NM
SPS-9A

FINAL REPORT

SPS-9A PROJECT 3509: SUPERPAVE™ ASPHALT BINDER STUDY I-10, EASTBOUND GRANT COUNTY, NEW MEXICO

FHWA/LTPP

SOUTHERN REGION COORDINATION OFFICE

May 1997

BRENT RAUHUT ENGINEERING INC.

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FINAL REPORT - SPS-9A PROJECT 3509

SUPERPAVE™ ASPHALT BINDER STUDY
I-10, EASTBOUND
GRANT COUNTY, NEW MEXICO

INTRODUCTION

As part of the Strategic Highway Research Program's (SHRP) Long Term Pavement Performance (LTPP) Studies, sections of roadway are being selected to apply very specific treatments to study various facets of construction (both new and rehabilitation). These projects are referred to as Specific Pavement Studies (SPS). This particular project, on I-10 Eastbound, in Grant County, New Mexico, was identified as a potential candidate for inclusion in the SUPERPAVE™ Asphalt Binder Studies (SPS-9A).

SPS-9A General Experiment Design

The experiment is intended to validate the SHRP binder specifications, to allow direct comparison of asphalt mixtures designed using agency procedures and the newly developed SHRP procedures and to provide initial data for use in refining the mixture performance models also developed as part of the SHRP research. The key elements of the SUPERPAVE™ design process are shown in table 1.

Table 1. Key Elements of the SUPERPAVE™ Design Process

Address Reduction and Control of:
- Permanent deformation
- Fatigue cracking
- Low temperature cracking

Develop Mixture Having Sufficient/Satisfactory:
- Asphalt binder
- Voids
- Workability
- Performance characteristics

Basis of Design
- Volumetric principles
- Evaluation of engineering properties of trial mixes using increasing levels of testing depending upon the reliability (traffic level) desired
- Three levels of design
  - Level 1 - Low traffic (lower reliability)
  - Level 2 - Medium traffic (better reliability)
  - Level 3 - High traffic (best reliability)
- SHRP gyratory used for laboratory compaction

The SUPERPAVE™ mix design system is being validated using a three-stage process. The first stage validation, conducted by SHRP, confirmed that variation of asphalt binder properties identified as probable, significant determinates of pavement performance caused reasonable, meaningful changes in the relevant performance characteristics of asphalt-aggregate mixtures. This was accomplished by using specifically designed accelerated laboratory tests and existing accelerated load facilities.

The second stage validation, also conducted under SHRP, established the degree of correlation between the asphalt binder properties shown to significantly affect performance-related characteristics of asphalt-aggregate mixtures and relevant field pavement performance parameters. This process provided data to specification limits for the relevant properties selected to control performance. This effort relied heavily on sampling and testing the LTPP General Pavement Studies (GPS) sections.

Although GPS sections provided valuable and timely information, controlled Specific Pavement Studies of newly constructed and reconstructed or rehabilitated (resurfaced) pavement sections are needed in the third stage to provide an accurate estimate of the relative influence of key pavement elements that affect pavement performance for purposes of specification validation. The importance of this experiment is highlighted by its ability to evaluate the interaction of traffic, structural parameters and climatic factors on pavement performance in a controlled manner. The overall SPS-9A experiment objectives are shown in table 2.

Table 2. SPS-9A Overall Experiment Objectives

1.	To further validate the performance-based asphalt and asphalt-aggregate mixture specifications through controlled field experiments.
2.	To provide a direct comparison, in terms of measured performance between existing highway agencies' asphalt specifications, asphalt-aggregate mixture specifications, mixture design procedures and SHRP's performance-based specifications and mix design and analysis system.
3.	To provide performance data collected over a long term from controlled field experiments and to provide for modification of specifications at the local, regional or national level.
4.	To provide training and assistance to Agency personnel in binder characterization procedures, the mix design process and establish the practicality of implementing the SUPERPAVE™ system.
5.	To provide data for SUPERPAVE™ models refinement and modifications.

SPS-9A will focus on two main issues: (1) performance of SUPERPAVE™ mixtures relative to local agency mixtures and (2) verification of the SHRP asphalt binder selection process. The SPS-9A experiment design consists of a moisture/temperature factorial to be filled by test

sites constructed by the participating agencies. The environmental conditions in this factorial for the SPS-9A experiment are defined by the SHRP Asphalt Regional Program in specific rainfall amounts and pavement temperatures as opposed to the global environmental conditions used in the other LTPP experiments. Table 3 depicts the experiment design for the SPS-9A experiment that incorporates the SHRP asphalt environmental factors. Temperatures are duplicates of the latest SHRP PG specification, but limited to more commonly found conditions in the United States, as indicated by the unshaded cells. As shown in table 3, 32 temperature-moisture combinations result in a total of 32 project sites.

Each test site for SPS-9A shall include three test sections, one using the Agency's current mixture design, one using the SUPERPAVE™, and the other using a SUPERPAVE™ mixture with a SHRP binder grade either higher or lower than required by SUPERPAVE™.

For additional information on general experiment design for SPS-9A, please refer to "Specific Pavement Studies: Experimental Design and Research Plans for Experiment SPS-9A, SUPERPAVE™ Asphalt Binder Study, September 1994".

Selection/Nomination of I-10 Eastbound

This project was first offered for consideration by the State of New Mexico in July 1995. After reviewing the details provided by the state on this project and preparation of a tentative layout of the test sections (to ensure that adequate space was available for such a project), the project was officially nominated on 28 August 1995. Appendix A contains the nomination forms which provide information on the project location, significant dates, traffic information and the agency's pavement structural design for the project in question. The section was officially approved for use by the FHWA/LTPP Division on 5 January 1996.

Specific Experiment Design for I-10 Eastbound

Although the plans for this particular project did not originally include the incorporation of an SPS-9A project, the plan's typical section and existing structural features were such that the test sections could be retrofitted into the plans for this project. The typical sections and layout for this particular project are included in appendix A.

The New Mexico State Highway Transportation Department (NMSHTD) added a supplemental section containing a SUPERPAVE™ mix design with a PG64-10 binder. The mix designs were prepared by the contracting laboratory and approved by John Tenison (NMSHTD) on 3 September 1996. Mix designs for each of the three SUPERPAVE™ sections, as well as the state mix are included in appendix B.

PRECONSTRUCTION MONITORING

A number of preconstruction monitoring measurements were performed on I-10 to establish the condition prior to rehabilitation. Each preconstruction monitoring endeavor will be discussed separately in the following text.

Table 3. SPS-9A Experimental Design Factorial

Moisture		Wet > 635 mm/year of precipitation				Dry < 635 mm/year precipitation			
Average 7 Day Maximum Pavement Design Temperature		<52C	<58C	<64C	<70C	<52C	<58C	<64C	<70C
Minimum Pavement Design Temperature	> -46C								
	> -40C								
	> -34C								
	> -28C								
	> -22C								
	> -16C								
	> -10C								

NOTES: Traffic rate should exceed 50,000 ESAL/year in study lane.
Total traffic for design (design life) is Agency choice.
The Average 7-day maximum pavement design temperature is the average of the highest daily pavement temperatures for the seven hottest consecutive days.
The minimum pavement design temperature is the coldest pavement temperature of the year.

Pavement Surface Distress

Prior to rehabilitation, each test section was marked with paint and signs, etc., to allow for the collection of pavement surface distress. Each test section was rated manually using the SHRP Distress ID Manual in May 1996. There were no distresses found due to the 3″ cold in-situ recycling performed on the section prior to our notification. The contractor was contacted to determine the extent of milling and the existing condition of the roadway. The contractor indicated that there was severe rutting up to 3″ in areas prior to the 3″ of cold in-situ recycling performed in April 1996. Initial rod and level elevations were taken 23 August 1996 to determine cross-profiles and calculate thicknesses of the overlay. The thickness information and cross-profiles of each section are provided in appendix C.

Structural Capacity

Deflection measurements were performed beginning 27 May 1996, in conjunction with the distress surveys, and concluded 30 May 1996. Deflection measurements were obtained using the SHRP Falling Weight Deflectometer (FWD) to evaluate the structural capacity of each of these test sections. Deflection measurements were recorded from a series of varying weights in a set pattern at 25′ intervals to measure the subsurface response (deflection) of the structural layers in the highway segment. Results of the deflection testing are included in appendix D. These tests were performed on the 3″ cold in-situ recycled surface.

Material Sampling and Testing

Material sampling and testing was performed on 29 August 1996 by the contracting laboratory following a Material Sampling and Testing Plan established specifically for this project (see appendix E). The laboratory subcontracted for a drill rig to complete the augering, shoulder probes and subgrade sampling. The laboratory personnel performed the coring.

The cores extracted during the preconstruction sampling indicated that up to four distinct layers were present at various points along the SPS-9A sections. This can be explained partially by the plans (I-010-1(11)35) obtained at the NMSHTD District 1 office in Deming, New Mexico. The plans are dated 28 June 1965. The existing pavement had two 1½″ lifts of plant mix in place with an additional three lifts of HMAC, with thicknesses of 1″, 2″ and 2″. It appears that a surface treatment was applied upon completion of the construction, but there is no thickness indicated (approximately 25 lbs/sv). If one includes 1″ for surface treatment, the total thickness of the AC layer should be approximately 9″. The typical sections in our material sampling plan indicate an existing thickness of 9.5″, which corresponds to the plans. Preconstruction sampling was performed after the 3″ cold in-situ recycling. A set of the construction plans, including past rehabilitation, are included in appendix F.

CONSTRUCTION

The following text details any and all unusual features relating to the construction and completion of the asphalt test sections on I-10 Eastbound, Grant County, New Mexico for inclusion in LTPP's SPS-9A study. For the purposes of discussion here, "unusual" features will be defined as that information which cannot be, or has not been, recorded elsewhere on

the data forms associated with this project, or those features which are considered to be particularly unique to this project. The construction data forms themselves are included as appendix G.

The project was let and the preconstruction meeting held on 22 August 1996 at which time the contractor noted that they wanted to proceed as soon as possible. No significant concerns were expressed regarding the construction of these test sections. Concerns regarding the preparation of SUPERPAVE™ samples and responsibility for testing were discussed. The samples were originally intended to be prepared by the contractor at the site where an oven and gyratory compactor were provided. However, the material was eventually hauled to a NMSHTD laboratory to be prepared for testing.

In April 1996, the SPS-9A sections received 3″ of cold in-situ recycling. The sections were open to traffic from the time of milling to the beginning of paving operations on 10 September 1996.

Paving operations always began with sweeping of the lanes and application of a tack coat at .02 gallons/square yard. The mix was laid using a Blaw-Knox 3045 paver with a CMI 3030 loader. Trucks with belly dumps were used throughout the project. The material was compacted using a Caterpillar CB-614 steel-wheel roller. The lifts were laid in 2.5″ and 3.0″ thicknesses, depending on the design thickness specified in the plans. the initial steel-wheel roller applied 6 to 8 coverages, the pneumatic roller applied 8 coverages and the finishing steel-wheel roller 2 coverages.

The plant was located at Milepost 38, approximately 16 miles from the project, off I-10. The plant was a Barber-Greene batch plant which provided all of the mix. The SUPERPAVE™ mix was prepared at slightly higher temperatures than the state mix.

Elevations were taken on the final surface to obtain thickness information and cross-profiles of each section.

There is a rest area located at the project site with an exit ramp between section 350901 and 350902, from station 1018+00 to 1020+00. This will affect the uniformity of traffic loadings among the four sections, as a large amount of traffic uses the rest area. The coring at the leave end of section 350901 is located at the rest area exit. This may affect the future coring of this section.

With the completion of the paving of these SUPERPAVE™ sections on 16 September 1996, all construction on the SPS-9A test sections was completed. The completed data forms, noting the construction details are provided in appendix G. The only data not available is the profilograph measurements.

POSTCONSTRUCTION MONITORING

With the completion of the SUPERPAVE™ construction, postconstruction monitoring was performed on 3 February and completed 7 February 1996. As one might expect, there is no surface distress to speak of and none is anticipated for the immediate future; however, surface

distress surveys will be scheduled in early 1997 along with measurements of the surface profile. Rod and level measurements have been taken on the surface to complete the evaluations of layer thickness variability throughout the sections and postconstruction coring was completed on 28 September 1996 to represent time (T) equals 0 from the materials sampling and testing plan. This coring included eight cores for the control and supplemental SUPERPAVE™ mix and 36 cores from the standard SUPERPAVE™ test section (350902).

Samples were provided to the testing laboratory, along with those samples collected from preconstruction sampling. Samples have also been provided to the Materials Reference Library (MRL), should these materials be needed in the future for additional testing.

SUMMARY

Having completed the construction and initial monitoring of these test sections, it appears that the test sections on I-10, Eastbound, in Grant County, New Mexico, will contribute significantly to the evaluation of the SUPERPAVE™ asphalt binder study. This project would not have been possible without the support of the New Mexico State Highway Transportation Department. In particular, much of the credit is due to the help of Keun Wook-Yi, John Tenison and James Stokes from the Research Division, and Gilbert Tafoya from the District 1 office. We also want to express our appreciation to James Fields and Danny Marres, of Hamilton Construction, for their willingness to provide the additional work necessary to make this project possible.

With the construction completed, we now continue to monitor these sections with time, noting changes in the surface distress, surface profile and structural capacity, and compare those changes against the loadings these sections are exposed to (both environmentally and from traffic), and in combination with other projects like this one around the country, to improve on the SUPERPAVE™ mix design procedures.

APPENDIX A

SITE NOMINATION FORMS, APPROVAL CORRESPONDENCE AND OTHER PERTINENT INFORMATION

Brent Rauhut Engineering Inc.

21 July 1995

Mr. Monte Symons
Pavement Performance Division - LTPP (HNR-40)
Federal Highway Administration
Turner-Fairbanks Highway Research Center
6300 Georgetown Pike, Room F-215
McLean, Virginia 22101

Subject: New Mexico SPS Project Nominations

Dear Monte,

On 10 July, I was provided nomination forms for SPS-5, SPS-8 and SPS-9A projects by the New Mexico State Highway and Transportation Department. Copies of the nomination forms are enclosed for your review. The unique aspect of this is that the test sections for all three experiments are within the same construction project. We have reviewed the proposed project and recommend the acceptance of all three experiment nominations.

The construction project involves the rehabilitation of IH-10, west of Deming, New Mexico. As part of the rehabilitation activities, the NMSHTD will alter the plans to include SPS-5, and SPS-9A test sections in the eastbound main lanes. There is a frontage road adjacent to the eastbound lanes, but because this is a rural site, the frontage road provides access for two farms to the Interstate. The frontage road exists as a graded aggregate surface. The NMSHTD proposes to pave test sections in accordance with the SPS-8 criteria. A weigh-in-motion site and provisions for an automated weather station are also included.

For the record, we recognize and commend the initiative and creativity of the NMSHTD staff who have made this project possible. Recognition should also be given to the FHWA New Mexico Division office, who has been working closely with the NMSHTD in these efforts.

Your prompt consideration of these nominations would be greatly appreciated. As the project is scheduled for letting in the near future, we are expediting the preparation of

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sampling and testing plans. If you need additional information or clarification, please contact me.

Sincerely,

Mark P. Gardner, P.E.
Project Engineer, SRCO

MPG:dmj

Enclosures: As stated.

c.w/Att: Gonzalo Rada, PCS/LAW

c.w/o Att: Fred Cooney, NMSHTD
Keun-Wook Yi, NMSHTD
Reuben Thomas, FHWA-NM Div.
Morris Reinhardt, RE/SRCO
Brent Rauhut, SRCO/File:

NAME	INFO	ACTN	COPY
BR			
MG	✓		✓
MR	✓		
File: Copy 13.2.5.2 13.2.8.2 13.2.9.2			

RECEIVED JAN 2 2 1996

U.S. Department of Transportation
Federal Highway Administration

Memorandum

6300 Georgetown Pike
McLean, Virginia 22101
HNR-30 0196-96K-002

Subject: ACTION: Specific Pavement Study (SPS) New Mexico Allocation of Incentive Funds

Date: January 5, 1996

From: Director, Office of Engineering Research and Development

Reply to Attn of: HNR-30

To: Mr. Edward A. Wueste
Regional Federal Highway Administrator (HEO-06)
Fort Worth, Texas

We have received and reviewed the SPS-5, 8, and 9A project nominations in New Mexico for the Long-Term Pavement Performance (LTPP) program. These sites are approved for inclusion into the program. These sites are located on I-10 in Grant County.

The inclusion of these sites into the LTPP program allows New Mexico State Highway and Transportation Department (SHTD) to be eligible for incentive funds associated with the SPS experiments. This memorandum authorizes the obligation of $30,000 for the SPS-5 site, $30,000 for the SPS-8 site, and $30,000 for the SPS-9A site for fiscal year 1996 of appropriation code 96K funds subject to the following:

1. New Mexico SHTD's continued agreement to conform to all of the design and participation requirements of the experiment.

2. Funds are to be used for reimbursement of costs associated with the SPS projects that include: (a) the purchase and/or installation of weigh-in-motion and/or automated vehicle classification equipment; (b) conventional sampling and materials testing; and/or (c) traffic control expenditures that are incurred as part of these data collection activities.

The Federal share for the first $90,000 of the above work is 100 percent. Costs in excess of $90,000 may be eligible for reimbursement as part of the regular Federal-aid construction and/or research programs. The appropriation code 96B and the Fiscal Management Information System and regular Federal-aid procedures are to be used to track expenditures. By copy of this memorandum, we are requesting the Program Analysis Division

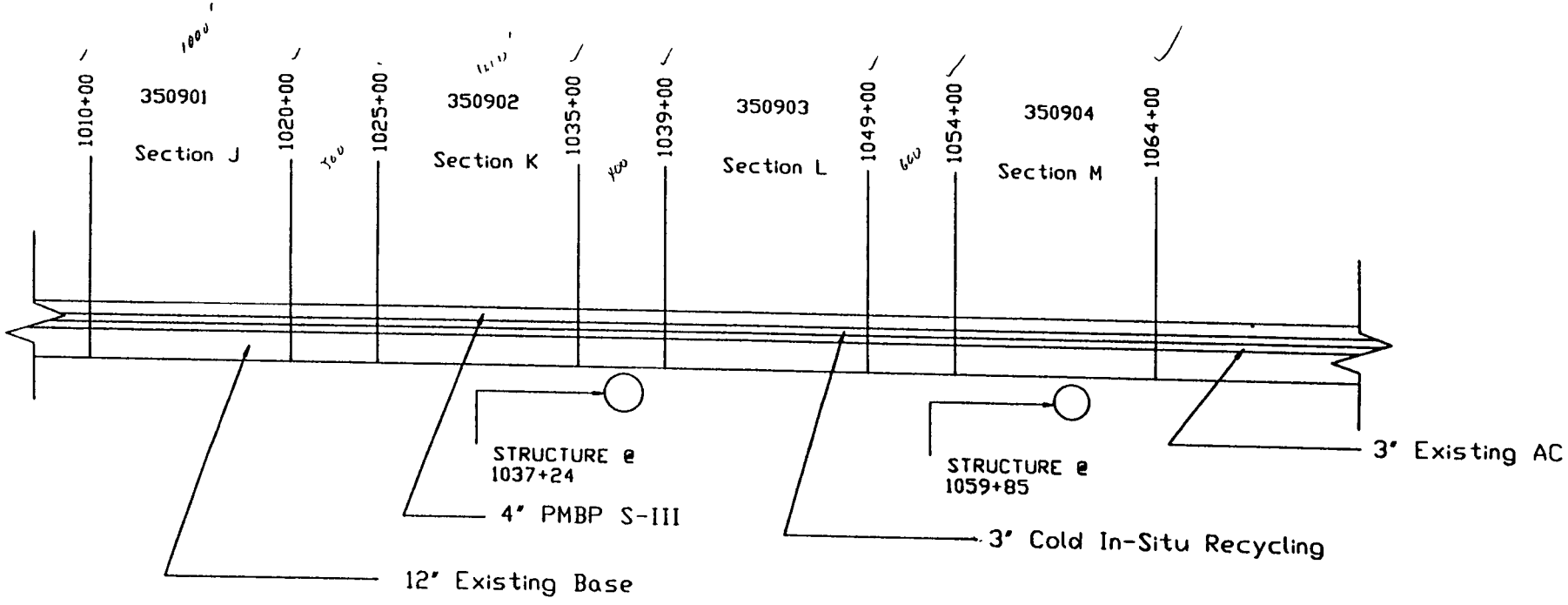
(HFS-30) to increase New Mexico's obligation limit by $90,000. These funds must be obligated by August 1, 1996, or the funds will be withdrawn.

Information from these sites and the other SPS-5, 8, and 9A locations will contribute significantly to achieving the goals of the LTPP program. Participation of the New Mexico SHTD and the cooperation and assistance of the FHWA Region 6 and New Mexico Division staff in the LTPP program is appreciated.
Upon receipt of this memorandum, the New Mexico Division Office is requested to officially notify New Mexico SHTD of the approval of the SPS-5, 8, and 9A sites and availability of the incentive funds.

Any questions concerning the incentive funds should be directed to Mr. Monte Symons at (703) 285-2730. Questions related to the project status, testing, and/or coordination should be directed to either Mr. Symons or Mr. Morris Reinhardt, LTPP Southern Regional Engineer. Mr. Reinhardt can be reached at (512) 346-7477.

Charles J. Nemmers, P.E.

cc: Mr. Morris Reinhardt


1010+00
350901
Section J
1020+00
1025+00
350902
Section K
1035+00
1039+00
350903
Section L
1049+00
1054+00
350904
Section M
1064+00
STRUCTURE @
1037+24
STRUCTURE @
1059+85
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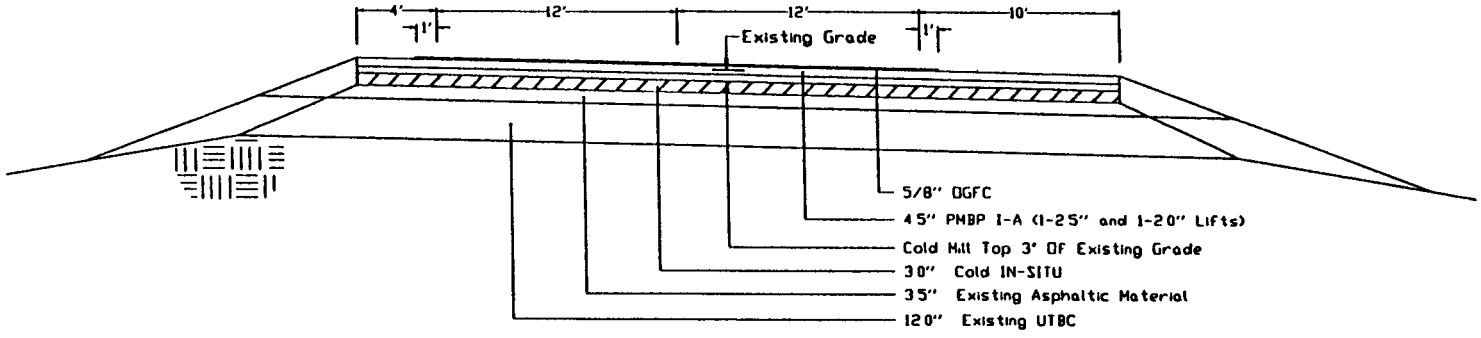
3" Cold In-Situ Recycling
3" Existing AC
12" Existing Base



TYPICAL SECTION "J"
S.H.R.P. SECTION 350901
(EBL STA. 968+00 TO STA. 975+00)

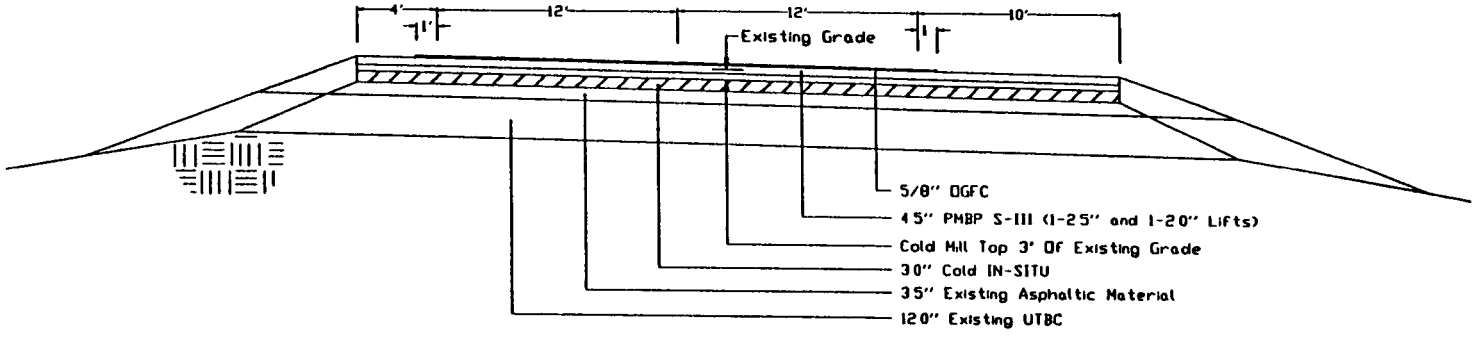
NO.	DESCRIPTION	DATE	BY
3			
2			
1			

REVISIONS (OR CHANGE NOTICES) DATE IN

NEW MEXICO STATE HIGHWAY
AND TRANSPORTATION DEPARTMENT

MISCELLANEOUS DRAWINGS

SPS-9



TYPICAL SECTION "K"
S.H.R.P. SECTION 350902
(EBL STA. 968+00 TO STA. 975+00)

F.H.W.A. Region No. 6
NEW MEXICO PROJECT NO.
PROJECT NO.
SHEET NO.
SHEET NO.

NO.	DESCRIPTION	DATE	BY
3			
2			
1			
	REVISIONS (OR CHANGE NOTICES)	DATE	BY

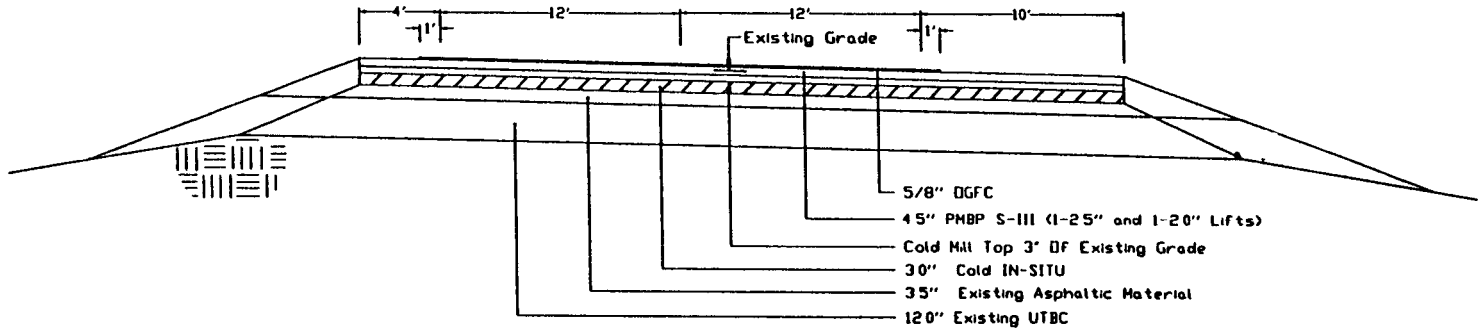
NEW MEXICO STATE HIGHWAY
AND TRANSPORTATION DEPARTMENT

MISCELLANEOUS
DRAWINGS

SPS-9

DESIGNED BY DESIGNER
DRAWN BY
CHECKED BY CHECKER

FHWA Region No. 6	SHEET NO
NEW MEXICO PROJECT NO.	
PROJECTNO.	SHEETNO



TYPICAL SECTION "L"
S.H.R.P. SECTION 350903
(EBL STA. 968+00 TO STA. 975+00)

NO.	DESCRIPTION	DATE	BY
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	REVISIONS (OR CHANGE NOTICES)	DATE	BY

NEW MEXICO STATE HIGHWAY
AND TRANSPORTATION DEPARTMENT

MISCELLANEOUS
DRAWINGS

SPS-9

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FILENAME

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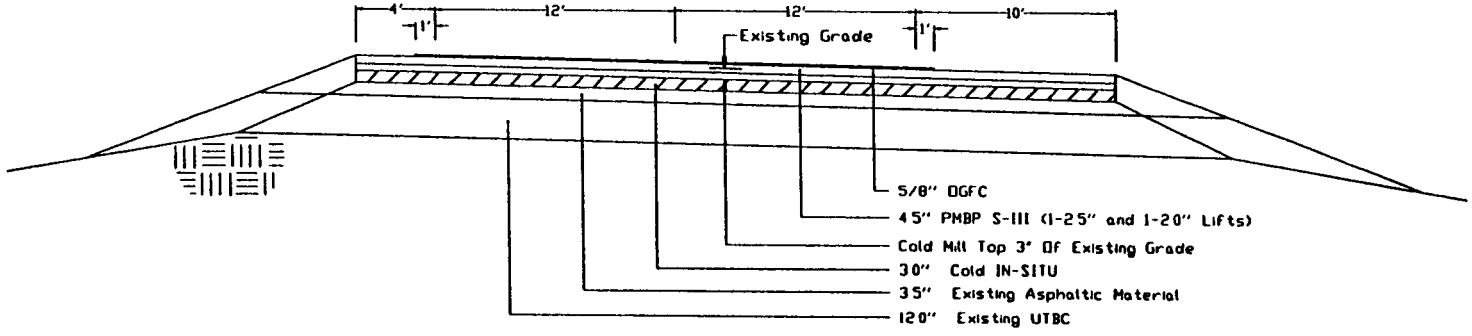


TYPICAL SECTION "M"
S.H.R.P. SECTION 350904
(EBL STA. 968+00 TO STA. 975+00)

NEW MEXICO STATE HIGHWAY
AND TRANSPORTATION DEPARTMENT
MISCELLANEOUS
DRAWINGS
SPS-9

APPENDIX B

MIX DESIGNS

	Page Nº.
"PMBP 1-A" Agency Mix (350901)	B.3
SUPERPAVE™ Mix 1, PG64-22 (350902)	B.9
SUPERPAVE™ Mix 2, PG58-22 (350903)	B.10
Supplemental Binder Mix, PG64-10 (350904)	B.11
Open-Graded Friction Course (350900)	B.12

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTRA-DEPARTMENTAL CORRESPONDENCE

SUBJECT: Superpave Asphalt Mixture Design
ACIM-010-1(69)34 CN: 1433

DATE: September 3, 1996

TO: Leroy Salazar
Construction Engineer, District #1

FROM: John H. Tenison
Staff Materials Engineer, G.O. (Lab)

We have completed our review of the SHRP Superpave asphalt mixture designs for the above referenced project. Based on our review, we concur with the three asphalt mixture designs which have been prepared by Law/Crandall and recommend that they be used for the SPS-9A sections. We are requesting that your Project Manager keep us advised as to when laydown will begin on each of these sections inorder that we may observe this operation. If you may have any questions concerning this recommendation, please contact me at 827-3278.

cc: Fred Cooney
Jim Stokes
Bill Moore
Carlos Giron
File (District #1)

Gilbert Tafoya

FORM NO. MT-1
REV 08/89

New Mexico State Highway Department
DISTRICT ONE LABORATORY
ASPHALTIC CONCRETE DAILY PRODUCTION REPORT

PROJECT CONTROL NO.. 1433

DISTRICT LAB NO : 'xx-xxxx
TYPE . PMBP 1-A
CENTRAL LAB DESIGN NUMBER · '96-01317-19

DATE : 09/13&16/96
PROJECT NO. . ACIM-010-1(69)34
LOCATION : I-10 EAST

REPORT NO. : 39
PROJECT MANAG . GILBERT TAFOYA
CENTRAL LAB DESIGN REV. DATE : 'xx-xx-xx

LABORATORY	DESIGN	FIELD
AVG BRIQ. B D.	2,174	2,094
AVG MAX SP GR	2,083	2,198
AVG AIR VOIDS	4,50	4,74%
AVG MARSH STAB/FLOW	3420 / 12	4592 / 12,4
AVG STAB/FLOW RATIO	285	369

ACCEPTANCE SECTION

SECTION #	LOCATION	AVG %	% PAY
1	900-947+50 EBLLT	93,27	100
2	1006-1023 EBLLT	94,33	102
3	* 79825-8458 EBLLT	94,28	102
4	0 0	ERR	0

* PLACEMENT						
STATION	TO	STATION		WIDTH	DEPTH	LOCATION
900+00	TO	910+50	EBLRT.	23,1'	2,0"	SECT "A"1ST LIFT
900+00	TO	910+50	EBLLT	15.95	2,0"	SECT "A"1ST LIFT
910+50	TO	921+50	EBLLT	15,95'	2,0"	SECT "B"1ST LIFT
921+50	TO	931+50	EBLLT	16,4	2,0"	SECT "C"2ndLIFT
931+50	TO	939+00	EBLLT	17,1'	2,0"	SECT"D"3RDLIFT
939+00	TO	947+50	EBLLT	16,65'	2,0"	SECT "E"2NDLIFT
1006+00	TO	1023+30	EBLLT	16,55'	2,0"	SECT."J"2NDLIFT
798+25	TO	845+80	EBLLT	21,0	3,0"	EBLT+TAPERS

EXTRACTION / GRADATION PERCENTAGE PASSING

TEST NO.		JOB MIX REQUIRED / LOCATION SAMPLED		CORR. % AC	1"	3/4"	1/2"	3/8"	No 4	NO 10	No 40	No 80	No 200	% FF
			HI	7,80		100	83	77	60	41	19		7,3	75
			Lo	7,40		90	73	67	50	33	11		3,3	
39		905+00		6,95	100	95	78	68	51	34	13	8	4,30	95
40		808+00		7,12	100	97	79	68	50	35	14	8	4,89	97
41		1024+00		6,49	100	98	81	70	* 48	* 31	12	7	4,49	91
132		811+00		6,56	100	95	80	71	51	33	12	9	4,59	96
133		825+00		6,83	100	96	82	75	53	35	15	8	4,16	98
					100	100	* 100	* 0	* 0	* 0	* 0		* 0,0	

BATCH PROPORTIONS

- 3/4" AGG 38 % - 1/2": 15.5 % - 3/8": 33 % BIN #4: 0 % CRSR F 0 % NAT. FA: 12 % LIME: 1,5 %

PLANT TEMP .	305	SE:	75	LIME (TONS USED):	40,62	(% BY STRAP):	1,46
AGG MOIST .	3,1	PI:	SNP	A C (TONS USED):	230,56	(% BY STRAP):	7,66
MIX MOIST .	0,11885	LIME CORR.:	0	YIELD REQ'D (# SQYD):	196,09	(ACT # PER SQYD):	228,03
AVG LAYDOWN TEMP	296	LIME CORR. RUN BY:		THICKNESS REQ'D (in):	2	(ACT in.):	2,33
PM RQD LAY DN TEMP·	300			MIX PLACED (TONS):	3010,6	MIX WASTE (TONS):	0

Field Remarks: NUC. % AC No. 1 0 No. 2 0 No. 3 0 ERROR, SUM. BATCH PROPORTIONS NOT = TO 100%

Project Manager_____ District Lab Supervisor_____

"PMBP 1-A" Agency Mix (350901)

MT1 1433 NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT Sheet No . 1 of 2

Temp./Viscos. Rqmt.: 0 HOT MIX DESIGN AND CONTROL DATA Report No.. 39

AGGREGATE	Source ,P PIT	Lab No. ;	'95-03584-8	(B) Gse ;	0,000			Project :	ACIM-010-1(69)34
ASPHALT .	Grade ,AC-10	(A)Sp.Gr.;	0,000	Refinery :	CHEVRON	(C) Gsb;	2,173	Location :	I-10 EAST
								Supervisor :	GILBERT TAFOYA
COMPUTATION AND TEST VALUES								Date :	09/13&16/96

(1) Core No.	1	2	3	AVG. 0	4	5	6	AVG. 0	7	8	9	AVG. 0	Daily Avg.
(2) % A.C. by WT of Mix	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6
(3) Height of Core (in)	2,000	2,125	2,625		2,625	2,750	2,750		2,250	2,125	2,250		
(4) WT of Core in air(g)	1679,2	1777,2	1948,6		2253,0	2431,4	2325,7		1963,4	1838,8	1948,9		
(5) WT of Core (SSD)(g)	1682,6	1784,7	1958,0		2258,9	2436,9	2332,0		1969,5	1845,1	1954,2		
(6) WT of Core in water(g)	866,0	923,4	998,5		1172,0	1270,0	1204,9		1020,2	959,6	1013,6		
(7) Bulk Volume =(5)-(6)	816,59	861,26	959,54		1086,9	1166,9	1127,1		949,32	885,52	940,6		
(8) Bulk Density =(4)/(7)	2,056	2,063	2,031	2,050	2,073	2,084	2,063	2,073	2,068	2,076	2,072	2,072	2,065
(9) Max. Sp. Gr.	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198	2,198
(10) %Voids 100*[((9)-(8))/(9)]													
(11) Core Unit WT =(8)*62 4	128,31	128,76	126,72	127,93	129,34	130,02	128,76	129,37	129,06	129,57	129,29	129,31	128,87
(12) Core Unit Wt. divided by Avg. Gmm Unit WT = % Comp.	93,55	93,88	92,39	93,27	94,30	94,79	93,88	94,33	94,10	94,47	94,27	94,28	93,96
(13) Marshal Stability													
(14) Flow													
(15) Stability/Flow Ratio (13)/(14)													

IMMERSION - COMPRESSION STABILITY

(16) WT after dry cure (g)	
(17) WT after wet cure (g)	
(18) %Absorbtion [((17)-(16))/(16)]*100	
(19) Loads, P (lbs)	
(20) Compress Strength (PSI)	
(21) A· ⌄ Comp Stren (PSI)	
(22) Retained Stability (%)	

Lab Technician_ _____ _____ _____ _____

"PMBP 1-A" Agency Mix (350901) - (Continued)

Project Control Number: 1433 NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT Sheet No.. 1 of 2

Temp./Viscos. Rqmt : 0 HOT MIX DESIGN AND CONTROL DATA Report No.. 39

AGGREGATE	Source ;PIGEONPI	Lab No. ;	'96-01317-1	(B) Gse ,	2,439			Project :	ACIM-010-1(69)34
ASPHALT .	Grade ;AC-20	(A)Sp.Gr.;	0,999	Refinery :	CHEVRON	(C) Gsb;	2,095	Location ·	I-10 EAST
								Supervisor :	GILBERT TAFOYA
COMPUTATION AND TEST VALUES				-	RECORD			Date :	09/13&16/96

(1) Briquette No.	1	2	3	AVG. 0	4	5	6	AVG. 0	7	8	9	AVG. 0	Daily Avg.
(2) % A.C. by WT. of Mix	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6	7,6
(3) Height of Briq.(in)	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
(4) WT. of Briq.in air(g)	1089,6	1100,6	1071,1		1090,1	1088,4	1100,8		1083,4	1086,5	1099,9		
(5) WT of Briq.(SSD)(g)	1093,4	1105,3	1077,0		1093,6	1090,2	1104,1		1087,5	1092,7	1103,1		
(6) WT of Briq in water(g)	571,5	578,8	562,9		572,0	572,9	579,5		569,5	573,8	580,6		
(7) Bulk Volume =(5)-(6)	521,86	526,46	514,11	520,8	521,66	517,29	524,58	521,2	518,08	518,97	522,56	519,9	520,6
(8) Bulk Density =(4)/(7)	2,088	2,091	2,083	2,087	2,090	2,104	2,098	2,097	2,091	2,094	2,105	2,097	2,094
(9) Max. Sp. Gr.	2,195	2,195	2,195	2,195	2,198	2,198	2,198	2,198	2,201	2,201	2,201	2,201	2,198
(10) %Voids 100*[((9)-(8))/(9)]	4,88%	4,76%	5,09%	4,91%	4,91%	4,26%	4,51%	4,56%	5,00%	4,89%	4,39%	4,76%	4,74%
(11) Unit WT. =(8)*62.4	130,3	130,5	130,0	130,2	130,4	131,3	130,9	130,9	130,5	130,6	131,3	130,8	130,6
(12) %vma [100-((8)*%AGG)/(C)]	7,91	7,79	8,11	7,94	7,83	7,20	7,45	7,49	7,77	7,66	7,17	7,53	7,66
(13) Marshal Stability	4511	4690	4857	4686	4580	4857	4787	4741	4511	4372	4159	4347	4592
(14) Flow	12,0	13,0	12,0	12,3	13,0	12,0	12,0	12,3	11,0	14,0	13,0	12,7	12,4
(15) Stability/Flow Ratio (13)/(14)	376	361	405	380	352	405	399	384	410	312	320	343	369

IMMERSION - COMPRESSION STABILITY

(16) WT. after dry cure (g)	
(17) WT. after wet cure (g)	
(18) %Absorbtion [((17)-(16))/(16)]*100	
(19) Loads, P (lbs)	
(20) Compress.Strength (PSI)	
(21) Avg. Comp. Stren. (PSI)	
(22) Retained Stability (%)	

Lab Technician_ _____ _____ _____ _____

"PMBP 1-A" Agency Mix (350901) - (Continued)

GRAD1

39 New Mexico State Highway Department

Sheet 1 Of 2

HOT MIX EXTRACTION / GRADATION WORK SHEET

Project Control Number: 1433

Project No.: ACIM-010-1(69)34 Material: PMBP 1-A Date : 09/13&16/96

Sample No. :	39	40	41
Station :	905+00	808+00	1024+00
Compute Hot Mix Moisture:	SHTD	SHTD	SHTD
(1) WT. Hot Mix Moisture Sample Wet :	762,9 g	829,9 g	0,0 g
(2) WT Hot Mix Moisture Sample Dry :	762,1 g	828,8 g	0,0 g
(3) WT. of Moisture (1)-(2) :	0,8 g	1,1 g	0,0 g
(4) % Moist.in Hot Mix, 100*(3)/(2) :	0,105 %	0,133 %	%
Correct Hot Mix for Moist. Content:			
(5) Extraction Sample WT w/Moist. .	2111,8 g	2507,2 g	1661,4 g
(6) Extract. Sample Correct. Dry WT.: 100*(5)/[100+(4)]	2109,6 g	2503,9 g	1661,4 g
Extraction Data :			
(7) WT of Filter before Extraction.	18,2 g	19,2 g	19,0 g
(8) WT of Filter after Extraction.	19,2 g	20,4 g	20,5 g
(9) WT of Agg. after Extraction.	1961,9 g	2324,3 g	1552,0 g
(10) WT of Material on Filter (8)-(7)	1 g	1,2 g	1,5 g
(11) Total WT. after Extract.(9)+(10):	1962,9 g	2325,5 g	1553,5 g
Compute WT of Mineral Matter in Extract:			
(12) % Mineral Matter in the Extract :	0,0 %	0,0 %	0,0 %
(13) Total Agg WT,100*(11)/[100-(12)].	1962,9 g	2325,5 g	1553,5 g
(14) Mineral Matter WT (13)-(11)	0,0 g	0,0 g	0,0 g
Total % Asphalt Cement			
(15) WT. of Oil (6)-(13)	146,69 g	178,38 g	107,90 g
(16) % A.C 100*(15)/(6)	6,95 %	7,12 %	6,49 %
Dry WT before washing ((13) Above)	1962,9 g	2325,5 g	1553,5 g

		Gradation No : 39			Gradation No.: 40			Gradation No.: 41		
Sieve Size	Specs. HI / LO	Accum. Weight Retained	Accum. Percent Retained	Percent Passing	Accum. Weight Retained	Accum. Percent Retained	Percent Passing	Accum Weight Retained	Accum. Percent Retained	Percent Passing
1"	0	0,0	0	100	0,0	0	100	0,0	0	100
3/4"	100 / 90	105,1	5	95	77,3	3	97	30,8	2	98
1/2"	83 / 73	441,1	22	78	477,0	21	79	299,0	19	81
3/8"	77 / 67	619,4	32	68	742,8	32	68	468,2	30	70
No 4	60 / 50	967,8	49	51	1156,9	50	50	800,6	52	48 *
No. 10	41 / 33	1300,1	68	34	1520,9	65	35	1072,1	69	31 *
No 40	19 / 11	1701,6	87	13	1990,6	86	14	1361,3	88	12
No 80	/	1814,7	92	8	2131,3	92	8	1439,9	93	7
No. 200	7,3 / 3,3	1878,5	95,7	4,3	2211,8	95,1	4,9	1483,8	95,5	4,5
		95 %F	73 %SE		97 %F	77 %SE		91 %F	0 %SE	

Lab Technician _____

"PMBP 1-A" Agency Mix (350901) - (Continued)

GRAD2

REPORT 39 New Mexico State Highway Department

HOT MIX EXTRACTION / GRADATION WORK SHEET

Project Control Number: 1433

Project No.: ACIM-010-1(69)34 Material: PMBP 1-A Date : 09/13&16/96

Sample No. :	132	133	
Station :	811+00	825+00	
Compute Hot Mix Moisture:	CONTR	CONTR	
(1) WT. Hot Mix Moisture Sample Wet :	0,0 g	0,0 g	0,0 g
(2) WT Hot Mix Moisture Sample Dry :	0,0 g	0,0 g	0,0 g
(3) WT. of Moisture (1)-(2) :	0,0 g	0,0 g	0,0 g
(4) % Moist.in Hot Mix, 100*(3)/(2) :	%	%	%
Correct Hot Mix for Moist. Content:			
(5) Extraction Sample WT. w/Moist. :	2892,4 g	2879,4 g	0,0 g
(6) Extract. Sample Correct. Dry WT.. 100*(5)/[100+(4)]	2892,4 g	2879,4 g	0,0 g
Extraction Data :			
(7) WT of Filter before Extraction. :	18,7 g	18,0 g	0,0 g
(8) WT of Filter after Extraction. :	22,1 g	20,6 g	0,0 g
(9) WT of Agg. after Extraction. :	2699,3 g	2680,1 g	0,0 g
(10) WT of Material on Filter (8)-(7):	3,4 g	2,6 g	0 g
(11) Total WT. after Extract.(9)+(10):	2702,7 g	2682,7 g	0,0 g
Compute WT. of Mineral Matter in Extract:			
(12) % Mineral Matter in the Extract :	0,0 %	0,0 %	0,0 %
(13) Total Agg.WT,100*(11)/[100-(12)]:	2702,7 g	2682,7 g	0,0 g
(14) Mineral Matter WT. (13)-(11) :	0,0 g	0,0 g	0,0 g
Total % Asphalt Cement :			
(15) WT of Oil (6)-(13)	189,70 g	196,70 g	0,00 g
(16) % A.C. 100*(15)/(6) :	6,56 %	6,83 %	%
Dry WT before washing ((13) Above) .	2702,7 g	2682,7 g	0,0 g

Sieve Size	Specs. HI / LO	Gradation No.: 132 Accum. Weight Retained	Accum. Percent Retained	Percent Passing	Gradation No.: 133 Accum. Weight Retained	Accum. Percent Retained	Percent Passing	Gradation No Accum. Weight Retained	Accum. Percent Retained	Percent Passing
0	0	0,0	0	100	0,0	0	100	0,0		100
3/4"	100 / 90	129,6	5	95	105,2	4	96	0,0		100
1/2"	83 / 73	533,8	20	80	486,5	18	82	0,0		100
3/8"	77 / 67	774,0	29	71	659,3	25	75	0,0		
No. 4	60 / 50	1324,7	49	51	1265,0	47	53	0,0		
No. 10	41 / 33	1806,2	67	33	1737,1	65	35	0,0		
No. 40	19 / 11	2365,3	88	12	2268,4	85	15	0,0		
No. 80	/	2452,3	91	9	2456,9	92	8	0,0		
No. 200	7,3 / 3,3	2578,6	95,4	4,6	2571,0	95,8	4,2	0,0		
		96 %F	0 %SE		98 %F	0 %SE		0 %F	0 %SE	

Lab Technician _____

"PMBP 1-A" Agency Mix (350901) - (Continued)

GMM

New Mexico State Highway Department
DISTRICT I LABORATORY

CONFORMANCE OF ROADWAY MIX WITH DESIGN SPECIFICATIONS

Sampled by .	T. SAUCEDO	Project No. :	ACIM-010-1(69)34	Location :	I-10 EAST	Report No.:	39
Date Sampled:	09/13&16/98	Date Received:	'xx/xx/xx	Date Tested:	xx/xx/xx	Project Control Number:	1433

1) DESIGN MIX DATA , Design Gmm 2.193 Design Gse 2.402

2) LAB COMPUTATIONS OF MAX SPECIFIC GRAVITY OF ROADWAY MIX:

	(A)			(B)			(C)		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
WT. OF BOWL (TARE)	2153,8 g	2153,8 g	0,0	2153,8 g	2153,8 g	0,0 g	2153,8 g	2153,8 g	0,0 g
+2500 g SAMPLE WT.	2500,0 g	2500,0 g	2500,0	2500,0 g	2500,0 g	2500,0 g	2500,0 g	2500,0 g	2500,0 g
WT OF BOWL+SAMPLE	4653,8 g	4653,8 g	2500,0	4653,8 g	4653,8 g	2500,0 g	4653,8 g	4653,8 g	2500,0 g
+0.7 g OF AEROSOL OT	0,7 g	0,7 g	0,7	0,7 g	0,7 g	0,7 g	0,7 g	0,7 g	0,7 g
TOTAL WT.	4654,5 g	4654,5 g	2500,7	4654,5 g	4654,5 g	2500,7 g	4654,5 g	4654,5 g	2500,7 g

3) COMPUTATION OF Gmm (mix), ROADWAY Gmm AND AVERAGE DAILY Gmm :

WT OF MIX+BOWL IN WATER	8745,7 g	8745,7 g	0,0	8747,0 g	8747,0 g	0,0 g	8748,9 g	8748,9 g	0,0 g
WT OF BOWL IN WATER	7384,6 g	7384,6 g	0,0	7384,6 g	7384,6 g	0,0 g	7384,6 g	7384,6 g	0,0 g
Mix Gm	2,195	2,195		2,198	2,198		2,201	2,201	
Roadway	2,195			2,198			2,201		
Avg Daily Gmm					2,198				
Remarks:									

** The formula A/(A-C)=2500/(2500-(Wmbw-Wbw)) was used to calculate Gmm.
Where ·
Wmbw is· WT OF MIX+BOWL IN WATER
Wbw is. WT. OF BOWL IN WATER

4) COMPUTATION OF AGGREGATE EFFECTIVE SPECIFIC GRAVITY ·

% AC IN MIX	7,6 %	7,6 %	7,6	7,6 %	7,6 %	7,6 %	7,6 %	7,6 %	7,6 %
OIL SPECIFIC GRAVITY	0,999	0,999	0,999	0,999	0,999	0,999	0,999	0,999	0,999
Roadway Gse		2,435			2,438			2,443	
Avg Daily Gse					2,439				

** The formula Roadway Gse =(Pmm-Pb)/((Pmm/Roadway Gmm)-(Pb/Gb)) was used to calculate Roadway Effectve Specific Gravity based on Maximum Specific Gravity of Roadway Mix.

