)	No
C21	CA21	1	AC01/P01	AC02/P02			Yes	(a)	No
C22	CA22	1	AC01/P01	AC02/P02			Yes	(a)	No
C24	CA24	1	AC01/P01	AC02/P02			Yes	(a)	No
C25	CA25	1	AC01/P01	AC02/P02			Yes	(a)	No
C26	CA26	1	AC01/P01	AC02/P02			Yes	(a)	No
C27	CA27	2	AC01/P01	AC02/P02			Yes	(a)	No
C28	CA28	2	AC01/P01	AC02/P02			Yes	(a)	No
C33	CA33	2	AC01/P01	AC02/P02			Yes	(a)	No
C34	CA34	2	AC01/P01	AC02/P02			Yes	(a)	No
C39	CA39	2	AC01/P01	AC02/P02			Yes	(a)	No
C40	CA40	2	AC01/P01	AC02/P02			Yes	(a)	No
C41	CA41	1	AC01/P01	AC02/P02			Yes	(a)	No
C42	CA42	1	AC01/P01	AC02/P02			Yes	(a)	No
C44	CA44	2	AC01/P01	AC02/P02			Yes	(a)	No
C52	CA52	1	AC01/P01	AC02/P02			Yes	(a)	No
C53	CA53	2	AC01/P01	AC02/P02			Yes	(a)	No
C54	CA54	2	AC01/P01	AC02/P02			Yes	(a)	No
C63	CA63	2	AC01/P01	AC02/P02			Yes	(a)	No
C64	CA64	2	AC01/P01	AC02/P02			Yes	(a)	No

TABLE 12. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE) (Continued)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B23	BA23	3	See Figure 10				No	(a)	Yes
B24	BA24	3	See Figure 10				No	(a)	Yes
B25	BA25	3	See Figure 10				No	(a)	Yes
B26	BC26	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B27	BC27	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B28	BC28	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes

Note: All of the core specimens noted herein shall be stored for possible future use. In the future, these specimens may be used to evaluate test procedures for the SUPERPAVE program.

TABLE 13. TRACKING TABLE OF ASPHALT TREATED BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C21	CT21	1	AC01/P01	AC02/P02			Yes	(a)	No
C22	CT22	1	AC01/P01	AC02/P02			Yes	(a)	No
C24	CT24	2	AC01/P01	AC02/P02			Yes	(a)	No
C25	CT25	1	AC01/P01	AC02/P02			Yes	(a)	No
C26	CT26	1	AC01/P01	AC02/P02			Yes	(a)	No
C27	CT27	2	AC01/P01	AC02/P02			Yes	(a)	No
C28	CT28	2	AC01/P01	AC02/P02			Yes	(a)	No
C33	CT33	2	AC01/P01	AC02/P02			Yes	(a)	No
C34	CT34	2	AC01/P01	AC02/P02			Yes	(a)	No
C39	CT39	2	AC01/P01	AC02/P02			Yes	(a)	No
C40	CT40	2	AC01/P01	AC02/P02			Yes	(a)	No
C41	CT41	1	AC01/P01	AC02/P02			Yes	(a)	No
C42	CT42	1	AC01/P01	AC02/P02			Yes	(a)	No
C44	CT44	2	AC01/P01	AC02/P02			Yes	(a)	No
C52	CT52	1	AC01/P01	AC02/P02			Yes	(a)	No
C53	CT53	2	AC01/P01	AC02/P02			Yes	(a)	No
C54	CT54	2	AC01/P01	AC02/P02			Yes	(a)	No
B20	BT20	3	See Figure 10				No	(a)	Yes
B21	BT21	3	See Figure 10				No	(a)	Yes
B22	BT22	3	See Figure 10				No	(a)	Yes
B20	BC01	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B21	BC02	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes
B22	BC03	3	AE02/P22	AE03/P23	AE04/P24	AE05/P25	No	(a)	Yes

