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LTPP Seasonal Monitoring Program

Site Monitoring Suspension Status Draft Final Report for GPS Section 906405 (90A) Plunkett, Saskatchewan

Research

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FHWA Contract No. DTFH61-96-00013 November 1997

LTPP Seasonal Monitoring Program

Site Monitoring Suspension Status
Draft Final Report for
GPS Section 906405 (90A)
Plunkett, Saskatchewan

FHWA CONTRACT No. DTFH61-96C-00013

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Turner-Fairbanks Highway Research Center
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Technical Report Documentation Page

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9. Performing Organization Name and Address ERES Consultants, Inc. 505 West University Avenue Champaign, Illinois 61820-3915		10. Work Unit No. 11. Contract or Grant No. DTFH61-96-C-00013
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FHWA LTPP Technical Representative - Aramis Lopez, HNR-40

16. Abstract

This report contains information on suspensio of NCRCO's data collection activities for the Long Term Pavement Performance (LTPP) General Pavement Study (GPS) section 906405 conducted on September 16, 1997. The report presents a description of the following activities: SMP data collection activities, including evaluation of instrument and equipment performance prior to suspension of data collection, and monitoring resumption schedule. The resumption of monitoring at this site is scheduled for September, 1998. All instrumentation at the site will be tested at that time.

17. Keyword	18. Distribution Statement
Long Term Pavement Performance, LTPP, Seasonal Monitoring Program, SMP, Time Domain Reflectometry, TDR, Piezometer, Falling Weight Deflectometer	No restrictions. This document is available to the public from the sponsoring agency.

19. Security Classification (of this report)	Security Classification (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

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1.0 INTRODUCTION

As dictated by seasonal monitoring procedures, the North Central Regional Coordination Office (NCRCO) has suspended data collection for the Long Term Pavement Performance (LTPP) General Pavement Study (GPS) section 906405 for a period of one year effective September 19, 1997. The test section, which is part of the Seasonal Monitoring Program (SMP) managed by the Federal Highway Administration (FHWA) LTPP Division, is approximately 8 kilometers west of Plunkett, Saskatchewan, on the eastbound driving lane of PTH-16. Additional background information on the test section, types of instruments installed, and the in-place pavement structure can be found in the *Site Installation Report for GPS Section 906405 (90A), Plunkett, Saskatchewan,* dated January 1996 (1).

This report contains information on data collection activities conducted on September 19, 1997. After the installation of instrumentation in the test section on October 6, 1993, the test section was visited 24 times for SMP data collection by Braun Intertec, until June 23, 1995. The test section was then de-installed.

Beginning October 18, 1996, the site was visited 13 times for SMP data collection by ERES Consultants. As of September 19, 1997, Saskatchewan Department of Highways has assumed SMP data collection from the site, until September 1998, after which ERES Consultants will monitor the site for another year. The dates of these visits and the activities performed can be found in the SMP data collection summary table in appendix A. This section is planned to be monitored every other year for the remainder of the LTPP study or until it is removed from the study.

The report presents a description of the following activities: SMP data collection activities, including evaluation of instrument and equipment performance prior to suspension of monitoring, and schedule for resumption of monitoring.

2.0 SMP DATA COLLECTION

2.1 SMP Data Collection and Upload

On ERES Consultants' last site visit of September 16, 1997, the full suite of SMP monitoring measurements in the *LTPP Seasonal Monitoring Program Instrument Installation and Data Collection Guidelines* (2) was performed. These include the following:

- FWD and associated measurements.
- Elevation survey.
- Manual distress survey with transverse profile measurements.

- Manual electrical resistivity measurements (two- and four-point).
- Automated mobile data measurements (Time Domain Reflectometry [TDR] and resistivity).
- Water table measurements.

A summary of all the SMP data collected to date can be found in the SMP data collection summary table in appendix A. The specific type and amount of data collected can be found on the SMP field activity report (data sheet SMP-D10) in appendix B. Six other SMP data sheets pertaining to the data collection activities are also in appendix B. The locations for FWD and elevation measurements can be found in the site information sheet (SIS) in appendix C.