** The formula Roadway Gse =(Pmm-Pb)/((Pmm/Daily Avg Gmm)-(Pb/Gb)) was used to calculate Daily Avg Effective Specific Gravity based on Daily Avg Maximum Specific Gravity of Roadway Mix.

Where .
Pmm is 100
Pb is : % A.C. in mix.
Gb is . Oil Specific Gravity.

"PMBP 1-A" Agency Mix (350901) - (Continued)

Superpave Design Summary — Law/Crandall

Law Job No.:	702.41-50360	Date:	08-26-96
Law Lab No.:	60758C	Mix Type:	19 mm Nominal Max.
Project Name:	SPS-9A Level 1 Asphalt Mix Design	Traffic Type:	<30 Million ESALs
Client:	James Hamilton Construction	Asphalt Source:	Chevron USA
Project No.:	350900, IH-10 EBL, Grant County, NM	Asphalt Grade:	PG 64-22
Source of Aggregate:	Pigeon Hill	Type of Admix.:	Hydrated Lime

Composite Aggregate Gradation

Aggregate	Lab No.	Percentage
Crushed Fines	60760	24
Filler	60761	10
Intermediate Aggregate	60759	28
Coarse Aggregate	60758	37
0.000		0
		0
Hydrated Lime	Lime	1.5

Sieve (US/mm)	Composite	Control Points	Production Specs
2" / 50	100		
1.5" / 37.5	100		
1" / 25	100	(100)	(100)
3/4" / 19	96	(90-98)	(90-100)
1/2" / 12.5	79	90 Max	(72-45)
3/8" / 9.5	67		
1/4" / 6.3	55		
#4 / 4.75	47		
#8 / 2.36	31	(23-35)	(27-35)
#10 / 2.00	29		
#16 / 1.18	21	22 Max	(17-25)
#30 / .600	15	17 Max	(11-19)
#40 / .425	12		
#50 / .300	10	14 Max	(6-14)
#100 / .150	8		
#200 / .075	5.9	(2-4)	(3.9-7.9)

Tensile Strength Ratio

Dry	Wet	Ratio	% Asphalt
98.8	80.3	0.81	6.8
		0.80 Min	

Design Data at Optimum % Asphalt

Property	Value	Spec.	Prod. Spec.
Percent of Asphalt:	6.8		
Bulk Specific Gravity @ Nini:	1.398	9 Gyr	
Bulk Specific Gravity @ Ndesign:	2.100	125 Gyr.	
Bulk Specific Gravity @ Nmax:	2.129	205 Gyr.	
Theor. Max. Sp. Gr. (Gmm):	2.190		
Bulk Density @ Nd (kg/m3):	2100		(2290-2418)
Percent Gmm @ Nini:	86.6	89 Max	
Percent Gmm @ Ndesign:	95.9	(95.5-96.5)	(95.0-97.0)
Percent Gmm @ Nmax:	97.3	98 Max	
Percent Air Voids @ Ndesign:	4.1	(3.5-4.5)	(3.0-5.0)
Percent VMA @ Ndesign:	15.0	14.0 Min	
Percent Voids Filled @ Ndesign:	72.4	(65-78)	
Percent Effective Asphalt:	5.198		
Dust to Eff. Asphalt Ratio:	1.14	(0.6-1.2).	
Asphalt Specific Gr.:	1.007	**	
Effective Sp. Gravity:	2.396		
Film Thickness(microns):	10.7		

Aggregate / Admix Properties

Property	Coarse	Fine	Comb w/ Adm.	Spec
Bulk (Dry) Sp. Gravity:	2.215	2.536	2.302	
"SSD" Sp. Gravity:	2.338	2.569	2.400	
Apparent Sp. Gravity:	2.525	2.623	2.548	
Water Absorption(%):	5.56	1.30	2.73	
Admixture Sp. Gravity:			2.200	
Sand Equivalent value:			68	45 Min
Fractured Face One (%):			**	
Fractured Face Two (%):			95	85 Min
Magnesium Sulfate Soundness (%):			1	15 Max
Liquid Limit :			NV	
Plastic Limit :			NP	NP
Uncompacted Voids (%):			50	45 Min
Asphalt Absorbed into Dry Aggregate (%):			1.72	
L.A. Abrasion @ 500 Rev.(%):			25	40 Max

SUPERPAVE™ Mix 1, PG64-22 (350902)

Superpave Design Summary — Law/Crandall

Law Job No.:	702.41-50360	Date:	08-23-96
Law Lab No.:	60758A	Mix Type:	19 mm Nominal Max.
Project Name:	SPS-9A Level 1 Asphalt Mix Design	Traffic Type:	<30 Million ESALs
Client:	James Hamilton Construction	Asphalt Source:	Chevron USA
Project No.:	350900, IH-10 EBL, Grant County, NM	Asphalt Grade:	PG 58-22
Source of Aggregate:	Pigeon Hill	Type of Admix.:	Hydrated Lime

Composite Aggregate Gradation

Aggregate	Lab No.	Percentage
Crushed Fines	60760	24
Filler	60761	10
Intermediate Aggregate	60759	28
Coarse Aggregate	60758	37
0.000		0
		0
Hydrated Lime	Lime	1.5

Sieve (US/mm)	Composite	Control Points	Production Specs
2" / 50	100		
1.5" / 37.5	100		
1" / 25	100	(100)	(100)
3/4" / 19	96	(90-98)	(90-100)
1/2" / 12.5	79	90 Max	(73-85)
3/8" / 9.5	67		
1/4" / 6.3	55		
#4 / 4.75	47		
#8 / 2.36	31	(23-35)	(27-35)
#10 / 2.00	29		
#16 / 1.18	21	22 Max	(17-25)
#30 / .600	15	17 Max	(11-19)
#40 / .425	12		
#50 / .300	10	14 Max	(6-14)
#100 / .150	8		
#200 / .075	5.9	(2-8)	(3.9-7.9)

Tensile Strength Ratio

Dry	Wet	Ratio	% Asphalt
70.1	58.0	0.83	6.9
		0.80 Min	

Design Data at Optimum % Asphalt

Property	Value	Spec.	Prod Spec.
Percent of Asphalt:	6.9		
Bulk Specific Gravity @ Nini:	1.899	9 Gyr.	
Bulk Specific Gravity @ Ndesign:	2.099	128 Gyr	
Bulk Specific Gravity @ Nmax:	2.128	205 Gyr	
Theor. Max. Sp. Gr. (Gmm):	2.191		
Bulk Density @ Nd (kg/m3):	2099		
Percent Gmm @ Nini:	86.6	89 Max	
Percent Gmm @ Ndesign:	95.8	(95.8-96.2)	(95.0-97.0)
Percent Gmm @ Nmax:	97.1	98 Max	
Percent Air Voids @ Ndesign:	4.2	(3.8-4.2)	(3.0-5.0)
Percent VMA @ Ndesign:	15.1	14.0 Min	
Percent Voids Filled @ Ndesign:	72.2	(65-78)	
Percent Effective Asphalt:	4.929		
Dust to Eff. Asphalt Ratio:	1.20	(0.6-1.2)	
Asphalt Specific Gr.:	0.950	**	
Effective Sp. Gravity:	2.426		
Film Thickness(microns):	10.8		

Aggregate / Admix Properties

Property	Coarse	Fine	Comb w/ Adm.	Spec
Bulk (Dry) Sp. Gravity:	2.215	2.536	2.302	
"SSD" Sp. Gravity:	2.338	2.569	2.400	
Apparent Sp. Gravity:	2.525	2.623	2.548	
Water Absorption(%):	5.56	1.30	2.73	
Admixture Sp. Gravity:			2.200	
Sand Equivalent value:			68	45 Min
Fractured Face One (%):			**	
Fractured Face Two (%):			98	85 Min
Magnesium Sulfate Soundness (%):			1	15 Max
Liquid Limit :			NV	
Plastic Limit :			NP	NP
Uncompacted Voids (%):			50.1	45 Min
Asphalt Absorbed into Dry Aggregate (%):			2.12	
L.A. Abrasion @ 500 Rev (%):			25	40 Max

SUPERPAVE™ Mix 2, PG58-22 (350903)

Superpave Design Summary — Law/Crandall

Law Job No.:	702.41-50360	Date:	08-26-96
Law Lab No.:	60758B	Mix Type:	19 mm Nominal Max.
Project Name:	SPS-9A Level 1 Asphalt Mix Design	Traffic Type:	<30 Million ESALs
Client:	James Hamilton Construction	Asphalt Source:	Chevron USA
Project No.:	350500, IH-10 EBL, Grant County, NM	Asphalt Grade:	PG 64-10
Source of Aggregate:	Pigeon Hill	Type of Admix.:	Hydrated Lime

Composite Aggregate Gradation

Aggregate	Lab No.	Percentage
Crushed Fines	60760	24
Filler	60761	10
Intermediate Aggregate	60759	28
Coarse Aggregate	60758	37
0.000		0
		0
Hydrated Lime	Lime	1.5

Sieve (US/mm)	Composite	Control Points	Production Specs
2" / 50	100		
1.5" / 37.5	100		
1" / 25	100	(100)	(100)
3/4" / 19	96	(90-98)	(90-100)
1/2" / 12.5	79	90 Max	(73-85)
3/8" / 9.5	67		
1/4" / 6.3	55		
#4 / 4.75	47		
#8 / 2.36	31	(23-35)	(27-35)
#10 / 2.00	29		
#16 / 1.18	21	22 Max	(17-25)
#30 / .600	15	17 Max	(11-19)
#40 / .425	12		
#50 / .300	10	14 Max	(6-14)
#100 / .150	8		
#200 / .075	5.9	(2-8)	(3.9-7.9)

Tensile Strength Ratio

Dry	Wet	Ratio	% Asphalt
93.2	74.6	0.80	6.8
		0.80 Min	

Design Data at Optimum % Asphalt

Property	Value	Spec.	Prod Spec.
Percent of Asphalt:	6.8		
Bulk Specific Gravity @ Nini:	1.890	9 Gyr.	
Bulk Specific Gravity @ Ndesign:	2.099	125 Gyr.	
Bulk Specific Gravity @ Nmax:	2.128	205 Gyr.	
Theor. Max. Sp. Gr. (Gmm):	2.190		
Bulk Density @ Nd (kg/m3):	2099		
Percent Gmm @ Nini:	86.3	89 Max	
Percent Gmm @ Ndesign:	95.9	(95.8-96.2)	(95.0-97.0)
Percent Gmm @ Nmax:	97.2	98 Max	
Percent Air Voids @ Ndesign:	4.1	(3.8-4.2)	(3.0-5.0)
Percent VMA @ Ndesign:	15.0	14.0 Min	
Percent Voids Filled @ Ndesign:	72.4	(65-78)	
Percent Effective Asphalt	5.518		
Dust to Eff. Asphalt Ratio:	1.07	(0.6-1.2)	
Asphalt Specific Gr.:	1.066	--	
Effective Sp. Gravity:	2.372		
Film Thickness(microns):	10.8		

Aggregate / Admix Properties

Property	Coarse	Fine	Comb w/ Adm.	Spec
Bulk (Dry) Sp. Gravity:	2.215	2.536	2.302	
"SSD" Sp. Gravity:	2.338	2.569	2.400	
Apparent Sp. Gravity:	2.525	2.623	2.548	
Water Absorption(%):	5.56	1.30	2.73	
Admixture Sp. Gravity:			2.200	
Sand Equivalent value:			68	45 Min
Fractured Face One (%):			**	
Fractured Face Two (%):			98	85 Min
Magnesium Sulfate Soundness (%):			1	15 Max
Liquid Limit :			NV	
Plastic Limit :			NP	NP
Uncompacted Voids (%):			50	45 Min
Asphalt Absorbed into Dry Aggregate (%):			1.38	
L.A. Abrasion @ 500 Rev.(%):			25	40 Max

Supplemental Binder Mix, PG64-10 (350904)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS LABORATORY BUREAU
P.O. BOX 1149 SANTA FE, NEW MEXICO 87504-1149

OPEN GRADED FRICTION COURSE

LAB NO.	96-01325	DISTRICT	ONE
DATE ISSUED	4-16-96	PROJECT	ACIM-010-1(69)34
SUBMITTED BY	G. TAFOYA	LOCATION	I-10, GRANT/HIDALGO
CONTROL NO.	1433		C/L---E.
SOURCE	PIGEON HILL PIT	TESTED FOR	OGFC DESIGN

SIEVE ANALYSIS

SIEVE SIZE	%PASSING	REQUIRED GRADING
12.5mm	100	100
9.5mm	99	90-100
4.75mm	37	25-55
2.00mm	5	0-12
425um	2	0-8
75um	1.3	0-4

DESIGN DATA

ASPHALT REFINERY	PAC-20 KOCH
% ASPHALT	7.1%

1.0% LIME MAY BE USED IF BENEFICIAL IN THE MIX TO PREVENT STRIPPING WHICH IS TO BE DETERMINED BY THE DISTRICT LAB. UNIT WT. SHALL BE DETERMINED FROM OGFC PRODUCTION SAMPLES IN ACCORDANCE WITH ESTABLISHED PROCEDURE.

DATE SAMPLED	3-29-96	DATE TESTED	4-15-96
DATE RECEIVED	4-1-96	TESTED BY	GARY J. MEDINA

COMMENTS: ACCEPT WHEN SOUNDNESS LOSS MEETS SPEC.

RECEIVED
APR 25 1996

CREW 51-13

REPORTED BY GARY J. MEDINA
LAB TECHNICIAN

APPROVED BY CARLOS A. GIRON
LAB SUPERVISOR

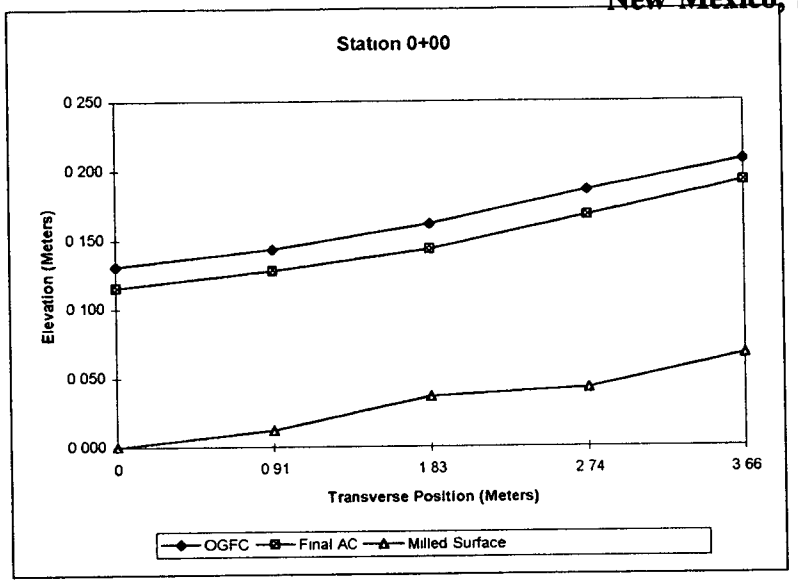
APPENDIX C

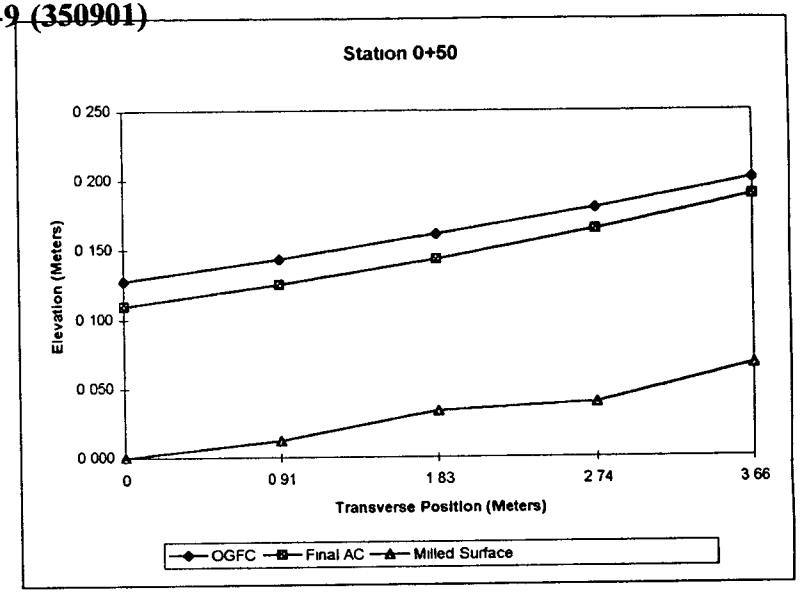
SURFACE PROFILE DATA

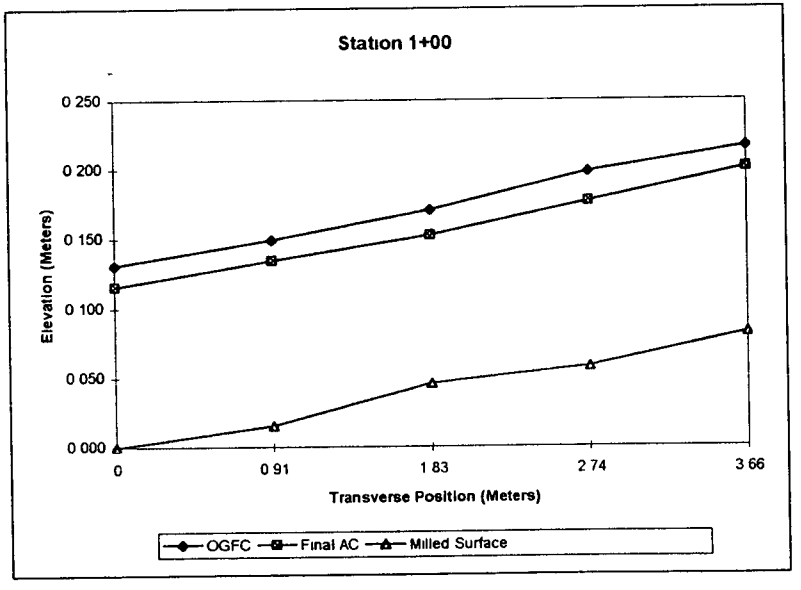
New Mexico, SPS-9 (350901)

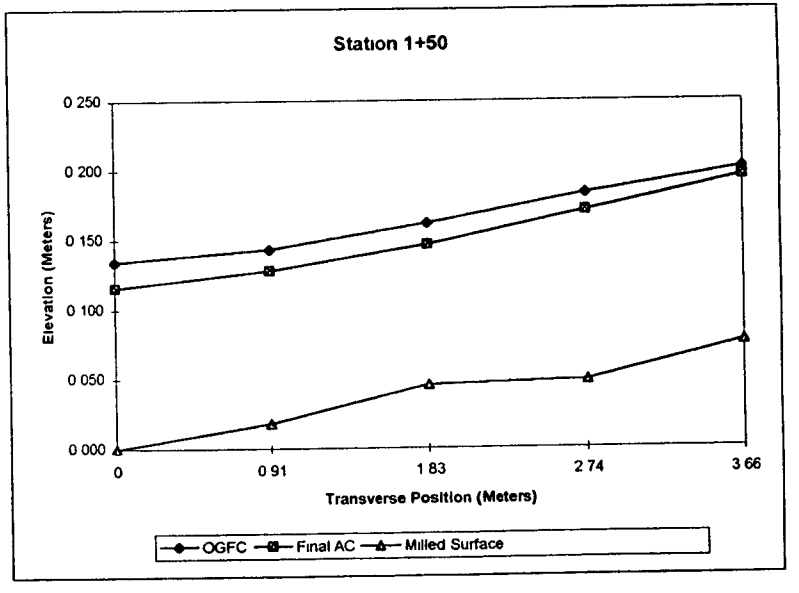
Transverse Offset 3 LAYERS	ELEVATION 0 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 0.91 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 1.83 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 2.74 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 3.66 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches
0+00 OGFC	0.636	0.015	0.600	0.116	4.560	0.649	0.015	0.600	0.116	4.560	0.667	0.018	0.720	0.107	4.200	0.691	0.018	0.720	0.125	4.920	0.713	0.015	0.600	0.125	4.920
Final AC	0.621					0.633					0.649					0.673					0.697				
Milled Surface	0.505					0.518					0.542					0.548					0.572				
0+50 OGFC	0.588	0.018	0.720	0.110	4.320	0.603	0.018	0.720	0.113	4.440	0.621	0.018	0.720	0.110	4.320	0.640	0.015	0.600	0.125	4.920	0.661	0.012	0.480	0.122	4.800
Final AC	0.569					0.585					0.603					0.624					0.649				
led Surface	0.460					0.472					0.493					0.499					0.527				
1+00 OGFC	0.533	0.015	0.600	0.116	4.560	0.551	0.015	0.600	0.119	4.680	0.572	0.018	0.720	0.107	4.200	0.600	0.021	0.840	0.119	4.680	0.618	0.015	0.600	0.119	4.680
Final AC	0.518					0.536					0.554					0.579					0.603				
Milled Surface	0.402					0.417					0.447					0.460					0.484				
1+50 OGFC	0.502	0.018	0.720	0.116	4.560	0.511	0.015	0.600	0.110	4.320	0.530	0.015	0.600	0.101	3.960	0.551	0.012	0.480	0.122	4.800	0.569	0.006	0.240	0.119	4.680
Final AC	0.484					0.496					0.515					0.539					0.563				
Milled Surface	0.368					0.387					0.414					0.417					0.444				
2+00 OGFC	0.463	0.018	0.720	0.122	4.800	0.478	0.018	0.720	0.125	4.920	0.493	0.018	0.720	0.110	4.320	0.515	0.015	0.600	0.128	5.040	0.533	0.009	0.360	0.122	4.800
Final AC	0.444					0.460					0.475					0.499					0.524				
led Surface	0.323					0.335					0.365					0.371					0.402				
2+50 OGFC	0.411	0.018	0.720	0.116	4.560	0.432	0.018	0.720	0.118	4.560	0.451	0.018	0.720	0.110	4.320	0.478	0.018	0.720	0.125	4.920	0.506	0.018	0.720	0.128	5.040
Final AC	0.393					0.414					0.432					0.460					0.487				
Milled Surface	0.277					0.298					0.323					0.335					0.359				
3+00 OGFC	0.344	0.015	0.600	0.107	4.200	0.365	0.015	0.600	0.094	3.720	0.387	0.012	0.480	0.098	3.840	0.411	0.009	0.360	0.110	4.320	0.441	0.009	0.360	0.122	4.800
Final AC	0.329					0.350					0.374					0.402					0.432				
Milled Surface	0.222					0.255					0.277					0.292					0.310				
3+50 OGFC	0.310	0.021	0.840	0.107	4.200	0.329	0.018	0.720	0.094	3.720	0.347	0.012	0.480	0.110	4.320	0.374	0.006	0.240	0.119	4.680	0.405	0.009	0.360	0.143	5.640
Final AC	0.289					0.310					0.335					0.368					0.396				
Milled Surface	0.182					0.216					0.225					0.249					0.252				
4+00 OGFC	0.280	0.021	0.840	0.098	3.840	0.301	0.024	0.960	0.094	3.720	0.328	0.024	0.960	0.098	3.840	0.347	0.018	0.720	0.116	4.560	0.371	0.015	0.600	0.125	4.920
Final AC	0.259					0.277					0.301					0.329					0.356				
Milled Surface	0.161					0.182					0.204					0.213					0.231				
4+50 OGFC	0.228	0.021	0.840	0.098	3.840	0.249	0.024	0.960	0.098	3.840	0.271	0.024	0.960	0.094	3.720	0.292	0.018	0.720	0.116	4.560	0.313	0.009	0.360	0.122	4.800
Final AC	0.207					0.225					0.246					0.274					0.304				
led Surface	0.109					0.127					0.152					0.158					0.182				
5+00 OGFC	0.188	0.024	0.960	0.113	4.440	0.207	0.024	0.960	0.113	4.440	0.225	0.021	0.840	0.101	3.960	0.243	0.015	0.600	0.116	4.560	0.262	0.012	0.480	0.110	4.320
Final AC	0.164					0.182					0.204					0.228					0.249				
led Surface	0.051					0.070					0.103					0.112					0.140				
AVG	0.019	0.742	0.111	4.353		0.019	0.742	0.108	4.265		0.018	0.720	0.104	4.091		0.015	0.600	0.120	4.724		0.012	0.469	0.123	4.855
MAX	0.024	0.960	0.122	4.800		0.024	0.960	0.125	4.920		0.024	0.960	0.110	4.320		0.021	0.840	0.128	5.040		0.018	0.720	0.143	5.640
MIN	0.015	0.600	0.098	3.840		0.015	0.600	0.094	3.720		0.012	0.480	0.094	3.720		0.006	0.240	0.110	4.320		0.006	0.240	0.110	4.320
STD	0.003	0.112	0.007	0.294		0.004	0.143	0.011	0.417		0.004	0.154	0.006	0.220		0.004	0.170	0.005	0.206		0.004	0.140	0.008	0.304

New Mexico, SPS-9 (350901)

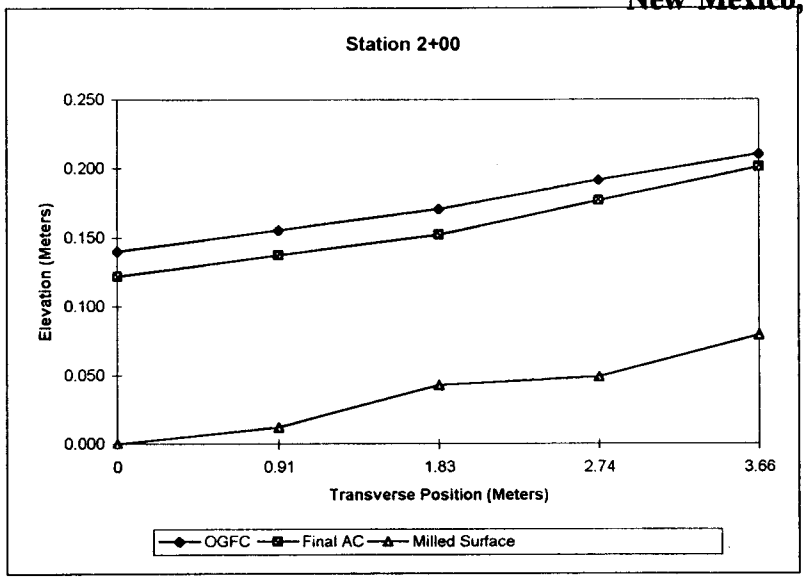


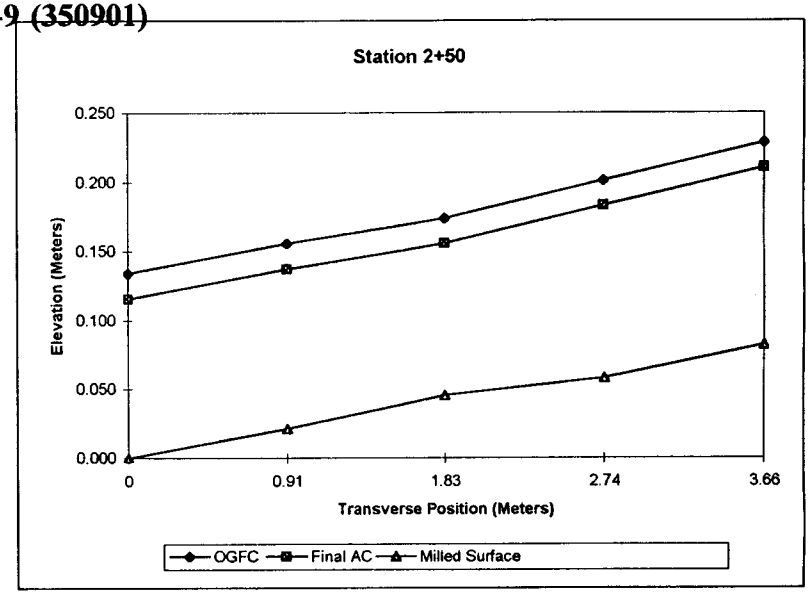


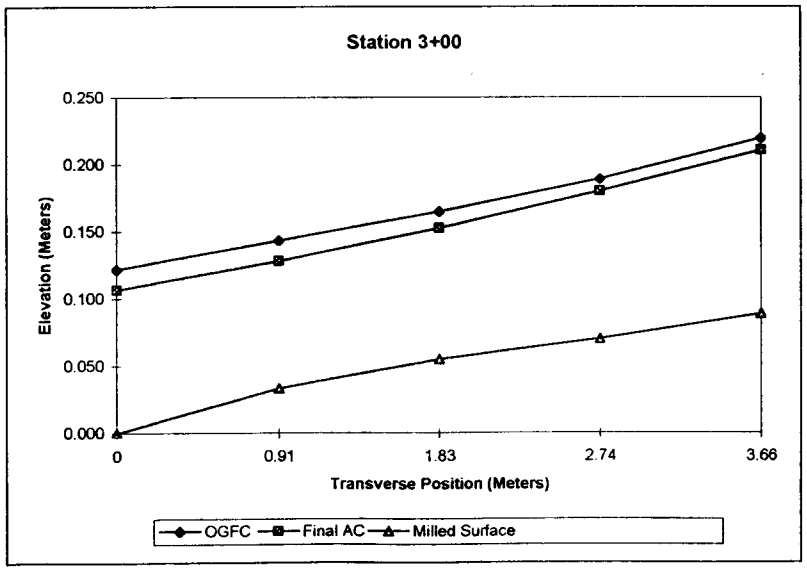


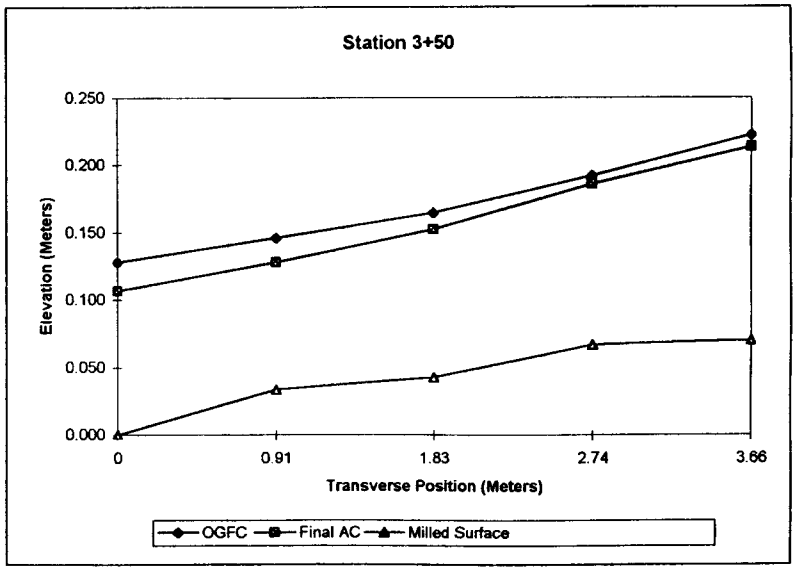


New Mexico, SPS-9 (350901)

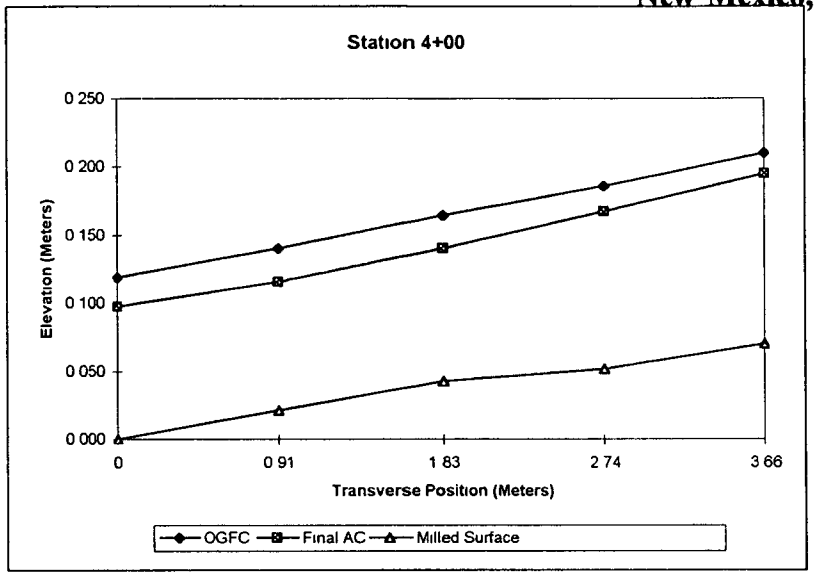


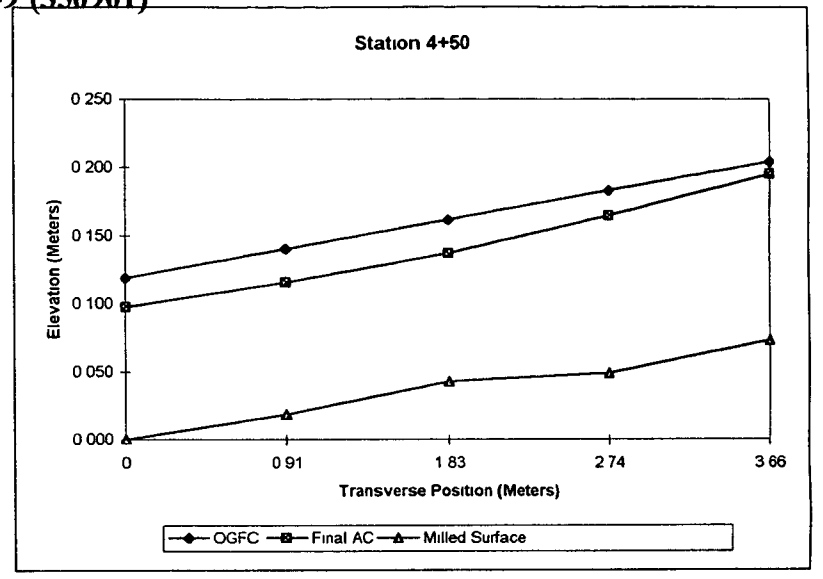


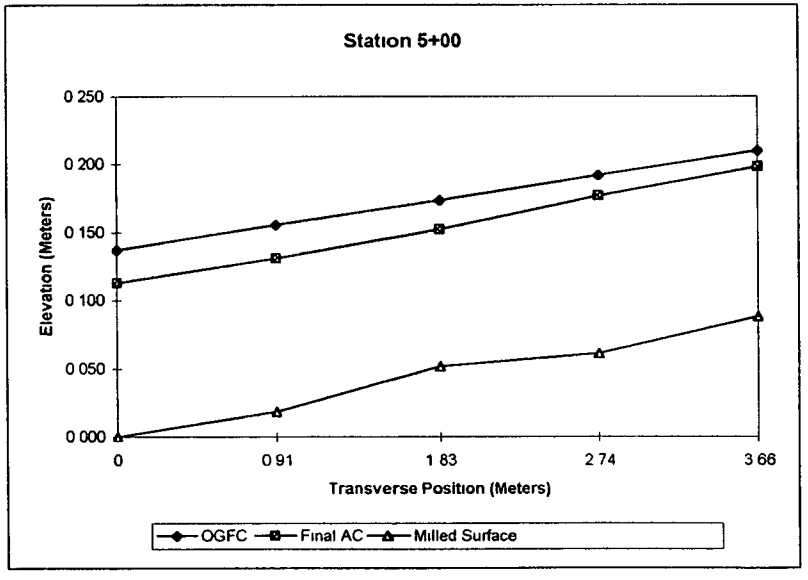




New Mexico, SPS-9 (350901)



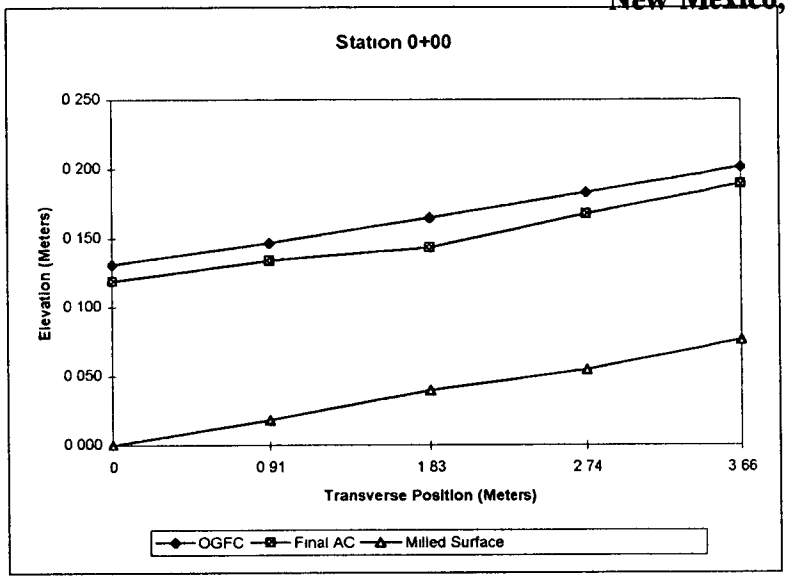


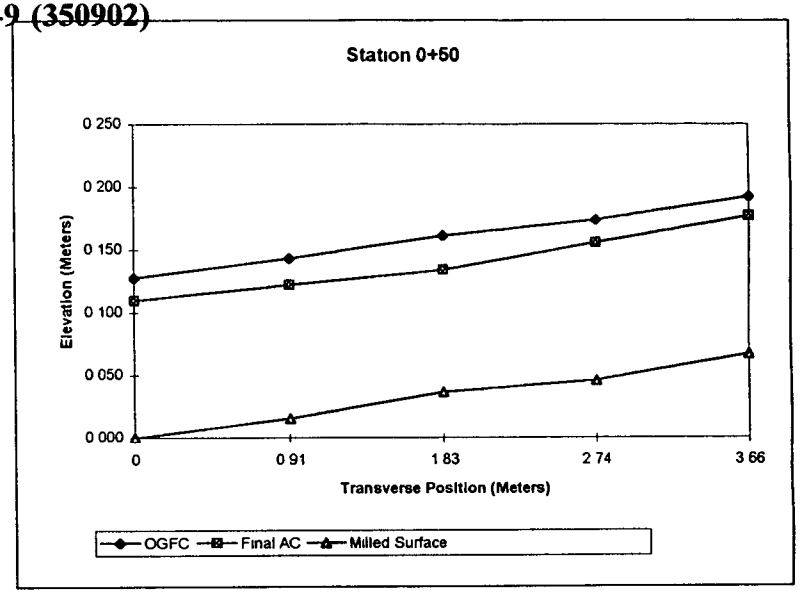


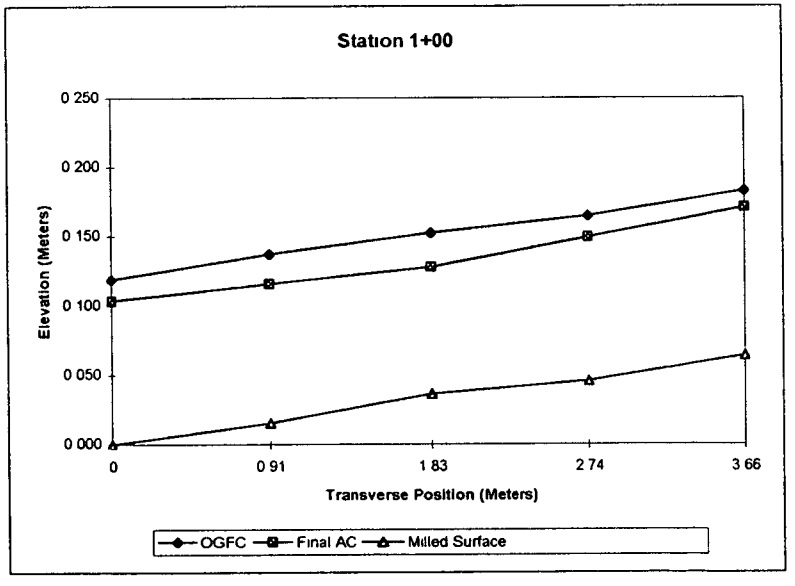
New Mexico, SPS-9 (350902)