TABLE 14. TRACKING TABLE OF PERMEABLE ASPHALT TREATED BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B11	BT01	3	AC04/P04	AG04/P14			No	(a)	Yes
B12	BT02	3	AC04/P04	AG04/P14			No	(a)	Yes
B13	BT03	3	AC04/P04	AG04/P14			No	(a)	Yes

TABLE 15. TRACKING TABLE OF DENSE GRADED AGGREGATE BASE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B8	BG08	2	UG09/P48				No	(b)	Yes
B9	BG09	2	UG09/P48				No	(b)	Yes
B10	BG10	1	UG09/P48				No	(b)	Yes

TABLE 16. TRACKING TABLE OF SUBGRADE TESTING IN THE STATE LABORATORY (OR THEIR DESIGNEE)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
B1	BS01	2	UG09/P48				No	(b)	Yes
B2	BS02	2	UG09/P48				No	(b)	Yes
B3	BS03	2	UG09/P48				No	(b)	Yes
B4	BS04	2	UG09/P48				No	(b)	Yes
B5	BS05	2	UG09/P48				No	(b)	Yes
B6	BS06	2	UG09/P48				No	(b)	Yes
B7	BS07	2	UG09/P48				No	(b)	Yes

TABLE 17. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C1	CA01	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C2	CA02	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C3	CA03	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C4	CA04	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C5	CA05	1	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C7	CA07	1	AC01/P01	AC02/P02			No	(a)	Yes
C8	CA08	1	AC01/P01	AC02/P02			No	(a)	Yes
C11	CA11	1	AC01/P01	AC02/P02			No	(a)	Yes
C12	CA12	1	AC01/P01	AC02/P02			No	(a)	Yes
C17	CA17	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C18	CA18	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C19	CA19	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C20	CA20	2	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C23	CA23	2	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C29	CA29	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C30	CA30	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C31	CA31	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C32	CA32	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C35	CA35	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C36	CA36	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C37	CA37	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C38	CA38	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C43	CA43	2	AC01/P01	AC02/P02			No	(a)	Yes
C45	CA45	2	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C46	CA46	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C47	CA47	2	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes

TABLE 17. TRACKING TABLE OF ASPHALTIC CONCRETE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY (Continued)

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C48	CA48	2	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C49	CA49	1	AC01/P01	AC02/P02	AC06/P06		No	(a)	Yes
C50	CA50	1	AC01/P01	AC02/P02			No	(a)	Yes
C51	CA51	1	AC01/P01	AC02/P02			No	(a)	Yes
C55	CA55	1	AC01/P01	AC02/P02			No	(a)	Yes
C56	CA56	1	AC01/P01	AC02/P02			No	(a)	Yes
C57	CA57	1	AC01/P01	AC02/P02			No	(a)	Yes
C58	CA58	1	AC01/P01	AC02/P02			No	(a)	Yes
C59	CA59	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C60	CA60	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C61	CA61	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C62	CA62	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C65	CA65	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C66	CA66	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C67	CA67	2	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C68	CA68	2	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes

TABLE 18. TRACKING TABLE OF ASPHALT TREATED BASE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location Number	Sample Number	Lab Test Number	Steps Involved in Laboratory Handling and Testing Sequence						
			Required Laboratory Tests Per Layer				Extra Sample	Sample Storage	Sample Disposed?
			First	Second	Third	Fourth			
C17	CT17	1	AC01/P01	AC02/P02			No	(a)	Yes
C18	CT18	1	AC01/P01	AC02/P02			No	(a)	Yes
C19	CT19	1	AC01/P01	AC02/P02			No	(a)	Yes
C20	CT20	1	AC01/P01	AC02/P02			No	(a)	Yes
C23	CT23	2	AC01/P01	AC02/P02			No	(a)	Yes
C29	CT29	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C30	CT30	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C31	CT31	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C32	CT32	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C35	CT35	2	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C36	CT36	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C37	CT37	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C38	CT38	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes
C43	CT43	2	AC01/P01	AC02/P02			No	(a)	Yes
C45	CT45	1	AC01/P01	AC02/P02			No	(a)	Yes
C46	CT46	1	AC01/P01	AC02/P02			No	(a)	Yes
C47	CT47	2	AC01/P01	AC02/P02			No	(a)	Yes
C48	CT48	2	AC01/P01	AC02/P02			No	(a)	Yes
C49	CT49	2	AC01/P01	AC02/P02			No	(a)	Yes
C50	CT50	2	AC01/P01	AC02/P02			No	(a)	Yes
C51	CT51	2	AC01/P01	AC02/P02			No	(a)	Yes
C55	CT55	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C56	CT56	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C57	CT57	1	AC01/P01	AC02/P02	AC07/P07	AC07/P07 (ITS)	No	(a)	Yes
C58	CT58	1	AC01/P01	AC02/P02		AC07/P07 (ITS)	No	(a)	Yes

TABLE 19. TRACKING TABLE OF DENSE GRADED AGGREGATE BASE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location Number	Sample No.	Lab Test No.	Steps Involved in Laboratory Handling and Testing Sequence								
			Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
			First	Second	Third	Fourth	Fifth	Sixth			
B8	BG08	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B9	BG09	1	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B10	BG10	2	UG01/P41	UG02/P41	UG04/P43	UG08/P47	UG05/P44	UG07/P46	No	(b)	Yes
B8	MG08	2	UG10/P49						No	(b)	Yes
B9	MG09	1	UG10/P49						No	(b)	Yes
B10	MG10	2	UG10/P49						No	(b)	Yes

TABLE 20. TRACKING TABLE OF SUBGRADE TESTING IN THE FHWA-LTPP TESTING CONTRACTOR LABORATORY

Sample Location No.	Sample No.	Lab Test No.	Steps Involved in Laboratory Handling and Testing Sequence								
			Required Laboratory Tests Per Layer						Extra Sample	Sample Storage	Sample Disposed ?
			First	Second	Third	Fourth	Fifth	Sixth			
B1	BS01	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B2	BS02	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B3	BS03	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B4	BS04	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B5	BS05	1	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B6	BS06	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B7	BS07	2	SS01/P51	SS02/P42	SS03/P43	SS04/P52	SS05/P55	SS07/P46	No	(b)	Yes
B1	MS01	2	SS09/P49						No	(b)	Yes
B2	MS02	2	SS09/P49						No	(b)	Yes
B3	MS03	2	SS09/P49						No	(b)	Yes
B4	MS04	2	SS09/P49						No	(b)	Yes
B5	MS05	1	SS09/P49						No	(b)	Yes
B6	MS06	2	SS09/P49						No	(b)	Yes
B7	MS07	2	SS09/P49						No	(b)	Yes