As can be seen in the SMP data collection summary table in appendix A, longitudinal profile measurements were recorded. All the data collected to date have been processed and uploaded into the RIMS.

2.2 Instrument and Equipment Problems

All the sensors in the test section (TDR, rain gauge, and Measurement Research Corporation [MRC]) were evaluated by reviewing the data from the onsite and mobile dataloggers using the SMPCheck 2.5c program (3). A review of the data collected during this visit indicated that all sensors were functioning as expected, with the following exceptions: MRC #1, 2 & 3 failed in July, 1996. All TDR traces all have the maximum and minimum points on the traces that enable analysis.

3.0 INSTRUMENT DE-INSTALLATION ACTIVITIES

3.1 Suspension Preparation and Repairs to Instrumentation Hole

All instrumentation remains installed at this site. The instrument block is in excellent condition, and the temperature profile holes in the pavement have been filled with silicone sealant.

3.2 Unique Site Features

This test section is the 5th SMP installation in the LTPP North Central Region, In the course of monitoring this site, a solar panel was installed on top of the cabinets to prolong the life of the battery onsite. The solar panel was found to be an effective and significant addition to the SMP onsite data collection equipment that ensured efficient storage and collection of the SMP data stored onsite.

4.0 INSTRUMENT REINSTALLATION

All instrumentation remains installed at this site. Resumption of SMP monitoring by ERES Consultants scheduled for September, 1998.

5.0 SUMMARY

This report contains information on data collection activities for the LTPP GPS section 906405, conducted on September 19, 1997. The report presents a description of the SMP data collection activities, including an evaluation of the SMP sensors and equipment. No problems were noted from the data recorded from August 21, 1997, through September 19, 1997, however, MRC #1, 2 & 3 failed in July, 1996. All the TDR traces have the required maximum and minimum points that enable analysis of the TDR data.

Resumption of monitoring at this site by ERES Consultants is scheduled for September, 1998.

LIST OF REFERENCES

1. *LTPP Seasonal Monitoring Program Site Installation Report for GPS Section 906405 (90A) Plunkett, Saskatchewan,* Federal Highway Administration, LTPP Division, HNR-40, Turner-Fairbanks Highway Research Center, McLean, Virginia. January 1996.
2. *LTPP Seasonal Monitoring Program: Instrumentation Installation and Data Collection Guideline.* FHWA-RD-94-110, Federal Highway Administration, LTPP Division, HNR-40, Turner-Fairbanks Highway Research Center, McLean, Virginia. April 1994.
3. SMPCheck, computer software version 2.5c, prepared for the Federal Highway Administration, Pavement Performance Division, HNR-30, McLean, Virginia. July 1997.
4. Lopez, Aramis, Jr. *Long Term Pavement Performance Directive for the Seasonal Monitoring Program: Directive Number SM-8, Suspension of SMP Site Monitoring Activities.* Federal Highway Administration, LTPP Division, HNR-40, Turner-Fairbanks Highway Research Center, McLean, Virginia. March 1995.