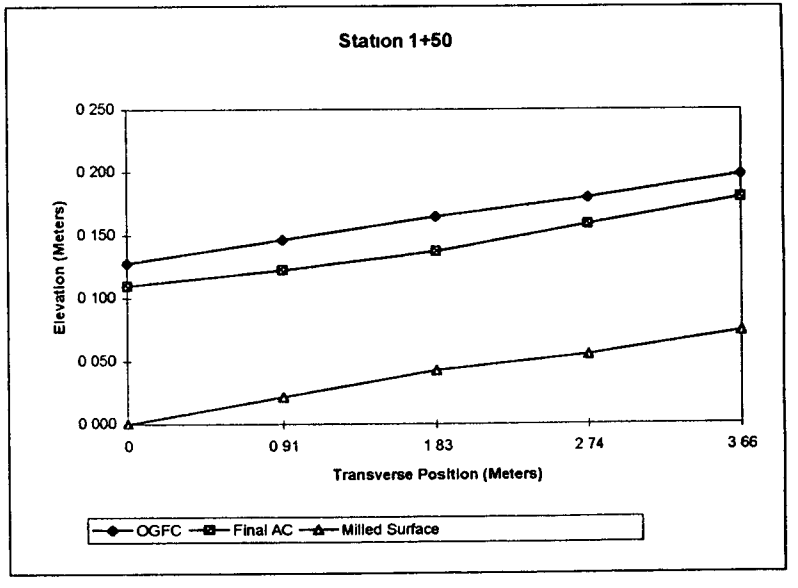
Transverse Offset 3	LAYERS	ELEVATION 0 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 0.91 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 1.83 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 2.74 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 3.66 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches
0+00	OGFC	0.340	0.012	0.480	0.119	4.680	0.356	0.012	0.480	0.116	4.560	0.374	0.021	0.840	0.104	4.080	0.392	0.015	0.600	0.113	4.440	0.411	0.012	0.480	0.113	4.440
	Final AC	0.328					0.343					0.353					0.377					0.398				
	Milled Surface	0.209					0.228					0.249					0.264					0.288				
0+50	OGFC	0.328	0.018	0.720	0.110	4.320	0.343	0.021	0.840	0.107	4.200	0.362	0.027	1.080	0.098	3.840	0.374	0.018	0.720	0.110	4.320	0.392	0.015	0.600	0.110	4.320
	Final AC	0.310					0.322					0.334					0.356					0.377				
	led Surface	0.200					0.215					0.237					0.246					0.267				
1+00	OGFC	0.307	0.015	0.600	0.104	4.080	0.325	0.021	0.840	0.101	3.960	0.340	0.024	0.960	0.091	3.600	0.353	0.015	0.600	0.104	4.080	0.371	0.012	0.480	0.107	4.200
	Final AC	0.292					0.304					0.316					0.337					0.359				
	Milled Surface	0.188					0.203					0.225					0.234					0.252				
1+50	OGFC	0.292	0.018	0.720	0.110	4.320	0.310	0.024	0.960	0.101	3.960	0.328	0.027	1.080	0.094	3.720	0.343	0.021	0.840	0.104	4.080	0.362	0.018	0.720	0.107	4.200
	Final AC	0.273					0.286					0.301					0.322					0.343				
	Milled Surface	0.164					0.185					0.206					0.218					0.237				
2+00	OGFC	0.276	0.024	0.960	0.101	3.960	0.298	0.024	0.960	0.094	3.720	0.316	0.027	1.080	0.085	3.360	0.334	0.018	0.720	0.101	3.960	0.356	0.015	0.600	0.104	4.080
	Final AC	0.252					0.273					0.289					0.316					0.340				
	led Surface	0.151					0.179					0.203					0.215					0.237				
2+50	OGFC	0.261	0.024	0.960	0.101	3.960	0.279	0.021	0.840	0.098	3.840	0.304	0.027	1.080	0.091	3.600	0.325	0.024	0.960	0.098	3.840	0.347	0.018	0.720	0.101	3.960
	Final AC	0.237					0.258					0.276					0.301					0.328				
	Milled Surface	0.136					0.161					0.185					0.203					0.228				
3+00	OGFC	0.258	0.027	1.080	0.101	3.960	0.276	0.030	1.200	0.101	3.960	0.279	0.018	0.720	0.091	3.600	0.313	0.024	0.960	0.110	4.320	0.331	0.024	0.960	0.107	4.200
	Final AC	0.231					0.246					0.261					0.289					0.307				
	Milled Surface	0.130					0.145					0.170					0.179					0.200				
3+50	OGFC	0.252	0.030	1.200	0.104	4.080	0.270	0.037	1.440	0.101	3.960	0.289	0.037	1.440	0.098	3.840	0.307	0.030	1.200	0.110	4.320	0.322	0.027	1.080	0.110	4.320
	Final AC	0.222					0.234					0.252					0.276					0.295				
	Milled Surface	0.118					0.133					0.154					0.167					0.185				
4+00	OGFC	0.240	0.034	1.320	0.110	4.320	0.255	0.037	1.440	0.104	4.080	0.273	0.037	1.440	0.098	3.840	0.289	0.030	1.200	0.110	4.320	0.310	0.030	1.200	0.104	4.080
	Final AC	0.206					0.218					0.237					0.258					0.279				
	Milled Surface	0.097					0.115					0.139					0.148					0.176				
4+50	OGFC	0.228	0.034	1.320	0.113	4.440	0.246	0.043	1.680	0.110	4.320	0.264	0.043	1.680	0.098	3.840	0.282	0.034	1.320	0.113	4.440	0.301	0.027	1.080	0.119	4.680
	Final AC	0.194					0.203					0.222					0.249					0.273				
	led Surface	0.081					0.094					0.124					0.136					0.154				
5+00	OGFC	0.209	0.040	1.560	0.107	4.200	0.228	0.046	1.800	0.110	4.320	0.243	0.046	1.800	0.101	3.960	0.264	0.043	1.680	0.116	4.560	0.279	0.037	1.440	0.113	4.440
	Final AC	0.170					0.182					0.197					0.222					0.243				
	led Surface	0.063					0.072					0.097					0.106					0.130				
	AVG	0.025	0.993	0.107	4.211		0.029	1.135	0.104	4.080		0.030	1.200	0.095	3.753		0.025	0.982	0.108	4.244		0.022	0.851	0.108	4.265
	MAX	0.040	1.560	0.119	4.680		0.046	1.800	0.116	4.560		0.046	1.800	0.104	4.080		0.043	1.680	0.116	4.560		0.037	1.440	0.119	4.680
	MIN	0.012	0.480	0.101	3.960		0.012	0.480	0.094	3.720		0.018	0.720	0.085	3.360		0.015	0.600	0.098	3.840		0.012	0.480	0.101	3.960
	STD	0.008	0.324	0.006	0.220		0.010	0.391	0.006	0.234		0.008	0.328	0.005	0.192		0.008	0.323	0.005	0.213		0.008	0.305	0.005	0.194

New Mexico, SPS-9 (350902)

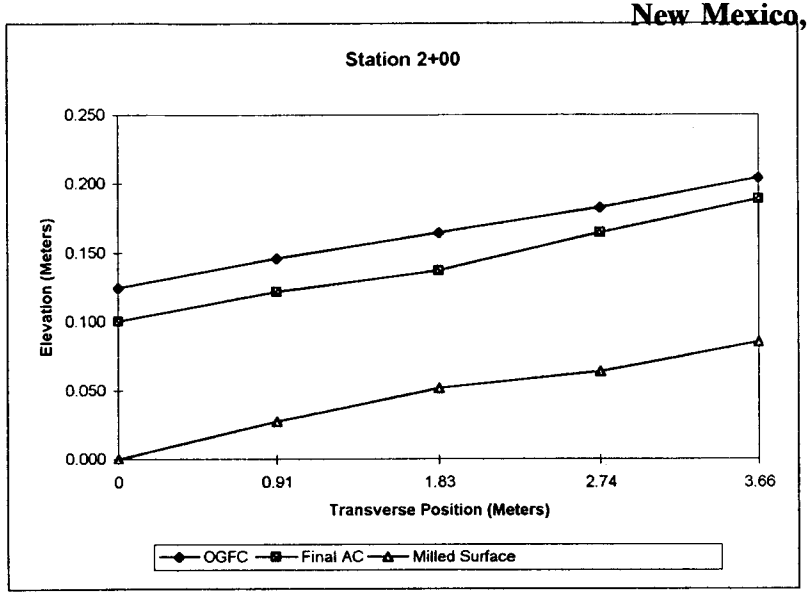


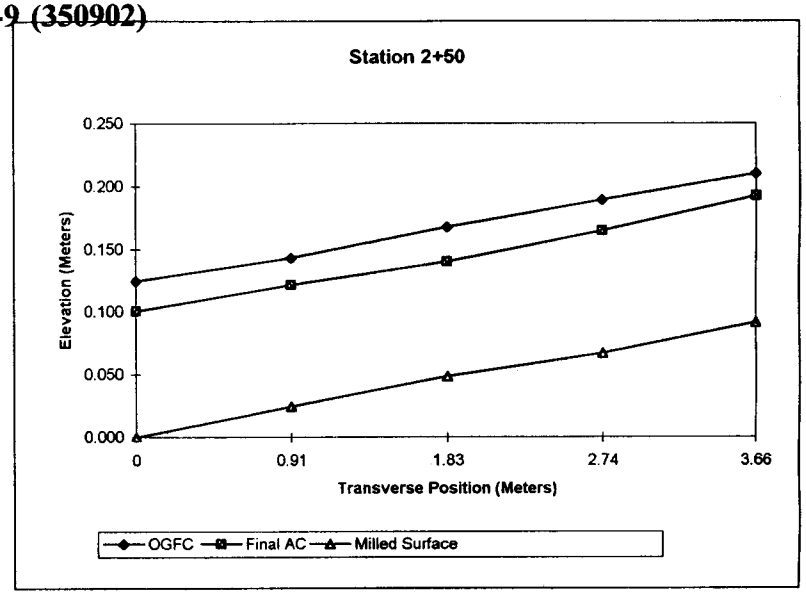


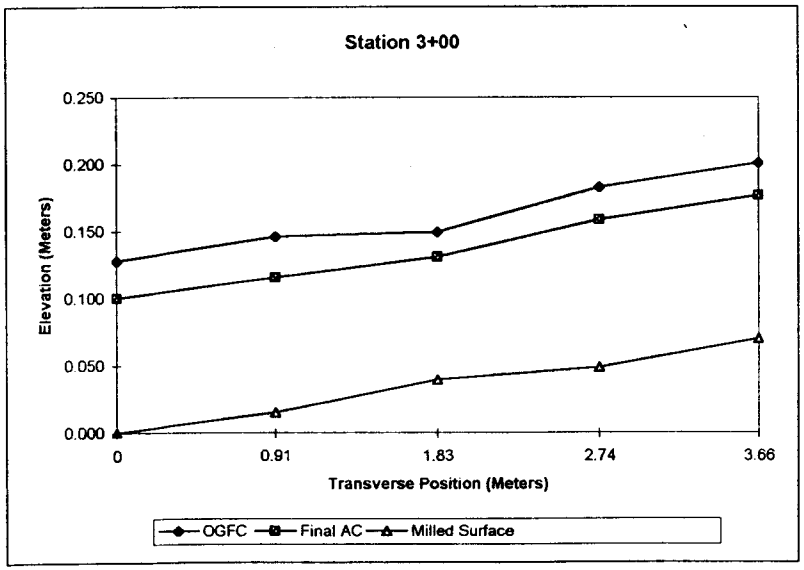


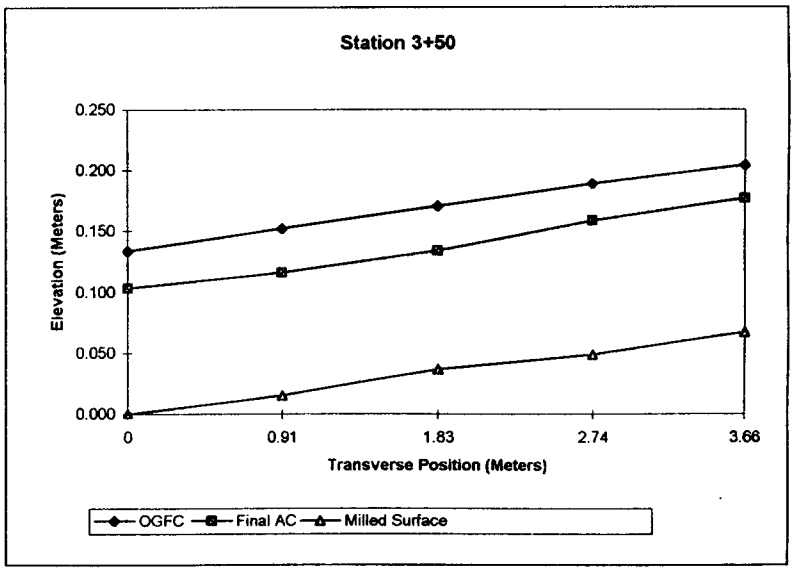


New Mexico, SPS-9 (350902)

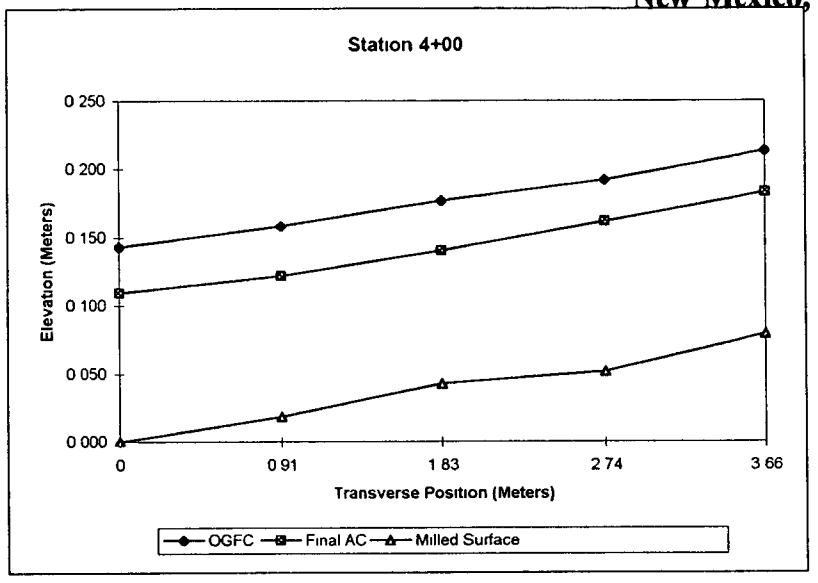


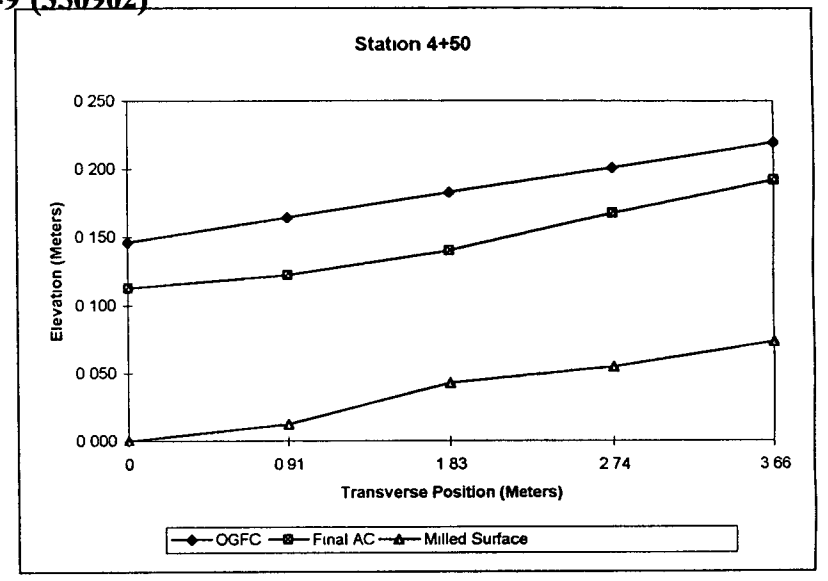


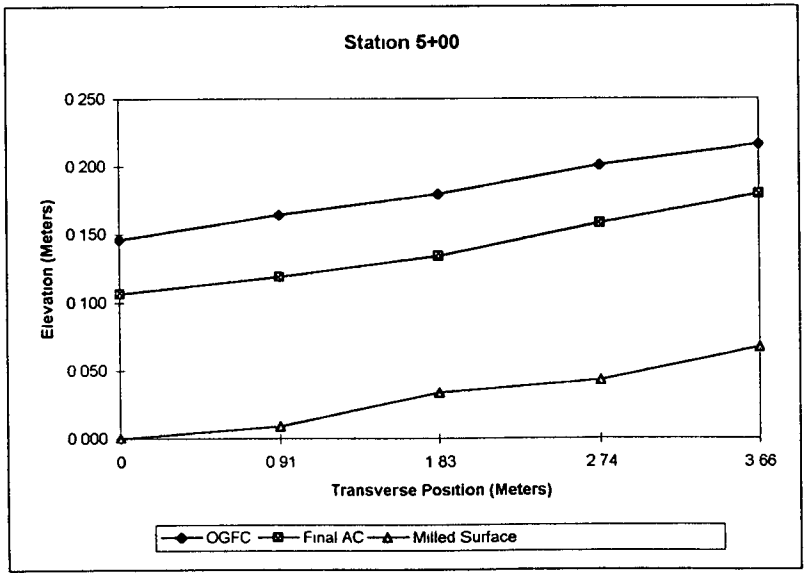




New Mexico, SPS-9 (350902)



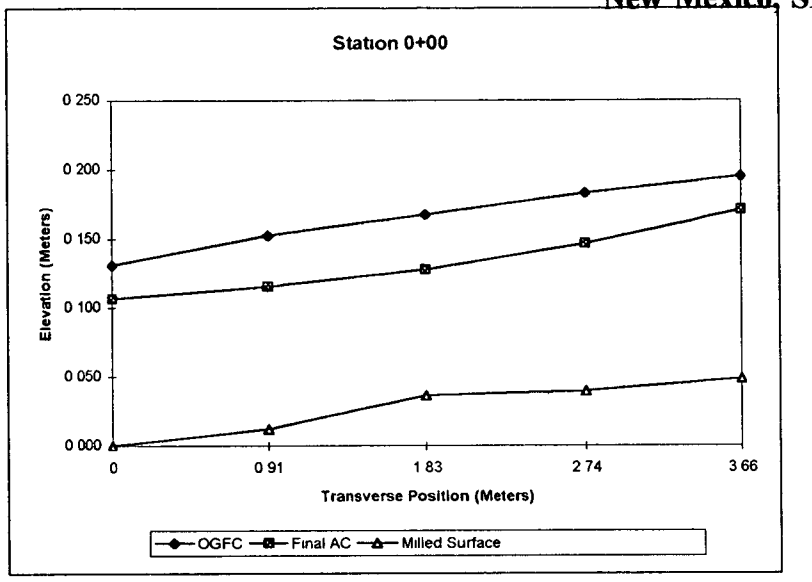


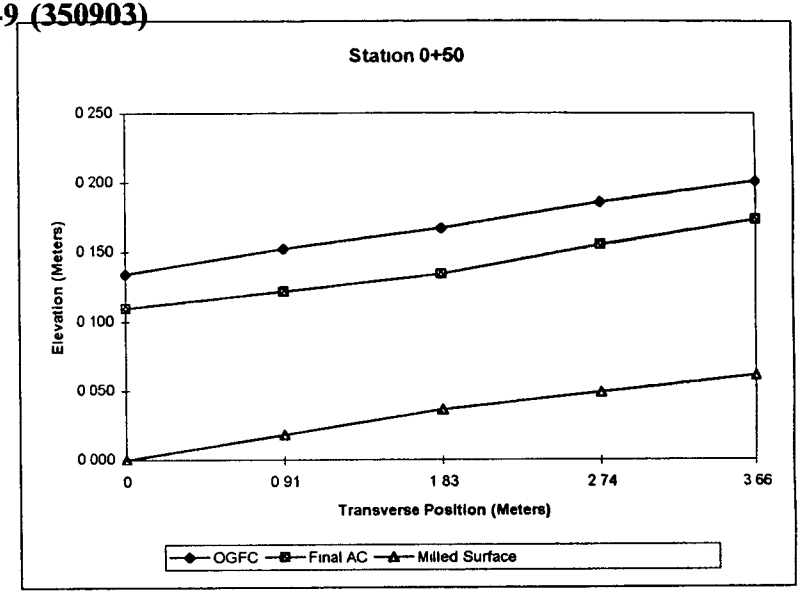


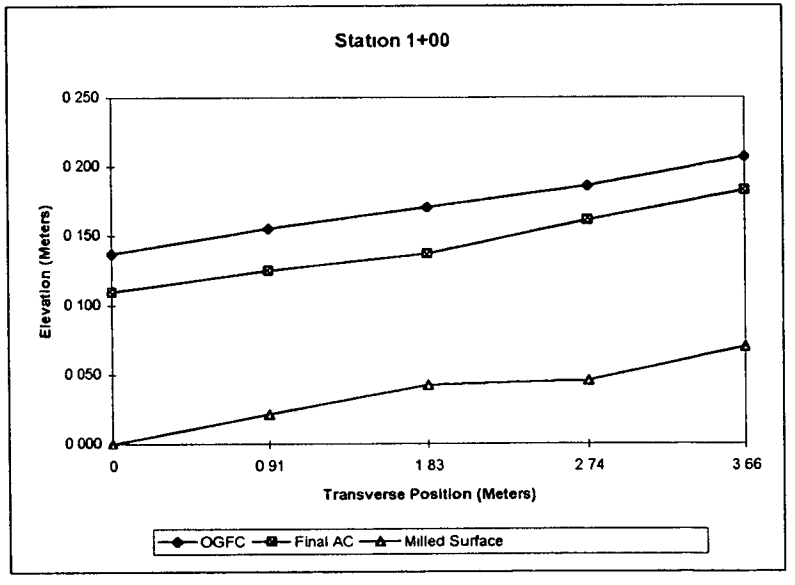
New Mexico, SPS-9 (350903)

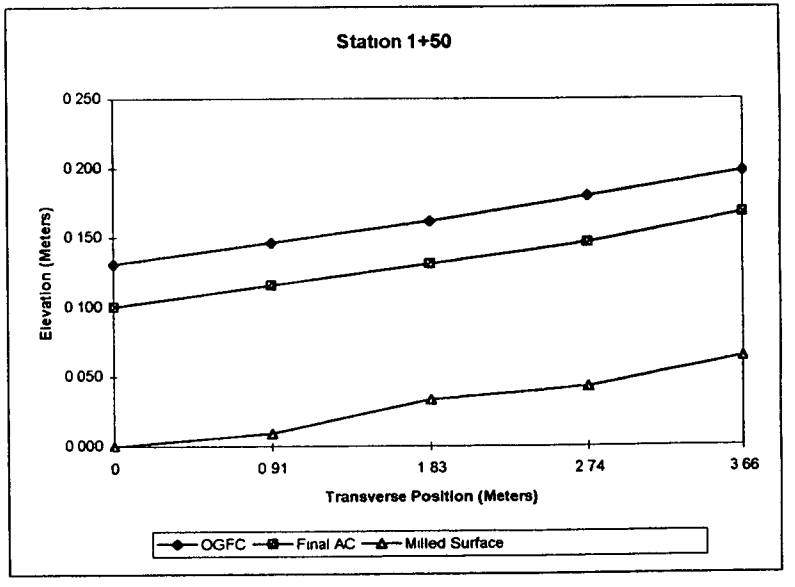
Transverse Offset	3 LAYERS	ELEVATION 0 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 0.91 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 1.83 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 2.74 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 3.66 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches
0+00	OGFC	0.295	0.024	0.960	0.107	4.200	0.317	0.037	1.440	0.104	4.080	0.332	0.040	1.560	0.091	3.600	0.347	0.037	1.440	0.107	4.200	0.359	0.024	0.960	0.122	4.800
	Final AC	0.271					0.280					0.292					0.311					0.335				
	Milled Surface	0.164					0.177					0.201					0.204					0.213				
0+50	OGFC	0.274	0.024	0.960	0.110	4.320	0.292	0.030	1.200	0.104	4.080	0.308	0.034	1.320	0.098	3.840	0.326	0.030	1.200	0.107	4.200	0.341	0.027	1.080	0.113	4.440
	Final AC	0.250					0.262					0.274					0.295					0.314				
	led Surface	0.140					0.158					0.177					0.189					0.201				
1+00	OGFC	0.259	0.027	1.080	0.110	4.320	0.277	0.030	1.200	0.104	4.080	0.292	0.034	1.320	0.094	3.720	0.308	0.024	0.960	0.116	4.560	0.329	0.024	0.960	0.113	4.440
	Final AC	0.231					0.247					0.259					0.283					0.305				
	Milled Surface	0.122					0.143					0.164					0.167					0.192				
1+50	OGFC	0.259	0.030	1.200	0.101	3.960	0.274	0.030	1.200	0.107	4.200	0.289	0.030	1.200	0.098	3.840	0.308	0.034	1.320	0.104	4.080	0.326	0.030	1.200	0.104	4.080
	Final AC	0.228					0.244					0.259					0.274					0.295				
	Milled Surface	0.128					0.137					0.161					0.170					0.192				
2+00	OGFC	0.244	0.027	1.080	0.113	4.440	0.262	0.030	1.200	0.110	4.320	0.280	0.037	1.440	0.101	3.960	0.295	0.034	1.320	0.110	4.320	0.311	0.024	0.960	0.113	4.440
	Final AC	0.216					0.231					0.244					0.262					0.286				
	led Surface	0.103					0.122					0.143					0.152					0.173				
2+50	OGFC	0.234	0.030	1.200	0.104	4.080	0.253	0.034	1.320	0.104	4.080	0.268	0.034	1.320	0.101	3.960	0.289	0.034	1.320	0.113	4.440	0.308	0.034	1.320	0.110	4.320
	Final AC	0.204					0.219					0.234					0.256					0.274				
	Milled Surface	0.100					0.116					0.134					0.143					0.164				
3+00	OGFC	0.225	0.037	1.440	0.104	4.080	0.244	0.040	1.560	0.098	3.840	0.265	0.043	1.680	0.098	3.840	0.283	0.037	1.440	0.110	4.320	0.305	0.037	1.440	0.116	4.560
	Final AC	0.189					0.204					0.222					0.247					0.268				
	Milled Surface	0.085					0.106					0.125					0.137					0.152				
3+50	OGFC	0.201	0.034	1.320	0.107	4.200	0.222	0.037	1.440	0.104	4.080	0.244	0.043	1.680	0.101	3.960	0.259	0.037	1.440	0.107	4.200	0.280	0.034	1.320	0.113	4.440
	Final AC	0.167					0.186					0.201					0.222					0.247				
	Milled Surface	0.061					0.082					0.100					0.116					0.134				
4+00	OGFC	0.186	0.034	1.320	0.113	4.440	0.204	0.037	1.440	0.098	3.840	0.228	0.043	1.680	0.098	3.840	0.247	0.037	1.440	0.110	4.320	0.268	0.034	1.320	0.116	4.560
	Final AC	0.152					0.167					0.186					0.210					0.234				
	Milled Surface	0.039					0.070					0.088					0.100					0.119				
4+50	OGFC	0.189	0.037	1.440	0.116	4.560	0.207	0.043	1.680	0.107	4.200	0.225	0.043	1.680	0.098	3.840	0.244	0.037	1.440	0.113	4.440	0.262	0.030	1.200	0.113	4.440
	Final AC	0.152					0.164					0.183					0.207					0.231				
	led Surface	0.036					0.058					0.085					0.094					0.119				
5+00	OGFC	0.183	0.037	1.440	0.119	4.680	0.201	0.043	1.680	0.110	4.320	0.219	0.043	1.680	0.104	4.080	0.234	0.040	1.560	0.113	4.440	0.253	0.040	1.560	0.110	4.320
	Final AC	0.146					0.158					0.177					0.195					0.213				
	led Surface	0.027					0.049					0.073					0.082					0.103				
	AVG	0.031	1.222	0.109	4.298		0.035	1.396	0.104	4.102		0.038	1.505	0.098	3.862		0.034	1.353	0.110	4.320		0.031	1.211	0.113	4.440
	MAX	0.037	1.440	0.119	4.680		0.043	1.680	0.110	4.320		0.043	1.680	0.104	4.080		0.040	1.560	0.116	4.560		0.040	1.560	0.122	4.800
	MIN	0.024	0.960	0.101	3.960		0.030	1.200	0.098	3.840		0.030	1.200	0.091	3.600		0.024	0.960	0.104	4.080		0.024	0.960	0.104	4.080
	STD	0.004	0.176	0.005	0.210		0.005	0.179	0.004	0.152		0.005	0.180	0.003	0.123		0.004	0.154	0.003	0.135		0.005	0.195	0.004	0.170

New Mexico, SPS-9 (350903)

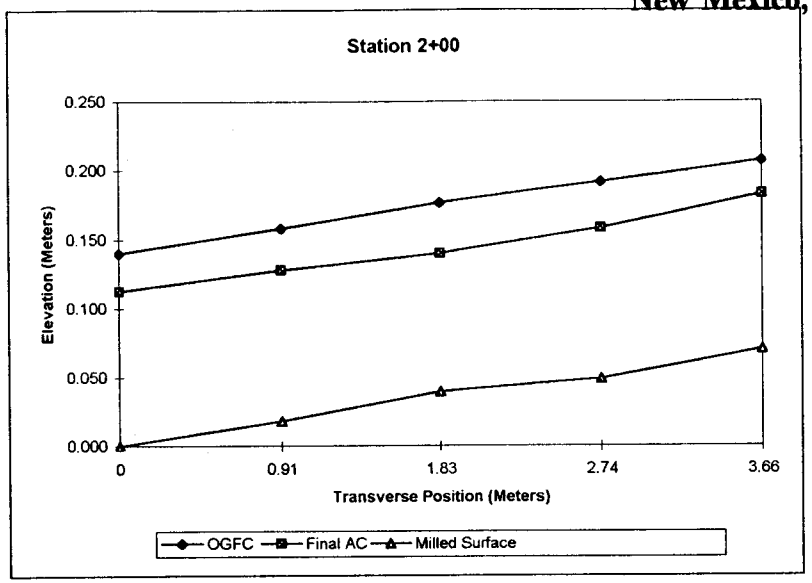


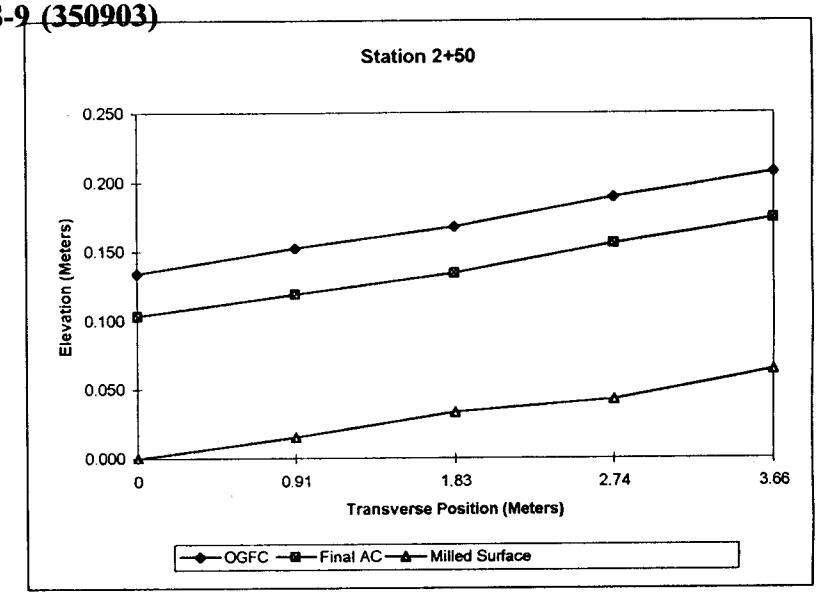


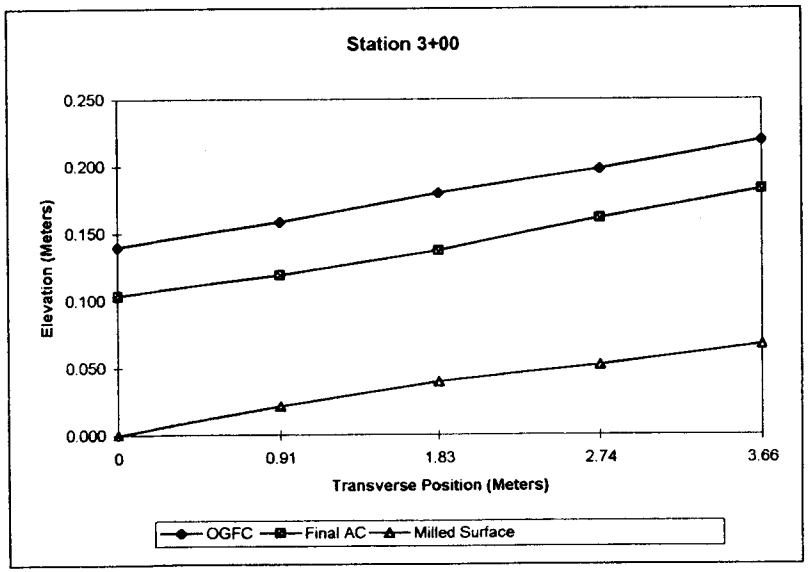


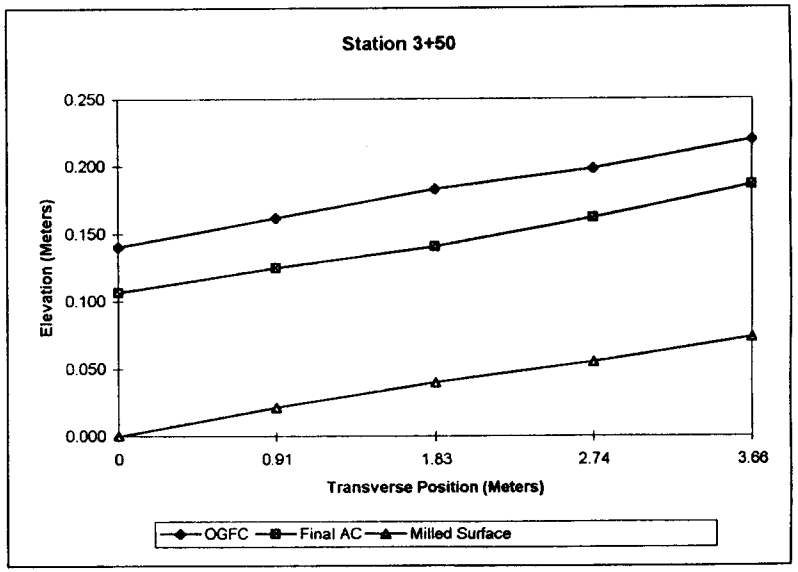


New Mexico, SPS-9 (350903)

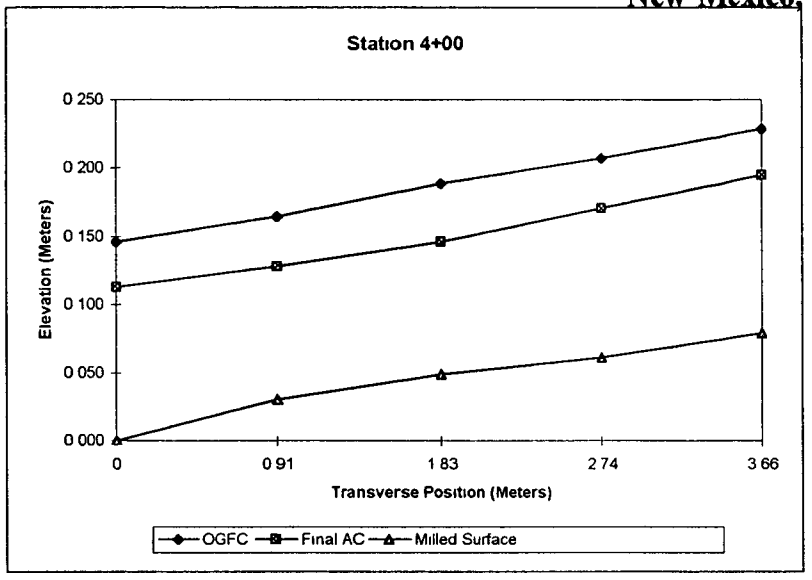


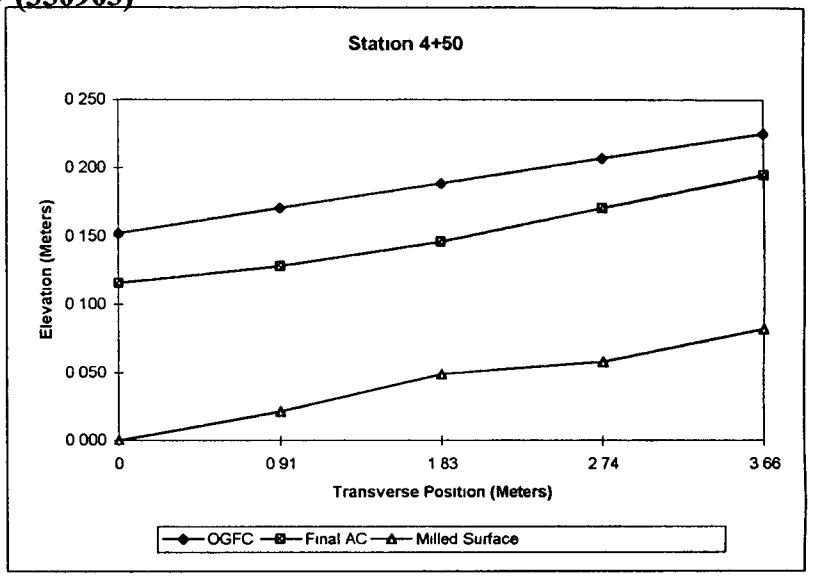


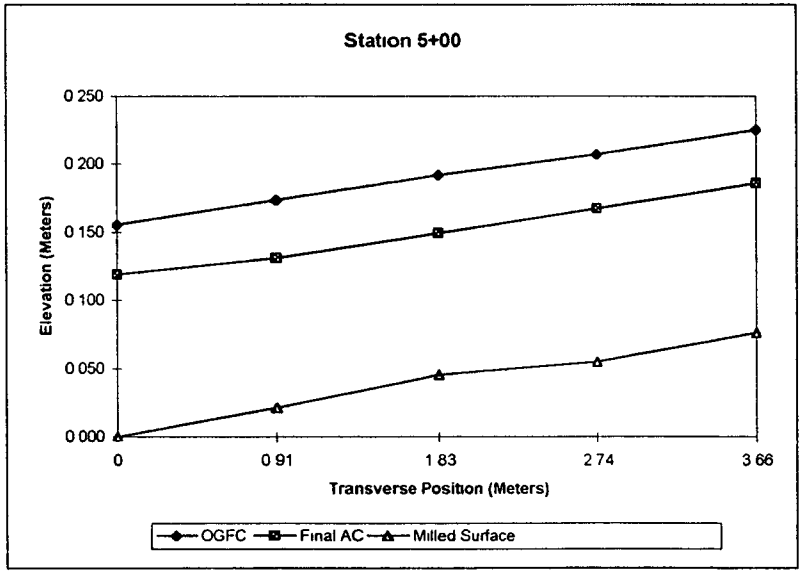




New Mexico, SPS-9 (350903)



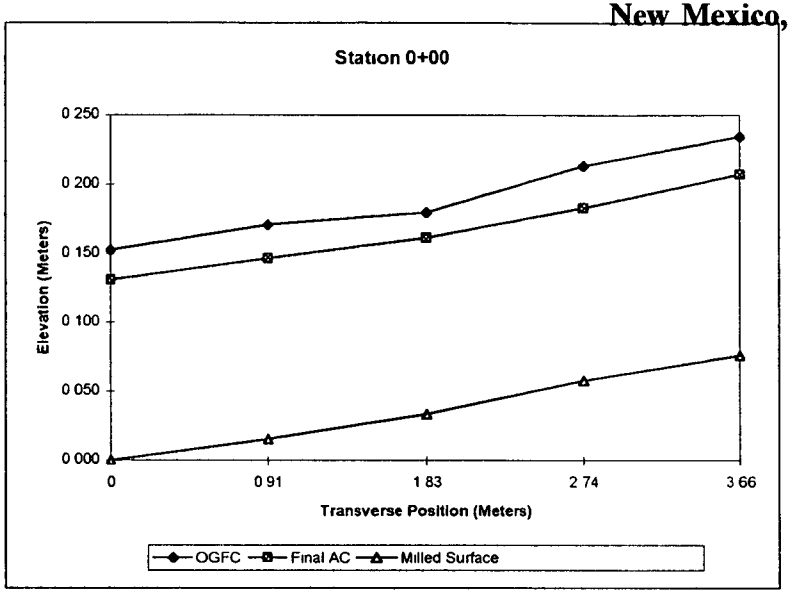


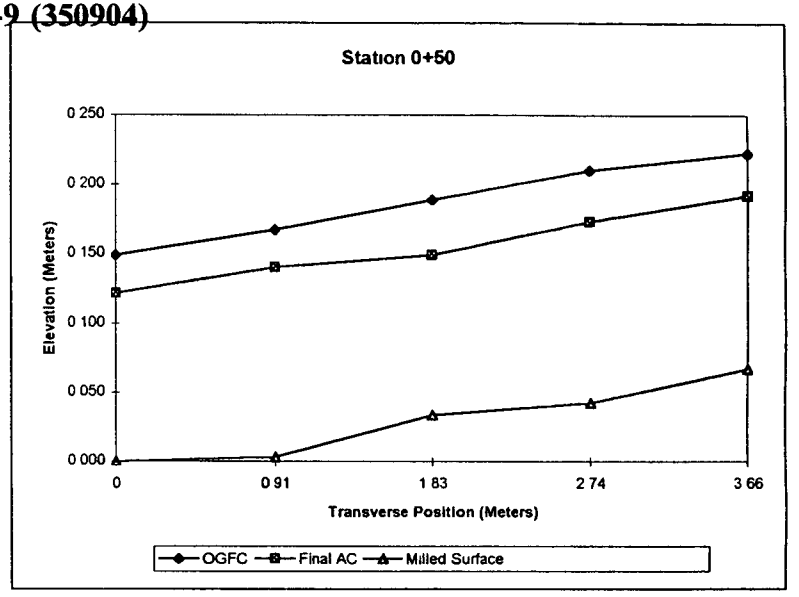


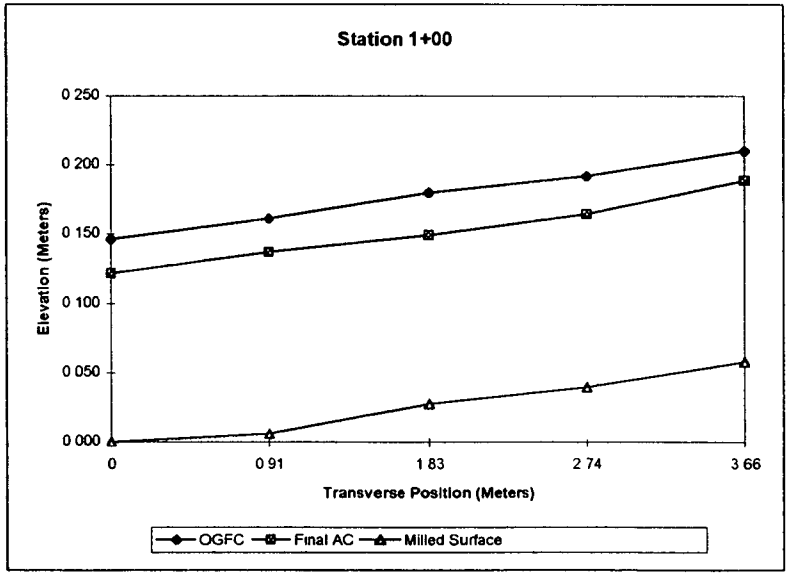
New Mexico, SPS-9 (350904)

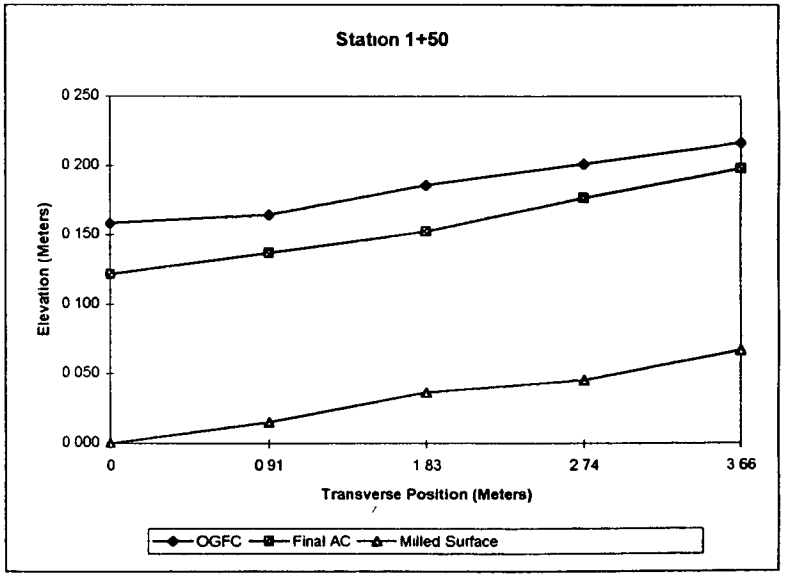
Transverse Offset 3	LAYERS	ELEVATION 0 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 0.91 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 1.83 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 2.74 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches	ELEVATION 3.66 Meters	OGFC THICKNESS Meters	Inches	Final AC THICKNESS Meters	Inches
0+00	OGFC	0.341	0.021	0.840	0.131	5.160	0.360	0.024	0.960	0.131	5.160	0.369	0.018	0.720	0.128	5.040	0.402	0.030	1.200	0.125	4.920	0.424	0.027	1.080	0.131	5.160
	Final AC	0.320					0.335					0.351					0.372					0.398				
	Milled Surface	0.189					0.204					0.223					0.247					0.265				
0+50	OGFC	0.308	0.027	1.080	0.122	4.800	0.326	0.027	1.080	0.137	5.400	0.348	0.040	1.560	0.116	4.560	0.369	0.037	1.440	0.131	5.160	0.381	0.030	1.200	0.125	4.920
	Final AC	0.280					0.299					0.308					0.332					0.351				
	led Surface	0.159					0.162					0.192					0.201					0.226				
1+00	OGFC	0.299	0.024	0.960	0.122	4.800	0.314	0.024	0.960	0.131	5.160	0.332	0.030	1.200	0.122	4.800	0.344	0.027	1.080	0.125	4.920	0.363	0.021	0.840	0.131	5.160
	Final AC	0.274					0.290					0.302					0.317					0.341				
	Milled Surface	0.152					0.159					0.180					0.192					0.210				
1+50	OGFC	0.299	0.037	1.440	0.122	4.800	0.305	0.027	1.080	0.122	4.800	0.326	0.034	1.320	0.116	4.560	0.341	0.024	0.960	0.131	5.160	0.357	0.018	0.720	0.131	5.160
	Final AC	0.262					0.277					0.293					0.317					0.338				
	Milled Surface	0.140					0.156					0.177					0.186					0.207				
2+00	OGFC	0.253	0.027	1.080	0.122	4.800	0.274	0.034	1.320	0.116	4.560	0.293	0.034	1.320	0.113	4.440	0.329	0.043	1.680	0.131	5.160	0.338	0.024	0.960	0.134	5.280
	Final AC	0.226					0.241					0.259					0.267					0.314				
	led Surface	0.104					0.125					0.146					0.156					0.180				
2+50	OGFC	0.238	0.024	0.960	0.119	4.680	0.259	0.027	1.080	0.119	4.680	0.277	0.030	1.200	0.113	4.440	0.296	0.018	0.720	0.134	5.280	0.317	0.018	0.720	0.131	5.160
	Final AC	0.213					0.232					0.247					0.277					0.299				
	Milled Surface	0.095					0.113					0.134					0.143					0.168				
3+00	OGFC	0.247	0.024	0.960	0.116	4.560	0.262	0.021	0.840	0.122	4.800	0.280	0.024	0.960	0.116	4.560	0.299	0.021	0.840	0.125	4.920	0.317	0.018	0.720	0.116	4.560
	Final AC	0.223					0.241					0.256					0.277					0.299				
	Milled Surface	0.107					0.119					0.140					0.152					0.183				
3+50	OGFC	0.229	0.018	0.720	0.119	4.680	0.247	0.024	0.960	0.122	4.800	0.262	0.024	0.960	0.110	4.320	0.280	0.021	0.840	0.125	4.920	0.305	0.027	1.080	0.110	4.320
	Final AC	0.210					0.223					0.238					0.259					0.277				
	Milled Surface	0.092					0.101					0.128					0.134					0.168				
4+00	OGFC	0.210	0.018	0.720	0.113	4.440	0.232	0.024	0.960	0.119	4.680	0.247	0.024	0.960	0.110	4.320	0.262	0.018	0.720	0.125	4.920	0.280	0.015	0.600	0.122	4.800
	Final AC	0.192					0.207					0.223					0.244					0.265				
	Milled Surface	0.079					0.088					0.113					0.119					0.143				
4+50	OGFC	0.198	0.021	0.840	0.107	4.200	0.213	0.024	0.960	0.110	4.320	0.232	0.030	1.200	0.104	4.080	0.250	0.024	0.960	0.119	4.680	0.265	0.018	0.720	0.119	4.680
	Final AC	0.177					0.189					0.201					0.226					0.247				
	led Surface	0.070					0.079					0.098					0.107					0.128				
5+00	OGFC	0.143	0.018	0.720	0.101	3.960	0.162	0.024	0.960	0.107	4.200	0.183	0.030	1.200	0.107	4.200	0.201	0.030	1.200	0.122	4.800	0.220	0.024	0.960	0.125	4.920
	Final AC	0.125					0.137					0.152					0.171					0.195				
	led Surface	0.024					0.031					0.046					0.049					0.070				
	AVG	0.024	0.938	0.117	4.625		0.026	1.015	0.121	4.778		0.029	1.145	0.114	4.484		0.027	1.058	0.127	4.985		0.022	0.873	0.125	4.920
	MAX	0.037	1.440	0.131	5.160		0.034	1.320	0.137	5.400		0.040	1.560	0.128	5.040		0.043	1.680	0.134	5.280		0.030	1.200	0.134	5.280
	MIN	0.018	0.720	0.101	3.960		0.021	0.840	0.107	4.200		0.018	0.720	0.104	4.080		0.018	0.720	0.119	4.680		0.015	0.600	0.110	4.320
	STD	0.005	0.204	0.008	0.313		0.003	0.119	0.009	0.343		0.006	0.219	0.007	0.257		0.007	0.289	0.004	0.172		0.005	0.185	0.007	0.289