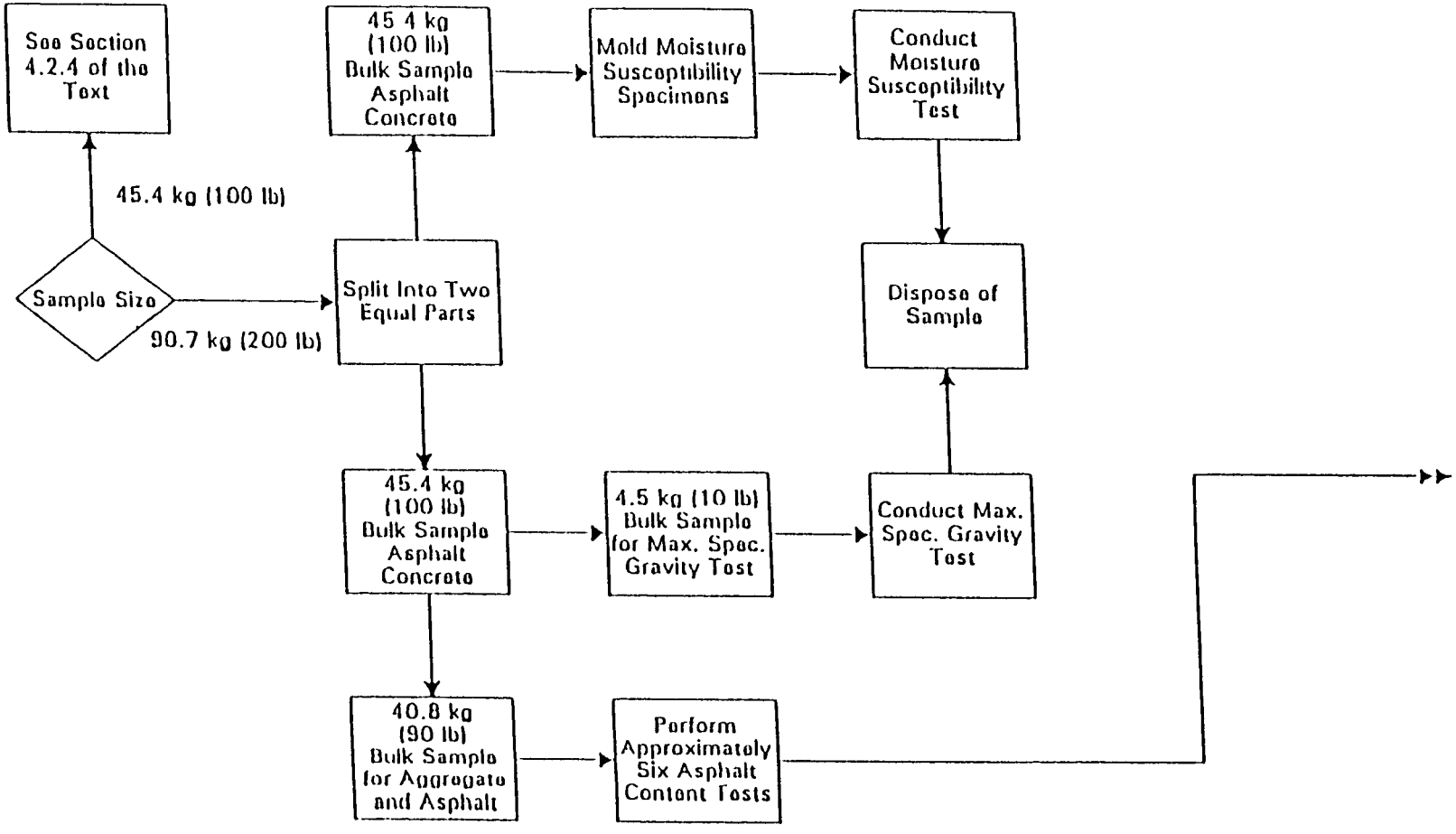


FIGURE 10. . FLOWCHART FOR ASPHALT CONCRETE BULK SAMPLES

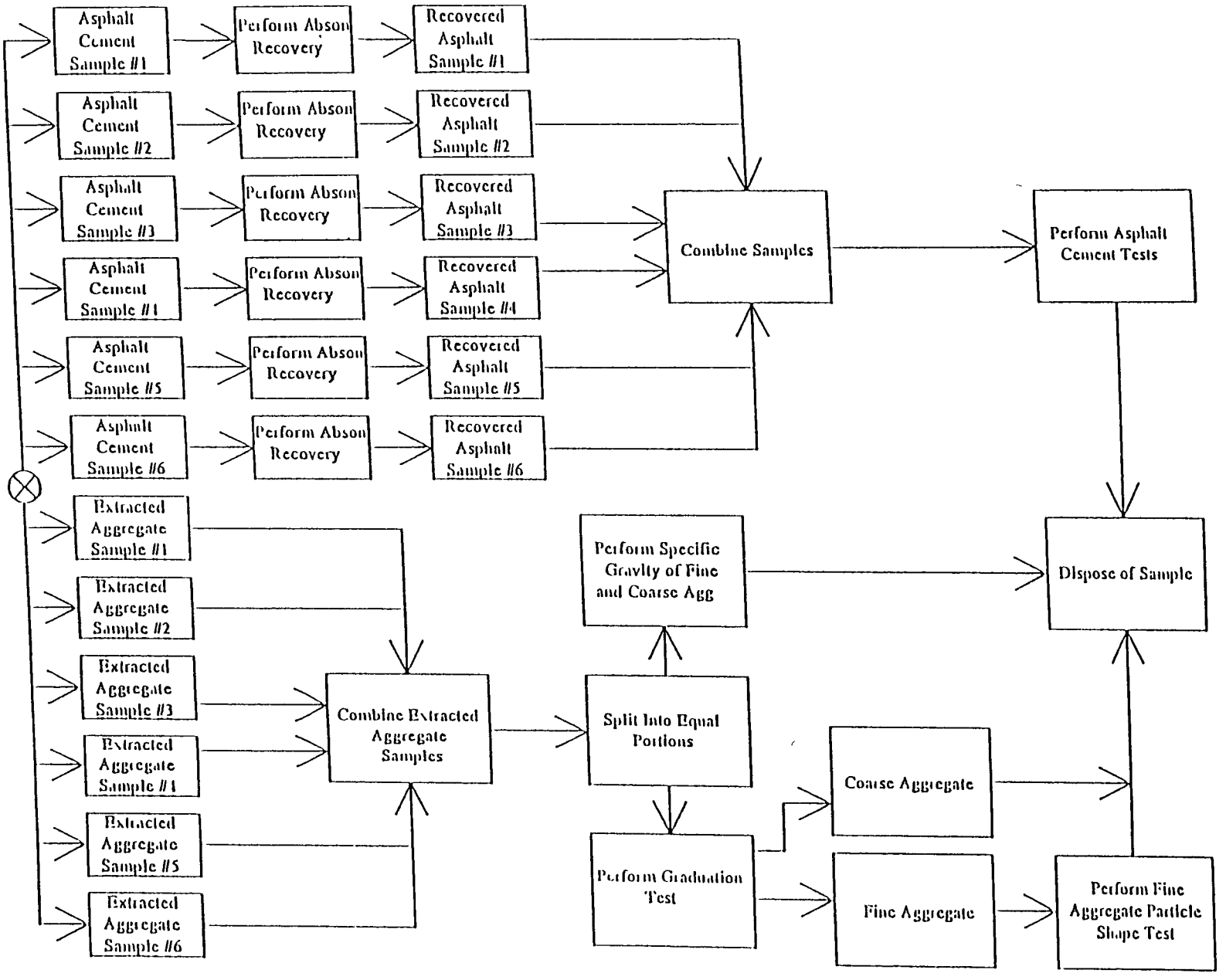


FIGURE 10. FLOWCHART FOR ASPHALT CONCRETE BULK SAMPLES (Continued)

These tables provide the laboratories with the following information and directions:

- tracking of samples as they are taken from the field and testing in the laboratory,
- laboratory test sequences for each pavement material type,
- dedicated sample(s) for each test,
- designation of extra samples for future use,
- instructions for sample storage, and
- special instructions and other remarks.

As mentioned previously, these tables are based on the idealized sampling plan presented in Section 3 and Appendix A of this document. Using these tracking tables, each laboratory shall be able to plan and track each sample through the laboratory materials testing program for the SPS-1 experiment in a step-by-step manner.

The following is a description of the column headings used for the tracking table:

Sample Location Number - As described previously in Section 3 and as shown on sample tags and labels.