Appendix A - SMP Data Collection Summary Table

90SA - 906405, PTH-16 EB LANE, 5 MILES EAST OF PLUNKETT, SK

		ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress		Profile		Comments
Date dd/mmm/yy		Pvmt. Temp.	Air Temp.	Rain	TDR	Frost Volts	Backup TDR	Backup TDR	Frost 2-Pt.	Frost 4-Pt.	Water Table	Pvmt. Elev.	Joint Open.	Joint Fault	Man. Temp.	OWP	ML	PE	M	P	P	D	
11-Jun-93																				X			
12-Jun-93																					X		
16-Jun-93										P									X				
6-Oct-93	93A														X	1	1						INSTALLATION. MANUAL TDR DATA.
7-Oct-93	93B	P	P	P	P	P					P	P			X	3	3						NO RESISTIVITY SWITCH BOX.
10-Nov-93	93C	P	P	P	P	P			P	P	P	P			X	3	3						PANEL.
18-Nov-93																					X		
10-Dec-93	93D	P	P	P							P				X	2	2						RESISTIVITY SWITCH BOX.
14-Jan-94	94A	P	P	P	P	P					P	P			X	1	1						RESISTIVITY SWITCH BOX.
11-Feb-94	94B	P	P	P	P	P			P	P	P	P			X	2	2		X				
19-Feb-94																					X		
11-Mar-94	94C	P	P	P	P	P			P	P	P	P			X	3	3						
25-Mar-94	94D	P	P	P	P	P			P	P	P	P			X	3	3						
8-Apr-94	94E	P	P	P	P	P			P	P	P	P			X	3	3						
17-Apr-94																					X		PROFILE DATA NOT RECEIVED BY RCO.
28-Apr-94	94F	P	P	P	P	P			P	P	P	P			X	3	3						
12-May-94	94G	P	P	P	P	P			P	P	P				X	3	3						
16-Jun-94	94H	P	P	P	P	P			P	P	P	P			X	2	2						
19-Jul-94																					X		
21-Jul-94	94I	P	P	P	P	P			P	P	P				X	3	3						
16-Aug-94	94J	P	P	P	P	P			P	P	P	P			X	3	3		X				
22-Sep-94	94K	P	P	P	P	P			P	P	P	P			X	3	3						
20-Oct-94	94L	P	P	P	P	P			P	P	P	P			X	4	4						
11-Nov-94																					X		
17-Nov-94	94M	P	P	P	P	P			P	P	P				X	1	1						
16-Dec-94	94N	P	P	P	P	P			P	P	P	P			X	3	3						
22-Jan-95																							PROFILE DATA NOT RECEIVED BY RCO.
23-Jan-95	95A	P	P	P	P	P			P	P	P				X	1	1				S		
16-Feb-95	95B				P	P			P	P	P	P				0	0						DOA..
13-Mar-95	95C	P	P	P	P	P			P	P	P				X	3	3						
27-Mar-95	95D	P	P	P	P	P			P	P						0	0						WEATHER CONDITIONS. LIMITED TESTING.
10-Apr-95	95E	P	P	P	P	P			P	P	P	P			X	2	2						
24-Apr-95	95F	P	P	P	P	P			P	P	P					0	0						
26-Apr-95																					S		
18-May-95	95G	P	P	P	P	P			P	P	P	P			X	3	3						
23-Jun-95	95H	P	P	P	P	P			P	P	P	P			X	3	3						REMOVED.
24-Jun-95																					S		

Notes
P Denotes data collected and processed by Braun Intertec Corp
P Denotes data collected and processed by ERES Consultants, Inc

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X Denotes data collected by Braun Intertec Corp.
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Denotes data collected by Braun Intertec Corp. and processed by ERES Consultants, Inc.
M Denotes data collected by MB-DOT and processed by ERES Consultants, Inc.
S Denotes data collected and processed by SME