New Mexico, SPS-9 (350904)

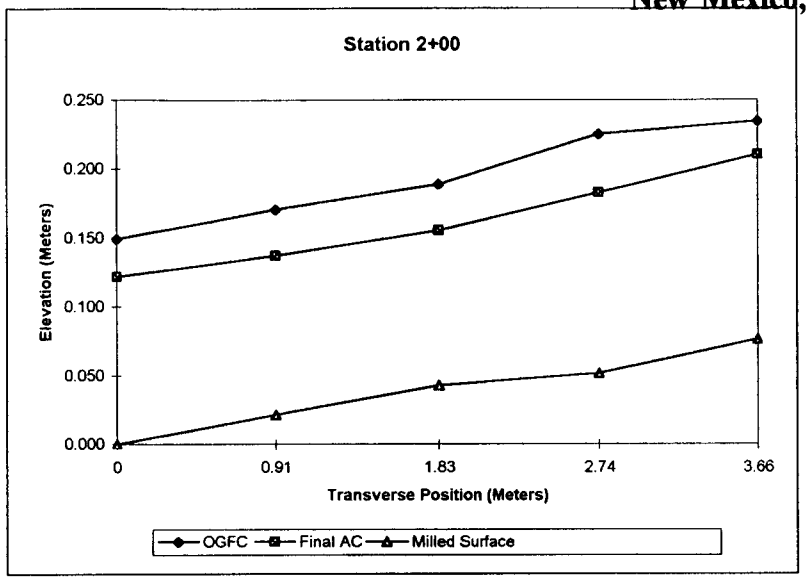


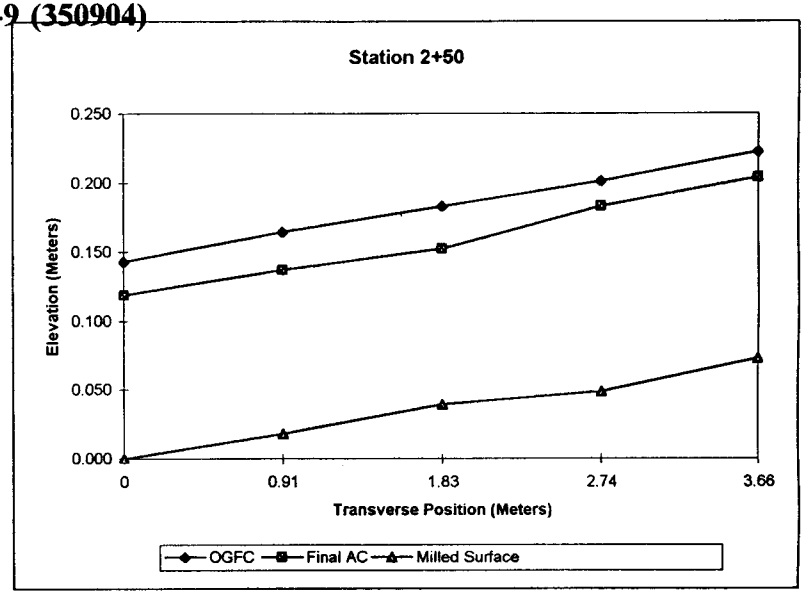


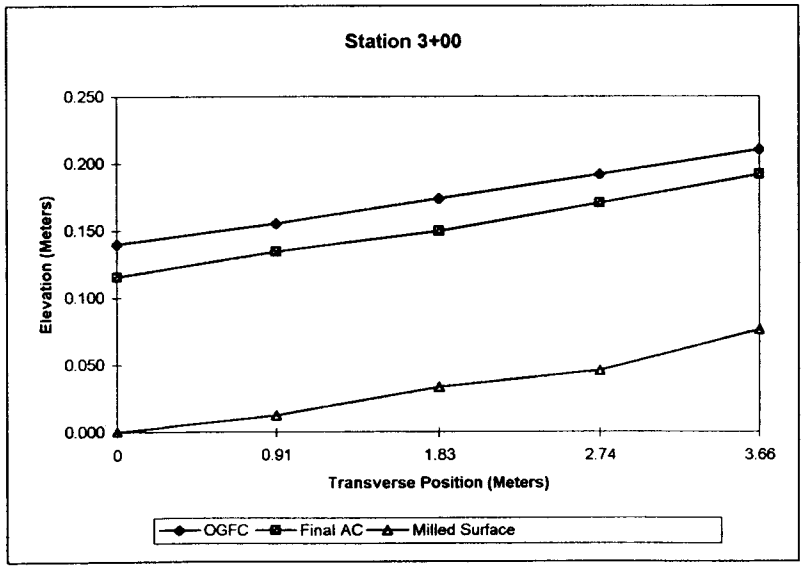


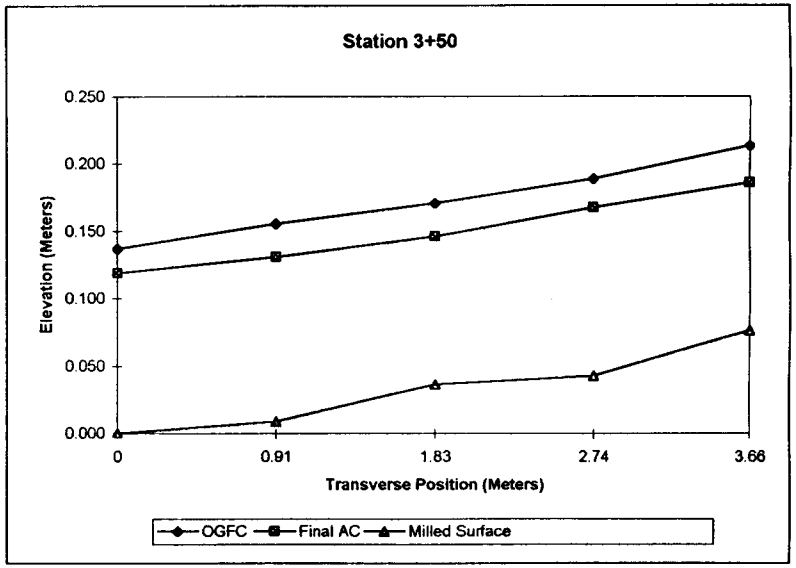


New Mexico, SPS-9 (350904)

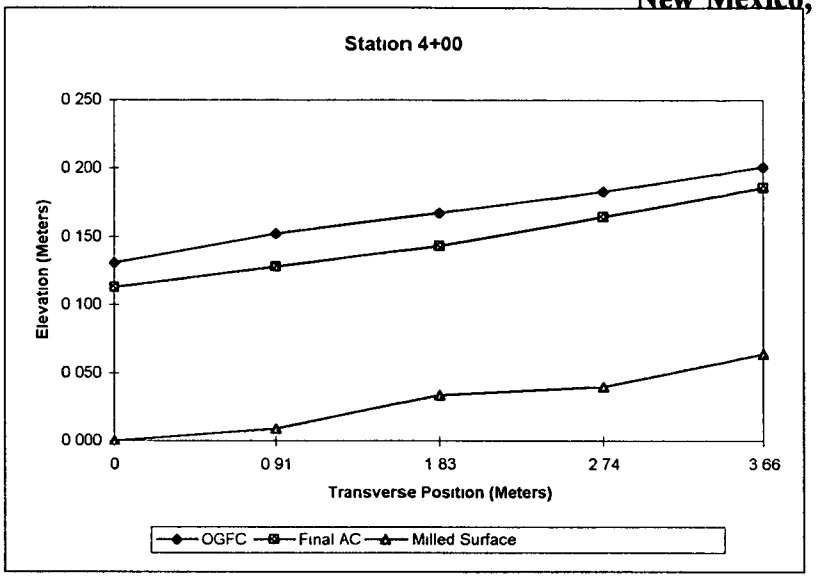


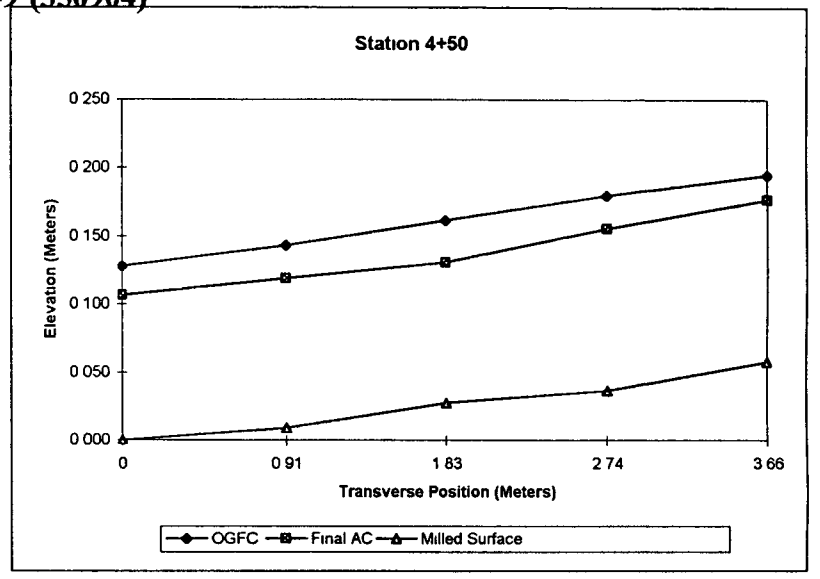


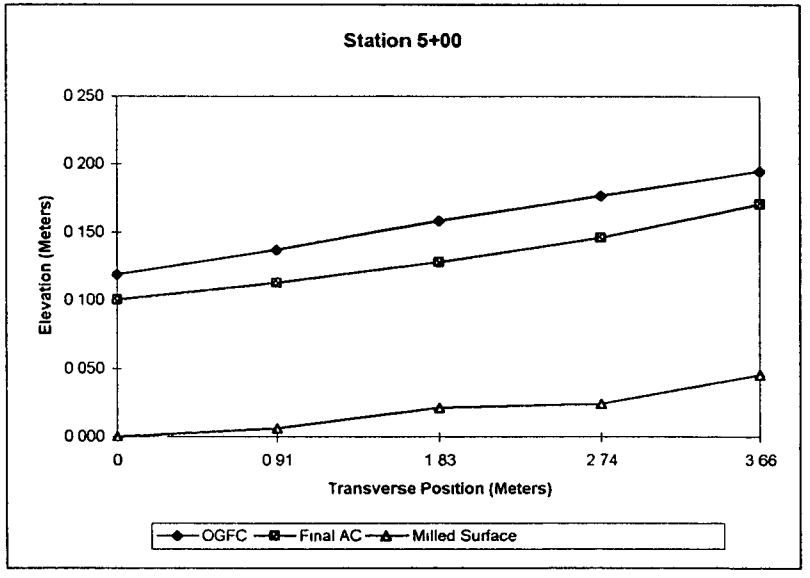




New Mexico, SPS-9 (350904)

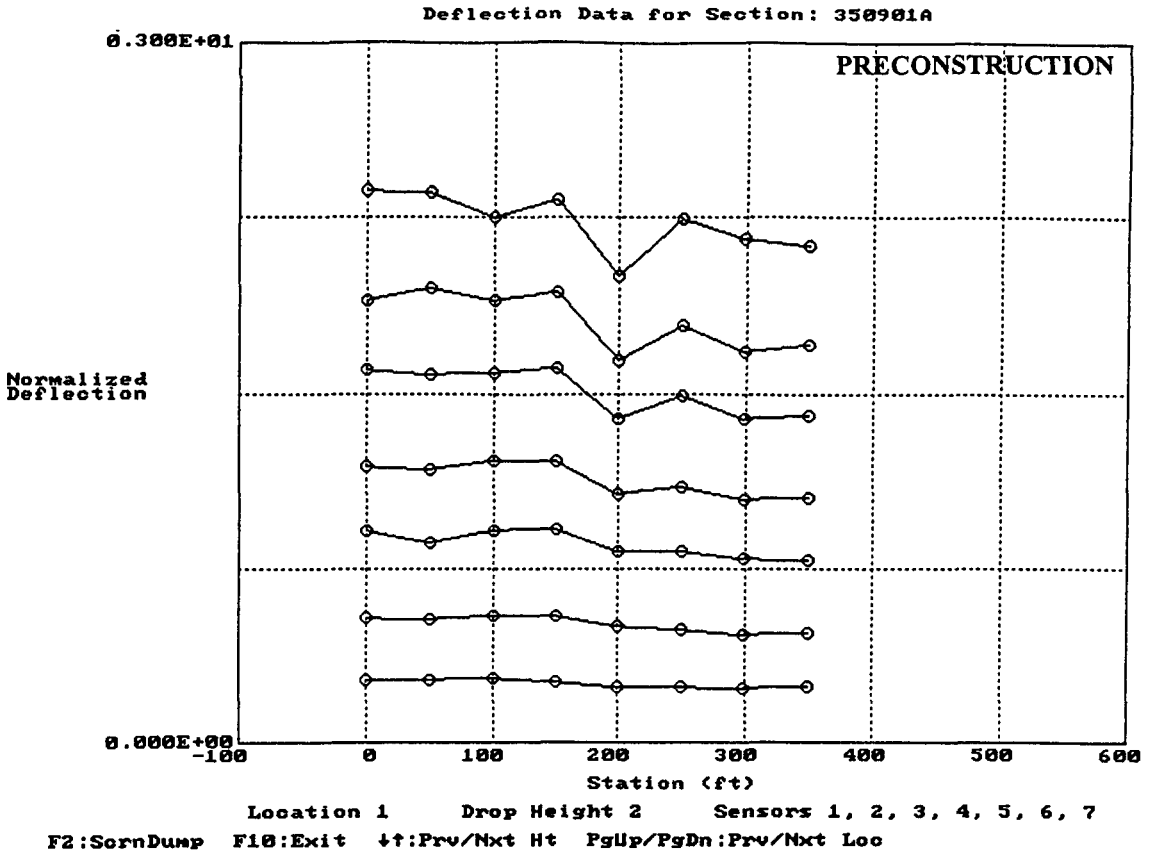


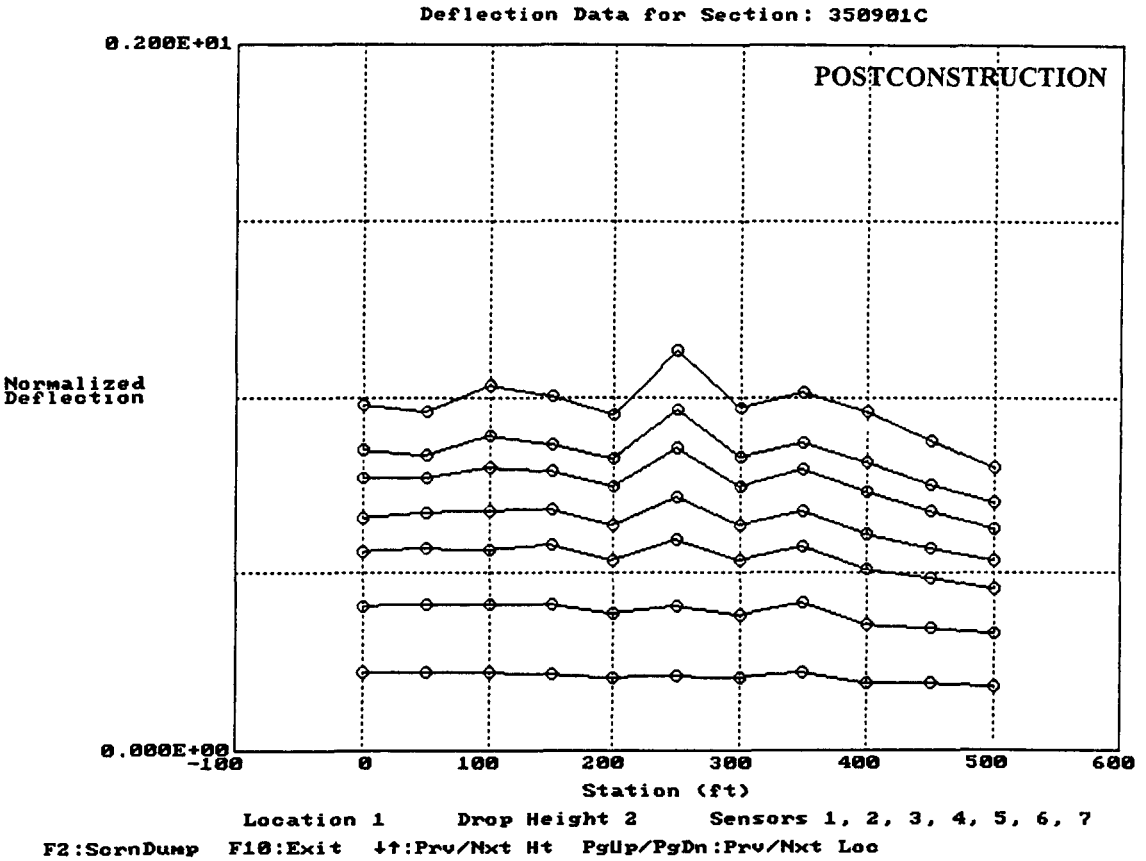


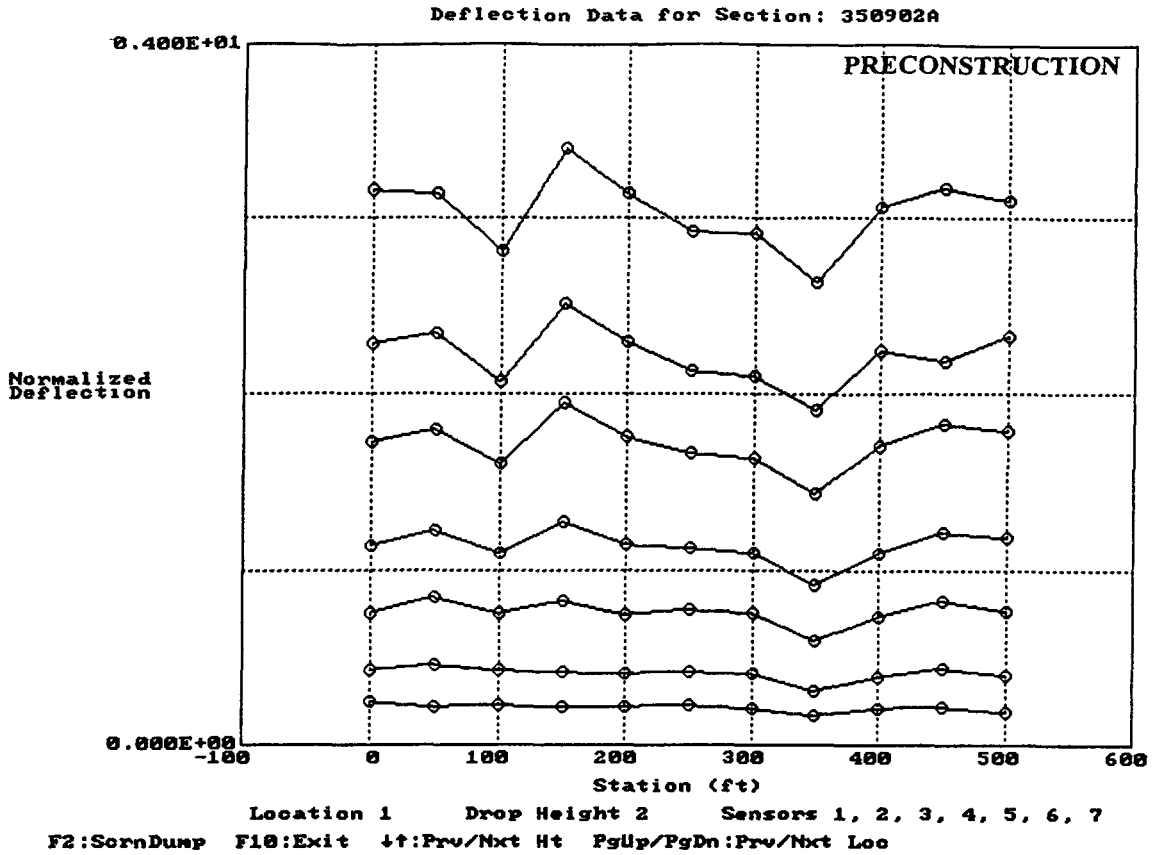


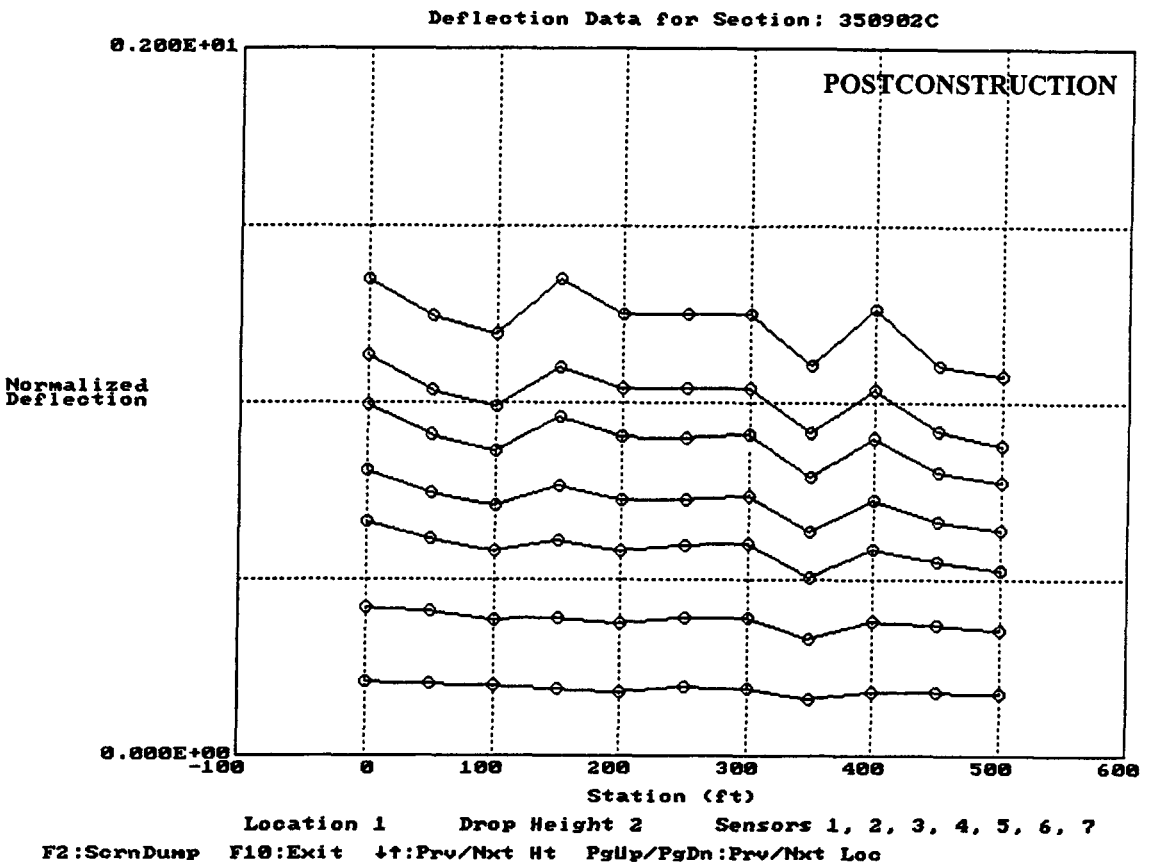
APPENDIX D

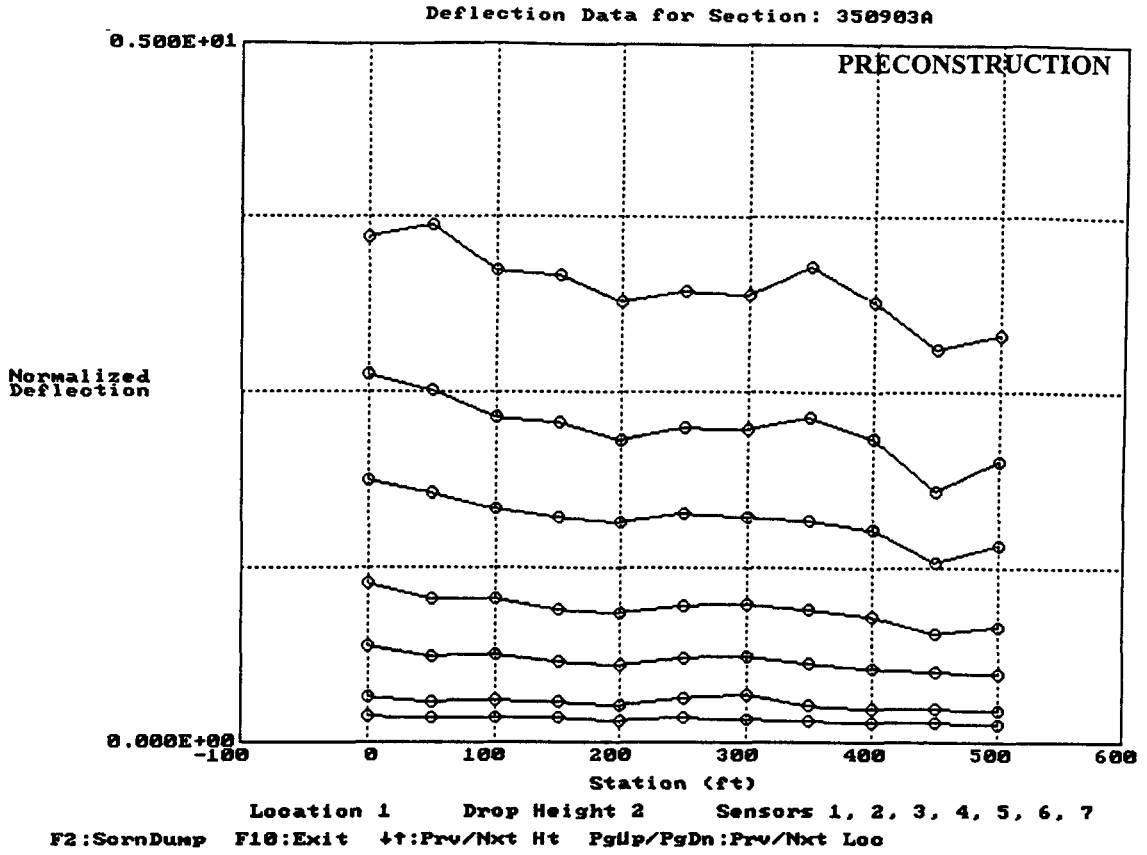
DEFLECTION PLOTS

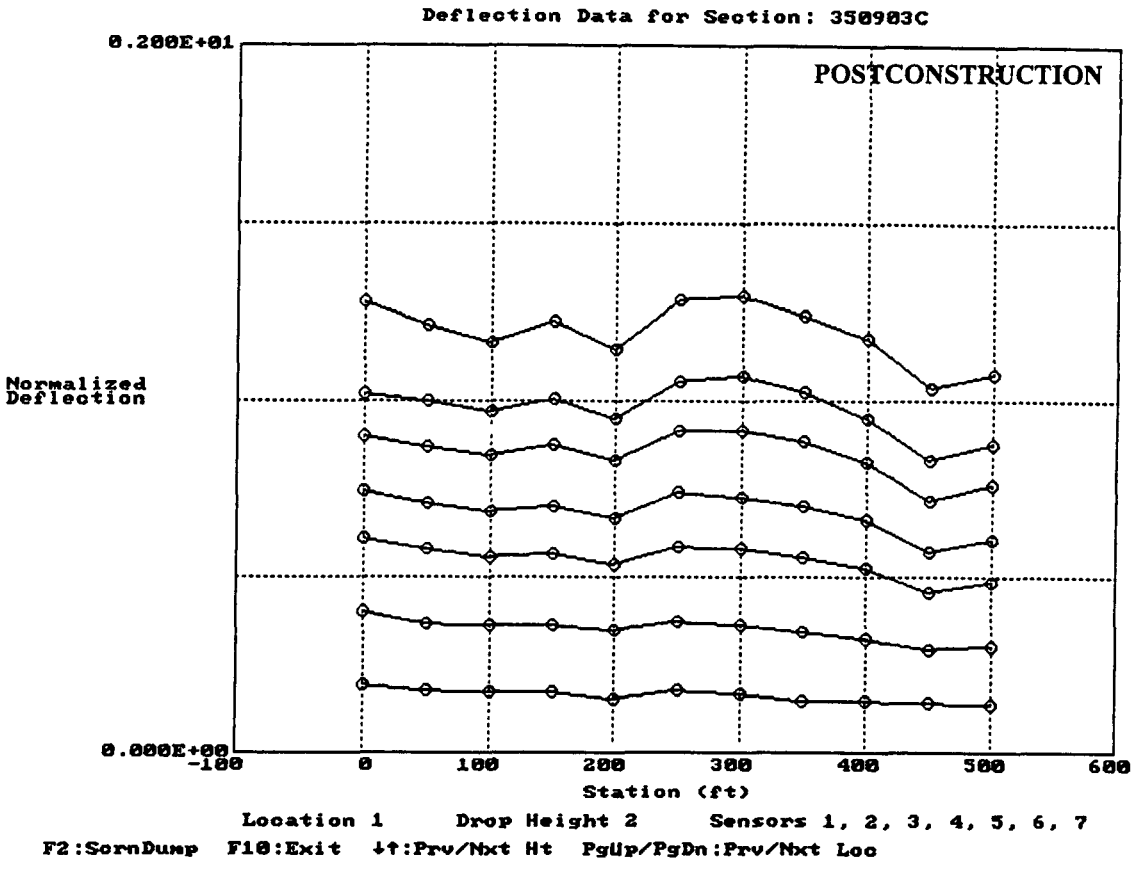

Deflection Data for Section: 350901A
PRECONSTRUCTION
0.300E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
600
Station (ft)
Location 1 Drop Height 2 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc

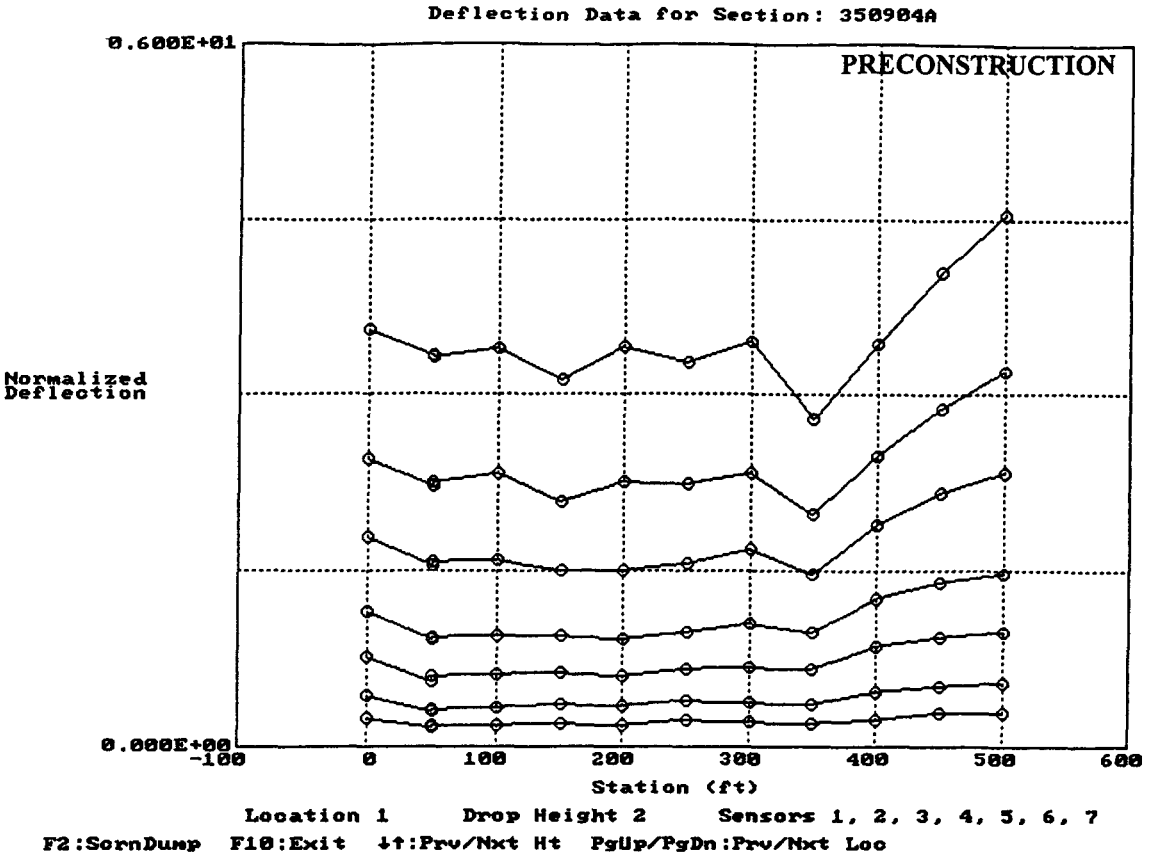

Deflection Data for Section: 350901C
POSTCONSTRUCTION
0.200E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
600
Station (ft)
Location 1 Drop Height 2 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc

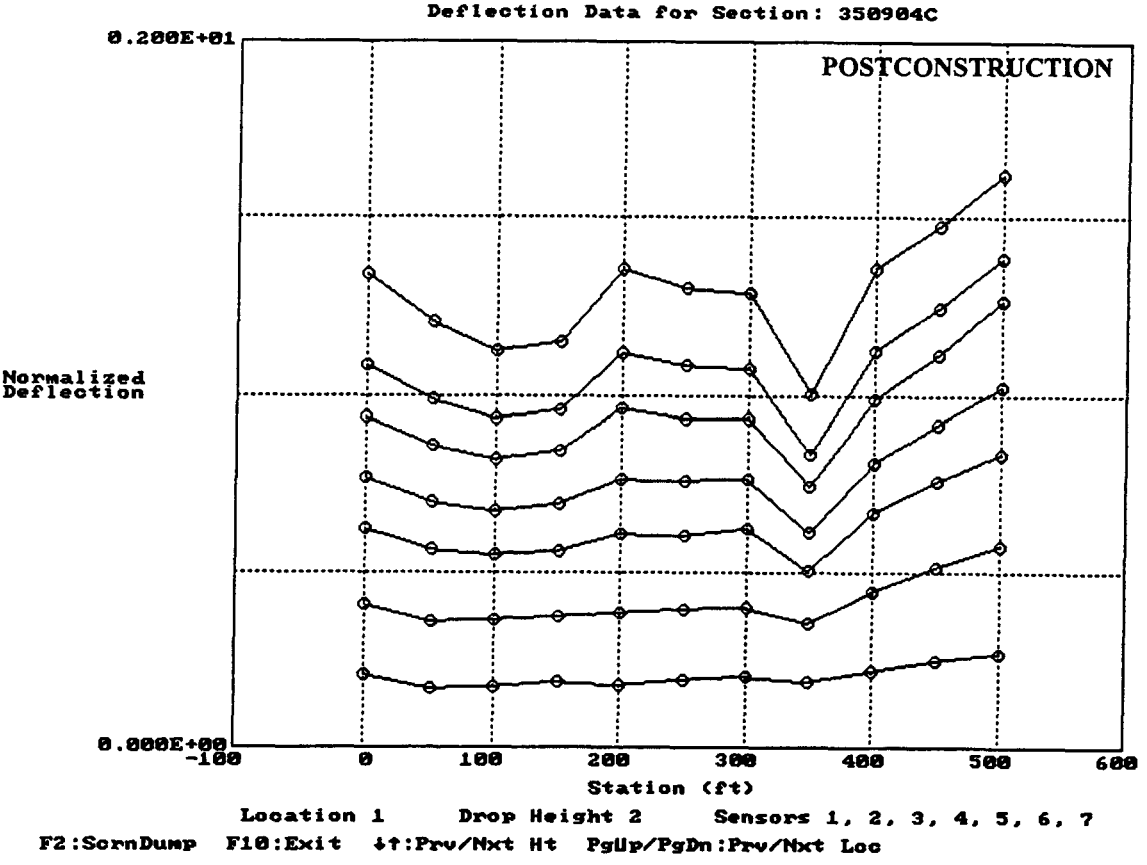

Deflection Data for Section: 350902A
PRECONSTRUCTION
0.400E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
600
Station (ft)
Location 1 Drop Height 2 Sensors 1, 2, 3, 4, 5, 6, 7
F2:ScrnDump F10:Exit ↓↑:Prv/Nxt Ht PgUp/PgDn:Prv/Nxt Loc


Deflection Data for Section: 350902C
POSTCONSTRUCTION
0.200E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
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: 350903A
PRECONSTRUCTION
0.500E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
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: 350903C
POSTCONSTRUCTION
0.200E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
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: 350904A
PRECONSTRUCTION
0.600E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
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: 350904C
POSTCONSTRUCTION
0.200E+01
0.000E+00
Normalized Deflection
-100
0
100
200
300
400
500
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

PRECONSTRUCTION

Summary of Data for section 350901A
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	2.2995	1.8561	1.5246	1.1276	0.8376	0.4897	0.2437
	2	2.2281	1.8119	1.5095	1.1350	0.8573	0.5110	0.2550
	3	2.2120	1.8078	1.5191	1.1578	0.8846	0.5396	0.2733
	4	2.1340	1.7463	1.4739	1.1375	0.8781	0.5454	0.2800

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.1286	0.1237	0.0931	0.0691	0.0541	0.0335	0.0189
	2	0.1243	0.1232	0.0973	0.0715	0.0562	0.0336	0.0170
	3	0.1249	0.1280	0.1037	0.0779	0.0608	0.0349	0.0188
	4	0.1203	0.1164	0.0958	0.0724	0.0584	0.0330	0.0176

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	5.59%	6.67%	6.11%	6.13%	6.46%	6.84%	7.75%
	2	5.58%	6.80%	6.45%	6.30%	6.56%	6.58%	6.66%
	3	5.65%	7.08%	6.82%	6.73%	6.87%	6.47%	6.86%
	4	5.64%	6.67%	6.50%	6.37%	6.65%	6.05%	6.28%

POSTCONSTRUCTION

Summary of Data for section 350901C
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.9610	0.8219	0.7379	0.6244	0.5244	0.3724	0.1981
	2	0.9720	0.8351	0.7539	0.6416	0.5426	0.3869	0.2070
	3	0.9845	0.8472	0.7653	0.6538	0.5566	0.3973	0.2138
	4	1.0082	0.8675	0.7839	0.6724	0.5748	0.4128	0.2237

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.0865	0.0676	0.0601	0.0501	0.0438	0.0288	0.0141
	2	0.0861	0.0693	0.0619	0.0520	0.0444	0.0304	0.0152
	3	0.0843	0.0688	0.0620	0.0526	0.0442	0.0314	0.0154
	4	0.0889	0.0728	0.0659	0.0560	0.0474	0.0329	0.0158

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	9.00%	8.23%	8.15%	8.03%	8.34%	7.73%	7.12%
	2	8.86%	8.30%	8.21%	8.11%	8.18%	7.84%	7.32%
	3	8.56%	8.12%	8.10%	8.04%	7.95%	7.90%	7.19%
	4	8.82%	8.39%	8.41%	8.32%	8.25%	7.97%	7.06%

PRECONSTRUCTION

Summary of Data for section 350902A
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	3.3050	2.3714	1.7947	1.1503	0.7545	0.3894	0.2025
	2	3.0410	2.2144	1.7200	1.1410	0.7675	0.4105	0.2160
	3	2.8636	2.1009	1.6582	1.1299	0.7789	0.4290	0.2273
	4	2.6781	2.0058	1.5965	1.1162	0.7848	0.4437	0.2384

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.2099	0.1572	0.1297	0.0934	0.0685	0.0376	0.0193
	2	0.2088	0.1600	0.1328	0.0942	0.0661	0.0383	0.0212
	3	0.1992	0.1563	0.1285	0.0932	0.0655	0.0391	0.0221
	4	0.2011	0.1491	0.1201	0.0889	0.0624	0.0367	0.0222

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	6.35%	6.63%	7.23%	8.12%	9.07%	9.65%	9.52%
	2	6.87%	7.22%	7.72%	8.25%	8.61%	9.34%	9.81%
	3	6.96%	7.44%	7.75%	8.25%	8.41%	9.11%	9.72%
	4	7.51%	7.43%	7.52%	7.97%	7.95%	8.27%	9.30%

POSTCONSTRUCTION

Summary of Data for section 350902C
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	1.2038	0.9890	0.8566	0.6881	0.5569	0.3621	0.1812
	2	1.2214	1.0119	0.8835	0.7158	0.5821	0.3815	0.1881
	3	1.2333	1.0250	0.8976	0.7304	0.5958	0.3927	0.1949
	4	1.2638	1.0518	0.9227	0.7541	0.6181	0.4099	0.2061

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.0967	0.0807	0.0693	0.0516	0.0463	0.0245	0.0131
	2	0.0939	0.0789	0.0695	0.0526	0.0436	0.0251	0.0138
	3	0.0898	0.0756	0.0664	0.0503	0.0421	0.0244	0.0144
	4	0.0884	0.0735	0.0648	0.0489	0.0400	0.0240	0.0142

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	8.04%	8.16%	8.09%	7.50%	8.31%	6.77%	7.20%
	2	7.69%	7.80%	7.86%	7.35%	7.48%	6.57%	7.33%
	3	7.29%	7.38%	7.40%	6.89%	7.06%	6.21%	7.40%
	4	7.00%	6.99%	7.02%	6.48%	6.47%	5.86%	6.88%

PRECONSTRUCTION

Summary of Data for section 350903A
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	3.6895	2.5025	1.7185	0.9705	0.5602	0.2641	0.1531
	2	3.2471	2.2461	1.5998	0.9525	0.5731	0.2805	0.1589
	3	2.9416	2.0658	1.5066	0.9335	0.5830	0.2930	0.1665
	4	2.7101	1.9288	1.4296	0.9219	0.5968	0.3102	0.1750

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.2913	0.2496	0.1735	0.1015	0.0593	0.0370	0.0180
	2	0.2649	0.2219	0.1602	0.0971	0.0594	0.0378	0.0194
	3	0.2424	0.2055	0.1509	0.0940	0.0575	0.0355	0.0222
	4	0.2463	0.1972	0.1489	0.0910	0.0592	0.0340	0.0218

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	7.90%	9.97%	10.10%	10.46%	10.59%	14.00%	11.78%
	2	8.16%	9.88%	10.01%	10.20%	10.36%	13.46%	12.23%
	3	8.24%	9.95%	10.02%	10.07%	9.86%	12.11%	13.31%
	4	9.09%	10.22%	10.41%	9.87%	9.92%	10.96%	12.44%

POSTCONSTRUCTION

Summary of Data for section 350903C
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	1.1746	0.9550	0.8229	0.6587	0.5250	0.3295	0.1535
	2	1.1943	0.9768	0.8478	0.6825	0.5480	0.3468	0.1604
	3	1.2035	0.9862	0.8574	0.6930	0.5589	0.3559	0.1656
	4	1.2288	1.0076	0.8767	0.7109	0.5754	0.3705	0.1732

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.0891	0.0733	0.0653	0.0532	0.0442	0.0320	0.0169
	2	0.0851	0.0724	0.0642	0.0544	0.0447	0.0320	0.0173
	3	0.0832	0.0704	0.0627	0.0527	0.0438	0.0318	0.0170
	4	0.0840	0.0711	0.0632	0.0536	0.0443	0.0319	0.0177

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	7.58%	7.68%	7.94%	8.08%	8.42%	9.71%	11.02%
	2	7.13%	7.41%	7.58%	7.97%	8.15%	9.23%	10.77%
	3	6.91%	7.13%	7.31%	7.60%	7.84%	8.93%	10.29%
	4	6.84%	7.05%	7.21%	7.54%	7.70%	8.60%	10.23%

PRECONSTRUCTION

Summary of Data for section 350904A
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	3.8852	2.6135	1.8037	1.0766	0.6825	0.3733	0.2022
	2	3.4701	2.3903	1.7140	1.0762	0.7091	0.3945	0.2158
	3	3.1900	2.2360	1.6446	1.0711	0.7267	0.4125	0.2229
	4	2.9786	2.1286	1.5986	1.0747	0.7497	0.4346	0.2334

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.4905	0.3416	0.2713	0.1881	0.1289	0.0679	0.0337
	2	0.4455	0.3398	0.2758	0.1985	0.1382	0.0776	0.0399
	3	0.4108	0.3308	0.2735	0.2023	0.1424	0.0812	0.0390
	4	0.4098	0.3378	0.2815	0.2111	0.1508	0.0870	0.0413

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	12.63%	13.07%	15.04%	17.47%	18.89%	18.19%	16.65%
	2	12.84%	14.22%	16.09%	18.44%	19.49%	19.67%	18.51%
	3	12.88%	14.80%	16.63%	18.89%	19.60%	19.68%	17.51%
	4	13.76%	15.87%	17.61%	19.64%	20.12%	20.03%	17.68%

POSTCONSTRUCTION

Summary of Data for section 350904C
Analyzed by: Peter Jordahl on 02-18-1997

UNCORRECTED Overall Deflection Statistics

Mean Values (mils/kip)

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	1.2787	1.0547	0.9209	0.7469	0.6052	0.3995	0.1965
	2	1.2923	1.0763	0.9462	0.7724	0.6284	0.4158	0.2050
	3	1.2951	1.0808	0.9533	0.7800	0.6376	0.4246	0.2109
	4	1.3119	1.0966	0.9674	0.7941	0.6516	0.4383	0.2197

Standard Deviations

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	0.1737	0.1501	0.1439	0.1129	0.0914	0.0700	0.0283
	2	0.1706	0.1516	0.1431	0.1156	0.0968	0.0700	0.0310
	3	0.1697	0.1502	0.1422	0.1153	0.0970	0.0733	0.0366
	4	0.1669	0.1479	0.1402	0.1130	0.0956	0.0743	0.0388

Coefficient of Variation

Test Loc.	Drop Ht	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	Sensor 7
1	1	13.59%	14.23%	15.63%	15.12%	15.11%	17.52%	14.40%
	2	13.20%	14.08%	15.12%	14.97%	15.40%	16.84%	15.10%
	3	13.10%	13.90%	14.92%	14.78%	15.22%	17.26%	17.33%
	4	12.72%	13.49%	14.49%	14.22%	14.67%	16.96%	17.67%

APPENDIX E

MATERIALS SAMPLING AND TESTING PLAN

Brent Rauhut Engineering Inc.

15 August 1995

Mr. Keun-Wook Yi
Bituminous Engineer
Materials Lab Bureau
New Mexico State Highway
& Transportation Department
P.O. Box 1149
Santa Fe, New Mexico 87504

Subject: New Mexico SPS-9A Project (350900) Revised Materials Sampling and Testing Plan

Dear Mr. Yi:

Enclosed is the revised plan for materials sampling and testing activities for the New Mexico SPS-9A project, located in the eastbound lanes of IH-10 near Lordsburg, New Mexico. This plan has been prepared to identify details of the materials sampling, field testing, and laboratory materials testing to occur as part of the SPS-9A project construction. It was revised based on your comments, as received by telephone on 15 August 1995.