Sample Number - As described previously in Section 3 and as shown on sample tags and labels.

Lab Test Number - Shall be assigned as per the following:

a. Beginning of the Section (Station 0-): Samples of each layer that are retrieved from areas in the approach end of the test section (stations preceding 0+00) shall be assigned Laboratory Test Number '1'.

b. End of the Section (Stations 5+): Samples of each layer that are retrieved from the areas in the leave end of the test section (stations 5+00) shall be assigned Laboratory Test Number '2'.

c. Middle of the Section (Stations 0+00 to 5+00): Samples of each layer that are retrieved from areas in the middle of the test section (from the paver) shall be assigned Laboratory Test Number '3'.

Required Laboratory Test Per Layer - Order in which testing shall proceed.

Extra Sample - Is the sample to be saved as a backup for other tests? A "yes" in this column implies that this is a dedicated extra sample saved for future use. A "no" indicates that a sample can be discarded after use.

Sample Storage - The following codes are used to specify the sample storage conditions for samples.

a. environmentally protected and controlled storeroom at 5-21° C (40-70° F).

b. environmentally protected and controlled storeroom at 5-38° C (40-100° F).

c. Thin-walled tube samples of the subgrade that should be stored in a fully supported condition and at temperatures between 5° C (40° F) and 21° C (70° F) in an environmentally protected storeroom. They shall be stored on their ends and shall always be stored in a vertical position with respect to the longitudinal axis of the tube in the same orientation as that retrieved from the field.

Sample Disposal? - Indicates whether or not a sample can be disposed of after testing. Generally all samples, or portions of samples that are not tested, are saved until further notice.

APPENDIX E

PHOTOGRAPHS

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Photo 2. Sheepsfoot Compactor Used During Construction Of Subgrade

Photo 3. LTPP Preconstruction Sampling Of Subgrade Materials

Photo 4. Plaque Boards Placed Within Transition Areas Between Test Sections Showing Typical Cross-Sections

Photo 5. Spread-box Used During Construction Of The DGAB

Photo 6. DGAB Constructed In Lifts

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Photo 13. Vermeer Trencher Utilized For Excavating The Edge Drain Trenches

Photo 14. Geotextile-lined Edge Drain Trench Prior To Placement Of PATB Lift and #57 Limestone Trench Medium