90SA - 906405, PTH-16 EB LANE, 5 MILES EAST OF PLUNKETT, SK

		ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress		Profile		Comments
Date dd/mmm/yy		Pvmt. Temp.	Air Temp.	Rain	TDR	Frost Volts	Backup TDR	Backup TDR	Frost 2-Pt.	Frost 4-Pt.	Water Table	Pvmt. Elev.	Joint Open.	Joint Fault	Man. Temp.	OWP	ML	PE	M	P	P	D	
18-Oct-96	96A	P	P	P	P	P			P	P	P	P			P	3	3						
15-Nov-96	96B	P	P	P												0	0						
12-Dec-96	96C	P	P	P	P	P										0	0						
16-Jan-97	97A	P	P	P																			
16-Jan-97																					X		
10-Feb-97	97B	P	P	P	P	P			P	P													No TDR 1-4 traces
27-Mar-97	97C	P	P	P		P			P	P	P					4	4						THERMOCOUPLE FAILED , BAD MULTIPLEXER
18-Apr-97	97D	P	P	P	P	P			P	P	P	P			X	3	3						
28-Apr-97																					X		
2-May-97	97E	P	P	P	P	P			P	P	P	P			X	2	2						
3-Jun-97	97G	P	P	P	P	P			P	P	P	P			X	4	4						
16-Jun-97	97H	P	P	P	P	P			P	P	P												Raining
14-Jul-97	97 I				P	P			P	P	P				X	3	3						
21-Aug-97	97J				P	P			P	P	P				X	4	4						
15-Sep-97																					X		
19-Sep-97	97K	P	P	P	P	P			P	P	P	P			X	3	3		X				

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Appendix B - SMP Data Sheets

- SMP-D10: SMP Field Activity Report
- SMP-D03: Contact Resistance Measurements
- SMP-D04: Four-Point Resistivity Measurements
- SMP-D05: Ground Water Table Measurement
- SMP-D09: Elevation Measurements - AC
- SMP-M1: Distress Survey of Instrument Area

LTPP Seasonal Monitoring Program Data Sheet SMP-D10 SMP Field Activity Report	Agency Code [9 0] LTPP Section ID [6 4 0 5]

Onsite Datalogger and Instrumentation		
File Name - *.ONS	905497KI	Comments:
Battery Replace	Yes - (No)	Voltages 12.8
Repairs/Calib.	MRC 1,2,3 out	
Other: _____		

Mobile Datalogger		
File Name - *.MOB		Comments:
TDR/Resistance Voltages	Sets (0 2)	
Other: _____		

Manual Data Collection		
Piezometer	(Yes) - No	Comments:
Resistance 2 pt.	Sets (0 1)	
Resistivity 4 pt.	Sets (0 1)	
Elevations	Sets (__ __)	
Distress Survey	(Yes) - No	
Long. Dipstick Profile	Yes - (No)	
Photos or Video	Yes - (No)	
Other: _____		

FWD and Associated Data		
FWD Testing	Sets (0 3)	Operator: DSP
JCP - Snap Rings	Sets (__ __)	AC
JCP - Faulting	Sets (__ __)	AC
Other: _____		

IF REQUIRED, ATTACH SKETCHES TO THIS DATA SHEET

Comments: Leaking hyd fluid from FWD.

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 19/SEP/97 Daylight Savings Time (Y or N): Y

LTPP Seasonal Monitoring Program Data Sheet SMP-D04 Four-Point Resistivity Measurements	Agency Code [90] LTPP Section ID [6405]

Start Time (military): 1035

Test Position	Switch Settings				Voltage (ACV)		Current (ACA)		Comments
	I1	V1	V2	I2	Range Setting	Reading (Volts)	Range Setting	Reading (Amps)	
1	1	2	3	4	m.l	4.3	m.c	0.7	
2	2	3	4	5		3.3		0.5	
3	3	4	5	6		3.0		0.5	
4	4	5	6	7		1.9		0.4	
5	5	6	7	8		2.0		0.3	
6	6	7	8	9		2.4		0.2	
7	7	8	9	10		2.3		0.5	
8	8	9	10	11		0.2		0.4	
9	9	10	11	12		0.9		0.6	
10	10	11	12	13		1.2		0.6	
11	11	12	13	14		0.7		1.4	
12	12	13	14	15		1.0		1.3	
13	13	14	15	16		0.6		1.5	
14	14	15	16	17		1.4		1.3	
15	15	16	17	18		1.2		0.4	
16	16	17	18	19		1.6		0.8	
17	17	18	19	20		1.0		1.8	
18	18	19	20	21		0.4		1.2	
19	19	20	21	22		0.6		1.2	
20	20	21	22	23		0.1		1.5	
21	21	22	23	24		0.1		1.3	
22	22	23	24	25		0.2		1.4	
23	23	24	25	26		0.2		1.7	
24	24	25	26	27		0.2		1.9	
25	25	26	27	28		0.1		2.1	
26	26	27	28	29		0.1		2.3	
27	27	28	29	30		0.1		2.1	
28	28	29	30	31		0.1		2.3	
29	29	30	31	32		0.1		2.2	
30	30	31	32	33		0.2		1.9	
31	31	32	33	34		0.1		1.3	
32	32	33	34	35		0.1		2.1	
33	33	34	35	36		0.1		2.5	
36	36	36	37	37		0.1		2.4	R1 =
37	37	37	38	38		0.3		2.3	R2 =
38	38	38	39	39		1.3		1.2	R3 =
39	39	39	00	00		2.6		0.0	R4 =