If you have any questions or comments regarding the information provided in this plan, please do not hesitate to contact me. A copy of this revised document is also being provided to Mr. Monte Symons of the FHWA, for review and approval.

Sincerely,

Mark P. Gardner
Project Engineer, SRCO

MPG:dmj

Enclosure: As stated.

c.w/Enc: Monte Symons, FHWA/LTPP-DC
Jim Stokes, NM-SHTD
Gonzalo Rada, PCS/LAW

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

MATERIAL SAMPLING
AND
TESTING PLAN

NEW MEXICO SPS-9A PROJECT 350900
GRANT COUNTY, NEW MEXICO
IH-10, EASTBOUND

PREPARED BY:

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

REVISED AUGUST 1995

MATERIAL SAMPLING AND TESTING PLAN
NEW MEXICO SPS-9A PROJECT (350900), IH-10 EASTBOUND
GRANT COUNTY, NEW MEXICO

INTRODUCTION

As part of their participation in the FHWA/LTPP studies, the State of New Mexico will construct an SPS-9A project to validate the SHRP asphalt specification and mix design. This project will consist of four test sections with similar details and materials on IH-10, in the eastbound lane, in Grant County, New Mexico. It is the intent of this document to provide a complete plan for the material sampling, testing, and laboratory material testing that will occur as a part of this project.

This document has been prepared in accordance with **draft** guidelines provided by the Federal Highway Administration entitled "Specific Pavement Studies Material Sampling and Testing Requirements for Experiment SPS-9A, SUPERPAVE™ Asphalt Binder Study, February 1995". Recognizing the apparent variability in the construction of roadway projects, the goal of this effort is to develop a sampling and testing plan for the project materials that will be consistent with other projects in this experiment, and therefore make the information obtained suitable for analysis.

The SPS-9A experiment is the first part of a multi-stage approach to the SPS-9 experiment, "Validation of SHRP Asphalt Specification and Mix Design". The experiment is designed for immediate implementation to provide agencies with hands-on experience with methods and requirements developed under the SHRP program. The primary objectives of SPS-9A are to validate the SHRP binder specifications, to allow direct comparison of asphalt mixtures designed using agency procedures and the newly developed SUPERPAVE™ procedures, and to provide initial data for use in refining the mixture performance models also developed as part of the SHRP research. In order to accomplish these objectives, three basic test sections are included within each project; one using the agency's current mix design, one using the SUPERPAVE™ mix design system, and one using a SUPERPAVE™ alternate binder. In addition, New Mexico has elected to construct a fourth section as a supplement, to evaluate a wider array of the PG graded binders. The SPS-9A experiment requires the construction of test sections at a given project with similar details, materials, and construction quality. It is anticipated that some variation between sections will exist. The purpose of the sampling and testing plan is to provide the information necessary to evaluate such variations and their effect on performance.

This sampling and testing plan has been developed by Brent Rauhut Engineering, Inc. the Southern Region Coordination Office under contract to the Federal Highway Administration. If, during the construction activities, any questions arise regarding the sampling and/or testing to be conducted, one should first coordinate these questions with the New Mexico State Highway and Transportation Department, who may refer them to the Southern Region Coordination Office.

This document has been prepared in four distinct parts, each covering a particular area of this rather formidable exercise. The sections are:

A. General Layout Information

B. Materials Sampling and Testing - Preconstruction

C. Materials Sampling and Testing - During Construction

D. Materials Sampling and Testing - Postconstruction

"Preconstruction" sampling activities are defined as those occurring for the purpose of defining existing conditions and material properties prior to placement of the overlay. "During construction" activities begin once material production and placement activities are underway, and continue through the coring activities at time t = 0 (to be explained in Section C). "Postconstruction" sampling and testing activities include sampling of the overlay materials over time (cores) to document changes in material properties. Specific samples to be obtained, and laboratory testing needs for each sample, are defined for each of these time periods in Sections B, C and D.

SECTION A

GENERAL LAYOUT INFORMATION

SECTION A

GENERAL LAYOUT INFORMATION

This section of the plan provides a description of the SPS-9A project in terms of the location of the test sections along the roadway. Table A-1 lists the test sections in order of project stationing, providing an indication of the overlay mix to be used.

Figure A-1 depicts the layout of the test sections along the roadway and shows the placement of each material type and the location of each test section within the material placement.

The referenced project stationing was provided by the New Mexico SHTD in the form of preliminary project sketches. If there are significant changes in alignment or stationing, this plan should be reviewed closely to determine if revisions are warranted.

TABLE A-1. TEST SECTION LAYOUT

Section (Cell ID)	Overlay Material	Begin Station	End Station
350901	Agency Mix (PMBP I-A)	1010 + 00	1020 + 00
350902	SUPERPAVE™ Mix (PG64-22)	1025 + 00	1035 + 00
350903	Alternate SUPERPAVE™ Binder (PG58-22)	1039 + 00	1049 + 00
350904	Supplemental Binder Mix (PG64-10)	1054 + 00	1064 + 00

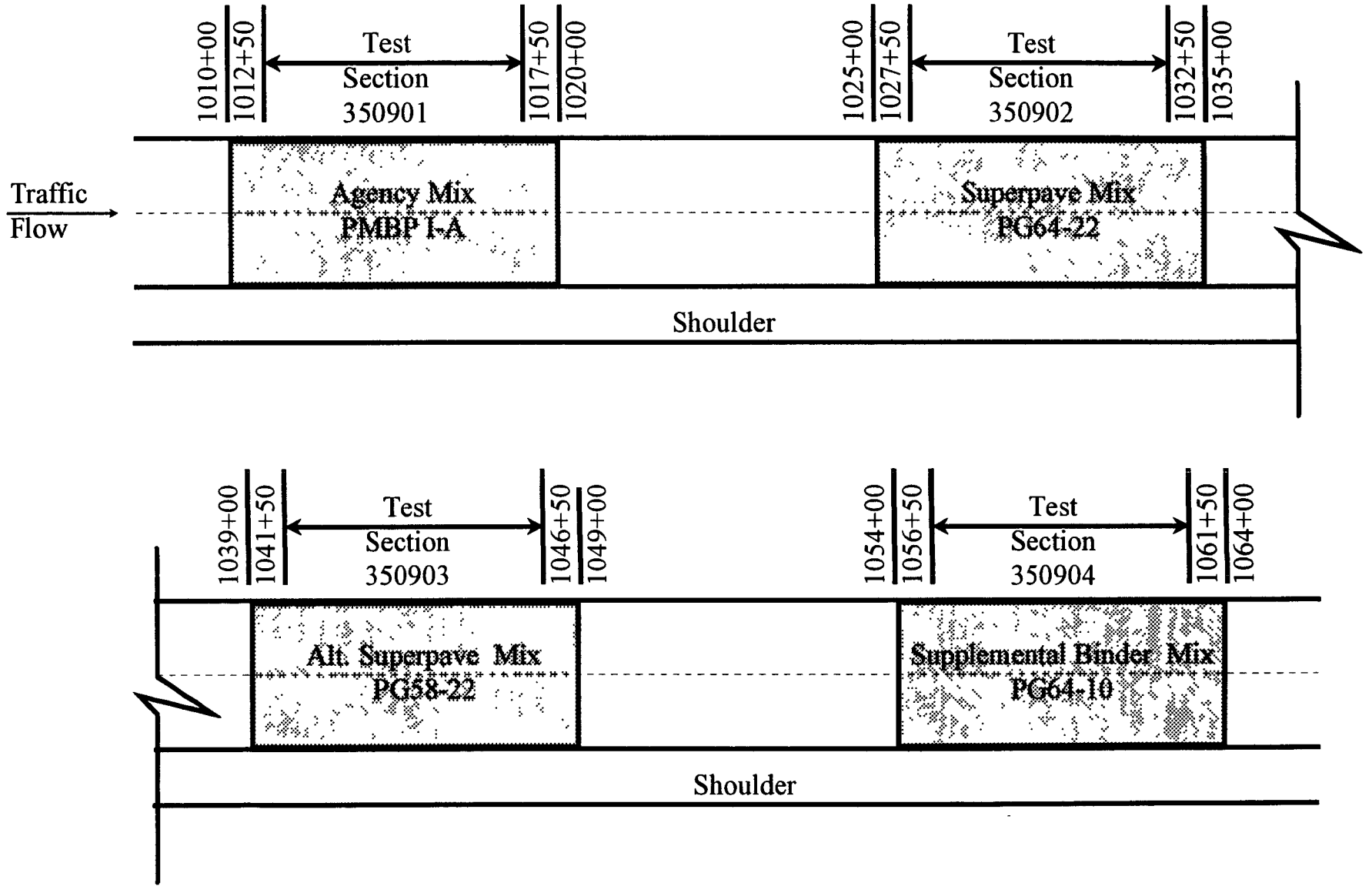


FIGURE A-1. LAYOUT OF TEST SECTIONS
NEW MEXICO SPS-9A (350900)

SECTION B

MATERIAL SAMPLING AND TESTING

PRECONSTRUCTION

SECTION B

MATERIAL SAMPLING AND TESTING PRECONSTRUCTION

This section of the plan provides for the material sampling and testing activities that occur prior to construction. As the New Mexico SPS-9A project will be an overlay, the objective of this sampling will be to confirm the type and thickness of existing pavement materials and obtain samples of the subgrade for classification testing.

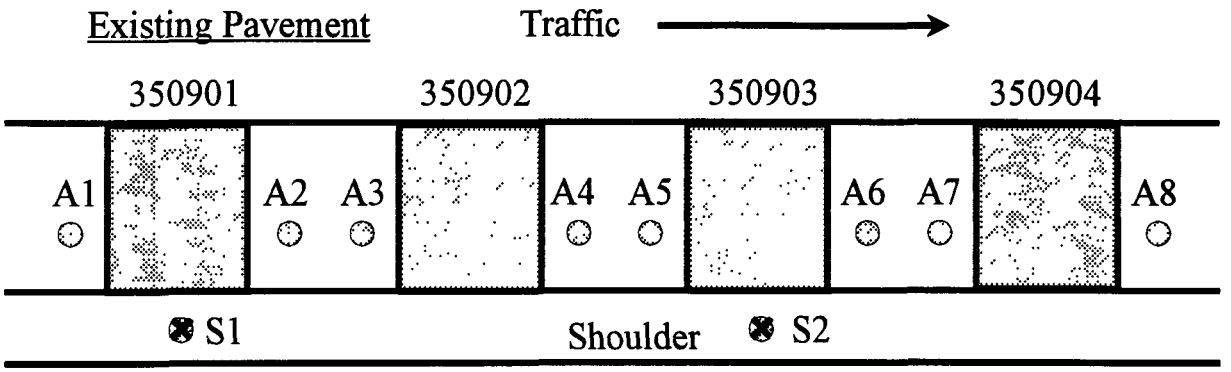
Table B-1 provides the scope of preconstruction material sampling. As may be seen, only minimal sampling is proposed, consisting of cores of the existing asphalt concrete, visual observation of the existing base materials and sampling of the subgrade. There are a total of 8 sampling locations, numbered A1 through A8. The sampling locations are shown in Figure B-1.

Samples that are obtained should be labeled accordingly and wrapped in protective wrapping to prevent damage in transit. Sample labels will be provided by the Southern Region Coordination Office, who will have a representative on site to assist with the sampling and data collection activities. Plastic, resealable bags should be used for subgrade samples, to retain the moisture content for testing. Bubble-wrap or similar material should be used to protect the core samples.

All laboratory testing for the preconstruction samples will be conducted by the New Mexico SHTD or their Designee. Table B-2 provides an indication of the laboratory tests to be performed on the preconstruction samples.

TABLE B-1. SCOPE OF PRECONSTRUCTION MATERIAL SAMPLING

Material And Sample Description	Nº. Of Samples	Sample Location	Sample Number
Asphalt Concrete Coring - 6" Min. O.D. Cores	8	A1-A8	CA01-CA08
Unbound Granular Base	8	A1-A8	BG01-BG08
Subgrade Bulk Sampling Moisture Content Samples	 8 8	 A1-A8 A1-A8	 BS01-BS08 MS01-MS08



A-type core locations - 152 mm OD core of bound layers, auger to 1 2 m below top of subgrade

Shoulder auger probe to 6 m below surface

FIGURE B-1. PRECONSTRUCTION SAMPLING LAYOUT NEW MEXICO SPS-9A (350900)

TABLE B-2. PRECONSTRUCTION MATERIALS TESTING

Test Type	LTPP Designation	LTPP Protocol	Min. Nº. of Tests	Sample Designation
Surface Bound Layers:				
Core Examination/Thickness	AC01	P01	8	A1-A8
Base:				
Classification (Visual)	UG08	Note 1	3	A2,A4,A6
Subgrade:				
Sieve Analysis	SS01	P51	3	A1,A3,A5
Atterberg Limits	SS03	P43	3	A1,A3,A5
Classification	SS04	P52	3	A1,A3,A5
Natural Moisture Content	SS09	P49	3	A1,A3,A5
Depth to Rigid Layer		Note 2	3	S1,S2

Notes:

1. Visually classify materials in accordance with Appendix C of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

2. Follow procedures contained in Appendix C of the SHRP-LTPP Guide for Field Materials Sampling, Testing and Handling.

SECTION C

MATERIAL SAMPLING AND TESTING DURING CONSTRUCTION

SECTION C

MATERIAL SAMPLING AND TESTING DURING CONSTRUCTION

This portion of the sampling and testing plan deals with field material sampling and laboratory testing during overlay construction. Most of the "during-construction" sampling involves collection of bulk samples from the plant during mix production. Other sampling and testing activities include elevation measurements for documentation of layer thickness and coring just subsequent to construction to evaluate as-placed properties. It is important to note that only the HMAC surface materials are to be sampled and tested. For the New Mexico SPS-9A project, this will include the top two lifts of the overlay. Samples will be used to evaluate the properties of the paving mixtures produced and will be compared to properties measured from core samples after material placement.

The goal of this phase of the sampling effort is to investigate differences in material properties from mix design, production and placement. As such, the scope of the sampling activities requires collection of bulk samples at various times in the process, for preparation as test specimens. Samples of the constituent materials and the resulting HMAC mixtures are to be collected. These samples are to be compacted in the SHRP Gyratory Compactor (SGC) for volumetric and performance testing. It is anticipated that performance testing will be conducted at SUPERPAVE™ Regional Test Centers, once they are "on-line". At this time, there is no mechanism in place for conducting the performance testing. As such, samples should be stored in a safe environment awaiting testing. If the SHA does not have suitable storage available, then the samples may be transported to the Materials Reference Library (MRL) for storage.

A summary of the bulk sampling activities by test section is provided in Table C-1. For discussion purposes, bulk sampling activities are divided into five general areas. These are:

1. Laboratory Testing - For the SUPERPAVE™ mix to be used on Section 350902, once the final mix design is complete, a bulk sample should be blended in the laboratory to final mix design proportions and compacted in the SHRP Gyratory Compactor (SGC) to N_{design} gyrations into 34, 152 mm diameter by 115 mm height cylindrical specimens. These specimens will be used for volumetric and performance testing, as shown in Table C-2.

2. Quality Control Tests - For each of the four surface mixtures, a 60 kg sample of the mix should be obtained from the haul vehicle on site. These samples will be reheated and compacted in the SGC to N_{max} gyrations to form 6 test specimens of each mix. Testing on these samples is shown on Table C-3.

3. Field Performance Tests - For the SUPERPAVE™ mix placed at Section 350902, 360 kg of mix should be sampled from the haul vehicles. These samples will be compacted in the SGC to N_{design} gyrations into 34 test specimens for volumetric and performance testing, as shown on Table C-2.

4. Mix Design Verification - For each of the four test sections, samples of the constituent materials should be sampled at the plant and shipped to the laboratory to be mixed and tested. One 10-liter sample of the asphalt cement and ten 25 kg samples of the combined aggregate will be required for each surface mix. Testing to be performed on these samples is shown on Table C-4.

5. MRL Sampling - Sampling and information related to the handling of bulk samples for the LTPP Materials Reference Library (MRL) is itemized on Table C-5.

In addition to the bulk samples, cores of the HMAC materials are needed just after placement for volumetric and/or performance testing, to quantify as-placed properties. Table C-6 provides an indication of the number of cores and time intervals for each of the test sections. Figure C-1 provides an indication of the general coring area for each section at an SPS-9A project. Each coring area is further subdivided into six coring "intervals", as depicted in Figure C-2. Each interval corresponds to a time period, with Interval A corresponding to the immediate postconstruction cores. Intervals B-F correspond to time periods of 6 months, 12 months, 18 months, 24 months and 48 months, respectively. The sampling for these intervals (B-F) will be discussed in Section D of this document.

The coring layout within each interval for Sections 01, 03 and 04 is also shown on Figure C-2. The coring layout within each interval for Section 02 (the SUPERPAVE™ section) is shown in Figure C-3. The thirty-four cores scheduled in Interval A will be used for volumetric and performance testing.

In summary, 8 cores will be obtained from each of Section 01, 03 and 04 during Interval A, immediately following construction. Testing to be performed on these cores is shown in Table C-7. Thirty-four cores shall be obtained from Test Section 02 during Interval A, immediately following construction. Testing to be performed on these cores is shown in Table C-8.

The final "during-construction" field testing activities include elevation and Dipstick® cross-profile measurements before and after overlay placement. Elevation measurements should be performed at 15 m intervals, across the pavement surface at intervals of 0, 0.9, 1.8, 2.7 and 3.6 m from the outside lane edge. Care should be taken to measure the elevation at the same location before and after overlay placement, to ensure accurate calculation of the overlay thickness. Dipstick® cross-profile measurements were obtained prior to construction. A second set of measurements will be taken just prior to the placement of the surfacing layers. A third and final set of measurements will be taken after completion of the surfacing placement. Collection of elevation and Dipstick® cross-profile data will be conducted by the Regional Coordination Office representative on site and as such are not itemized in the following tables or figures.

TABLE C-1. SUMMARY OF BULK SAMPLING BY TEST SECTION

Test Section	Material Type	Testing	Bulk Sampling	Testing Lab	Ref. Table
350901	Agency Mix (PMBP-IA)	Quality Control (Volumetric)	60 kg Mix	SHA	C-3
		Mix Design Verification (Volumetric)	10 liter Asphalt 250 kg Aggregate	SHA	C-4
		Materials Ref. Library	20 liter Asphalt 250 kg Aggregate	MRL	C-5
350902	SUPERPAVE™ (PG64-22)	Lab. Mix Design (Volumetric & Performance)	300 kg Mix	SHA	C-2
		Quality Control (Volumetric)	60 kg Mix	SHA	C-3
		Performance Testing (Volumetric & Performance)	360 kg Mix	SHA, LTPP Contract, SUPERPAVE™ Reg. Test Center	C-2
		Mix Design Verification (Volumetric)	10 liter Asphalt 250 kg Aggregate	SHA	C-4
		Materials Ref. Library	20 liter Asphalt 250 kg Aggregate	MRL	C-5
350903	Alt. SUPERPAVE™ Binder (PG58-22)	Quality Control (Volumetric)	60 kg Mix	SHA	C-3
		Mix Design Verification (Volumetric)	10 liter Asphalt 250 kg Aggregate	SHA	C-4
		Materials Ref. Library	20 liter Asphalt 250 kg Aggregate	MRL	C-5
350904	Supplemental Binder (PG64-10)	Quality Control (Volumetric)	60 kg Mix	SHA	C-3
		Mix Design Verification (Volumetric)	10 liter Asphalt 250 kg Aggregate	SHA	C-4
		Materials Ref. Library	20 liter Asphalt 250 kg Aggregate	MRL	C-5

TABLE C-2. TESTS ON COMPACTED BULK SAMPLES OF MATERIALS FROM TEST SECTION 02

Test Name	Test Desig.	Protocol	Nº. of Tests	Material Source/ Material Sample
HMA Specimen Compaction by Participating Highway Agency				
Gyratory Compaction @ N_{Design} (Lab samples)		AASHTO M002	34	BA01-BA34[a]
Gyratory Compaction @ N_{Max} (Field samples)		AASHTO M002	6	BA35-BA40[a]
Gyratory Compaction @ N_{Design} (Field samples)		AASHTO M002	34	BA41-BA74[a]
Volumetric Tests by Participating Highway Agency				
Bulk Specific Gravity	AC02	LTPP P02	12	DA01,DA18,DA34, DA35-DA41, DA58,DA74
Asphalt Content (Extraction) (Performed on uncompacted material from bulk sample)	AC04	LTPP P04	9	BA01,BA18,BA34, BA35,BA37,BA40, BA41,BA58,BA74
Aggregate Gradation (Extracted Aggregate)	AG04	LTPP P14	3	BA18,BA37,BA58
Maximum Specific Gravity	AC03	LTPP P03	3	BA18,BA37,BA58
Volumetric Calculations by Participating Highway Agency				
Volume Percent of Air Voids		AASHTO PP19	74	All Compacted Specimens
Percent Voids in Mineral Aggregate		AASHTO PP19	74	
Voids Filled with Asphalt		AASHTO PP19	74	
LTPP Performance Tests by LTPP Contract Laboratory				
Creep Compliance	AC06	LTPP P06	16	DA01-DA04, DA31-DA34, DA41-DA44, DA71-DA74
Indirect Tensile Strength	AC07	LTPP P07	4	DA05,DA30,DA45,DA70
Resilient Modulus	AC07	LTPP P07	4	DA06,DA29,DA46,DA69
SUPERPAVE™ Shear Tester Performance Tests by SUPERPAVE™ Regional Test Center				
Frequency Sweep at Constant Height		AASHTO M003, P005	4	DA11,DA24,DA51,DA64
Simple Shear at Constant Height		AASHTO M003, P005	4	DA10,DA25,DA50,DA65
Uniaxial Strain		AASHTO M003, P005	4	DA08,DA27,DA48,DA67
Volumetric Test		AASHTO M003, P005	4	DA07,DA28,DA47,DA68
Repeated Shear at Constant Stress Ratio		AASHTO M003, P005	4	DA09,DA26,DA49,DA66
SUPERPAVE™ Indirect Tensile Tests by SUPERPAVE™ Regional Test Center				
Indirect Tensile Creep Compliance		AASHTO M005	12	DA12-DA14, DA21-DA23, DA52-DA54, DA61-DA63
Indirect Tensile Strength		AASHTO M005	12	DA15-DA20, DA55-DA60

Notes:

a. For purposes or this table, a single specimen is compacted from each bulk sample Test specimen DA01 is produced from BA01, etc Up to three specimens can be produced from the sample, depending on its size

TABLE C-3. QUALITY CONTROL RELATED TESTS ON COMPACTED SPECIMENS FROM TEST SECTION 01, 03, 04 (To Be Performed by the Participating Highway Agency or their Designee)

Test Name	Test Desig.	Protocol	Nº. of Tests	Material Source/ Material Sample
HMA Specimen Compaction				
Gyratory Compaction @ N_{Max} (Field samples)		AASHTO M002	6	BA01-BA06[a]
Volumetric Tests				
Bulk Specific Gravity	AC02	LTPP P02	6	DA01-DA06
Asphalt Content (Extraction)	AC04	LTPP P04	2	BA02, BA04
Aggregate Gradation (Extracted Aggregate)	AG04	LTPP P14	2	BA02, BA04
Maximum Specific Gravity	AC03	LTPP P03	2	BA02, BA04
Volumetric Calculations				
Volume Percent of Air Voids		AASHTO PP19	6	DA01-DA06
Percent Voids in Mineral Aggregate		AASHTO PP19	6	
Voids Filled with Asphalt		AASHTO PP19	6	

Notes:

a A single test specimen is produced from each bulk HMA mix sample Test specimen DA01 is produced from sample BA01, etc

TABLE C-4. SUPERPAVE™ AGGREGATE, BINDER AND MIXTURE DESIGN TESTS ON HMA SURFACE LAYER MATERIALS FROM ALL TEST SECTIONS (To Be Performed by Participating Highway Agency or their Designee)

Test Name	Test Desig.	Protocol	Nº. Tests	Material Source
Aggregate Tests[a]				
Aggregate Gradation (Extracted Aggregate)	AG04	LTPP P14	1	BU01
Specific Gravity of Coarse Aggregate	AG01	LTPP P11	1	
Specific Gravity of Fine Aggregate	AG02	LTPP P12	1	
Specific Gravity of -200 Material		AASHTO T100	1	
Coarse Aggregate Angularity		Penn DOT TM 621	1	
Fine Aggregate Angularity		ASTM C1252	1	
Toughness		AASHTO T96	1	
Soundness		AASHTO T104	1	
Deleterious Materials		AASHTO 112	1	
Clay Content		AASHTO T176	1	
Thin, Elongated Particles		ASTM D4791	1	
Asphalt Cement				
Penetration @ 5°C		AASHTO T49	3	BC01
Penetration @ 25°C & 46°C	AE02	LTPP P22	3	
Viscosity @ 60°C & 135°C	AE05	LTPP P25	2	
Specific Gravity @ 16°C	AE03	LTPP P23	2	
Dynamic Shear @ 3 Temperatures		AASHTO TP5	2	
Creep Stiffness		AASHTO TP1	2	
Brookfield Viscosity @ 135°C & 165°C		ASTM D4402	1	
Rolling Thin Film Oven (RTFOT)		AASHTO T240	b	
Dynamic Shear on RTFOT Residue @ 3 Temperatures		AASHTO TP5	3	
Pressure Aging (PAV) of RTFOT Residue		AASHTO PP1	b	
Creep Stiffness of RTFOT-PAV Residue @ 2 Temperatures		AASHTO TP1	2	
Dynamic Shear on RTFOT-PAV Residue @ 3 Temperatures		AASHTO TP5	2	
Direct Tension on RTFOT-PAV Residue @ 2 Temperatures		AASHTO TP3	2	
Mixed and Compacted HMA				
Gyratory Compaction @ Design Asphalt Content @ N_{Design}		AASHTO M002	3	BC01,BU01-BU03
Gyratory Compaction @ 7% Air Voids		AASHTO M002	6	BC01,BU04-BU09
Moisture Susceptibility	AC05	AASHTO T283	1	DA04-DA09
Bulk Specific Gravity	AC02	LTPP P02	3	DA01,DA03
Maximum Specific Gravity	AC03	LTPP P03	1	BC01,BU10
Volumetric Calculations				
Volumetric Percent of Air Voids		AASHTO PP19	3	DA01,DA02,DA03
Percent Voids in Mineral Aggregate		AASHTO PP19	3	
Voids Filled With Asphalt		AASHTO PP19	3	

Notes:

a. Only one set of aggregate tests required for each unique aggregate combination used on the project

b Sufficient material should be conditioned for the required tests

TABLE C-5. BULK MATERIAL SAMPLES TO BE SHIPPED TO THE LTPP MATERIAL REFERENCE LIBRARY

Material	Number
Asphalt Cement Collected from the Plant in 20-Liter Pails (Surface Mix Only)	1 for Each Type of Binder
Combined Coarse and Fine Aggregate Obtained from the Plant and Stored in 20-Liter Pails (Surface Mix Only)	10 for Each Aggregate Combination

Notes:

The MRL will provide containers and will pay for shipping costs.

Contact the MRL at (702) 358-7574 prior to construction to make arrangements for sample containers and to receive specific shipping instructions.

Only one sample of each unique asphalt binder used in the SPS-9A mixes is needed. If the same binder is used in more than one mix, then only one sample of that binder should be obtained.

A copy of LTPP Field Operations Information Form 1 should be completed and attached to all MRL shipments. Another copy of the form should be mailed separately to the MRL.

TABLE C-6. NUMBER OF CORES AND CORING TIME INTERVALS FROM SPS-9A STUDY TEST SECTIONS

Project Type	Test Section Nº.	Time After Paving, Months - Interval Identifier -					
		0 -A-	6 -B-	12 -C-	18 -D-	24 -E-	48 -F-
Main Study	Section 350901 Agency Binder (PMBP I-A)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)
	Section 350902 SUPERPAVE™ Binder (PG64-22)	34 (S*)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)
	Section 350903 Alternate SUPERPAVE™ Binder (PG58-22)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)
	Section 350904 Supplemental Binder (PG64-10)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)	8 (V)

Note: The numbers in the cells represent the number of 152 mm diameter cores needed to perform the required tests.

V = Volumetric and binder stiffness tests on cores

S* = Performance testing at t=0 months will be performed on 3 sets of specimens;

- compacted specimen from design mixtures produced in the laboratory
- compacted specimen from bulk samples obtained during construction
- cores obtained immediately following construction.

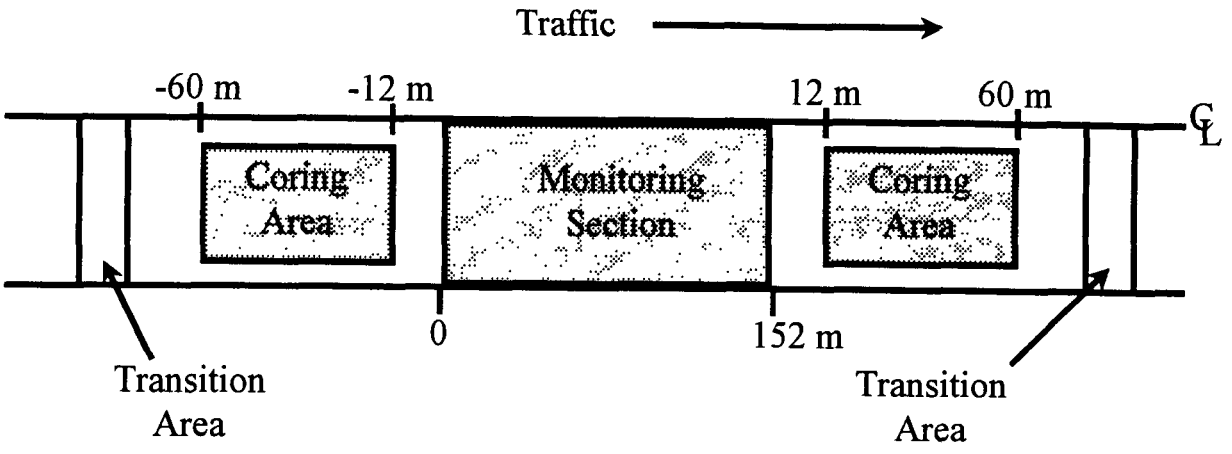


FIGURE C-1. CORING AREAS FOR SPS-9A TEST SECTIONS NEW MEXICO SPS-9A (350900)

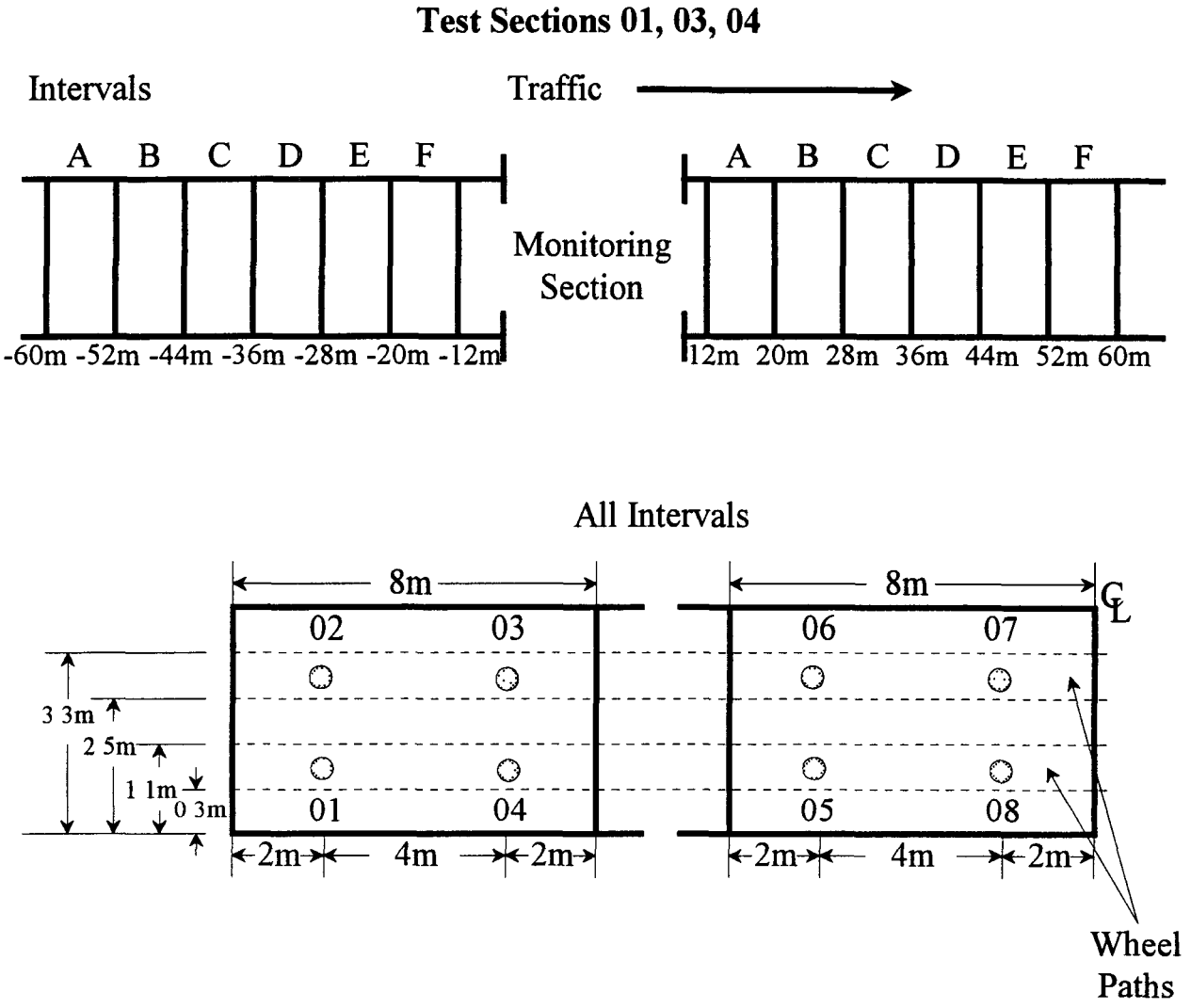


FIGURE C-2. CORING PLAN FOR MAIN STUDY TEST SECTIONS 01, 03 AND 04 NEW MEXICO SPS-9A (350900)

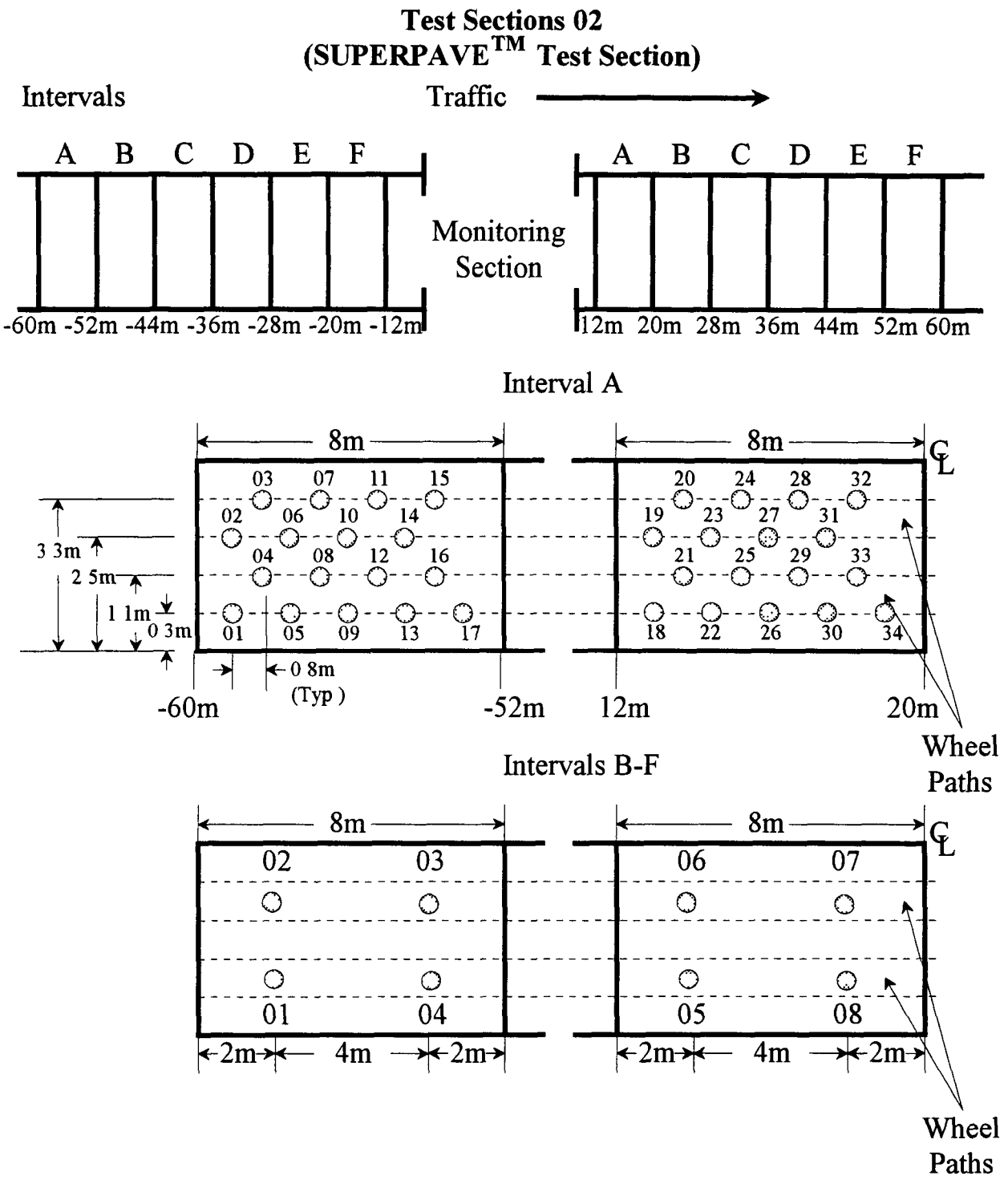


FIGURE C-3. CORING PLAN FOR MAIN STUDY TEST SECTION 02 (SUPERPAVE™ MIXTURE) NEW MEXICO SPS-9A (350900)

TABLE C-7. LABORATORY MATERIAL TESTS TO BE PERFORMED ON CORES FROM TEST SECTIONS 01, 03 AND 04 IMMEDIATELY AFTER CONSTRUCTION
(To Be Performed by the Participating Highway Agency or their Designee)

Test Name	Test Desig.	Protocol	Nº. of Tests	Material Source[b]
Core Examination/Thickness	AC01	LTPP P01	8	All Cores
Volumetric Analysis				
Bulk Specific Gravity	AC02	LTPP P02	8	All Cores
Asphalt Content (Extraction)	AC04	LTPP P04	8	All Cores
Aggregate Gradation (Extracted Aggregate)	AG04	LTPP P14	1	C01*t*
Volumetric Calculations[a]				
Volume Percent of Air Voids		AASHTO PP19	8	C01*t*-C08*t*
Percent Voids in Mineral Aggregate		AASHTO PP19	8	
Voids Filled with Asphalt		AASHTO PP19	8	
Recovered Asphalt Cement				
Abson Recovery	AE01	LTPP P21	8	C01*t*-C08*t*
Penetration @ 5°C		AASHTO T49	3	
Penetration @ 25°C & 46°C	AE02	LTPP P22	3	
Viscosity @ 60°C & 135°C	AE05	LTPP P25	2	
Specific Gravity @ 16°C	AE03	LTPP P23	2	
Dynamic Shear @ 3 Temperatures[c]		AASHTO TP5	2	
Creep Stiffness @ 2 Temperatures[c]		AASHTO TP1	2	
Direct Tension @ 2 Temperatures[c]		AASHTO TP3	2	

Notes:

a. Use the maximum theoretical specific gravity determined from tests on bulk uncompacted samples obtained during construction. Use specific gravity of aggregate components from tests on unmixed aggregates.

b. The cores shown in this table are for each test section to be tested at each designated testing time interval *t*, where *t* represents the sampling time interval after construction as follows:

t = A at time 0 immediately following construction
t = B at 6 months after construction
t = C at 12 months after construction
t = D at 18 months after construction
t = E at 24 months after construction
t = F at 48 months after construction

For example, core C01E is obtained and tested 24 months after construction.

c. The test temperatures should be the same as those used for the tests on the RTFOT-PAV conditioned samples performed during the initial binder grading.

TABLE C-8. TESTS TO BE RUN ON CORE SAMPLES FROM TEST SECTION 02 IMMEDIATELY AFTER CONSTRUCTION

Test Name	Test Desig.	Protocol	Nº. of Tests	Material Source/ Material Sample[b]
Volumetric Tests by Participating Highway Agency				
Core Examination and Thickness	AC01	LTPP P01	34	All Cores
Bulk Specific Gravity	AC02	LTPP P02	34	All Cores
Asphalt Content (Extraction)*a*	AC04	LTPP P04	8	C01*t*-C04*t*, C31*t*-C34*t*
Aggregate Gradation (Extracted Aggregate)[a]	AG04	LTPP P14	2	C02*t*,C33*t*
Volumetric Calculations by Participating Highway Agency				
Volume Percent of Air Voids		AASHTO PP19	34	All Cores
Percent Voids in Mineral Aggregate		AASHTO PP19	34	
Voids Filled with Asphalt		AASHTO PP19	34	
Recovered Asphalt Cement Tests by Participating Highway Agency				
Abson Recovery	AE01	LTPP P21	8	C01*t*-C04*t*, C31*t*-C34*t*
Penetration @ 5°C		AASHTO T49	3	
Penetration @ 25°C & 46°C	AE02	LTPP P22	3	
Viscosity @ 60°C & 135°C	AE05	LTPP P25	2	
Dynamic Shear @ 3 Temperatures		AASHTO TP5	2	
Creep Stiffness @ 2 Temperatures		AASHTO TP1	2	
Direct Tension @ 2 Temperatures		AASHTO TP3	2	
LTPP Performance Tests by LTPP Contract Laboratory				
Creep Compliance	AC06	LTPP P06	8	C01*t*-C04*t*, C31*t*-C34*t*
Indirect Tensile Strength	AC07	LTPP P07	2	C05*t*, C30*t*
Resilient Modulus	AC07	LTPP P07	2	C06*t*, C29*t*
SUPERPAVE™ Shear Tester Performance Tests by SUPERPAVE™ Regional Test Center				
Frequency Sweep at Constant Height		AASHTO M003, P005	2	C11*t*, C24*t*
Simple Shear at Constant Height		AASHTO M003, P005	2	C10*t*, C25*t*
Uniaxial Strain		AASHTO M003, P005	2	C08*t*, C27*t*
Volumetric Test		AASHTO M003, P005	2	C07*t*, C28*t*
Repeated Shear at Constant Stress Ratio		AASHTO M003, P005	2	C09*t*, C26*t*
SUPERPAVE™ Indirect Tensile Tests by SUPERPAVE™ Regional Test Center				
Indirect Tensile Creep Compliance		AASHTO M005	4	C12*t*-C14*t*, C21*t*-C23*t*
Indirect Tensile Strength		AASHTO M005	4	C15*t*-C17*t*, C18*t*-C20*t*

Notes:

a. These tests to run on cores after completion of the LTPP performance tests performed by the LTPP contract laboratory

b These are cores from each test section at time intervals t = A (0 months), t = C (12 months), t = E (24 months) and t = F (48 months) after construction.

SECTION D

MATERIAL SAMPLING AND TESTING

POSTCONSTRUCTION

SECTION D

MATERIAL SAMPLING AND TESTING POSTCONSTRUCTION

Materials sampling after construction consists solely of coring at time intervals of 6 months, 12 months, 18 months, 24 months and 48 months. These time periods correspond to intervals B-F, as discussed in Section C of this document and presented in Figures C-2 and C-3. These core samples will be tested to determine volumetric and binder stiffness properties, to evaluate their change with time. The testing to be performed on these core samples is shown in Table D-1.

TABLE D-1. LABORATORY MATERIAL TESTS TO BE PERFORMED ON CORES FROM ALL TEST SECTIONS AT TIME INTERVALS B-F AFTER CONSTRUCTION
(To Be Performed by the Participating Highway Agency or their Designee)

Test Name	Test Desig.	Protocol	Nº. of Tests	Material Source[b]
Core Examination/Thickness	AC01	LTPP P01	8	All Cores
Volumetric Analysis				
Bulk Specific Gravity	AC02	LTPP P02	8	All Cores
Asphalt Content (Extraction)	AC04	LTPP P04	8	All Cores
Aggregate Gradation (Extracted Aggregate)	AG04	LTPP P14	1	C01*t*
Volumetric Calculations[a]				
Volume Percent of Air Voids		AASHTO PP19	8	C01*t*-C08*t*
Percent Voids in Mineral Aggregate		AASHTO PP19	8	
Voids Filled with Asphalt		AASHTO PP19	8	
Recovered Asphalt Cement				
Abson Recovery	AE01	LTPP P21	8	C01*t*-C08*t*
Penetration @ 5°C		AASHTO T49	3	
Penetration @ 25°C & 46°C	AE02	LTPP P22	3	
Viscosity @ 60°C & 135°C	AE05	LTPP P25	2	
Specific Gravity @ 16°C	AE03	LTPP P23	2	
Dynamic Shear @ 3 Temperatures[c]		AASHTO TP5	2	
Creep Stiffness @ 2 Temperatures[c]		AASHTO TP1	2	
Direct Tension @ 2 Temperatures[c]		AASHTO TP3	2	

Notes:

a. Use the maximum theoretical specific gravity determined from tests on bulk uncompacted samples obtained during construction. Use specific gravity of aggregate components from tests on unmixed aggregates.

b. The cores shown in this table are for each test section to be tested at each designated testing time interval *t*, where *t* represents the sampling time interval after construction as follows:

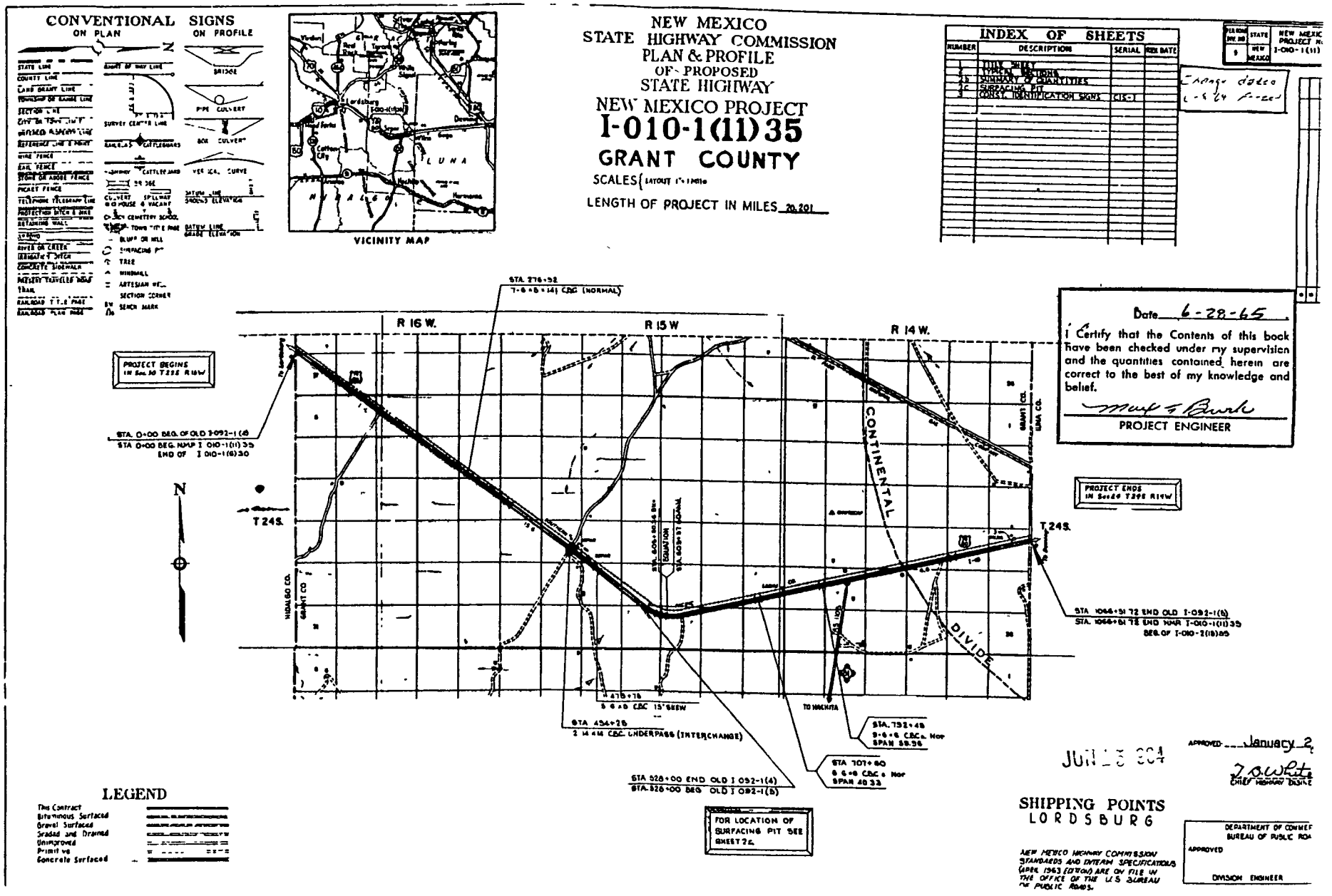
t = A at time 0 immediately following construction
t = B at 6 months after construction
t = C at 12 months after construction
t = D at 18 months after construction
t = E at 24 months after construction
t = F at 48 months after construction

For example, core C01E is obtained and tested 24 months after construction.

c. The test temperatures should be the same as those used for the tests on the RTFOT-PAV conditioned samples performed during the initial binder grading.