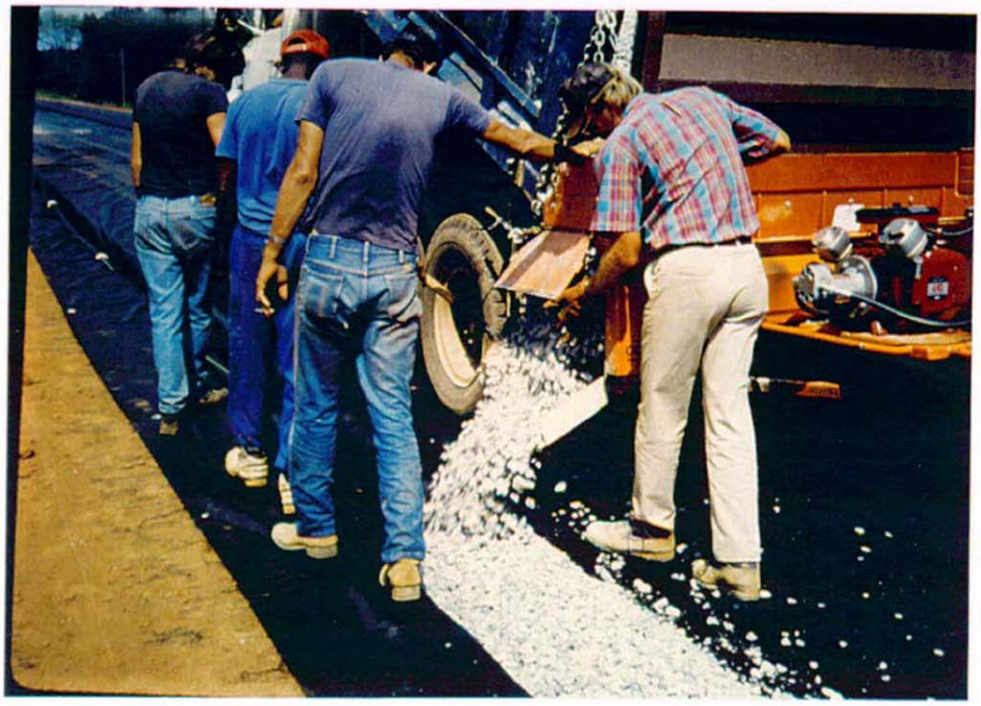

Photo 15. #57 Limestone Being Placed As Backfill Around 4″ Plastic Flexible Corrugated Pipe of Geotextile-lined Trench

Photo 16. ATB Placed On PATB On Top Of The Geotextile Fabric. Also #57 Limestone-filled Edge Drain Trench With 4″ Plastic Edge Drain Pipe

Photo 17. Construction Of 4″ PATB

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Photo 24. Placement Of Upper Bound Layers And Sampling Containers For Future Testing

Photo 25. Station Identification At 100′ Intervals Prior To Placement Of A Different Material Type

Photo 26. "East Alabama Paving" Drum Mix Plant In Opelika, Alabama

Photo 27. Nuclear Density Data Collection With Troxler Gauge

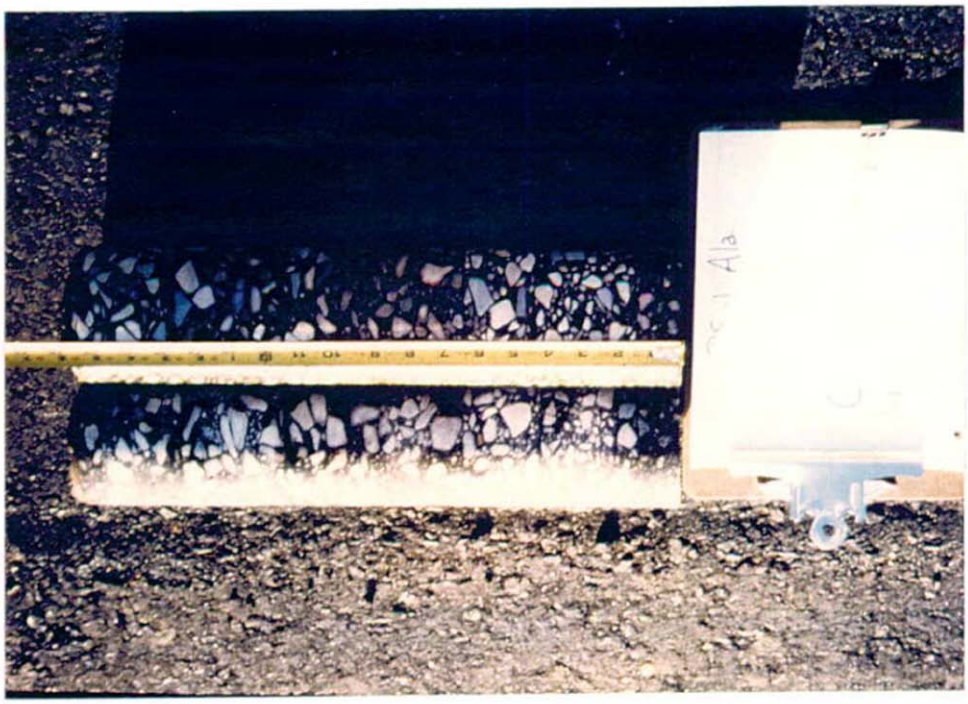

Photo 28. Postconstruction Coring

Photo 29. Bulk Samples Obtained And Labeled During Construction