Note: R = V/I, in ohms; measured resistances should be compared with known values.

Comments: _____

Prepared by: GEE Employer: ERES/NCR

Date (dd/mmm/yy): 19/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D05 Ground Water Table Measurement	Agency Code [90] LTPP Section ID [6405]

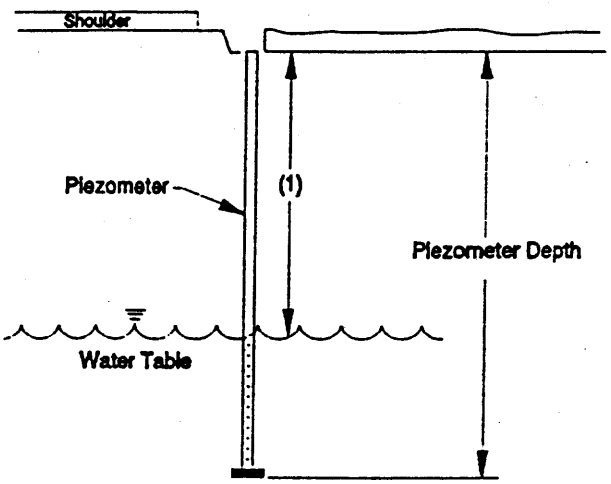
Piezometer Depth (m): 4.250

Measurement Number	Time (military)	Depth to Water[1,2] (m)	Comments
1	1015	2.53	
2	____	__.__	

[1] Distance from top of piezometer pipe to top of ground water table; to an accuracy of ±10 mm (0.4 in)

[2] If piezometer pipe is dry or frozen, enter "time" when observation was made, leave "depth to water" field blank, and enter "pipe is dry" or "pipe is frozen" under comments column.

4.125
1.72
2.53



Comments: _____

_____

_____

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 19/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D08 Elevation Measurements - AC	Agency Code [90] LTPP Section ID [6405]

Type of Instrument: NA 2000

Start Time (military): 1400

BM	Station	BS	HI	IFS	FS	ELEV	CLOSE
Piez.	5+45	1.5880		1.5880			1.5881
Other							

Station	Offset (PE): 0.16 m	Offset (OWP): 0.76 m	Offset (ML): 1.83 m	Offset (IWP): 2.90 m	Offset (ILE): 3.51 m	Comments
3+00	1.2298	1.2250	1.2045	1.1930	1.1880	
3+25	1.2445	1.2371	1.2167	1.2111	1.2024	
3+50	1.2521	1.2371	1.2278	1.2278	1.2122	
3+75	1.2511	1.2493	1.2275	1.2253	1.2135	
4+00	1.2524	1.2463	1.2251	1.2220	1.2114	
4+25	1.2623	1.2561	1.2346	1.2326	1.2230	
4+50	1.2786	1.2703	1.2491	1.2446	1.2356	
4+75	1.3035	1.2942	1.2708	1.2647	1.2527	
5+00	1.3306	1.3225	1.2969	1.2909	1.2850	
5+10	1.3426	1.3336	1.3078	1.3049	1.2900	
5+15	1.3518	1.3409	1.3141	1.3082	1.3023	
5+20	1.3535	1.3442	1.3198	1.3135	1.3049	
5+25	1.3588	1.3502	1.3267	1.3209	1.3119	