APPENDIX F

REHABILITATION CONSTRUCTION PLANS


CONVENTIONAL SIGNS
ON PLAN
ON PROFILE
NEW MEXICO
STATE HIGHWAY COMMISSION
PLAN & PROFILE
OF PROPOSED
STATE HIGHWAY
NEW MEXICO PROJECT
I-010-1(11)35
GRANT COUNTY
SCALES
LENGTH OF PROJECT IN MILES 20.201
VICINITY MAP
INDEX OF SHEETS
NUMBER
DESCRIPTION
SERIAL
REV DATE
1 TITLE SHEET
2 TYPICAL SECTIONS
2b SUMMARY OF QUANTITIES
2c SURFACING PIT
3 CONST. IDENTIFICATION SIGNS
Date 6-28-65
I Certify that the Contents of this book have been checked under my supervision and the quantities contained herein are correct to the best of my knowledge and belief.
PROJECT ENGINEER
R 16 W.
R 15 W
R 14 W.
T 24 S.
CONTINENTAL
DIVIDE
PROJECT BEGINS
PROJECT ENDS
STA. 276+52
STA. 0+00 BEG. OF OLD I-092-1(4)
STA. 0+00 BEG. NMP I-010-1(11)35
END OF I-010-1(6)30
STA. 1066+51.72 END OLD I-092-1(5)
STA. 1066+51.72 END NMP I-010-1(11)35
BEG. OF I-010-2(18)85
STA. 454+28
2 14 x 14 CBC UNDERPASS (INTERCHANGE)
STA. 528+00 END OLD I-092-1(4)
STA. 528+00 BEG. OLD I-092-1(5)
STA. 707+60
STA. 752+48
FOR LOCATION OF SURFACING PIT SEE SHEET 2c
LEGEND
This Contract
Bituminous Surfaced
Gravel Surfaced
Graded and Drained
Unimproved
Primitive
Concrete Surfaced
APPROVED January 2
CHIEF HIGHWAY ENGINEER
SHIPPING POINTS
LORDSBURG
NEW MEXICO HIGHWAY COMMISSION STANDARDS AND INTERIM SPECIFICATIONS (APRIL 1963 EDITION) ARE ON FILE IN THE OFFICE OF THE U.S. BUREAU OF PUBLIC ROADS.
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER

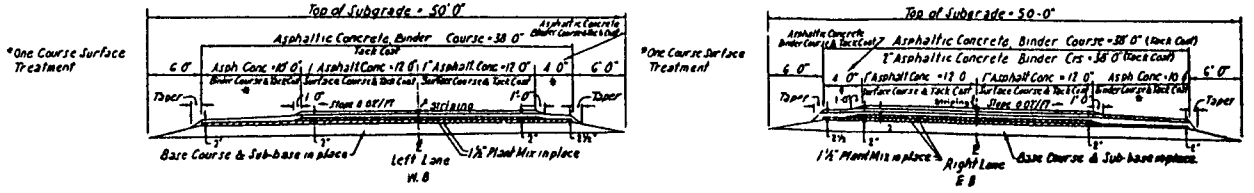
DESIGN SPEED 70 MPH

A.D.T (1950) - 3,568 - Heavy Commercial 20.0%
A.D.T (1975) - 10,820 - Heavy Commercial 15.0%
D.H.V (1975) - 1,353 - Heavy Commercial 13.0%
E.W.L.(I) - 1.17 Million
Traffic Index 10.4

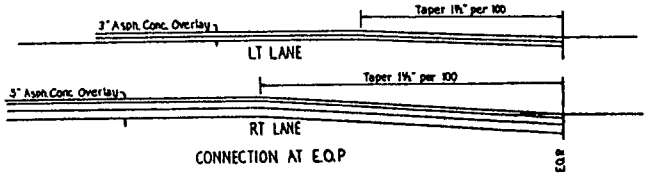
No.	Description	Date	By
6			
5			
4			
3			
2			
1	Typical Section, Details, Notes 10-2-64		AG

REVISIONS OR CHANGE NOTICES

Proj. Sym.	State	Sheet No.
9	NM	1-010 11

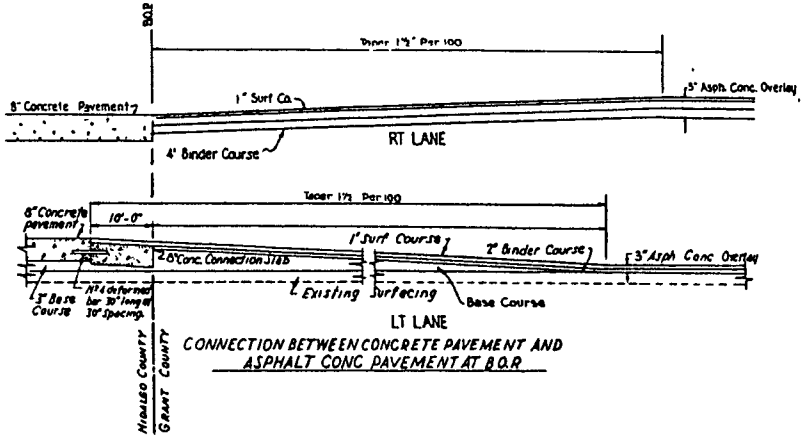


TYPICAL ROADWAY SECTION

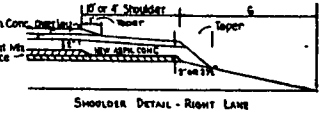


CONNECTION AT E.O.P

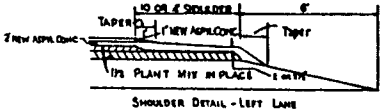
Note:
Removal of Surf in place at Conn to be considered Incidental and no measurement or payment will be made therefore



CONNECTION BETWEEN CONCRETE PAVEMENT AND ASPHALT CONC PAVEMENT AT B.O.P



SHOULDER DETAIL - RIGHT LANE



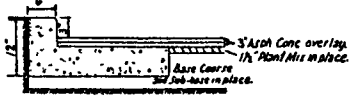
SHOULDER DETAIL - LEFT LANE

Length of Project

Station	to	Station	Lin Feet	Miles
I-092-1(4) AS BUILT				
0+00		528+00	52800 00	10 000
I-092-1(5) AS Built				
528+00		605+50.36 BK	7750 36	
605+37 60 AH		707+39 835	10202 235	
707+80 165		792+15 02	8434 855	
792+74 98		1066+51.72	27376 74	
TOTAL ROAD WAY			53764 13	10 182

Major Structures

Station	to	Station	Lin Feet	Miles
707+39 835		707+80 165	40 33	
792+15 02		792+74.98	59 96	
TOTAL			100.29	0 019
GRAND TOTAL			106664.48	20 201



CONCRETE CURB & GUTTER IN PLACE
Entrance & Exit Ramps - West Bound Lane

ESTIMATED QUANTITIES

Item	Asphalt Material Type 85-100	Asphalt Material Type 120-150	~~Asphalt Material MC-1 or 250-1~~	Estimated Tons per Cu. Yd.
Tack Coat	0.01 to 0.05 Gal/S.Y.			
~~Prime Coat~~			~~0.25 Gal/S.Y.~~	
Asphalt Concrete Binder Course, Type I	5.25% Grading "B"			2.025
Asphalt Concrete Surf Course, Type I	5.5% Grading "C"			2.025
One Course Surface Treatment		0.30 Gal/Sq. Yd		
Untreated Base Co.				2,000

SURFACING NOTES

After the Plant Mix Surfacing in place has been cleaned satisfactorily to the Eng a Tack Coat of Asphaltic Material Type 85-100, shall be applied immediately to the placing of the Asphalt Concrete. If necessary, a Tack Coat shall be app tween each succeeding lift of Asphalt Concrete as shown on Typical Sections

Amounts of Asphaltic Materials shown are for estimating purposes only. Co amounts will be determined by the Materials and Testing Laboratory.

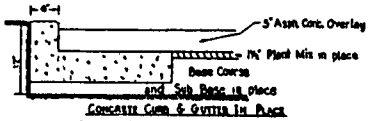
No additional Roadside improvements are contemplated at this time

At the direction of the Project Engineer, each application of the tack co be rolled with Pneumatic tired Roller to secure uniform distribution

~~Asphalt Concrete quantities for Binder Course have been increa by 38%.~~ 6-3-64

NOTE: 2000 TONS OF BASE COURSE HAVE BEEN ADDED TO THE PLANS FOR AND LATERAL SUPPORT AS DIRECTED BY THE PROJECT ENGINEER

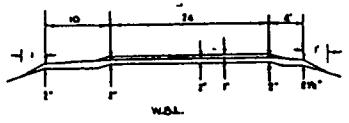
The Plant Mix surface course in place to be removed and disposed of(to a c at locations designated by the Project Engineer (Approx. 2000 Sq Yds.) After the existing Plant Mix surfacing is removed, the se sections are to back to grade (Typical Section) with Asphalt Conc. Binder Co. (Grading



CONCRETE CURB & GUTTER IN PLACE
Entrance & Exit Ramps - East Bound Lane

Binder A = -(1250+1)+(24+3333)+2(4564+3750)
+5(4564+3333)+5(3750+3333)
= 13.8544"

Surface A = 25×0.0833 = 2.0825"



Binder A = -1250+10(.2917+.1667)+2(24+.1667)
+2(2917+.2084)+5(1667+.2084)
= 7.3858".

Surface A = 25×0.0833 = 2.0825".

SURFACING SCHEDULE

Description	Length of Surfacing in Feet	Asphalt Conc Type I: Binder Course Tons	Asphalt Conc Type I: Surf Course Tons	Tack Coat: Width	Tack Coat: Sq Yds	One Course Surf Treat: Width	One Course Surf Treat: Sq Yds	One Course Surf Treat: Tons
East Bound Lane	106,664.48	110,832.93	16,659.71	* 104	1,232,567.32	14	165,922.52	2074.03
West Bound Lane	106,664.48	58,843.59	16,659.71	† 66	782,206.18	14'	165,922.52	2074.03
Sub-Total		169,676.52	33,319.42		2,014,773.50			
+25% Corr Work		42,419.13	—		—			
Sub-Total		212,095.65	33,319.42		2,014,773.50			
3" Refilling Asph Conc	1,466.00	329.85	—	+ 24	3,909.34			
Grand Total		212,425.50	33,319.42		2,018,682.84		331,845.04	4,148.06
Use		212,430	33,330		2,019,682.84		331,900	4,160

* WIDTH INCLUDES 40 BOTTOM, 36 TOP FIRST LIFT, 26 BOTTOM OF DRIVING LANE

† WIDTH INCLUDES 40 BOTTOM, 26 BOTTOM OF DRIVING LANE

+ WIDTH INCLUDES 2-12 WIDTHS

Tons Per Foot

Surface Course (Both Lanes) $\frac{(2.0825)(1)(2.025)}{27} = 0.156186$

Binder Course (E.B.L.) $\frac{(13.8544)(1)(2.025)}{27} = 1.039080$

Binder Course (W.B.L.) $\frac{(7.3858)(1)(2.025)}{27} = 0.551670$

Computations

Refilling (1466)(12)(.25)(2.025)/27 = 329.85 tons

One Crs. 165922.52(.25)/2000 = 2074.03 tons.

Removal and Disposal of Asphalt Pavement

Station	to Station	Lin Ft	Sq Yds
3" Refill WB Lane			
900+50	904+90	440	586.67
887+85	888+41	56	74.67
769+58	770+00	42	56.00
751+85	752+55	70	46.67
461+37	462+63	126	168.00
434+80	437+15	235	313.33
421+45	423+60	215	191.11
418+58	421+45	287	382.66
257+10	257+55	45	60.00
167+70	171+00	330	440.00
141+15	142+70	155	206.67
130+70	132+50	180	240.00
	Total	2181	2765.78

Removal and Disposal of Asphalt Pavement

Station	to Station	Lin Ft	Sq Yds
3" Refill W.B. Lane			
131+15	132+40	125'	
141+50	142+71	121'	
168+60	170+60	200'	
218+00	218+30	30'	
243+00	243+40	40'	
257+10	257+30	20'	
355+20	355+40	20'	
423+00	423+60	160'	
434+80	437+15	235'	
461+45	462+45	100'	
751+75	752+15	40'	
887+40	889+10	170'	
890+40	890+60	20'	
890+70	890+90	20'	
904+00	904+40	40'	
904+80	905+00	20'	
905+15	906+20	105'	
TOTAL		1466'	1955
USE TOTAL			2000

GENERAL NOTES

1. Construction shall be confined to either the eastbound or westbound roadways until such time that traffic can be routed over finished two-lane roadway construction. Temporary crossovers needed for routing traffic are incidental to construction, and no direct payment will be made for this work
2. Two construction identification signs to be built, one at the BOP and E.O.P
3. Easy Riding Connections to Present Ramps to be built by Contractor.

SPECIAL PROVISIONS

For Overtime Compensation. Contract Work Hours Standards Act.

Relating to the Source and Purchase of Materials, Equipment and Supplies (3-21-62)

For Construction Identification Signs and Temporary Access Signs (3-21-62)

For Removal and Disposal of Asphalt Pavement-Item 100 (2-20-64)

Modifying Section 48 Asphalt Concrete (For Type I Overlays) (6-2-64)

For Determining Acceptance of Asphalt Concrete Aggregate (5-27-63)

Modifying Section 5 Control of the work (3-24-64)

For Nondiscrimination of Employees (1-17-64)

For Centerline and Shoulder Striping for White Lines-Only-Item 102 (4-1-64)

SUMMARY OF QUANTITIES

Item No.			Total Estimate	Roadway Final	Unit	Roadway Items
38			2000	0	Ton	Base Course
46			2410	414	BBL	Asphalt Tack Coat - Type 85-100
48			33330	34185	Ton	Asphalt Concrete Surface Course-Type I
48a		171,000	~~212430~~	167460	Ton	Asphalt Concrete Binder Course-Type I
48d		16,580	~~22720~~	56814	BBL	Asphalt Material-Type 85-100
50a			2380	3044	BBL	Asphalt Material-Type 120-150
50b			4160	4342	Ton	Cover Material-One Course Surface Treatment
50c			331900	326441	Sq. Yd.	Rolling-One Course Surface Treatment
100			2000	2766	Sq Yd.	Removal and Disposal of Asphalt Pavement
102			80000	79672	Lin Ft.	Pavement Markings

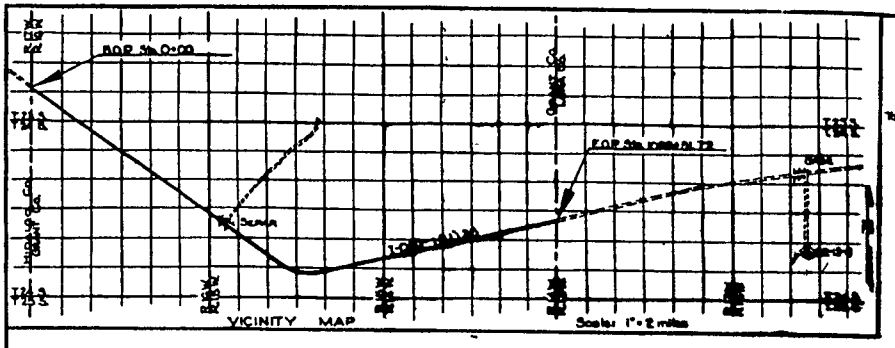
For information of contractor only

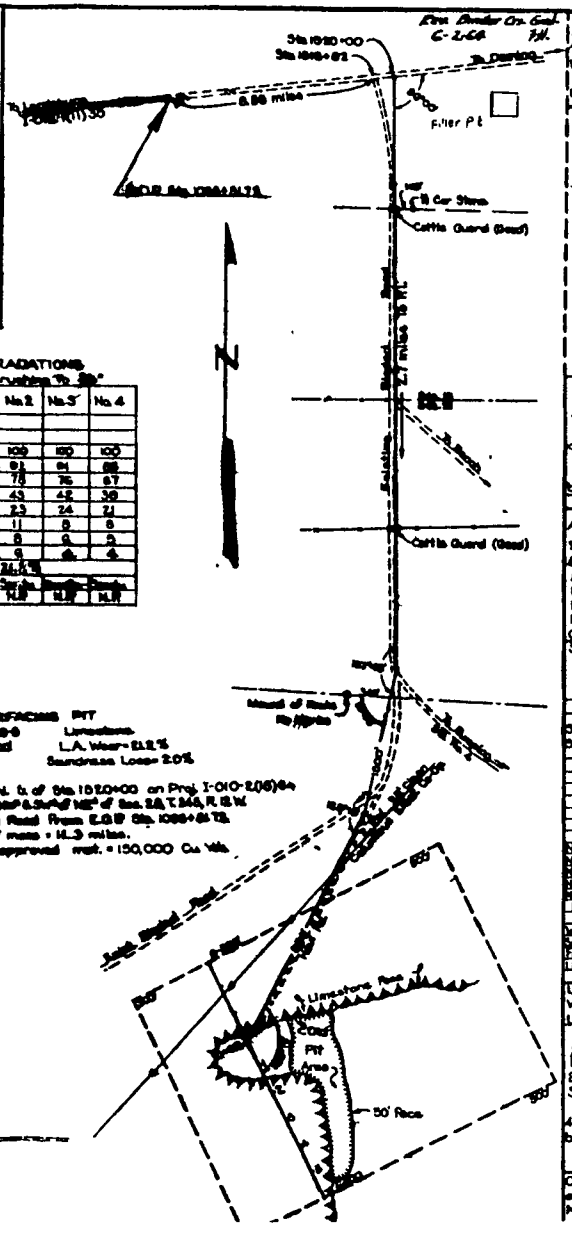
No.	Description	Date	By
6			
5			
4			
3			
2	Summary of Quantities	6-2-64	CMS
1	Mod to General note #1	3-26-64	JAA

REVISIONS OR CHANGE NOTICES

N M
0-010-011

F.4





GRADATIONS
After Crushing To Sieve

Sieve Size	No. 1	No. 2	No. 3	No. 4
2"				
1"				
3/4"	100	100	100	100
1/2"	83	91	91	88
3/8"	73	78	76	67
No. 4	44	43	42	30
No. 10	25	23	24	21
No. 40	13	11	8	8
No. 100	9	8	6	5
No. 200	7	6	4	4
Water	N.R.T.S.			
L.L.	Sandy	Sandy	Sandy	Sandy
P.I.	N.P.	N.P.	N.P.	N.P.

Filler Pit
500 ft Right of Sta 1528 on
Proj I-010-2(18)64
Southor Gage Interchange
On Property owned by
Bowlins Incorporated

SURFACING PIT
No. 62-13-3
Scale: 1" = 200'
Limestone
L.A. Wear = 21.2%
Soundness Loss = 2.0%

Location: 3.2 mi. ± of Sta. 1010+00 on Proj. I-010-2(16)64
In the SE¼ of NW¼ & SW¼ of NE¼ of Sec. 28, T. 14S, R. 13 W.
Length of Haul Road From E.O.P. Sta. 1088+81.72
to center of mass = 11.5 miles.
Est. Quant. of approved mat. = 150,000 Cu. Yds.

Surf. Pit No. 62-13-3
Km note to 2-27-64
Am 4-30-64 Add Bore Course & Prime

Est Stripping	Pit No. Moon	=	CY
	Pit No.	=	CY
Est Waste	Pit No. Moon	=	CY
	Pit No.	=	CY

0		N.M. I-010 I(11)3
		Hidalgo/Grant C

— NOTES —

Approx. 25% Filler will be required in the Concrete Surfacing Material similar in grading t Aggregate will be acceptable and may be obtai source when tested and approved by the Cont This Filler shall be placed in a separate stoc introduced into the plant by a separate Contro

It will be permissible to add a maximum of 20% Coar the Base Course Surfacing to meet gradation Spec. This Filler may be obtained from any source ap approved by the Materials & Testing Engr. and u in controlled amounts and processed through being placed on the roadway.

The material pit data indicated hereon is for information The Contractor shall determine the accuracy of the the requirements necessary to produce specified Exclusive rights to Pit No. 62-13-3 an contractor under the contract & the state may assign por to other projects for the production of aggregates. The Contractor shall confine his operations to the minimum by the Engineer, necessary to produce the aggregate requirem

REQUIREMENTS FOR TREATED & UNTREATE

Additives Reqd Mixing Asphalt Mat. % Concentrate Grade
Sealing Asphalt Mat. % Concentrate Grade
% Asph. Recommend
Base Crse. Asphalt Conc. Surf. (Grading A) 5.25% 85-100 Pen.
Surf. Crse. Asphalt Conc. Surf. (Grading C) 5.50% 85-100 Pen.
For Prime Coat, Est using 0.40 Gals. MC30 or
For Tack Coat, Est using 0.01 to 0.05 Gals. 85-100
For Curing Seal, Est using Gals.
Cement Treat. Base, Type Class Est. using % Type
Surface Treatment One Course (Shoulders)
1st Course 0.30 Gals. 120-150 Sq. Yd. 25 lbs. aggr
2nd Course Gals. Sq. Yd. lbs. agg

SPECIFICATIONS FOR SURFACING AGGREGATES

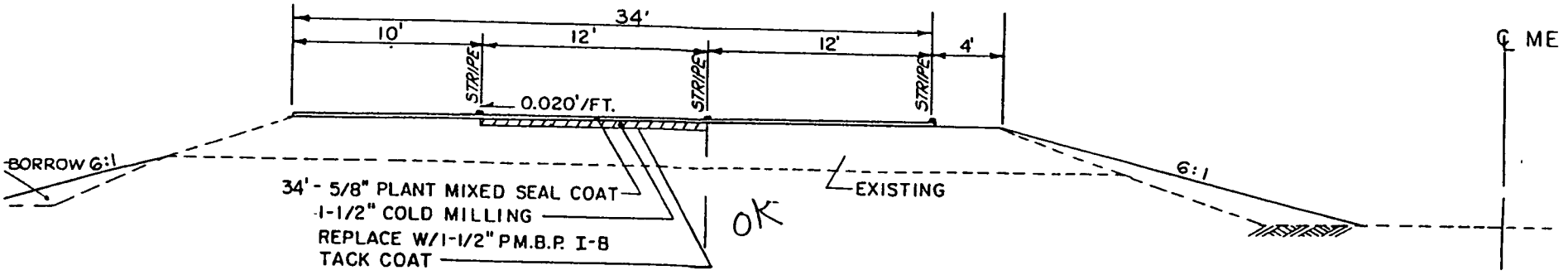
Sieve Size	Base Course Untreated		Asphalt Concrete Aggregate Base Course Type I Grading A	Surface Course Type I Grading
2"				
1"				
3/4"	100		100	
1/2"	80-100		70-100	
3/8"				
1/4"			55-85	100
3/8"			45-70	90-100
No. 4	30-60		30-55	50-75
No. 10	20-45		20-45	35-65
No. 40			10-25	15-35
No. 80			7-18	10-25
No. 200	3-12		4-8	4-10
L.L.	Sandy		Sandy	Sandy
P.I.	N.P.		N.P.	N.P.
Water	50 or less		40 or less	40 or less
Sound. Loss %	10 or less		15 or less	15 or less
Fract. Faces %	50 or more		60 or more	60 or more
Lin. Stripe %				

Unit wgt. of untreated surf 4,000
Water requirements for untreated Surf
Unit wgt. of Asphalt Concrete Surf 4050

DEVELOPMENT RECOMMENDATIONS FOR THE PRO
SURFACING MATERIALS BASED ON:
1-Samples & Logs from the indicated test holes.
2-Stripping overburden to depths recommended
3-Working a vertical face, exposing the approved product one lift after stripping as recommended.
4-If waste is necessary to produce specification surf mat, before crushing, unless otherwise authorized by the E

Concrete aggregates may be obtained from approved commerc any other source when tested & approved by the Central La Mixing water for Portland Cement Concrete, cement treated base

LITTLEFIELD 11-21-63



TYPICAL ROADWAY SECTION E.B.L.

SURFACING NOTES: AMOUNTS AND TYPES OF ASPHALT MATERIALS SHOWN ARE FOR ESTIMATING PURPOSES ONLY, CORRECT AMOUNTS WILL BE FURNISHED BY THE LABORATORY.

WESTBOUND LANES: IN PREPARATION FOR THE OVERLAY ON WESTBOUND LANES THE CONTRACTOR WILL COLD MILL 1-1/2" FOR A 34' WIDTH.

-6' EACH SIDE OF CENTERLINE WILL BE MILLED, THIS MATERIAL IS TO BE STOCKPILED AND RECYCLED. FOLLOWING THE 1-1/2" COLD MILLING, 2" PAVEMENT TO BE PLACED 6' EACH SIDE OF CENTERLINE FOLLOWED BY 1-1/2" PLANT MIX BITUMINOUS PAVEMENT FOR A 34' WIDTH. 2" OF PLANT MIX BITUMINOUS REINFORCING FABRIC WILL BE PLACED FOR A 24' WIDTH BEFORE OVERLAY OPERATION BEGINS

OVERLAY: 3" PLANT MIX BITUMINOUS PAVEMENT WILL BE PLACED FULL WIDTH IN TWO EQUAL LIFTS. THE FIRST LIFT TO BE RECYCLED MATERIAL. 5/8" PLANT MIXED SEAL COAT WILL BE PLACED FOR 29' WIDTH.

EASTBOUND LANES: THE CONTRACTOR WILL MILL 1-1/2" FOR A 12' WIDTH-DRIVING LANE ONLY. 1-1/2" PLANT MIX BITUMINOUS PAVEMENT TO BE PLACED IN 12' MILLED AREA.

5/8" PLANT MIXED SEAL COAT WILL BE PLACED FOR 34' WIDTH.

AC-10 VISCOSITY GRADE ASPHALT CEMENT MAY BE SUBSTITUTED FOR 85-100 PENETRATION GRADE ASPHALT IN THE PLANT MIX BITUMINOUS PAVEMENT AND PLANT MIXED SEAL COAT, AT NO ADDITIONAL COST.

THE CONTRACTOR SHALL PLAN HIS DAILY SURFACING OPERATIONS ON A SCHEDULE WHICH WILL RESULT IN NOT MORE THAN ONE (1) DAYS OPERATION OF EXPOSED LONGITUDINAL JOINTS. THE LONGITUDINAL JOINTS SHALL NOT BE LEFT EXPOSED LONGER THAN 24 HOURS. ALL LONGITUDINAL JOINTS SHALL BE TAPERED ON A 6:1 SLOPE.

THE LOCATION OF THE SHOULDER STRIPE AS SHOWN ON THE TYPICAL SECTION, IS GIVEN FOR INFORMATIONAL PURPOSES ONLY AND THE ACTUAL OFFSET FROM CENTERLINE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

ALL TRANSVERSE JOINTS WHICH ARE TO BE EXPOSED TO TRAFFIC AT THE END OF EACH DAYS OVERLAY OPERATION SHALL BE TAPERED NOT LESS THAN 3' FEET. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THIS TAPER TO A VERTICAL PLANE PRIOR TO THE NEXT PLACEMENT OF SURFACING AT THIS POINT.

THE AREA COLD MILLED-2" WILL BE BACKFILLED WITH 2" PLANT MIX BITUMINOUS PAVEMENT I-B THE SAME DAY THE MILLING OPERATION TAKES PLACE.

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SURFACING SCHEDULE

STATION	TO STATION	LENGTH	DESCRIPTION	SUBGRADE PREPARATION AVG. SQ. YDS.	BASE COURSE WIDTH	BASE COURSE DEPTH	BASE COURSE SQ. YDS.	BASE COURSE CU. YDS.	BASE COURSE TONS	PLANT MIX B WIDTH	PLANT MIX B DEPTH
			EAST BOUND LANE								
0 +29.3	821+50.0	82120.70	B.O.P. TO HACHITA INTERCHANGE							12'	1-1/2"
821+50.0	828+50.0	700.00	HACHITA INTER. GRADE ADJUSTMENT	3888.89						44'	9"
828+50.0	1006+51.72	23801.72	HACHITA TO E.O.P.							12'	1-1/2"
			WEST BOUND LANE								
-139.3	0+30	169.30	SURFACING CONNECTION							VAR.	2"
0+30.0	7+30	700.00	MUIR GRADE ADJUSTMENT	3888.89						44'	9"
7+30.0	820+50	81320.00	MUIR INTER. TO HACHITA INTER.							12'	2"
7+30.0	820+50	81320.00	" " " " "							34'	1-1/2
7+30.0	820+50	81320.00	" " " " "							28'	1-1/2
7+30.0	820+50	81320.00	MUIR INTER. TO HACHITA INTER.							28'	1-1/2
7+30.0	820+50	81320.00	SHOULDER TAPERS OUTSIDE							10'	2"
7+30.0	820+50	81320.00	SHOULDER TAPERS INSIDE							4.5'	9"
820+50.0	829+50	900.00	HACHITA GRADE ADJUSTMENT	5000.00						44'	9"
829+50.0	1006+51.72	23701.72	HACHITA TO E.O.P.							12'	2"
829+50.0	1006+51.72	23701.72	HACHITA " " "							34'	1-1/2"
829+50.0	1006+51.72	23701.72	" " " "							28'	1-1/2
829+50.0	1006+51.72	23701.72	HACHITA TO E.O.P.							28'	1-1/2
829+50.0	1006+51.72	23701.72	SHOULDER TAPERS OUTSIDE							10'	2"
829+50.0	1006+51.72	23701.72	SHOULDER TAPERS INSIDE							4.5'	9"
			MUIR INTERCHANGE								
12+15.33	6+15.33 =	600.00	TAPER								
0+00	20+55.77 =	2055.77	RAMP A & B								
14+58.41	16+88.41	230.00	TAPER								
0+40.0	0+95.0	55.00	CROSS ROAD TO BRIDGE								
9+08.33	7+38.33 =	170.00	TAPER								
0+00	10+54.18	1054.18	RAMP C								
0+00	10+31.74 =	1031.74	RAMP D								

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Region No.	STATE	IR-010-1	NO.
6	NEW MEXICO	(39) 34	2-10

INOUS PAVEMENT TYPE I-B			PLANT MIXED SEAL COAT					TACK COAT		REINF. FABRIC	RECYCLED EXISTING SURFACING MATERIAL	REMOVED, SALVAGED, CRUSHED OR PROCESSED STOCKPILED 403009	COLD MILL			
Q. YDS.	CU. YDS.	TONS	WIDTH	DEPTH	SQ. YDS.	CU. YDS.	TONS	SQ. YDS.	TONS	SQ. YDS.	TONS	TONS	DEP.	SQ. YDS.	DEP.	S
9494.27	4562.26	9124.52	34'	5/8"	310233.76	5387.73	9697.91	109494.27	22.80				1-1/2"	109494.27		
3422.22	855.56	1711.11	34'	5/8"	2644.44	45.93	82.67	14052.20	8.95							
1735.63	1322.32	2644.64	34'	5/8"	89917.61	1561.57	2810.83	31735.63	6.61				1-1/2"	31735.63		
559.27	27.01	54.02	29'	5/8"	545.22	9.47	17.05	559.27	0.17				1-1/2"	184.80	2"	
3422.22	855.56	1711.11	29'	5/8"	2255.56	39.17	70.51	14052.20	8.95							
211.11	14.67	29.33														
3426.67	6024.91	12049.82	29'	5/8"	262031.11	4550.61	8191.09			216853.33	21835.93	12049.82			2"	1(
7208.89	10917.96	21835.93						307208.89	63.96				1-1/2"	307208.89		
2995.56	10541.48	21082.96														
2284.46	4267.80	7682.05														
0660.00	5082.50	10165.00														
4400.00	1100.00	2200.00		5/8"	2900.00	50.36	90.65	18067.00	11.50							
1602.29	1756.03	3512.07	29'	5/8"	76372.21	1328.33	2387.39			63204.59	6364.35	3512.07			2"	3
9539.83	3182.18	6364.35						89539.83	18.64				1-1/2"	89539.83		
3738.68	3072.45	6144.89														
1068.70	1243.90	2487.80														
850.86	1481.36	2962.72														
			8'	5/8"	533.33	9.26	16.67									
			16'	5/8"	3654.70	63.47	114.25									

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APPENDIX G

CONSTRUCTION DATA

SPS CONSTRUCTION DATA SHEET 1 PROJECT AND SECTION IDENTIFICATION	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 0]

*0. PROJECT TYPE (N for New, R for Overlay) [R]
Note: If R, disregard this form and go to inventory

*1. DATE OF DATA COLLECTION OR UPDATE (Month/Year) [0 9/9 6]

*2. STATE HIGHWAY AGENCY (SHA) DISTRICT NUMBER [0 1]

*3. COUNTY OR PARISH [0 1 7]

4. FUNCTIONAL CLASS (SEE TABLE A.2, APPENDIX A) [0 1]

*5. ROUTE SIGNING (NUMERIC CODE) [1]
Interstate... 1 U.S.... 2 State... 3
Other... 4

*6. ROUTE NUMBER [_ _ _ 1 0]

7. NUMBER OF THROUGH LANES (ONE DIRECTION) [2.]

*8. DATE OF CONSTRUCTION COMPLETION (Month/Year) [0 9/9 6]

*9. DATE OPENED TO TRAFFIC (Month/Year) [0 9/9 6]

10. CONSTRUCTION COSTS PER LANE MILE (In $1000) [_ _ _ _ _]

11. DIRECTION OF TRAVEL [1]
East Bound... 1 West Bound... 2 North Bound... 3
South Bound... 4

PROJECT STARTING POINT LOCATION

*12. MILEPOINT [_ 5 3._ _]

*13. ELEVATION (ft) [_ 4 5 0 0]

*14. LATITUDE [3 2° 1 5' _ _ _ _"]

*15. LONGITUDE [1 0 8° 1 5' _ _ _ _"]

16. ADDITIONAL LOCATION INFORMATION (SIGNIFICANT LANDMARKS) [Located at rest area.]

17 HPMS SAMPLE NUMBER (HPMS ITEM 28) [_ _ _ _ _ _ _ _ _ _ _ _]

18 HPMS SECTION SUBDIVISION (HPMS ITEM 29) [_]

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 3 REFERENCE PROJECT STATION TABLE	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 0]

ORDER	*1 TEST SECTION ID NO	REFERENCE PROJECT STATION NUMBER		*4 CUT-FILL[1] TYPE
		*2 START	*3 END	
1	350901	0 + 0 0	5 + 0 0	3
2	350902	15 + 0 0	20 + 0 0	3
3	350903	29 + 0 0	34 + 0 0	3
4	350904	44 + 0 0	49 + 0 0	3
5		+	+	
6		+	+	
7		+	+	
8		+	+	
9		+	+	
10		+	+	
11		+	+	
12		+	+	
13		+	+	
14		+	+	
15		+	+	
16		+	+	
17		+	+	
18		+	+	
19		+	+	
20		+	+	

*5 INTERSECTIONS BETWEEN TEST SECTION ON THE PROJECT

ROUTE	PROJECT STATION NO	RAMPS EXIT	RAMPS ENT	INTERSECTION STOP	INTERSECTION SIGNAL	INTERSECTION UNSIG
Rest Area to I-10	1018-00	✓				
	+					
	+					

Note 1. Indicate the type of subgrade construction the test section is located on.
Cut.... 1 Fill ... 2 At-Grade.. .. 3 Cut and Fill. . . 4

If a section contains both cut and fill portions (code 4 above), enter the details of the cut and fill locations on SPS-1 Construction Data Sheet 11.

PREPARED Timothy J. Plaster EMPLOYER BRE DATE 2/18/97

SPS CONSTRUCTION DATA SHEET 2 GEOMETRIC, SHOULDER AND DRAINAGE INFORMATION	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1. LANE WIDTH (ft) [1 2.]

2. MONITORING SITE LANE NUMBER [1]
(LANE 1 IS OUTSIDE LANE, NEXT TO SHOULDER
LANE 2 IS NEXT TO LANE 1, ETC.)

*3. SUBSURFACE DRAINAGE LOCATION [3]
Continuous Along Test Section... 1 Intermittent... 2 None... 3

*4. SUBSURFACE DRAINAGE TYPE [1]
No Subsurface Drainage... 1 Longitudinal Drains... 2
Transverse Drains... 3 Drainage Blanket... 4 Well System... 5
Drainage Blanket with Longitudinal Drains... 6
Other (Specify)... 7 _____

	SHOULDER DATA	INSIDE SHOULDER	OUTSIDE SHOULDER
*5.	SURFACE TYPE Turf. . 1 Granular.... 2 Asphalt Concrete... 3 Concrete... 4 Surface Treatment... 5 Other (Specify)... 6 _____	[3]	[3]
*6.	TOTAL WIDTH (ft)	[4.]	[1 0.]
*7.	PAVED WIDTH (ft)	[4.]	[1 0.]
8.	SHOULDER BASE TYPE (CODES-TABLE A.6)	[2 3]	[2 3]
9.	SURFACE THICKNESS (inch)	[1 0.0]	[1 0.0]
10.	SHOULDER BASE THICKNESS (inch)	[1 2 0]	[1 2 0]
11.	DIAMETER OF LONGITUDINAL DRAINPIPES (inch)		[ ]
12.	SPACING OF LATERALS (ft)		[ ]
13.	TYPE OF PAVEMENT (See Table A.4 of the SHRP Data Collection Guide)		[0 3]

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 4 LAYER DESCRIPTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1 LAYER NUMBER	*2 LAYER DESCRIPTION	*3 MATERIAL TYPE CLASS	*4 LAYER THICKNESSES (inch)			
			AVERAGE	MINIMUM	MAXIMUM	STD. DEV.
1	SUBGRADE (7)	[5 9]	[redacted]	[redacted]	[redacted]	[redacted]
2	[0 5]	[2 3]	[_ 12.0]	_ _ _._	_ _ _._	_ _ _._
3	[0 3]	[0 1]	[_ _ 3.0]	_ _ _._	_ _ _._	_ _ _._
4	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
5	[0 4]	[1 5]	[_ _ 3.0]	_ _ _._	_ _ _._	_ _ _._
6	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _ _
7	[0 1]	[0 1]	[_ _ 4.5]	_ _ 3.7	_ _ 5.6	_ _ 0.3
8	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
9	[0 9]	[0 2]	[_ _ 0.7]	_ _ 0.2	_ _ 1.0	_ _ 0.1
10	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
11	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
12	[_ _]	[_ _]	[_ _ _ _]	_ _ _._	_ _ _._	_ _ _ _
13	[_ _]	[_ _]	[_ _ _._]	_ _ _ _	_ _ _ _	_ _ _._
14	[_ _]	[_ _]	[_ _ _ _]	_ _ _ _	_ _ _ _	_ _ _ _
15	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _ _

*5 DEPTH BELOW SURFACE TO "RIGID" LAYER (ft) [_ _ _]
(Rock, Stone, Dense Shale)

NOTES:

1. Layer 1 is the subgrade soil, the highest numbered layer is the pavement surface.

2. Layer description codes:

Overlay..	01	Base Layer	.05	Porous Friction Course	09
Seal/Tack Coat . . .	02	Subbase Layer	06	Surface Treatment	10
Original Surface. .	03	Subgrade .	07	Embankment (Fill)	11
HMAC Layer (Subsurface)	04	Interlayer	08		

3 The material type classification codes are presented in Tables A 5, A.6, A 7 and A.8 of the Data Collection Guide for Long Term Pavement Performance Studies, dated January 17, 1990.

4 Enter the average thickness of each layer and the minimum, maximum and standard deviation of the thickness measurements, if known

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 5 PLANT-MIXED ASPHALT BOUND LAYERS AGGREGATE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

COMPOSITION OF COARSE AGGREGATE	TYPE	PERCENT
*2. Crushed Stone... 1 Gravel... 2 Crushed Gravel... 3	[1]	[1 0 0.]
*3. Crushed Slag... 4 Manufactured Lightweight... 5	[__]	[__ __ __.]
*4. Other (Specify)... 6 _____	[__]	[__ __ __.]

COMPOSITION OF FINE AGGREGATE	TYPE	PERCENT
*5. Natural Sand... 1 Crushed or Manufactured Sand	[2]	[1 0 0.]
*6. (From Crushed Gravel or Stone)... 2	[__]	[__ __ __.]
*7. Recycled Concrete... 3 Other... 4 (Specify) _____	[__]	[__ __ __.]

*8. TYPE OF MINERAL FILLER [2]
Stone Dust... 1 Hydrated Lime... 2 Portland Cement... 3
Fly Ash... 4 None ... 5
Other (Specify)... 6 _____

BULK SPECIFIC GRAVITIES:

*9. Coarse Aggregate (AASHTO T85 or ASTM C127) [__.__ __ __]

*10. Fine Aggregate (AASHTO T84 or ASTM C128) [__.__ __ __]

*11. Mineral Filler (AASHTO T100 or ASTM D854) [__.__ __ __]

*12. Aggregate Combination (Calculated) [__.__ __ __]

13. Effective Specific Gravity of Aggregate Combination (Calculated) [2.4 3 9]

AGGREGATE DURABILITY TEST RESULTS
(SEE DURABILITY TEST TYPE CODES, TABLE A.13)

TYPE OF AGGREGATE	TYPE OF TEST	RESULTS
14. Coarse	[__ __]	[__ __ __.__ __ __]
15. Coarse	[__ __]	[__ __ __.__ __ __]
16. Coarse	[__ __]	[__ __ __.__ __ __]
17. Coarse and Fine - Combined	[__ __]	[__ __ __.__ __ __]

18. POLISH VALUE OF COARSE AGGREGATES [__ __.]
SURFACE LAYER ONLY (AASHTO T279, ASTM D3319)

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 7 PLANT-MIXED ASPHALT BOUND LAYERS ASPHALT CEMENT PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. ASPHALT GRADE (SEE ASPHALT CODE SHEET, TABLE A.16) [0 4]
(IF OTHER, SPECIFY) _____

*3. SOURCE (SEE SUPPLY CODE SHEET, TABLE A.14) [6 1]
(IF OTHER, SPECIFY) _____

4. SPECIFIC GRAVITY OF ASPHALT CEMENT [0.9 9 9]
(AASHTO T228)

GENERAL ASPHALT CEMENT PROPERTIES **(If available from supplier)**

5. VISCOSITY OF ASPHALT AT 140°F **(Poises)** [_ _ _ _ _.]
(AASHTO T202)

6. VISCOSITY OF ASPHALT AT 275°F **(Centistokes)** [_ _ _ _._ _]
(AASHTO T202)

7. PENETRATION AT 77°F (AASHTO T49) **(TENTHS OF A mm)** [_ _ _.]
(100 g., 5 sec.)

ASPHALT MODIFIERS (SEE TYPE CODE, A.15)	TYPE	QUANTITY (%)
8. MODIFIER #1	[N A]	[_ _.]
9. MODIFIER #2 (IF OTHER, SPECIFY) _____	[N A]	[_ _.]

10. DUCTILITY AT 77°F **(cm)** [_ _ _]
(AASHTO T51)

11. DUCTILITY AT 39.2°F **(cm)** [_ _ _]
(AASHTO T51)

12. TEST RATE FOR DUCTILITY MEASUREMENT AT 39.2°F (CM/MIN) [_ _ _]

13 PENETRATION AT 39.2°F (AASHTO T49) **(TENTHS OF A mm)** [_ _ _]
(200 g., 60 sec.)

14 RING AND BALL SOFTENING POINT (AASHTO T53) (°F) [_ _ _]

NOTE If emulsified or cutback asphalt was used, enter "N" in the spaces for "Original Asphalt Cement Properties"

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 9 PLANT-MIXED ASPHALT BOUND LAYERS MIXTURE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. TYPE OF SAMPLES [2]
SAMPLES COMPACTED IN LABORATORY... 1
SAMPLES TAKEN FROM TEST SECTION... 2

*3. MAXIMUM SPECIFIC GRAVITY (NO AIR VOIDS) [2.1 9 8]
(AASHTO T209 OR ASTM D2041)

BULK SPECIFIC GRAVITY (ASTM D1188)

*4. MEAN [2.0 9 4] NUMBER OF TESTS [9.]

5. MINIMUM [2.0 8 3] MAXIMUM [2.1 0 5]

6. STD. DEV. [0.0 0 7]

ASPHALT CONTENT (PERCENT WEIGHT OF TOTAL MIX)
(AASHTO T164 OR ASTM D2172)

*7. MEAN [7.6] NUMBER OF SAMPLES [0 9.]