Comments: _____

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 19/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D03 Contact Resistance Measurements	Agency Code [90] LTPP Section ID [6405]

Start Time (military): 1020

Test Position	Switch Settings		Voltage (ACV)		Current (ACA)		Comments
	I1 V1	I2 V2	Range Setting	Reading	Range Setting	Reading	
1	1	2	mil	83.7	mic	3.7	
2	2	3		92.1		2.5	
3	3	4		98.9		1.5	
4	4	5		108.4		1.0	
5	5	6		110.5		0.4	
6	6	7		112.2		0.9	
7	7	8		113.8		0.7	
8	8	9		1.6		0.2	
9	9	10		122.0		0.5	
10	10	11		111.5		0.5	
11	11	12		115.8		0.7	
12	12	13		106.5		0.7	
13	13	14		109.3		1.5	
14	14	15		75.4		1.9	
15	15	16		78.8		2.0	
16	16	17		69.1		1.8	
17	17	18		82.6		0.4	
18	18	19		118.0		0.8	
19	19	20		100.9		1.9	
20	20	21		59.8		1.8	
21	21	22		70.1		1.7	
22	22	23		64.3		2.2	
23	23	24		2.8		1.3	
24	24	25		75.5		2.2	
25	25	26		73.8		2.7	
26	26	27		65.1		2.6	
27	27	28		63.9		2.6	
28	28	29		58.2		2.7	
29	29	30		48.4		2.6	
30	30	31		55.0		2.8	
31	31	32		50.4		2.8	
32	32	33		57.1		2.8	
33	33	34		65.1		1.9	
34	34	35		88.2		2.6	
35	35	36		57.8		4.0	
36	36	37		0.1		63.1	R1 =
37	37	38		5.8		56.3	R2 =
38	38	39		32.4		32.2	R3 =
39	39	00		96.9		0.1	R4 =

Note: R = V/I, in ohms; measured resistances should be compared with known values.

Comments: _____

Prepared by: GEE Employer: ERES/NCR

Date (dd/mmm/yy): 19/SEP/97

9 0 S A 9 7 K

LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page Distress Survey of Instrumentation Area	Agency Code [90] Test Section Number [6405]

Rate the condition of the instrumentation area (check one):

X Good (little or no distress; repairs are not required in the immediate future)

____ Poor (significant distress, repairs required now or in the immediate future)

List any repairs (type and extent) done since instrumentation installation and/or last survey of instrumentation area: None