8. MINIMUM [7.6] MAXIMUM [7.6]

9. STD. DEV. [0.0]

PERCENT AIR VOIDS

*10 MEAN [4.7] NUMBER OF SAMPLES [0 9]

11. MINIMUM [4.3] MAXIMUM [5.1]

12. STD. DEV. [0 3]

*13 VOIDS IN MINERAL AGGREGATE (PERCENT) [7.7]

*14. EFFECTIVE ASPHALT CONTENT (PERCENT) [7 6]

*15 MARSHALL STABILITY (lbs) (AASHTO T245 OR ASTM D1559) [4 5 9 2]

*16. NUMBER OF BLOWS [7 5]

*17. MARSHALL FLOW (0.01 inch) [1 2]
(AASHTO T245 OR ASTM D1559)

*18 HVEEM STABILITY (AASHTO T246 OR ASTM D1561) [ ]

*19 HVEEM COHESIOMETER VALUE (GRAMS/25 MM OF WIDTH) [ ]
(AASHTO T246 OR ASTM 1561)

*20. TYPE OF ANTISTRIPPING AGENT USED [0 0]
(SEE TYPE CODES, TABLE A.21)
OTHER (SPECIFY) _____

*21. AMOUNT OF ANTISTRIPPING AGENT USED LIQUID OR SOLID CODE [ ]

*22. (If liquid, enter code 1, and amount as percent of asphalt cement weight. If solid, enter code 2 and amount as percent of aggregate weight) [.]

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SPS-9A CONSTRUCTION DATA SHEET 12 PLANT-MIXED ASPHALT BOUND LAYERS PLACEMENT DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

1. DATE SURFACE PREPARATION BEGAN (Month-Day-Year) [0 9-1 0-9 6]

2. DATE SURFACE PREPARATION COMPLETED (Month-Day-Year) [0 9-1 6-9 6]

3. SURFACE PREPARATION PRIOR TO PLACEMENT OF OVERLAY [3]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4

4. TACK COAT
   Material Type None..... 1 SS-1.... 2 SS-1H.... 3 CRS-1.... 4 [1 0]
   CRS-2.... 5 CMS-2.... 6 CMS-2H.. 7 CSS-1.... 8 CSS-1H... 9
   Other.... 10 (Specify) HFMS- modified polymer

5. TACK COAT DILUTION
   (Percent) [5 0]
   Mixing Rate Parts Diluent [0 1] TO Parts Asphalt [0 1]

6. TACK COAT APPLICATION RATE (Gal/Sq. Yd.) [0.0 2]

7. ASPHALT CONCRETE PLANT AND HAUL

		Type	Name	Haul Distance (Mi)	Time (Min)	Layer Numbers		
Plant 1	[1]		Barber Greene	[1 5]	[2 0]	[ ]	[7]	[9]
Plant 2	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]
Plant 3	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]

Plant Type: Batch..... 1 Drum Mix.... 2 Other...3 Specify

8. MANUFACTURER OF ASPHALT CONCRETE PAVER Blaw Know

9. MODEL DESIGNATION OF ASPHALT CONCRETE PAVER PF-220

10. SINGLE PASS LAYDOWN WIDTH (Feet) [2 1 0]

11. Layer No.	12 Material Type Classification Code	13 Nominal Lift Placement Thickness				14. Tack Coat Between Lifts? (Y/N)	15. Transverse Joint Station
		1st Lift	2nd Lift	3rd Lift	4th Lift		
[0 7]	[0 1]	[3 0]	[3 0]	[ ]	[ ]	[Y]	[-]
[0 9]	[0 2]	[1 0]	[ ]	[ ]	[ ]	[ ]	[-]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[-]

16 LOCATION OF LONGITUDINAL SURFACE JOINT [1]
   Between lanes . 1 Within lane 2 (specify offset from O/S feet) [1 2 0]

17 SIGNIFICANT EVENTS DURING CONSTRUCTION(disruptions, rain, equip problems, etc)

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SPS-9A CONSTRUCTION DATA SHEET 13 PLANT-MIXED ASPHALT BOUND LAYERS COMPACTION DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

*1. DATE PAVING OPERATIONS BEGAN (Month-Day-Year) [0 9 - 1 0 - 9 6]
*2. DATE PAVING OPERATIONS COMPLETED (Month-Day-Year) [0 9 - 1 0 - 9 6]
*3. LAYER NUMBER [7]

*4. MIXING TEMPERATURE (°F) [3 0 5.]

5. LAYDOWN TEMPERATURES (°F)

Mean..... [2 9 6.] Number of Tests ..... [_ _.]

Minimum..... [_ _ _.] Maximum..... [_ _ _.]

Standard Deviation... [_ _.]

ROLLER DATA

	Roller Code #	Roller Description	Gross Wt (Tons)	Tire Press. (psi)	Frequency (Vibr./Min)	Amplitude (in)	Speed (mph)
6	A	Steel-Whl Tandem	1 1.4				
7	B	Steel-Whl Tandem	_ _._				
8	C	Steel-Whl Tandem	_ _._				
9	D	Steel-Whl Tandem	_ _._				
10	E	Pneumatic-Tired	3 0.0	1 2 0.			
11	F	Pneumatic-Tired	_ _._	_ _ _ _.			
12	G	Pneumatic-Tired	_ _ _	_ _ _ _.			
13	H	Pneumatic-Tired	_ _._				
14	I	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
15	J	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
16	K	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
17	L	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
18	M	Double-Drum Vibr.	1 1.4		2 3 0 0.	0 2 6	7 0
19	N	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
20	O	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
21	P	Double-Drum Vibr.	_ _ _		_ _ _ _	_ _ _	_ _ _
22	Q	Other					

	COMPACTION DATA	First Lift	Second Lift	Third Lift	Fourth Lift
	BREAKDOWN				
23	Roller Code (A-Q)	M	M	_	_
24	Coverages	8	6.	_	_.
	INTERMEDIATE				
25	Roller Code (A-Q)	E	E	_	_
26	Coverages	8	8.	_	_
	FINAL				
27	Roller Code (A-Q)	A	A	_	_
28	Coverages	2	2	_	_
29	Air Temperature (°F)	8 0.	8 5	_ _ _	_ _ _
30	Compacted Thickness (in)	2 5	2 0	_ _._	_ _._
31	Curing Period (Days)	0	0	_ _	_ _

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SPS-9A CONSTRUCTION DATA SHEET 14 PLANT-MIXED ASPHALT BOUND LAYERS DENSITY AND PROFILE DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

1. NUCLEAR DENSITY MEASUREMENTS

LAYER TYPE	Surface Course	Surface Friction Layer
Measurement Method (A, B, C)[1]	A	
Number of Measurements	1 2	
Average (pcf)	1 2 9.4	
Maximum (pcf)	1 3 0.9	
Minimum (pcf)	1 2 7.9	
Standard Deviation (pcf)	1.1	
Layer Number	0 7	0 9

[1]Measurement Method Backscatter... A Direct Transmission... B Air Gap... C

2. MANUFACTURER OF NUCLEAR DENSITY GAUGE _____

3. NUCLEAR DENSITY GAUGE MODEL NUMBER _____

4. NUCLEAR DENSITY GAUGE IDENTIFICATION NUMBER _____

5 NUCLEAR GAUGE COUNT RATE FOR STANDARDIZATION [_ _ _ _ _]

6. PROFILOGRAPH MEASUREMENTS

Profilograph Type California... 1 Rainhart... 2 Other . . 3 [_]

Profile Index (in/mile) [_ _ _]

Interpretation Method Manual . 1 Mechanical . 2 Computer. 3 [_]

Height of Blanking Band (in) [_ _ _]

Cutoff Height (in) [_ _ _]

7. SURFACE PROFILE USED AS BASIS OF INCENTIVE PAYMENT? (YES, NO) [_]

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 1 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
0+00	0		4.6	0.6
	36		4.6	0.6
	72		4.2	0.7
	108		4.9	0.2
	144		4.9	0.6
0+50	0		4.3	0.7
	36		4.4	0.7
	72		4.3	0.7
	108		4.9	0.6
	144		4.8	0.5
1+00	0		4.6	0.6
	36		4.7	0.6
	72		4.2	0.7
	108		4.7	0.8
	144		4.7	0.6
1+50	0		4.6	0.7
	36		4.3	0.6
	72		4.0	0.6
	108		4.8	0.5
	144		4.7	0.2
2+00	0		4.8	0.7
	36		4.9	0.7
	72		4.3	0.7
	108		5.0	0.6
	144		4.8	0.4
2-50	0		4.6	0.7
	36		4.6	0.7
	72		4.3	0.7
	108		4.9	0.7
	144		5.0	0.7
3+00	0		4.2	0.6
	36		3.7	0.6
	72		3.8	0.5
	108		4.3	0.4
	144		4.8	0.4
LAYER NUMBER[1]			07	09

[1] from Sheet 4

PREPARED Timothy J. Martin SUPERVISED BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 2 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
3+50	0	—	4.2	0.8
	36	—	3.7	0.7
	72	—	4.3	0.5
	108	—	4.7	0.2
	144	—	5.6	0.4
4+00	0	—	3.8	0.8
	36	—	3.7	1.0
	72	—	3.8	1.0
	108	—	4.6	0.7
	144	—	4.9	0.6
4+50	0	—	3.8	0.8
	36	—	3.8	1.0
	72	—	3.7	1.0
	108	—	4.6	0.7
	144	—	4.8	0.4
5+00	0	—	4.4	1.0
	36	—	4.4	1.0
	72	—	4.0	0.8
	108	—	4.6	0.6
	144	—	4.3	0.5
—+—	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
—+—	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
—+—	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
LAYER NUMBER[1]		—	07	09

[1] from Sheet 4

PREPARED Timothy J. Martin SUPERVISED BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 16 MISCELLANEOUS CONSTRUCTION NOTES AND COMMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

Provide any miscellaneous comments and notes concerning construction operations which may have an influence on the ultimate performance of the test sections or which may cause undesired performance differences to occur between test sections. Also include any quality control measurements or data for which space is not provided on other forms. Provide an indication of the basis for such measurements, such as an ASTM, AASHTO, or Agency standard test designation.

There is a rest area located at the site with an exit ramp at the very end of the section in the coring area. The rest area bypasses section 1 with a high % of traffic. The future coring at the leave end of this section will be affected.

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SPS-9A CONSTRUCTION DATA SHEET 21 PRE-OVERLAY CONDITION SUMMARY	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) N/A [__ __-__ __-__ __]

2. DATE PATCHING OPERATIONS COMPLETED (Month-Day-Year) [__ __-__ __-__ __]

3. PRIMARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

4. SECONDARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

5. SUMMARY OF PATCHING

	NUMBER	TOTAL AREA (SQ. FT)
Surface Only	[__ __]	[__ __ __ __]
Surface and partial base replacement	[__ __]	[__ __ __ __]
Full depth	[__ __]	[__ __ __ __]

6. METHOD USED TO DETERMINE LOCATION AND SIZES OF PATCHES [__]
   Deflection.... 1 Coring.... 2 Visual..... 3 Other..... 4
   (specify) _____

7. METHOD USED TO FORM PATCH BOUNDARIES [__]
   None ... . 1 Saw Cut..... 2 Air Hammer.. ... 3 Cold Milling .. 4
   Other..... 5 (Specify) _____

8. COMPACTION EQUIPMENT [__]
   None .. . . 1 Pneumatic roller.... 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller. 4 Steel Wheel Roller.. 5 Truck Tire 6
   Hand Tools. ..... 7 Other. . ... 8 (Specify) _____

9 PATCH MATERIAL [__]
   Hot Mix Asphalt Concrete 1 Plant Mix with Cutback Asphalt, Cold Laid.. 2
   Plant Mix with Emulsified Asphalt, Cold Laid. 3 Road Mix with Cutback Asphalt 4
   Road Mix with Emulsified Asphalt . 5 Portland Cement Concrete. 6 Other.. 7
   (Specify) _____

10 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

11. MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

12 AIR TEMPERATURE DURING PLACEMENT OPERATIONS
   High Temperature (°F) [__ __ __]
   Low Temperature (°F) [__ __ __]

13 PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry .. . 1 Moist.... ... 2 Wet. . . 3

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 22 RUT LEVEL-UP TREATMENT	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

1. DATE LEVEL-UP LAYER APPLIED (Month-Day-Year) N/A [__ __-__ __-__ __]

2. PLACEMENT LOCATION OF LEVEL-UP LAYER [__]
   Outside Rut.... 1 Inside Rut.... 2 Both Ruts.... 3 Full Lane Width... 4

3. LENGTH OF TEST SECTION COVERED [__]
   Full Length of Test Section 1
   Partial Length of Test Section .... 2 (enter start and end station numbers)

   Outside Wheel Path Rut: Start Station __+__ __ End Station __+__ __
   Inside Wheel Path Rut: Start Station __+__ __ End Station __+__ __

4. AVERAGE RUT DIMENSIONS (inch)

	DEPTH	WIDTH
Outside Wheel Path Rut	[__.__]	[__ __.__]
Inside Wheel Path Rut	[__.__]	[__ __.__]

5. RUT PREPARATION PRIOR TO APPLICATION OF LEVEL-UP [__]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4
   Wheel Path Milling. .... 5 DEPTH [__.__] WIDTH [__ __.__]
   Other... .6 (Specify)_____

6. COMPACTION EQUIPMENT [__]
   None .... 1 Pneumatic roller ... 2 Vibratory Plate Compactor 3 [__]
   Vibratory Roller. 4 Steel Wheel Roller.. 5 Truck Tire. 6
   Hand Tools..... 7 Other..... .... 8 (Specify)_____

7 TYPE OF LEVEL-UP MATERIAL
   Hot Mix Asphalt Concrete. . 1 Plant Mix with Cutback Asphalt, Cold Laid..... 2
   Plant Mix with Emulsified Asphalt, Cold Laid. 3 Road Mix with Cutback Asphalt 4
   Road Mix with Emulsified Asphalt.. . . . 5
   Other... 6 (Specify) _____

8 MAXIMUM TOP SIZE AGGREGATE (inch) [__.__ __]

9 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

10 MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

11 AIR TEMPERATURE DURING PLACEMENT OPERATIONS
   High Temperature (°F) [__ __ __]

   Low Temperature (°F) [__ __ __]

12 PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry . 1 Moist 2 Wet 3

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 23 PREPARATION OF MILLED TEST SECTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 1]

1. DATE OF MILLING OPERATION (Month-Day-Year) [0 4-2 9-9 6]
2. MANUFACTURER OF MILLING MACHINE (Specify) _____
3. MILLING MACHINE MODEL DESIGNATION (Specify) _____
4. WIDTH OF CUTTING HEAD (inch) [_ _ _._]
5. TOTAL MILLED DEPTH (inch)

Location	No. Measrmnts	Maximum	Minimum	Std. Dev.	Average
Inside lane edge	_ _ .	_ _ . _	_ _ . _	_ _ _	[3.0]
Outside lane edge	_ _ .	_ _ _	_ _ . _	_ _ .	[3.0]

MILLED SURFACE CHARACTERISTICS

6. Macro Texture [2]
   Fine Macro Texture (≤¼ inch) ... 1 Coarse Macro Texture (>¼ inch) ... 2
7. Estimate of extent of test section surface area delaminated (Percent) [_ _]
8. Height of Ridge Between Parallel Passes? (inch) [_._]
9. Other Comments? (Yes, No) [_]
   Comments _____

10. WERE PATCHES PLACED AFTER MILLING? (Yes, No) [_]
    (If yes complete Construction Data Sheet 19)
11. LENGTH OF TIME MILLED SURFACE WAS OPENED TO TRAFFIC? (Hrs.) [_ _ 0]
12. LAYER NUMBER OF MILL REPLACEMENT [0 5]
13. NOMINAL THICKNESS OF MILL REPLACEMENT MATERIAL (inch) [_ 3.5]
14. TYPE OF MILL REPLACEMENT LAYER MATERIAL [2]
    "Virgin" Asphalt Concrete .. . 1 Recycled Asphalt Concrete. . 2
    Other . 3 (Specify) Cold In-Situ recycled
15. WAS ADJACENT TRAVEL LANE MILLED TO SAME DEPTH AS TEST LANE? (Yes, No) [Y]
    IF NO, WIDTH MILLED SAME DEPTH AS TEST LANE (ft) [_ _._ _]
16. COMMENTS Milling began prior to notification, Milled Depth is based on design and contractor information.

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS CONSTRUCTION DATA SHEET 2 GEOMETRIC, SHOULDER AND DRAINAGE INFORMATION	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

*1. LANE WIDTH (ft) [1 2.]

2. MONITORING SITE LANE NUMBER [1]
(LANE 1 IS OUTSIDE LANE, NEXT TO SHOULDER
LANE 2 IS NEXT TO LANE 1, ETC.)

*3. SUBSURFACE DRAINAGE LOCATION [3]
Continuous Along Test Section... 1 Intermittent... 2 None... 3

*4. SUBSURFACE DRAINAGE TYPE [1]
No Subsurface Drainage... 1 Longitudinal Drains... 2
Transverse Drains... 3 Drainage Blanket... 4 Well System... 5
Drainage Blanket with Longitudinal Drains... 6
Other (Specify)... 7 _____

SHOULDER DATA	INSIDE SHOULDER	OUTSIDE SHOULDER
*5. SURFACE TYPE Turf... 1 Granular.... 2 Asphalt Concrete... 3 Concrete... 4 Surface Treatment... 5 Other (Specify)... 6 _____	[3]	[3]
*6. TOTAL WIDTH (ft)	[4.]	[1 0.]
*7. PAVED WIDTH (ft)	[4.]	[1 0.]
8. SHOULDER BASE TYPE (CODES-TABLE A.6)	[2 3]	[2 3]
9. SURFACE THICKNESS (inch)	[1 0.0]	[1 0.0]
10. SHOULDER BASE THICKNESS (inch)	[1 2.0]	[1 2.0]
11. DIAMETER OF LONGITUDINAL DRAINPIPES (inch)		[ ]
12. SPACING OF LATERALS (ft)		[ ]
13. TYPE OF PAVEMENT (See Table A.4 of the SHRP Data Collection Guide)		[0 3]

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 4 LAYER DESCRIPTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 1] * TEST SECTION NO. [0 2]

*1 LAYER NUMBER	*2 LAYER DESCRIPTION	*3 MATERIAL TYPE CLASS	*4 LAYER THICKNESSES (inch)			
			AVERAGE	MINIMUM	MAXIMUM	STD. DEV.
1	SUBGRADE(7)	[5 9]				
2	[0 5]	[2 3]	[12.0]	___.___	___.___	___.___
3	[0 3]	[0 1]	[3.0]	___.___	___.___	___.___
4	[0 2]	[7 3]	[___.___]	___.___	___.___	___.___
5	[0 4]	[1 5]	[3.0]	___.___	___.___	___.___
6	[0 2]	[7 3]	[___.___]	___.___	___.___	___.___
7	[0 1]	[0 1]	[4.1]	4.0	4.7	0.2
8	[0 2]	[7 3]	[___.___]	___.___	___.___	___.___
9	[0 9]	[0 2]	[1.0]	0.5	1.8	0.3
10	[__ __]	[__ __]	[___.___]	___.___	___.___	___.___
11	[__ __]	[__ __]	[___.___]	___.___	___.___	___.___
12	[__ __]	[__ __]	[___.___]	___.___	___.___	___.___
13	[__ __]	[__ __]	[___.___]	___.___	___.___	___.___
14	[__ __]	[__ __]	[____]	___.___	___.___	____
15	[__ __]	[__ __]	[____]	___.___	___.___	___.___

*5 DEPTH BELOW SURFACE TO "RIGID" LAYER (ft) [__ __.__]
(Rock, Stone, Dense Shale)

NOTES.

1. Layer 1 is the subgrade soil, the highest numbered layer is the pavement surface.

2. Layer description codes:

Overlay.	.01	Base Layer ...	05	Porous Friction Course	09
Seal/Tack Coat ..	.02	Subbase Layer .	06	Surface Treatment ..	10
Original Surface.. . ..	.03	Subgrade.	07	Embankment (Fill,	.11
HMAC Layer (Subsurface)	.04	Interlayer	08		

3. The material type classification codes are presented in Tables A.5, A.6, A.7 and A.8 of the Data Collection Guide for Long Term Pavement Performance Studies, dated January 17, 1990.

4 Enter the average thickness of each layer and the minimum, maximum and standard deviation of the thickness measurements, if known.

OPERATOR Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 6 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE AGGREGATE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

*1. LAYER NUMBER (FROM SHEET 4) [7]

	COMPOSITION OF COARSE AGGREGATE	TYPE	PERCENT
*2.	Crushed Stone... 1 Gravel... 2 Crushed Gravel... 3	[1]	[1 0 0.]
*3.	Crushed Slag... 4 Manufactured Lightweight... 5	[__]	[__ __ __.]
*4.	Other (Specify)... 6 _____	[__]	[__ __ __.]

	COMPOSITION OF FINE AGGREGATE	TYPE	PERCENT
*5.	Natural Sand... 1 Crushed or Manufactured Sand	[1]	[1 0 0.]
*6.	(From Crushed Gravel or Stone)... 2	[__]	[__ __ __.]
*7.	Recycled Concrete... 3 Other... 4 (Specify) _____	[__]	[__ __ __.]

*8. TYPE OF MINERAL FILLER [2]
Stone Dust... 1 Hydrated Lime... 2 Portland Cement... 3
Fly Ash... 4 None ... 5
Other (Specify)... 6 _____

BULK SPECIFIC GRAVITIES:

*9. Coarse Aggregate (AASHTO T85 or ASTM C127) [2.2 1 5]

*10. Fine Aggregate (AASHTO T84 or ASTM C128) [2.5 3 6]

*11. Mineral Filler (AASHTO T100 or ASTM D854) [2.2 0 0]

*12. Aggregate Combination (Calculated) [2.3 0 2]

13. Effective Specific Gravity of Aggregate Combination (Calculated) [2.3 9 6]

		One Face	Two Faces
14.	Angularity		
	Coarse (% Fractured Faces)	[__ __.__]	[__ __.__]
	Fine (% Voids)		[__ __.__]

		Test Type	Result
15.	Soundness		
	Coarse (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
	Fine (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
16.	Toughness of Coarse Aggregate (% loss LAR)	[0 1]	[__ __.__]
17.	Deleterious Materials (Clay Lumps and Friable Particles of Fine Aggregates)		
	(Type of Test From A.13, % loss)	[0 9]	[__ __.__]

18. Clay Content (Sand Equivalent, ratio) [__.__]

19. Thin, Elongated Particles (%) [__.__]

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 8 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE ASPHALT BINDER PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. ASPHALT GRADE (Specify Design SHRP PG Grading) PG [6 4] - [2 2]

*3. SOURCE (SEE SUPPLY CODE SHEET, TABLE A.14) [6 1]
(IF OTHER, SPECIFY) _____

4. SPECIFIC GRAVITY OF ASPHALT CEMENT [1.0 0 0]
(AASHTO T228)

GENERAL ASPHALT CEMENT PROPERTIES **(If available from supplier)**

5. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE **(kPa,DEG)**
(Tank Asphalt) (AASHTO TP5) [__ __ .__ __] [__ __]

6. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE **(kPa,DEG)**
(RTFO Asphalt) (AASHTO TP5) [__ __ .__ __] [__ __]

7. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE **(kPa,DEG)**
(PAV Asphalt) (AASHTO TP5) [__ __ __ __ __] [__ __]

8. BENDING BEAM RHEOMETER STIFFNESS MODULUS AND SLOPE **(MPa,RATIO)**
(PAV Asphalt) (AASHTO TP1) [__ __ __ __] [__ __ __ __]

9. DIRECT TENSION TENSILE STRENGTH AND TENSILE STRAIN **(kPa,RATIO)**
(PAV Asphalt) (AASHTO TP3) [__ __ __ __.__] [__.__ __ __]

OPERATOR Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 10 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE MIXTURE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. TYPE OF SAMPLES [2]
SAMPLES COMPACTED IN LABORATORY... 1
SAMPLES TAKEN FROM TEST SECTION... 2

*3. MAXIMUM SPECIFIC GRAVITY (NO AIR VOIDS) [2.1 9 1]
(AASHTO T209 OR ASTM D2041)

BULK SPECIFIC GRAVITY (ASTM D1188)

*4. MEAN [2.0 6 4] NUMBER OF TESTS [3.]
5. MINIMUM [2.0 3 4] MAXIMUM [2 0 8 2]
6. STD. DEV. [0.0 1 6]

ASPHALT CONTENT (PERCENT WEIGHT OF TOTAL MIX)
(AASHTO T164 OR ASTM D2172)

*7. MEAN [6.8] NUMBER OF SAMPLES [3.]
8. MINIMUM [6.8] MAXIMUM [6 8]
9. STD. DEV. [0.0]

PERCENT AIR VOIDS

*10. MEAN [5 8] NUMBER OF SAMPLES [3]
11. MINIMUM [5 0] MAXIMUM [7.2]
12. STD DEV. [1 1 8 7]

*13. VOIDS IN MINERAL AGGREGATE (PERCENT) [1 8.1]

*14. EFFECTIVE ASPHALT CONTENT (PERCENT) [5 5]

*15. FREQUENCY SWEEP (Complex Modulus, MPa & Phase Angle, δ)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

*16 UNIAXIAL STRAIN (Axial Stress, kPa & Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

*17 VOLUMETRIC STRAIN (Confining Pressure, kPa & Axial Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

*18 SIMPLE SHEAR

	4°C	20°C	40°C
Axial Stress, kPa	[ ]	[ ]	[ ]
Shear Stress, kPa	[ ]	[ ]	[ ]
Shear Strain mm/mm	[ ]	[ ]	[ ]

*19 TYPE OF ANTISTRIPPING AGENT USED [ ]
(SEE TYPE CODES, TABLE A 21)
OTHER (SPECIFY) _____

*20. AMOUNT OF ANTISTRIPPING AGENT USED LIQUID OR SOLID CODE [ ]

*21. (If liquid, enter code 1, and amount as percent of asphalt cement weight. If solid, enter code 2 and amount as percent of aggregate weight) [ ]

PREPARED Timothy J Martin EMPLOYER BRE DATE 2/19/97

SPS-9A CONSTRUCTION DATA SHEET 12 PLANT-MIXED ASPHALT BOUND LAYERS PLACEMENT DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

1. DATE SURFACE PREPARATION BEGAN (Month-Day-Year) [0 9 - 1 0 - 9 6]

2. DATE SURFACE PREPARATION COMPLETED (Month-Day-Year) [0 9 - 1 6 - 9 6]

3. SURFACE PREPARATION PRIOR TO PLACEMENT OF OVERLAY [3]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4

4. TACK COAT
   Material Type None..... 1 SS-1.... 2 SS-1H.... 3 CRS-1.... 4 [1 0]
   CRS-2.... 5 CMS-2.... 6 CMS-2H.. 7 CSS-1.... 8 CSS-1H... 9
   Other.... 10 (Specify) HFMS - polymer modified

5. TACK COAT DILUTION
   (Percent) [5 0]
   Mixing Rate Parts Diluent [0 1] TO Parts Asphalt [0 1]

6. TACK COAT APPLICATION RATE (Gal/Sq. Yd.) [0.0 2]

7. ASPHALT CONCRETE PLANT AND HAUL

		Type	Name	Haul Distance (Mi)	Time (Min)	Layer Numbers		
Plant 1	[1]	Barber Greene		[1 5]	[2 0]	[ ]	[7]	[9]
Plant 2	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]
Plant 3	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]

Plant Type: Batch..... 1 Drum Mix.... 2 Other...3 Specify

8. MANUFACTURER OF ASPHALT CONCRETE PAVER Blaw-Knox

9. MODEL DESIGNATION OF ASPHALT CONCRETE PAVER PF-220

10. SINGLE PASS LAYDOWN WIDTH (Feet) [2 1.0]

11. Layer No.	12. Material Type Classification Code	13. Nominal Lift Placement Thickness				14. Tack Coat Between Lifts? (Y/N)	15. Transverse Joint Station
		1st Lift	2nd Lift	3rd Lift	4th Lift		
[0 7]	[0 1]	[3 0]	[3 0]	[ ]	[ ]	[Y]	[-]
[0 9]	[0 2]	[1 0]	[ ]	[ ]	[ ]	[ ]	[+]
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[+]

16. LOCATION OF LONGITUDINAL SURFACE JOINT [1]
    Between lanes. 1 Within lane.. 2 (specify offset from O/S feet) [1 2 0]

17. SIGNIFICANT EVENTS DURING CONSTRUCTION (disruptions, rain, equip. problems, etc.)

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 13 PLANT-MIXED ASPHALT BOUND LAYERS COMPACTION DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

*1. DATE PAVING OPERATIONS BEGAN (Month-Day-Year) [0 9-1 0-9 6]
*2. DATE PAVING OPERATIONS COMPLETED (Month-Day-Year) [0 9-1 6-9 6]
*3. LAYER NUMBER [7]

*4. MIXING TEMPERATURE (°F) [3 2 5.]

5. LAYDOWN TEMPERATURES (°F)

Mean..... [3 0 6.] Number of Tests ..... [_ _.]

Minimum..... [_ _ _.] Maximum..... [_ _ _.]

Standard Deviation... [_ _._]

ROLLER DATA

	Roller Code #	Roller Description	Gross Wt (Tons)	Tire Press. (psi)	Frequency (Vibr./Min)	Amplitude (in)	Speed (mph)
6	A	Steel-Whl Tandem	1 1.4				
7	B	Steel-Whl Tandem	_ _._				
8	C	Steel-Whl Tandem	_ _._				
9	D	Steel-Whl Tandem	_ _._				
10	E	Pneumatic-Tired	3 0.0	1 2 0.			
11	F	Pneumatic-Tired	_ _._	_ _ _ _.			
12	G	Pneumatic-Tired	_ _ _	_ _ _ _.			
13	H	Pneumatic-Tired	_ _._				
14	I	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
15	J	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
16	K	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
17	L	Single-Drum Vibr.					
18	M	Double-Drum Vibr.	1 1.4		2 3 0 0.	.0 2 6	_ 7.0
19	N	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
20	O	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
21	P	Double-Drum Vibr.	_ _ _		_ _ _ _.	_ _ _	_ _._
22	Q	Other					

	COMPACTION DATA	First Lift	Second Lift	Third Lift	Fourth Lift
	BREAKDOWN				
23	Roller Code (A-Q)	M	M	_	_
24	Coverages	_ 8.	_ 6	_ _	_ _
	INTERMEDIATE				
25	Roller Code (A-Q)	E	E	_	_
26	Coverages	_ 8.	_ 8	_ _	_ _
	FINAL				
27	Roller Code (A-Q)	A	A	_	_
28	Coverages	_ 2.	_ 2.	_ _	_ _
29	Air Temperature (°F)	_ 8 0.	_ 8 5	_ _ _.	_ _ _
30	Compacted Thickness (in)	_ 2.5	_ 2 0	_ _ _	_ _._
31	Curing Period (Days)	_ 0	_ 0	_ _	_ _

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 14 PLANT-MIXED ASPHALT BOUND LAYERS DENSITY AND PROFILE DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

1. NUCLEAR DENSITY MEASUREMENTS

LAYER TYPE	Surface Course	Surface Friction Layer
Measurement Method (A, B, C)[1]	A	
Number of Measurements	8	
Average (pcf)	129.0	___.__
Maximum (pcf)	131.0	___.__
Minimum (pcf)	127.9	___.__
Standard Deviation (pcf)	1.0	___.__
Layer Number	07	09

[1]Measurement Method Backscatter... A Direct Transmission... B Air Gap... C

2. MANUFACTURER OF NUCLEAR DENSITY GAUGE _____

3. NUCLEAR DENSITY GAUGE MODEL NUMBER _____

4. NUCLEAR DENSITY GAUGE IDENTIFICATION NUMBER _____

5. NUCLEAR GAUGE COUNT RATE FOR STANDARDIZATION [_ _ _ _ _]

6. PROFILOGRAPH MEASUREMENTS

Profilograph Type California... 1 Rainhart... 2 Other ... 3 [__]

Profile Index (in/mile) [___ ___.__]

Interpretation Method Manual.. 1 Mechanical.. 2 Computer.. 3 [__]

Height of Blanking Band (in) [___.___ ___]

Cutoff Height (in) [___ ___ ___]

7. SURFACE PROFILE USED AS BASIS OF INCENTIVE PAYMENT? (YES, NO) [____]

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 1 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
0+00	0		4.7	0.5
	36		4.6	0.5
	72		4.1	0.8
	108		4.4	0.6
	144		4.4	0.5
0+50	0		4.3	0.7
	36		4.2	0.8
	72		3.8	1.1
	108		4.3	0.7
	144		4.3	0.6
1+00	0		4.1	0.6
	36		4.0	0.8
	72		3.6	1.0
	108		4.1	0.6
	144		4.2	0.5
1+50	0		4.3	0.7
	36		4.0	1.0
	72		3.7	1.1
	108		4.1	0.8
	144		4.2	0.7
2+00	0		4.0	1.0
	36		3.7	1.0
	72		3.4	1.1
	108		4.0	0.7
	144		4.1	0.6
2+50	0		4.0	1.0
	36		3.8	0.8
	72		3.6	1.1
	108		3.8	1.0
	144		4.0	0.7
3+00	0		4.0	1.1
	36		4.0	1.2
	72		3.6	0.7
	108		4.3	1.0
	144		4.2	1.0
LAYER NUMBER[1]			07	09

[1] from Sheet 4

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 2 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
3+50	0 36 72 108 144			
4+00	0 36 72 108 144			
4+50	0 36 72 108 144			
5+00	0 36 72 108 144			
+—				
+—				
+—				
LAYER NUMBER[1]			07	09

[1] from Sheet 4

PREPARED Timothy J. Martin APPROVED BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 16 MISCELLANEOUS CONSTRUCTION NOTES AND COMMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

Provide any miscellaneous comments and notes concerning construction operations which may have an influence on the ultimate performance of the test sections or which may cause undesired performance differences to occur between test sections. Also include any quality control measurements or data for which space is not provided on other forms. Provide an indication of the basis for such measurements, such as an ASTM, AASHTO, or Agency standard test designation.

N/A

PREPARED [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 21 PRE-OVERLAY CONDITION SUMMARY	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) N/A [__ __-__ __-__ __]

2. DATE PATCHING OPERATIONS COMPLETED (Month-Day-Year) [__ __-__ __-__ __]

3. PRIMARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

4. SECONDARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

5. SUMMARY OF PATCHING

	NUMBER	TOTAL AREA (SQ. FT)
Surface Only	[__ __]	[__ __ __ __]
Surface and partial base replacement	[__ __]	[__ __ __ __]
Full depth	[__ __]	[__ __ __ __]

6. METHOD USED TO DETERMINE LOCATION AND SIZES OF PATCHES [__]
   Deflection.... 1 Coring.... 2 Visual..... 3 Other..... 4
   (specify) _____

7. METHOD USED TO FORM PATCH BOUNDARIES [__]
   None ..... 1 Saw Cut..... 2 Air Hammer.... . 3 Cold Milling..... 4
   Other..... 5 (Specify) _____

8. COMPACTION EQUIPMENT [__]
   None ... . 1 Pneumatic roller . . 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller. 4 Steel Wheel Roller . 5 Truck Tire. 6
   Hand Tools..... 7 Other.. ..... 8 (Specify) _____

9 PATCH MATERIAL [__]
   Hot Mix Asphalt Concrete.. 1 Plant Mix with Cutback Asphalt, Cold Laid.. 2
   Plant Mix with Emulsified Asphalt,Cold Laid. 3 Road Mix with Cutback Asphalt. 4
   Road Mix with Emulsified Asphalt.. 5 Portland Cement Concrete. 6 Other 7
   (Specify) _____

10 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

11. MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

12 AIR TEMPERATURE DURING PLACEMENT OPERATIONS
   High Temperature (°F) [__ __ __]

   Low Temperature (°F) [__ __ __]

13 PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry..... 1 Moist..... 2 Wet..... . 3

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 22 RUT LEVEL-UP TREATMENT	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

1. DATE LEVEL-UP LAYER APPLIED (Month-Day-Year) N/A [__ __-__ __-__ __]

2. PLACEMENT LOCATION OF LEVEL-UP LAYER [__]
   Outside Rut.... 1 Inside Rut.... 2 Both Ruts.... 3 Full Lane Width... 4

3. LENGTH OF TEST SECTION COVERED [__]
   Full Length of Test Section 1
   Partial Length of Test Section .... 2 (enter start and end station numbers)

   Outside Wheel Path Rut: Start Station __+__ __ End Station __+__ __
   Inside Wheel Path Rut: Start Station __+__ __ End Station __+__ __

4. AVERAGE RUT DIMENSIONS (inch)

	DEPTH	WIDTH
Outside Wheel Path Rut	[__.__]	[__ __.__]
Inside Wheel Path Rut	[__.__]	[__ __.__]

5. RUT PREPARATION PRIOR TO APPLICATION OF LEVEL-UP [__]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4
   Wheel Path Milling..... 5 DEPTH [__.__] WIDTH [__ __.__]
   Other.....6 (Specify) _____

6. COMPACTION EQUIPMENT [__]
   None ..... 1 Pneumatic roller.... 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller.. 4 Steel Wheel Roller.. 5 Truck Tire. 6
   Hand Tools..... 7 Other..... 8 (Specify) _____

7. TYPE OF LEVEL-UP MATERIAL
   Hot Mix Asphalt Concrete .. 1 Plant Mix with Cutback Asphalt, Cold Laid... . 2
   Plant Mix with Emulsified Asphalt, Cold Laid. 3 Road Mix with Cutback Asphalt. 4
   Road Mix with Emulsified Asphalt..... 5
   Other... 6 (Specify) _____

8 MAXIMUM TOP SIZE AGGREGATE (inch) [__ __ __]

9 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

10 MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

11. AIR TEMPERATURE DURING PLACEMENT OPERATIONS
   High Temperature (°F) [__ __ __]

   Low Temperature (°F) [__ __ __]

12 PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry..... 1 Moist..... 2 Wet. 3

PREPARER Timothy J. Clarke EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 23 PREPARATION OF MILLED TEST SECTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 2]

1. DATE OF MILLING OPERATION (Month-Day-Year) [0 4-1 2-9 6]
2. MANUFACTURER OF MILLING MACHINE (Specify) _____
3. MILLING MACHINE MODEL DESIGNATION (Specify) _____
4. WIDTH OF CUTTING HEAD (inch) [_ _ _._]
5. TOTAL MILLED DEPTH (inch)

Location	No. Measrmnts	Maximum	Minimum	Std. Dev.	Average
Inside lane edge	_ _ .	_ _ .	_ _ .	_ _ .	[3.0]
Outside lane edge	_ _ .	_ _ .	_ _ .	_ _ .	[3.0]

MILLED SURFACE CHARACTERISTICS

6. Macro Texture [2]
   Fine Macro Texture (≤¼ inch)... 1 Coarse Macro Texture (>¼ inch)... 2
7. Estimate of extent of test section surface area delaminated (Percent) [_ _]
8. Height of Ridge Between Parallel Passes? (inch) [_._]
9. Other Comments? (Yes, No) [_]
   Comments _____

10. WERE PATCHES PLACED AFTER MILLING? (Yes, No) [_]
    (If yes complete Construction Data Sheet 19)
11. LENGTH OF TIME MILLED SURFACE WAS OPENED TO TRAFFIC? (Hrs.) [_ _ 0]
12. LAYER NUMBER OF MILL REPLACEMENT [0 5]
13. NOMINAL THICKNESS OF MILL REPLACEMENT MATERIAL (inch) [_ 3.5]
14. TYPE OF MILL REPLACEMENT LAYER MATERIAL [2]
    "Virgin" Asphalt Concrete... 1 Recycled Asphalt Concrete... 2
    Other... 3 (Specify) Cold in-situ recycled
15. WAS ADJACENT TRAVEL LANE MILLED TO SAME DEPTH AS TEST LANE? (Yes, No) [Y]
    IF NO, WIDTH MILLED SAME DEPTH AS TEST LANE (ft) [_ _._ _]
16. COMMENTS Milling began prior to notification. Milled depth is based on design and contractor information.

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS CONSTRUCTION DATA SHEET 2 GEOMETRIC, SHOULDER AND DRAINAGE INFORMATION	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1. LANE WIDTH (ft) [1 2.]

2. MONITORING SITE LANE NUMBER [1]
(LANE 1 IS OUTSIDE LANE, NEXT TO SHOULDER
LANE 2 IS NEXT TO LANE 1, ETC.)

*3. SUBSURFACE DRAINAGE LOCATION [3]
Continuous Along Test Section... 1 Intermittent... 2 None... 3

*4. SUBSURFACE DRAINAGE TYPE [1]
No Subsurface Drainage... 1 Longitudinal Drains... 2
Transverse Drains... 3 Drainage Blanket... 4 Well System... 5
Drainage Blanket with Longitudinal Drains... 6
Other (Specify)... 7 _____

	SHOULDER DATA	INSIDE SHOULDER	OUTSIDE SHOULDER
*5.	SURFACE TYPE Turf... 1 Granular.... 2 Asphalt Concrete... 3 Concrete... 4 Surface Treatment... 5 Other (Specify)... 6 _____	[3]	[3]
*6.	TOTAL WIDTH (ft)	[4.]	[1 0]
*7.	PAVED WIDTH (ft)	[4.]	[1 0.]
8.	SHOULDER BASE TYPE (CODES-TABLE A.6)	[2 3]	[2 3]
9.	SURFACE THICKNESS (inch)	[1 0.0]	[1 0.0]
10.	SHOULDER BASE THICKNESS (inch)	[1 2.0]	[1 2.0]
11.	DIAMETER OF LONGITUDINAL DRAINPIPES (inch)		[ ]
12.	SPACING OF LATERALS (ft)		[ ]
13.	TYPE OF PAVEMENT (See Table A.4 of the SHRP Data Collection Guide)		[0 3]

OBSERVER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 4 LAYER DESCRIPTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1 LAYER NUMBER	*2 LAYER DESCRIPTION	*3 MATERIAL TYPE CLASS	*4 LAYER THICKNESSES (inch)			
			AVERAGE	MINIMUM	MAXIMUM	STD. DEV.
1	SUBGRADE(7)	[5 9]	[redacted]	[redacted]	[redacted]	[redacted]
2	[0 5]	[2 3]	[_ 12.0]	_ _ _._	_ _ _._	_ _ _._
3	[0 3]	[0 1]	[_ _3.0]	_ _ _._	_ _ _._	_ _ _._
4	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
5	[0 4]	[1 5]	[_ _3.0]	_ _ _._	_ _ _._	_ _ _._
6	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
7	[0 1]	[0 1]	[_ _4.2]	_ _3.6	_ _4.8	_ _0.2
8	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
9	[0 4]	[0 2]	[_ _1.3]	_ _1.0	_ _1.7	_ _0.2
10	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
11	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
12	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
13	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
14	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
15	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._

*5 DEPTH BELOW SURFACE TO "RIGID" LAYER (ft) [_ _._]
(Rock, Stone, Dense Shale)

NOTES:

1. Layer 1 is the subgrade soil, the highest numbered layer is the pavement surface.

2. Layer description codes:

Overlay	.01	Base Layer	.05	Porous Friction Course	.09
Seal/Tack Coat	.02	Subbase Layer	.06	Surface Treatment	.10
Original Surface	03	Subgrade	07	Embankment (Fill)	11
HMAC Layer (Subsurface)	.04	Interlayer	.08		

3. The material type classification codes are presented in Tables A.5, A.6, A.7 and A.8 of the Data Collection Guide for Long Term Pavement Performance Studies, dated January 17, 1990.

4. Enter the average thickness of each layer and the minimum, maximum and standard deviation of the thickness measurements, if known.

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 6 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE AGGREGATE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1. LAYER NUMBER (FROM SHEET 4) [7]

		TYPE	PERCENT
	COMPOSITION OF COARSE AGGREGATE		
*2.	Crushed Stone... 1 Gravel... 2 Crushed Gravel... 3	[1]	[1 0 0.]
*3.	Crushed Slag... 4 Manufactured Lightweight... 5	[__]	[__ __ __.]
*4.	Other (Specify)... 6 _____	[__]	[__ __ __.]
	COMPOSITION OF FINE AGGREGATE	TYPE	PERCENT
*5.	Natural Sand... 1 Crushed or Manufactured Sand	[2]	[1 0 0.]
*6.	(From Crushed Gravel or Stone)... 2	[__]	[__ __ __.]
*7.	Recycled Concrete... 3 Other... 4 (Specify) _____	[__]	[__ __ __.]

*8. TYPE OF MINERAL FILLER [2]
Stone Dust... 1 Hydrated Lime... 2 Portland Cement... 3
Fly Ash... 4 None ... 5
Other (Specify)... 6 _____

BULK SPECIFIC GRAVITIES:

*9.	Coarse Aggregate (AASHTO T85 or ASTM C127)	[2.2 1 5]
*10.	Fine Aggregate (AASHTO T84 or ASTM C128)	[2.5 3 6]
*11.	Mineral Filler (AASHTO T100 or ASTM D854)	[2.2 0 0]
*12.	Aggregate Combination (Calculated)	[2.3 0 2]
13.	Effective Specific Gravity of Aggregate Combination (Calculated)	[2.4 2 6]

		One Face	Two Faces
14.	Angularity		
	Coarse (% Fractured Faces)	[__ __.__]	[__ __.__]
	Fine (% Voids)		[__ __.__]

		Test Type	Result
15.	Soundness		
	Coarse (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
	Fine (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
16.	Toughness of Coarse Aggregate (% loss LAR)	[0 1]	[__ __.__]
17.	Deleterious Materials (Clay Lumps and Friable Particles of Fine Aggregates)		
	(Type of Test From A.13, % loss)	[0 9]	[__ __.__]
18.	Clay Content (Sand Equivalent, ratio)		[__.__]
19.	Thin, Elongated Particles (%)		[__.__]

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 8 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE ASPHALT BINDER PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. ASPHALT GRADE (Specify Design SHRP PG Grading) PG [5 8] - [2 2]

*3. SOURCE (SEE SUPPLY CODE SHEET, TABLE A.14) [6 1]
(IF OTHER, SPECIFY) _____

4. SPECIFIC GRAVITY OF ASPHALT CEMENT [0.9 9 9]
(AASHTO T228)

GENERAL ASPHALT CEMENT PROPERTIES (If available from supplier)

5. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(Tank Asphalt) (AASHTO TP5) [__ __ .__ __] [__ __]

6. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(RTFO Asphalt) (AASHTO TP5) [__ __ .__ __] [__ __]

7. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(PAV Asphalt) (AASHTO TP5) [__ __ __ __ __] [__ __]

8. BENDING BEAM RHEOMETER STIFFNESS MODULUS AND SLOPE (MPa,RATIO)
(PAV Aspnalt) (AASHTO TP1) [__ __ __ __] [__.__ __ __]

9 DIRECT TENSION TENSILE STRENGTH AND TENSILE STRAIN (kPa,RATIO)
(PAV Asphalt) (AASHTO TP3) [__ __ __ __.__] [__ __ __ __]

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 10 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE MIXTURE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. TYPE OF SAMPLES [2]
SAMPLES COMPACTED IN LABORATORY... 1
SAMPLES TAKEN FROM TEST SECTION... 2

*3. MAXIMUM SPECIFIC GRAVITY (NO AIR VOIDS) [2.2 1 6]
(AASHTO T209 OR ASTM D2041)

BULK SPECIFIC GRAVITY (ASTM D1188)

*4. MEAN [2.0 5 6] NUMBER OF TESTS [3.]
5. MINIMUM [2.0 5 4] MAXIMUM [2.0 5 7]
6. STD. DEV. [0.0 0 2]

ASPHALT CONTENT (PERCENT WEIGHT OF TOTAL MIX)
(AASHTO T164 OR ASTM D2172)

*7. MEAN [6.9] NUMBER OF SAMPLES [3.]
8. MINIMUM [6.9] MAXIMUM [6.9]
9. STD. DEV. [0.0]

PERCENT AIR VOIDS

*10. MEAN [6.9] NUMBER OF SAMPLES [3.]
11. MINIMUM [6 8] MAXIMUM [7 0]
12. STD. DEV. [0.1 2]

*13. VOIDS IN MINERAL AGGREGATE (PERCENT) [1 9.2]

*14. EFFECTIVE ASPHALT CONTENT (PERCENT) [4 9]

*15. FREQUENCY SWEEP (Complex Modulus, MPa & Phase Angle, δ)

4°C		20°C		40°C	
[ ]	[.]	[ ]	[ ]	[ ]	[.]

*16 UNIAXIAL STRAIN (Axial Stress, kPa & Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[.]	[ ]	[.]	[ ]	[.]

*17. VOLUMETRIC STRAIN (Confining Pressure, kPa & Axial Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[.]	[ ]	[ ]

*18 SIMPLE SHEAR

	4°C	20°C	40°C
Axial Stress, kPa	[ ]	[ ]	[ ]
Shear Stress, kPa	[ ]	[ ]	[ ]
Shear Strain mm/mm	[ ]	[ ]	[ ]

*19 TYPE OF ANTISTRIPPING AGENT USED [ ]
(SEE TYPE CODES, TABLE A.21)
OTHER (SPECIFY) _____

*20. AMOUNT OF ANTISTRIPPING AGENT USED LIQUID OR SOLID CODE [ ]

*21. (If liquid, enter code 1, and amount as percent of asphalt cement weight. If solid, enter code 2 and amount as percent of aggregate weight.) [ ]

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 12 PLANT-MIXED ASPHALT BOUND LAYERS PLACEMENT DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

1. DATE SURFACE PREPARATION BEGAN (Month-Day-Year) [0 9-1 0-9 6]

2. DATE SURFACE PREPARATION COMPLETED (Month-Day-Year) [0 9-1 6-9 6]

3. SURFACE PREPARATION PRIOR TO PLACEMENT OF OVERLAY [3]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4

4. TACK COAT
   Material Type None..... 1 SS-1.... 2 SS-1H.... 3 CRS-1.... 4 [1 0]
   CRS-2.... 5 CMS-2.... 6 CMS-2H.. 7 CSS-1.... 8 CSS-1H... 9
   Other.... 10 (Specify) HFMS- polymer modified

5. TACK COAT DILUTION
   (Percent) [5 0]
   Mixing Rate Parts Diluent [0 1] TO Parts Asphalt [0 1]

6. TACK COAT APPLICATION RATE (Gal/Sq. Yd.) [0.0 2]

7. ASPHALT CONCRETE PLANT AND HAUL

		Type	Name	Haul Distance (Mi)	Time (Min)	Layer Numbers		
Plant 1	[1]	Barber Greene		[1 5]	[2 0]	[ ]	[7]	[9]
Plant 2	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]
Plant 3	[ ]			[ ]	[ ]	[ ]	[ ]	[ ]

   Plant Type: Batch..... 1 Drum Mix.... 2 Other...3 Specify

8. MANUFACTURER OF ASPHALT CONCRETE PAVER Blaw-Knox

9. MODEL DESIGNATION OF ASPHALT CONCRETE PAVER PF-220

10. SINGLE PASS LAYDOWN WIDTH (Feet) [2 1.0]

11. Layer No.	12. Material Type Classification Code	13 Nominal Lift Placement Thickness				14 Tack Coat Between Lifts? (Y/N)	15. Transverse Joint Station
		1st Lift	2nd Lift	3rd Lift	4th Lift		
[0 7]	[0 1]	[3 0]	[3.0]	[ ]	[ ]	[Y]	[+]
[0 9]	[0 2]	[1.0]	[ ]	[ ]	[ ]	[ ]	[+]
[ ]	[ ]	[ ]	[.]	[ ]	[.]	[ ]	[+]

16 LOCATION OF LONGITUDINAL SURFACE JOINT [1]
   Between lanes.. 1 Within lane.. 2 (specify offset from O/S feet) [1 2.0]

17. SIGNIFICANT EVENTS DURING CONSTRUCTION(disruptions, rain, equip. problems, etc.)

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 13 PLANT-MIXED ASPHALT BOUND LAYERS COMPACTION DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

*1. DATE PAVING OPERATIONS BEGAN (Month-Day-Year) [0 9-1 0-9 6]
*2. DATE PAVING OPERATIONS COMPLETED (Month-Day-Year) [0 9-1 6-9 6]
*3. LAYER NUMBER [7]

*4. MIXING TEMPERATURE (°F) [3 1 5.]

5. LAYDOWN TEMPERATURES (°F)

Mean..... [3 0 6.] Number of Tests ..... [_ _.]

Minimum..... [_ _ _.] Maximum..... [_ _ _.]

Standard Deviation... [_ _._]

ROLLER DATA

	Roller Code #	Roller Description	Gross Wt (Tons)	Tire Press. (psi)	Frequency (Vibr./Min)	Amplitude (in)	Speed (mph)
6	A	Steel-Whl Tandem	1 1.4				
7	B	Steel-Whl Tandem	_ _._				
8	C	Steel-Whl Tandem	_ _._				
9	D	Steel-Whl Tandem	_ _._				
10	E	Pneumatic-Tired	3 0.0	_ 1 2 0.			
11	F	Pneumatic-Tired	_ _._	_ _ _ _.			
12	G	Pneumatic-Tired	_ _._	_ _ _ _.			
13	H	Pneumatic-Tired	_ _._				
14	I	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
15	J	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
16	K	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
17	L	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
18	M	Double-Drum Vibr.	1 1.4		2 3 0 0.	0 2 6	_ 7 0
19	N	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
20	O	Double-Drum Vibr	_ _._		_ _ _ _.	_ _ _	_ _._
21	P	Double-Drum Vibr.	_ _._		_ _ _ _	_ _ _	_ _ _
22	Q	Other					

	COMPACTION DATA	First Lift	Second Lift	Third Lift	Fourth Lift
	BREAKDOWN				
23	Roller Code (A-Q)	M	M	_	_
24	Coverages	_ 8.	_ 6	_ _	_ _
	INTERMEDIATE				
25	Roller Code (A-Q)	E	E	_	_
26	Coverages	_ 8	_ 8.	_ _	_ _
	FINAL				
27	Roller Code (A-Q)	A	A	_	_
28	Coverages	_ 2.	_ 2.	_ _	_ _
29	Air Temperature (°F)	_ 8 0.	_ 8 5.	_ _ _	_ _ _.
30	Compacted Thickness (in)	_ 2.5	_ 2 0	_ _ _	_ _._
31	Curing Period (Days)	_ 0	_ 0	_ _	_ _

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 14 PLANT-MIXED ASPHALT BOUND LAYERS DENSITY AND PROFILE DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

1. NUCLEAR DENSITY MEASUREMENTS

LAYER TYPE	Surface Course	Surface Friction Layer
Measurement Method (A, B, C)[1]	A	
Number of Measurements	8	
Average (pcf)	131.7	___.__
Maximum (pcf)	134.5	___.__
Minimum (pcf)	129.3	___.__
Standard Deviation (pcf)	2.4	___.__
Layer Number	07	09

[1]Measurement Method Backscatter... A Direct Transmission... B Air Gap... C

2. MANUFACTURER OF NUCLEAR DENSITY GAUGE _____

3. NUCLEAR DENSITY GAUGE MODEL NUMBER _____

4. NUCLEAR DENSITY GAUGE IDENTIFICATION NUMBER _____

5. NUCLEAR GAUGE COUNT RATE FOR STANDARDIZATION [_ _ _ _ _]

6. PROFILOGRAPH MEASUREMENTS

Profilograph Type California... 1 Rainhart... 2 Other ... 3 [__]

Profile Index (in/mile) [___ ___.___]

Interpretation Method Manual.. 1 Mechanical.. 2 Computer.. 3 [__]

Height of Blanking Band (in) [___.___ ___]

Cutoff Height (in) [___ ___ ___]

7. SURFACE PROFILE USED AS BASIS OF INCENTIVE PAYMENT? (YES, NO) [____]

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 1 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
0+0 0	0	— — . —	4.2	1.0
	36	— — . —	4.1	1.4
	72	— — . —	3.6	1.6
	108	— — . —	4.2	1.4
	144	— — . —	4.8	1.0
0+5 0	0	— — . —	4.3	1.0
	36	— — . —	4.1	1.2
	72	— — . —	3.8	1.3
	108	— — . —	4.2	1.2
	144	— — . —	4.4	1.1
1+0 0	0	— — . —	4.3	1.1
	36	— — . —	4.1	1.2
	72	— — . —	3.7	1.3
	108	— — . —	4.6	1.0
	144	— — . —	4.4	1.0
1+5 0	0	— — . —	4.0	1.2
	36	— — . —	4.2	1.2
	72	— — . —	3.8	1.2
	108	— — . —	4.1	1.3
	144	— — . —	4.1	1.2
2+0 0	0	— — —	4.4	1.1
	36	— — . —	4.3	1.2
	72	— — . —	4.0	1.4
	108	— — . —	4.3	1.3
	144	— — . —	4.4	1.0
2+5 0	0	— — . —	4.1	1.2
	36	— — . —	4.1	1.3
	72	— — —	4.0	1.3
	108	— — . —	4.4	1.3
	144	— — . —	4.3	1.3
3+0 0	0	— — —	4.1	1.4
	36	— — . —	3.8	1.6
	72	— — . —	3.8	1.7
	108	— — —	4.3	1.4
	144	— — —	4.6	1.4
LAYER NUMBER[1]		— —	0 7	0 9

[1] from Sheet 4

PREPARED Timothy J. Martin EVALUATED BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 2 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
3+50	0 36 72 108 144	—.— —.— —.— —.— —.—	4.2 4.1 4.0 4.2 4.4	1.3 1.4 1.7 1.4 1.3
4+00	0 36 72 108 144	—.— —.— —.— —.— —.—	4.4 3.8 3.8 4.3 4.6	1.3 1.4 1.7 1.4 1.3
4+50	0 36 72 108 144	—.— —.— —.— —.— —.—	4.6 4.2 3.8 4.4 4.4	1.4 1.7 1.7 1.4 1.2
5+00	0 36 72 108 144	—.— —.— —.— —.— —.—	4.7 4.3 4.1 4.4 4.3	1.4 1.7 1.7 1.6 1.6
—+—	— — — — — — — — — — — — — — —	—.— —.— —.— —.— —.—	— — — — — — — — — — — — — — —	—.— —.— —.— —.— —.—
—+—	— — — — — — — — — — — — — — —	— — — —.— —.— —.— — — —	— — — —.— —.— — — — — — —	— — — —.— —.— —.— —.—
—+—	— — — — — — — — — — — — — — —	—.— —.— — — — — — — —.—	— — — — — — —.— — — — —.—	—.— —.— —.— —.— —.—
LAYER NUMBER[1]		— —	0 7	0 9

[1] from Sheet 4

PREPARED Timothy J. Martin REVIEWED BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 16 MISCELLANEOUS CONSTRUCTION NOTES AND COMMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

Provide any miscellaneous comments and notes concerning construction operations which may have an influence on the ultimate performance of the test sections or which may cause undesired performance differences to occur between test sections. Also include any quality control measurements or data for which space is not provided on other forms. Provide an indication of the basis for such measurements, such as an ASTM, AASHTO, or Agency standard test designation.

N/A

PREPARER [illegible] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 21 PRE-OVERLAY CONDITION SUMMARY	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) N/A [__ __-__ __-__ __]

2. DATE PATCHING OPERATIONS COMPLETED (Month-Day-Year) [__ __-__ __-__ __]

3. PRIMARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

4. SECONDARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

5. SUMMARY OF PATCHING

	NUMBER	TOTAL AREA (SQ. FT)
Surface Only	[__ __]	[__ __ __ __]
Surface and partial base replacement	[__ __]	[__ __ __ __]
Full depth	[__ __]	[__ __ __ __]

6. METHOD USED TO DETERMINE LOCATION AND SIZES OF PATCHES [__]
   Deflection.... 1 Coring.... 2 Visual..... 3 Other..... 4
   (specify) _____

7. METHOD USED TO FORM PATCH BOUNDARIES [__]
   None ..... 1 Saw Cut..... 2 Air Hammer..... 3 Cold Milling..... 4
   Other..... 5 (Specify) _____

8. COMPACTION EQUIPMENT [__]
   None ..... 1 Pneumatic roller.. . 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller. 4 Steel Wheel Roller.. 5 Truck Tire..... 6
   Hand Tools..... 7 Other. .... 8 (Specify) _____

9. PATCH MATERIAL [__]
   Hot Mix Asphalt Concrete. 1 Plant Mix with Cutback Asphalt, Cold Laid.. 2
   Plant Mix with Emulsified Asphalt,Cold Laid. 3 Road Mix with Cutback Asphalt. 4
   Road Mix with Emulsified Asphalt.. 5 Portland Cement Concrete.. 6 Other 7
   (Specify) _____

10. MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

11 MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

12 AIR TEMPERATURE DURING PLACEMENT OPERATIONS
   High Temperature (°F) [__ __ __]

   Low Temperature (°F) [__ __ __]

13. PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry ..... 1 Moist..... 2 Wet..... 3

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 22 RUT LEVEL-UP TREATMENT	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

1. DATE LEVEL-UP LAYER APPLIED (Month-Day-Year) N/A [__ __-__ __-__ __]

2. PLACEMENT LOCATION OF LEVEL-UP LAYER [__]
   Outside Rut.... 1 Inside Rut.... 2 Both Ruts.... 3 Full Lane Width... 4

3. LENGTH OF TEST SECTION COVERED [__]
   Full Length of Test Section 1
   Partial Length of Test Section .... 2 (enter start and end station numbers)

   Outside Wheel Path Rut: Start Station __+__ __ End Station __+__ __
   Inside Wheel Path Rut: Start Station __+__ __ End Station __+__ __

4. AVERAGE RUT DIMENSIONS (inch)

	DEPTH	WIDTH
Outside Wheel Path Rut	[__.__]	[__ __.__]
Inside Wheel Path Rut	[__.__]	[__ __.__]

5. RUT PREPARATION PRIOR TO APPLICATION OF LEVEL-UP [__]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4
   Wheel Path Milling..... 5 DEPTH [__.__] WIDTH [__ __.__]
   Other.....6 (Specify) _____

6. COMPACTION EQUIPMENT [__]
   None ..... 1 Pneumatic roller ... 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller.. 4 Steel Wheel Roller.. 5 Truck Tire..... .. 6
   Hand Tools..... 7 Other..... 8 (Specify) _____

7. TYPE OF LEVEL-UP MATERIAL
   Hot Mix Asphalt Concrete... 1 Plant Mix with Cutback Asphalt, Cold Laid..... 2
   Plant Mix with Emulsified Asphalt, Cold Laid. 3 Road Mix with Cutback Asphalt 4
   Road Mix with Emulsified Asphalt..... 5
   Other... 6 (Specify) _____

8 MAXIMUM TOP SIZE AGGREGATE (inch) [__ __ __]

9 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

10. MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

11. AIR TEMPERATURE DURING PLACEMENT OPERATIONS
    High Temperature (°F) [__ __ __]

    Low Temperature (°F) [__ __ __]

12 PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
   Dry..... 1 Moist..... 2 Wet. 3

PREPARER Timothy J. Barks EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 23 *PREPARATION OF MILLED TEST SECTIONS*	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 3]

1. DATE OF MILLING OPERATION (Month-Day-Year) [0 4-1 2-9 6]
2. MANUFACTURER OF MILLING MACHINE (Specify) _____
3. MILLING MACHINE MODEL DESIGNATION (Specify) _____
4. WIDTH OF CUTTING HEAD (inch) [_ _ _._]
5. TOTAL MILLED DEPTH (inch)

Location	No. Measrmnts	Maximum	Minimum	Std. Dev.	Average
Inside lane edge	_ _ .	_ _ .	_ _ .	_ _ .	[3.0]
Outside lane edge	_ _ .	_ _ .	_ _ .	_ _ .	[3.0]

MILLED SURFACE CHARACTERISTICS

6. Macro Texture [2]
   Fine Macro Texture (≤¼ inch)... 1 Coarse Macro Texture (>¼ inch)... 2
7. Estimate of extent of test section surface area delaminated (Percent) [_ _]
8. Height of Ridge Between Parallel Passes? (inch) [_._]
9. Other Comments? (Yes, No) [_]
   Comments _____

10. WERE PATCHES PLACED AFTER MILLING? (Yes, No) [_]
    (If yes complete Construction Data Sheet 19)
11. LENGTH OF TIME MILLED SURFACE WAS OPENED TO TRAFFIC? (Hrs.) [_ _ 0]
12. LAYER NUMBER OF MILL REPLACEMENT [0 5]
13. NOMINAL THICKNESS OF MILL REPLACEMENT MATERIAL (inch) [_ 3.5]
14. TYPE OF MILL REPLACEMENT LAYER MATERIAL [2]
    "Virgin" Asphalt Concrete .... 1 Recycled Asphalt Concrete.. . 2
    Other... 3 (Specify) Cold in-situ recycled
15. WAS ADJACENT TRAVEL LANE MILLED TO SAME DEPTH AS TEST LANE? (Yes, No) [Y]
    IF NO, WIDTH MILLED SAME DEPTH AS TEST LANE (ft) [_ _ _ _]
16. COMMENTS Milling began prior to notification. Milled depth is based on design and contractor information.

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS CONSTRUCTION DATA SHEET 2 GEOMETRIC, SHOULDER AND DRAINAGE INFORMATION	* STATE CODE [3 5] * SPS PROJECT CODE [0 7] * TEST SECTION NO. [0 4]

*1. LANE WIDTH (ft) [1 2.]

2. MONITORING SITE LANE NUMBER [1]
(LANE 1 IS OUTSIDE LANE, NEXT TO SHOULDER
LANE 2 IS NEXT TO LANE 1, ETC.)

*3. SUBSURFACE DRAINAGE LOCATION [3]
Continuous Along Test Section... 1 Intermittent... 2 None... 3

*4. SUBSURFACE DRAINAGE TYPE [1]
No Subsurface Drainage... 1 Longitudinal Drains... 2
Transverse Drains... 3 Drainage Blanket... 4 Well System... 5
Drainage Blanket with Longitudinal Drains... 6
Other (Specify)... 7 _____

SHOULDER DATA	INSIDE SHOULDER	OUTSIDE SHOULDER
*5. SURFACE TYPE Turf... 1 Granular.... 2 Asphalt Concrete... 3 Concrete... 4 Surface Treatment... 5 Other (Specify)... 6 _____	[3]	[3]
*6. TOTAL WIDTH (ft)	[4.]	[1 0.]
*7. PAVED WIDTH (ft)	[4.]	[1 0.]
8. SHOULDER BASE TYPE (CODES-TABLE A.6)	[2 3]	[2 3]
9. SURFACE THICKNESS (inch)	[1 0.0]	[1 0.0]
10. SHOULDER BASE THICKNESS (inch)	[1 2.0]	[1 2.0]
11. DIAMETER OF LONGITUDINAL DRAINPIPES (inch)		[ ]
12. SPACING OF LATERALS (ft)		[.]
13. TYPE OF PAVEMENT (See Table A.4 of the SHRP Data Collection Guide)		[0 3]

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 4 LAYER DESCRIPTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

*1 LAYER NUMBER	*2 LAYER DESCRIPTION	*3 MATERIAL TYPE CLASS	*4 LAYER THICKNESSES (inch)			
			AVERAGE	MINIMUM	MAXIMUM	STD. DEV.
1	SUBGRADE(7)	[5 9]				
2	[0 5]	[2 3]	[_ 12.0]	_ _ _._	_ _ _._	_ _ _._
3	[0 3]	[0 1]	[_ _3.0]	_ _ _._	_ _ _._	_ _ _._
4	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
5	[0 4]	[1 5]	[_ _3.0]	_ _ _._	_ _ _._	_ _ _._
6	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
7	[0 1]	[0 1]	[_ _4.8]	_ _4.0	_ _5.4	_ _0.3
8	[0 2]	[7 3]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
9	[0 9]	[0 2]	[_ _1.0]	_ _0.6	_ _1.7	_ _0.2
10	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
11	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
12	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
13	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._
14	[_ _]	[_ _]	[_ _ _ _]	_ _ _._	_ _ _._	_ _ _._
15	[_ _]	[_ _]	[_ _ _._]	_ _ _._	_ _ _._	_ _ _._

*5 DEPTH BELOW SURFACE TO "RIGID" LAYER (ft) [_ _._]
(Rock, Stone, Dense Shale)

NOTES:

1. Layer 1 is the subgrade soil, the highest numbered layer is the pavement surface.

2. Layer description codes:

Overlay	01	Base Layer	05	Porous Friction Course	09
Seal/Tack Coat	02	Subbase Layer	06	Surface Treatment	10
Original Surface	03	Subgrade	07	Embankment (Fill)	11
HMAC Layer (Subsurface)	04	Interlayer	08		

3. The material type classification codes are presented in Tables A.5, A.6, A.7 and A.8 of the Data Collection Guide for Long Term Pavement Performance Studies, dated January 17, 1990.

4. Enter the average thickness of each layer and the minimum, maximum and standard deviation of the thickness measurements, if known.

OPERATOR Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 6 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE AGGREGATE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

*1. LAYER NUMBER (FROM SHEET 4) [7]

	COMPOSITION OF COARSE AGGREGATE	TYPE	PERCENT
*2.	Crushed Stone... 1 Gravel... 2 Crushed Gravel... 3	[1]	[1 0 0.]
*3.	Crushed Slag... 4 Manufactured Lightweight... 5	[__]	[__ __ __.]
*4.	Other (Specify)... 6 _____	[__]	[__ __ __.]

	COMPOSITION OF FINE AGGREGATE	TYPE	PERCENT
*5.	Natural Sand... 1 Crushed or Manufactured Sand	[2]	[1 0 0.]
*6.	(From Crushed Gravel or Stone)... 2	[__]	[__ __ __.]
*7.	Recycled Concrete... 3 Other... 4 (Specify) _____	[__]	[__ __ __.]

*8. TYPE OF MINERAL FILLER [2]
Stone Dust... 1 Hydrated Lime... 2 Portland Cement... 3
Fly Ash... 4 None ... 5
Other (Specify)... 6 _____

BULK SPECIFIC GRAVITIES:

*9.	Coarse Aggregate (AASHTO T85 or ASTM C127)	[2.2 1 5]
*10.	Fine Aggregate (AASHTO T84 or ASTM C128)	[2.5 3 6]
*11.	Mineral Filler (AASHTO T100 or ASTM D854)	[2.2 0 0]
*12.	Aggregate Combination (Calculated)	[2.3 0 2]
13.	Effective Specific Gravity of Aggregate Combination (Calculated)	[2.3 7 2]

		One Face	Two Faces
14.	Angularity		
	Coarse (% Fractured Faces)	[__ __.__]	[__ __.__]
	Fine (% Voids)		[__ __.__]

		Test Type	Result
15.	Soundness		
	Coarse (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
	Fine (Type of Test From A.13, % loss)	[0 3]	[__ __.__]
16.	Toughness of Coarse Aggregate (% loss LAR)	[0 1]	[__ __.__]
17.	Deleterious Materials (Clay Lumps and Friable Particles of Fine Aggregates)		
	(Type of Test From A.13, % loss)	[0 9]	[__ __.__]
18.	Clay Content (Sand Equivalent, ratio)		[__.__]
19.	Thin, Elongated Particles (%)		[__.__]

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SPS-9A CONSTRUCTION DATA SHEET 8 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE ASPHALT BINDER PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. ASPHALT GRADE (Specify Design SHRP PG Grading) PG [6 4] - [1 0]

*3. SOURCE (SEE SUPPLY CODE SHEET, TABLE A.14) [6 1]
(IF OTHER, SPECIFY) _____

4. SPECIFIC GRAVITY OF ASPHALT CEMENT [1.0 1 3]
(AASHTO T228)

GENERAL ASPHALT CEMENT PROPERTIES (If available from supplier)

5. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(Tank Asphalt) (AASHTO TP5) [_ _ . _ _] [_ _]

6. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(RTFO Asphalt) (AASHTO TP5) [_ _ . _ _] [_ _]

7. DYNAMIC SHEAR RHEOMETER COMPLEX MODULUS AND PHASE ANGLE (kPa,DEG)
(PAV Asphalt) (AASHTO TP5) [_ _ _ _ _] [_ _]

8. BENDING BEAM RHEOMETER STIFFNESS MODULUS AND SLOPE (MPa,RATIO)
(PAV Aspnalt) (AASHTO TP1) [_ _ _ _] [_ _ _ _]

9. DIRECT TENSION TENSILE STRENGTH AND TENSILE STRAIN (kPa,RATIO)
(PAV Asphalt) (AASHTO TP3) [_ _ _ _._] [_ _ _ _]

OPERATOR Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 10 PLANT-MIXED ASPHALT BOUND LAYERS SUPERPAVE MIXTURE PROPERTIES	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

*1. LAYER NUMBER (FROM SHEET 4) [0 7]

*2. TYPE OF SAMPLES [2]
SAMPLES COMPACTED IN LABORATORY... 1
SAMPLES TAKEN FROM TEST SECTION... 2

*3. MAXIMUM SPECIFIC GRAVITY (NO AIR VOIDS) [2.2 2 3]
(AASHTO T209 OR ASTM D2041)

BULK SPECIFIC GRAVITY (ASTM D1188)

*4. MEAN [2.0 5 4] NUMBER OF TESTS [3.]
5. MINIMUM [2.0 3 6] MAXIMUM [2.0 6 4]
6. STD. DEV. [0.0 1 6]

ASPHALT CONTENT (PERCENT WEIGHT OF TOTAL MIX)
(AASHTO T164 OR ASTM D2172)

*7. MEAN [6.8] NUMBER OF SAMPLES [3.]
8. MINIMUM [6.8] MAXIMUM [6.8]
9. STD. DEV. [0.0]

PERCENT AIR VOIDS

*10. MEAN [6.8] NUMBER OF SAMPLES [3.]
11. MINIMUM [6.5] MAXIMUM [7.8]
12. STD. DEV. [0.7 5 2]

*13. VOIDS IN MINERAL AGGREGATE (PERCENT) [1 7.1]

*14. EFFECTIVE ASPHALT CONTENT (PERCENT) [5.5]

*15. FREQUENCY SWEEP (Complex Modulus, MPa & Phase Angle, δ)

4°C		20°C		40°C	
[ ]	[.]	[ ]	[.]	[ ]	[.]

*16. UNIAXIAL STRAIN (Axial Stress, kPa & Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[.]	[ ]	[ ]

*17. VOLUMETRIC STRAIN (Confining Pressure, kPa & Axial Strain, mm/mm)

4°C		20°C		40°C	
[ ]	[ ]	[ ]	[.]	[ ]	[ ]

*18. SIMPLE SHEAR

	4°C	20°C	40°C
Axial Stress, kPa	[ ]	[ ]	[ ]
Shear Stress, kPa	[ ]	[ ]	[ ]
Shear Strain mm/mm	[.]	[ ]	[ ]

*19. TYPE OF ANTISTRIPPING AGENT USED [ ]
(SEE TYPE CODES, TABLE A.21)
OTHER (SPECIFY) _____

*20. AMOUNT OF ANTISTRIPPING AGENT USED LIQUID OR SOLID CODE [ ]

*21. (If liquid, enter code 1, and amount as percent of asphalt cement weight. If solid, enter code 2 and amount as percent of aggregate weight.) [.]

PREPARER Timothy J Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 12 PLANT-MIXED ASPHALT BOUND LAYERS PLACEMENT DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

1. DATE SURFACE PREPARATION BEGAN (Month-Day-Year) [0 9-1 0-9 6]

2. DATE SURFACE PREPARATION COMPLETED (Month-Day-Year) [0 9-1 6-9 6]

3. SURFACE PREPARATION PRIOR TO PLACEMENT OF OVERLAY [3]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4

4. TACK COAT
   Material Type None..... 1 SS-1.... 2 SS-1H.... 3 CRS-1.... 4 [1 0]
   CRS-2.... 5 CMS-2.... 6 CMS-2H.. 7 CSS-1.... 8 CSS-1H... 9
   Other.... 10 (Specify) HFMS- polymer modified

5. TACK COAT DILUTION
   (Percent) [5 0]
   Mixing Rate Parts Diluent [0 1] TO Parts Asphalt [0 1]

6. TACK COAT APPLICATION RATE (Gal/Sq. Yd.) [0.0 2]

7. ASPHALT CONCRETE PLANT AND HAUL

	Type	Name	Haul Distance (Mi)	Time (Min)	Layer Numbers
Plant 1	[1]	Barber Greene	[1 5]	[2 0]	[ ] [7] [9]
Plant 2	[ ]		[ ]	[ ]	[ ] [ ] [ ]
Plant 3	[ ]		[ ]	[ ]	[ ] [ ] [ ]

   Plant Type: Batch..... 1 Drum Mix.... 2 Other...3 Specify

8. MANUFACTURER OF ASPHALT CONCRETE PAVER Blaw-Knox

9. MODEL DESIGNATION OF ASPHALT CONCRETE PAVER PF-220

10. SINGLE PASS LAYDOWN WIDTH (Feet) [2 1.0]

11. Layer No.	12. Material Type Classification Code	13. Nominal Lift Placement Thickness				14. Tack Coat Between Lifts? (Y/N)	15. Transverse Joint Station
		1st Lift	2nd Lift	3rd Lift	4th Lift		
[0 7]	[0 1]	[3 0]	[3.0]	[ ]	[ ]	[Y]	[+]
[0 9]	[0 2]	[1.0]	[ ]	[ ]	[ ]	[ ]	[+]
[ ]	[ ]	[.]	[.]	[ ]	[ ]	[ ]	[-]

16. LOCATION OF LONGITUDINAL SURFACE JOINT [1]
    Between lanes.. 1 Within lane.. 2 (specify offset from O/S feet) [1 2 0]

17. SIGNIFICANT EVENTS DURING CONSTRUCTION(disruptions, rain, equip. problems, etc.)

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 13 PLANT-MIXED ASPHALT BOUND LAYERS COMPACTION DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

*1. DATE PAVING OPERATIONS BEGAN (Month-Day-Year) [0 9 - 1 0 - 9 6]
*2. DATE PAVING OPERATIONS COMPLETED (Month-Day-Year) [0 9 - 1 6 - 9 6]
*3. LAYER NUMBER [7]

*4. MIXING TEMPERATURE (°F) [3 2 5.]

5. LAYDOWN TEMPERATURES (°F)

Mean..... [3 0 6.] Number of Tests ..... [_ _.]

Minimum..... [_ _ _.] Maximum..... [_ _ _.]

Standard Deviation... [_ _.]

ROLLER DATA

	Roller Code #	Roller Description	Gross Wt (Tons)	Tire Press. (psi)	Frequency (Vibr./Min)	Amplitude (in)	Speed (mph)
6	A	Steel-Whl Tandem	1 1.4				
7	B	Steel-Whl Tandem	_ _._				
8	C	Steel-Whl Tandem	_ _._				
9	D	Steel-Whl Tandem	_ _._				
10	E	Pneumatic-Tired	3 0.0	1 2 0.			
11	F	Pneumatic-Tired	_ _._	_ _ _ _.			
12	G	Pneumatic-Tired	_ _ _	_ _ _ _.			
13	H	Pneumatic-Tired	_ _._				
14	I	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
15	J	Single-Drum Vibr	_ _._		_ _ _ _.	_ _ _	_ _._
16	K	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
17	L	Single-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
18	M	Double-Drum Vibr.	1 1 4		2 3 0 0.	0 2 6	_ 7.0
19	N	Double-Drum Vibr.	_ _._		_ _ _ _.	_ _ _	_ _._
20	O	Double-Drum Vibr.	_ _ _		_ _ _ _.	_ _ _	_ _ _
21	P	Double-Drum Vibr.	_ _ _		_ _ _ _.	_ _ _	_ _ _
22	Q	Other					

	COMPACTION DATA	First Lift	Second Lift	Third Lift	Fourth Lift
	BREAKDOWN				
23	Roller Code (A-Q)	M	M	_	_
24	Coverages	_ 8	_ 6.	_ _	_ _.
	INTERMEDIATE				
25	Roller Code (A-Q)	E	E	_	_
26	Coverages	_ 8	_ 8.	_ _	_ _
	FINAL				
27	Roller Code (A-Q)	A	A	_	_
28	Coverages	_ 2.	_ 2.	_ _	_ _
29	Air Temperature (°F)	_ 8 0.	_ 8 5.	_ _ _	_ _ _
30	Compacted Thickness (in)	_ 2.5	_ 2 0	_ _ _	_ _ _
31	Curing Period (Days)	_ 0	_ 0	_ _	_ _

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 14 PLANT-MIXED ASPHALT BOUND LAYERS DENSITY AND PROFILE DATA	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

1. NUCLEAR DENSITY MEASUREMENTS

LAYER TYPE	Surface Course	Surface Friction Layer
Measurement Method (A, B, C)[1]	A	
Number of Measurements	1 2	
Average (pcf)	1 2 8.2	
Maximum (pcf)	1 3 1.9	
Minimum (pcf)	1 2 7.0	
Standard Deviation (pcf)	1.3	
Layer Number	0 7	0 9

[1]Measurement Method Backscatter... A Direct Transmission... B Air Gap... C

2. MANUFACTURER OF NUCLEAR DENSITY GAUGE _____

3. NUCLEAR DENSITY GAUGE MODEL NUMBER _____

4. NUCLEAR DENSITY GAUGE IDENTIFICATION NUMBER _____

5. NUCLEAR GAUGE COUNT RATE FOR STANDARDIZATION [_ _ _ _ _]

6 PROFILOGRAPH MEASUREMENTS

Profilograph Type California... 1 Rainhart... 2 Other ... 3 [_]

Profile Index (in/mile) [_ _.]

Interpretation Method Manual.. 1 Mechanical.. 2 Computer . 3 [_]

Height of Blanking Band (in) [_ _ _]

Cutoff Height (in) [_ _ _]

7. SURFACE PROFILE USED AS BASIS OF INCENTIVE PAYMENT? (YES, NO) [_]

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

LAYER THICKNESS MEASUREMENTS (inch)

SHEET 1 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
0+0 0	0	— — . —	5.2	0.8
	36	— — . —	5.2	1.0
	72	— — . —	5.0	0.7
	108	— — . —	4.9	1.2
	144	— — . —	5.2	1.1
0+5 0	0	— — . —	4.8	1.1
	36	— — . —	5.4	1.1
	72	— — . —	4.6	1.6
	108	— — . —	5.2	1.4
	144	— — . —	4.9	1.2
1+0 0	0	— — . —	4.8	1.0
	36	— — . —	5.2	1.0
	72	— — . —	4.8	1.2
	108	— — . —	4.9	1.1
	144	— — . —	5.2	0.8
1+5 0	0	— — . —	4.8	1.4
	36	— — . —	4.8	1.1
	72	— — . —	4.6	1.3
	108	— — . —	5.2	1.0
	144	— — . —	5.2	0.7
2-0 0	0	— — . —	4.8	1.1
	36	— — . —	4.6	1.3
	72	— — . —	4.4	1.3
	108	— — —	5.2	1.7
	144	— — . —	5.3	1.0
2-5 0	0	— — . —	4.7	1.0
	36	— — . —	4.7	1.1
	72	— — —	4.4	1.2
	108	— — . —	5.3	0.7
	144	— — —	5.2	0.7
3-0 0	0	— — —	4.6	1.0
	36	— — —	4.8	0.8
	72	— — . —	4.6	1.0
	108	— — —	4.9	0.8
	144	— — —	4.6	0.7
LAYER NUMBER[1]		— —	0 7	0 9

[1] from Sheet 4

DESIGNED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 15 LAYER THICKNESS MEASUREMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

LAYER THICKNESS MEASUREMENTS (inch) SHEET 2 OF 2

STATION NUMBER	OFFSET (inch)	DENSE GRADED AGGREGATE BASE	SURFACE AND BINDER	SURFACE FRICTION LAYER
3+50	0		4.7	0.7
	36		4.8	1.0
	72		4.3	1.0
	108		4.9	0.8
	144		4.3	1.1
4+00	0		4.4	0.7
	36		4.7	1.0
	72		4.3	1.0
	108		4.9	0.7
	144		4.8	0.6
4+50	0		4.2	0.8
	36		4.3	1.0
	72		4.1	1.2
	108		4.7	1.0
	144		4.7	0.7
5+00	0		4.0	0.7
	36		4.2	1.0
	72		4.2	1.2
	108		4.8	1.2
	144		4.9	1.0
+				
-				
-				
LAYER NUMBER[1]			07	09

[1] from Sheet 4

OPERATOR Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 16 MISCELLANEOUS CONSTRUCTION NOTES AND COMMENTS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

Provide any miscellaneous comments and notes concerning construction operations which may have an influence on the ultimate performance of the test sections or which may cause undesired performance differences to occur between test sections. Also include any quality control measurements or data for which space is not provided on other forms. Provide an indication of the basis for such measurements, such as an ASTM, AASHTO, or Agency standard test designation.

There is a structure beneath section 4 @ Station 3+60 approximately 10 feet below the surface of the pavement. There were no signs of distress attributed to this structure prior to construction. This should not affect this portion of pavement in the future.

PREPARER [signature] EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 21 PRE-OVERLAY CONDITION SUMMARY	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) N/A [__ __-__ __-__ __]

2. DATE PATCHING OPERATIONS COMPLETED (Month-Day-Year) [__ __-__ __-__ __]

3. PRIMARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

4. SECONDARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [__ __]
   Other (Specify) _____

5. SUMMARY OF PATCHING

	NUMBER	TOTAL AREA (SQ. FT)
Surface Only	[__ __]	[__ __ __ __]
Surface and partial base replacement	[__ __]	[__ __ __ __]
Full depth	[__ __]	[__ __ __ __]

6. METHOD USED TO DETERMINE LOCATION AND SIZES OF PATCHES [__]
   Deflection.... 1 Coring.... 2 Visual..... 3 Other..... 4
   (specify) _____

7. METHOD USED TO FORM PATCH BOUNDARIES [__]
   None ..... 1 Saw Cut..... 2 Air Hammer..... 3 Cold Milling. ... 4
   Other..... 5 (Specify) _____

8. COMPACTION EQUIPMENT [__]
   None . ... 1 Pneumatic roller.... 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller. 4 Steel Wheel Roller.. 5 Truck Tire 6
   Hand Tools.... .. 7 Other..... ..... 8 (Specify) _____

9. PATCH MATERIAL [__]
   Hot Mix Asphalt Concrete.. 1 Plant Mix with Cutback Asphalt, Cold Laid.. 2
   Plant Mix with Emulsified Asphalt,Cold Laid. 3 Road Mix with Cutback Asphalt. 4
   Road Mix with Emulsified Asphalt.. 5 Portland Cement Concrete . 6 Other . 7
   (Specify) _____

10 MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

11. MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

12. AIR TEMPERATURE DURING PLACEMENT OPERATIONS
    High Temperature (°F) [__ __ __]

    Low Temperature (°F) [__ __ __]

13. PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
    Dry..... 1 Moist..... 2 Wet..... 3

PREPARER Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 22 RUT LEVEL-UP TREATMENT	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

1. DATE LEVEL-UP LAYER APPLIED (Month-Day-Year) N/A [__ __-__ __-__ __]

2. PLACEMENT LOCATION OF LEVEL-UP LAYER [__]
   Outside Rut.... 1 Inside Rut.... 2 Both Ruts.... 3 Full Lane Width... 4

3. LENGTH OF TEST SECTION COVERED [__]
   Full Length of Test Section 1
   Partial Length of Test Section .... 2 (enter start and end station numbers)

   Outside Wheel Path Rut: Start Station __+__ __ End Station __+__ __
   Inside Wheel Path Rut: Start Station __+__ __ End Station __+__ __

4. AVERAGE RUT DIMENSIONS (inch)

	DEPTH	WIDTH
Outside Wheel Path Rut	[__.__]	[__ __.__]
Inside Wheel Path Rut	[__.__]	[__ __.__]

5. RUT PREPARATION PRIOR TO APPLICATION OF LEVEL-UP [__]
   None..... 1 Broomed..... 2 Broomed + Asphaltic Tack Coat.... 3
   Asphaltic Tack Coat (only).... 4
   Wheel Path Milling..... 5 DEPTH [__.__] WIDTH [__ __.__]
   Other.....6 (Specify) _____

6. COMPACTION EQUIPMENT [__]
   None ..... 1 Pneumatic roller.... 2 Vibratory Plate Compactor. 3 [__]
   Vibratory Roller.. 4 Steel Wheel Roller.. 5 Truck Tire..... 6
   Hand Tools..... 7 Other..... 8 (Specify) _____

7. TYPE OF LEVEL-UP MATERIAL
   Hot Mix Asphalt Concrete... 1 Plant Mix with Cutback Asphalt, Cold Laid..... 2
   Plant Mix with Emulsified Asphalt, Cold Laid. 3 Road Mix with Cutback Asphalt. 4
   Road Mix with Emulsified Asphalt..... 5
   Other... 6 (Specify) _____

8. MAXIMUM TOP SIZE AGGREGATE (inch) [__ __ __]

9. MINIMUM TIME FROM MATERIAL PLACEMENT TO OPENING TO TRAFFIC (Hrs) [__ __]

10. MAXIMUM MATERIAL TEMPERATURE FOR TRAFFIC OPENING (if used) (°F) [__ __ __]

11. AIR TEMPERATURE DURING PLACEMENT OPERATIONS
    High Temperature (°F) [__ __ __]

    Low Temperature (°F) [__ __ __]

12. PREDOMINATE ROAD SURFACE MOISTURE CONDITION DURING PLACEMENT OPERATIONS [__]
    Dry..... 1 Moist..... 2 Wet..... . 3

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

SPS-9A CONSTRUCTION DATA SHEET 23 PREPARATION OF MILLED TEST SECTIONS	* STATE CODE [3 5] * SPS PROJECT CODE [0 9] * TEST SECTION NO. [0 4]

1. DATE OF MILLING OPERATION (Month-Day-Year) [0 4-1 2-9 6]
2. MANUFACTURER OF MILLING MACHINE (Specify) _____
3. MILLING MACHINE MODEL DESIGNATION (Specify) _____
4. WIDTH OF CUTTING HEAD (inch) [_ _ _._]
5. TOTAL MILLED DEPTH (inch)

Location	No. Measrmnts	Maximum	Minimum	Std. Dev.	Average
Inside lane edge	_ _.	_ _.	_ _.	_ _	[3.0]
Outside lane edge	_ _.	_ _.	_ _.	_ _.	[3.0]

MILLED SURFACE CHARACTERISTICS

6. Macro Texture [2]
   Fine Macro Texture (≤¼ inch)... 1 Coarse Macro Texture (>¼ inch)... 2
7. Estimate of extent of test section surface area delaminated (Percent) [_ _]
8. Height of Ridge Between Parallel Passes? (inch) [_._]
9. Other Comments? (Yes, No) [_]
   Comments _____

10. WERE PATCHES PLACED AFTER MILLING? (Yes, No) [_]
    (If yes complete Construction Data Sheet 19)
11. LENGTH OF TIME MILLED SURFACE WAS OPENED TO TRAFFIC? (Hrs.) [_ _ 0]
12. LAYER NUMBER OF MILL REPLACEMENT [0 5]
13. NOMINAL THICKNESS OF MILL REPLACEMENT MATERIAL (inch) [_ 3.5]
14. TYPE OF MILL REPLACEMENT LAYER MATERIAL [2]
    "Virgin" Asphalt Concrete .... 1 Recycled Asphalt Concrete.... 2
    Other. . 3 (Specify) Cold in-situ recycled
15. WAS ADJACENT TRAVEL LANE MILLED TO SAME DEPTH AS TEST LANE? (Yes, No) [Y]
    IF NO, WIDTH MILLED SAME DEPTH AS TEST LANE (ft) [_ _._ _]
16. COMMENTS Milling began prior to notification. Milled depth is based on design and contractor information.

PREPARED Timothy J. Martin EMPLOYER BRE DATE 2/18/97

APPENDIX H

PHOTOGRAPHS

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1	Milled Surface, 350904	H.2
2	Preconstruction Core Sample	H.2
3	Drill Rig for Preconstruction Sampling	H.3
4	Auger Probe for Preconstruction Sampling	H.3
5	Paver Used for 350900 Sections	H.4
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9	Project Sign, 350900	H.6
10	Typical Section Markings with Reflector	H.6
11	Typical Section Sign, 350901	H.7
12	Section 350901 Markings with Rest Area Exit Ramp at End of Section	H.7

Photo 1. Milled Surface, 350904

Photo 2. Preconstruction Core Sample

Photo 3. Drill Rig for Preconstruction Sampling

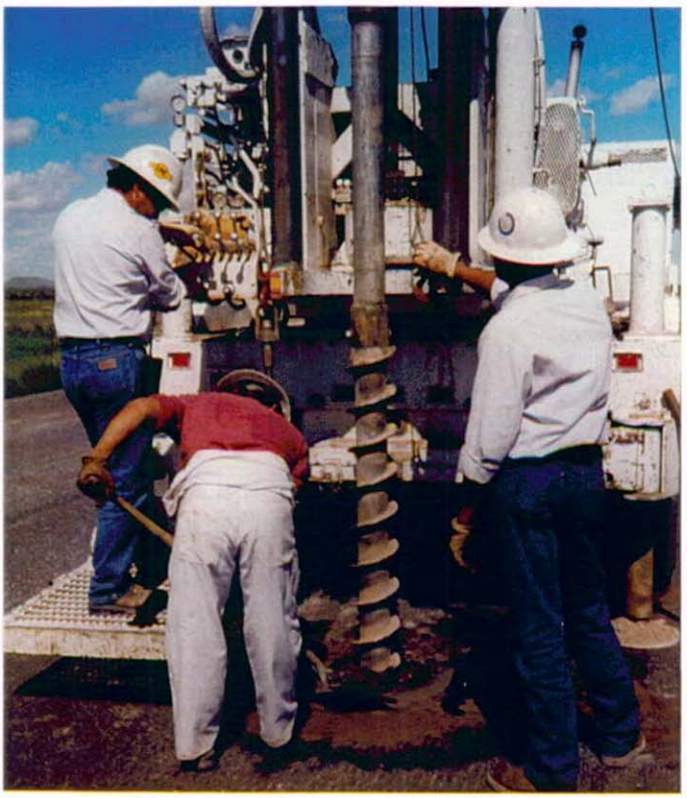

Photo 4. Auger Probe for Preconstruction Sampling

Photo 5. Paver Used for 350900 Sections

Photo 6. Material Sampling of SUPERPAVE™ Mix

Photo 7. Postconstruction Coring, 350902

Photo 8. Postconstruction Core Samples

Photo 9. Project Sign, 350900

Photo 10. Typical Section Markings with Reflector

Photo 11. Typical Section Sign, 350901

Photo 12. Section 350901 Markings with Rest Area Exit Ramp at End of Section