Additional Comments: None

Prepared by: GFE Employer: ERES/NCR

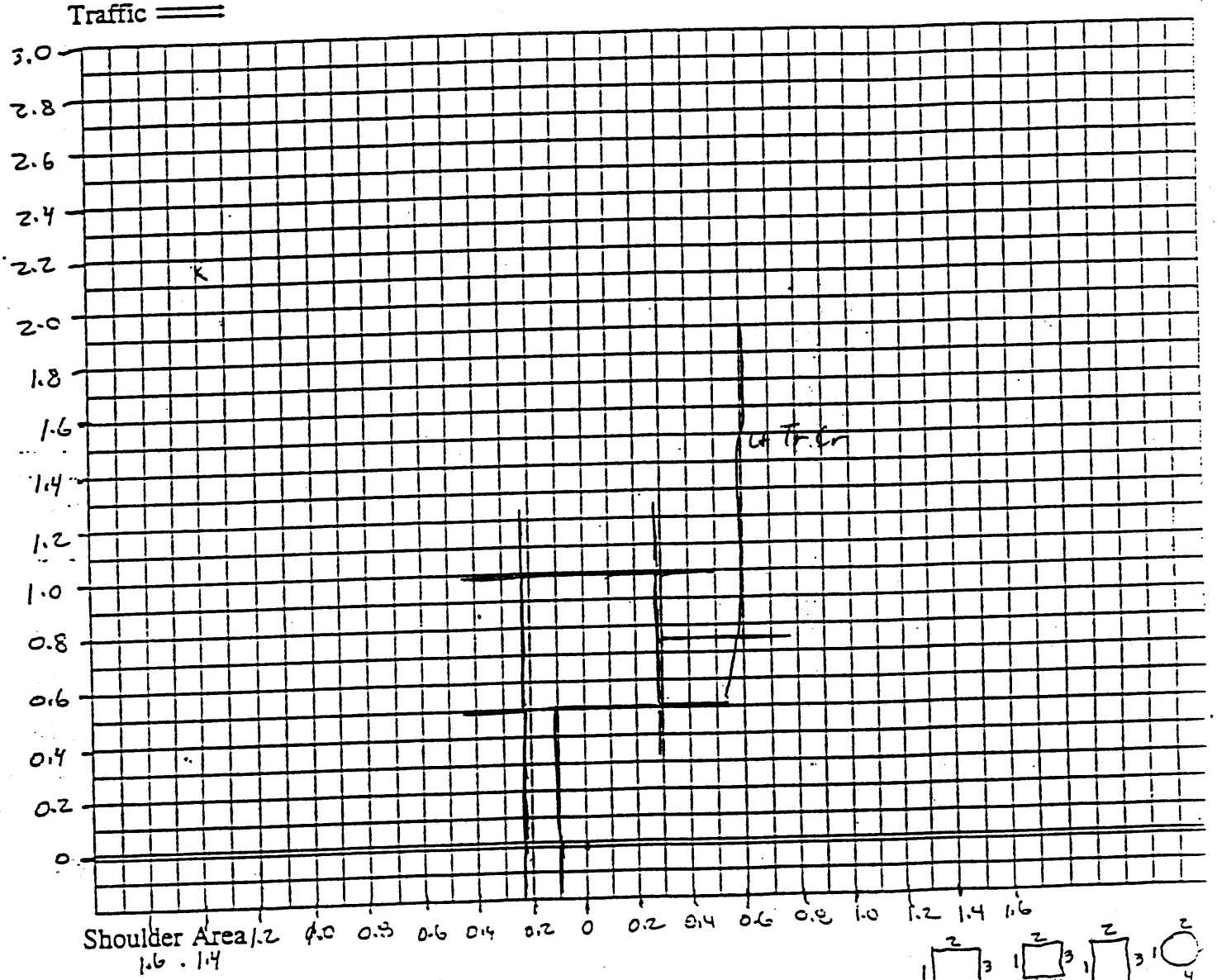
Date: 19 / Sep / 97

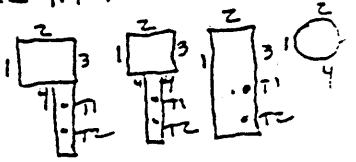
90 S A 9 7 K

LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page Distress Survey of Instrumentation Area	Agency Code [90] SHRP Section ID [6405] Survey Date [19/SEP/97]

Use grid below to sketch distresses within 1.5 m (5 ft) of instrumentation block/hole and trench. Use LTPP Distress Identification Manual to extent possible. (Note: each square in grid equals 0.1 m by 0.1 m area)

Traffic ⟹





Use table below to record settlement of pavement in instrumentation area.

Measurement Device: DIPSTICK / STRAIGHT EDGE

Location	Settlement, mm			
	Location 1	Location 2	Location 3	Location 4
Instrumentation block/hole	__.__	__.__	__.__	__.__
Trench	__.__	__.__	n/a	n/a

Appendix C- Site Information Sheet (SIS)

906405 - 90SA

LOCATION - PTH-16 EB Lane, 5 Miles East of Plunkett, SK
CONTACTS -Abdul Qayyum (306) 787-4808, Harve Kock (306) 787-4921
TEMP HOLES - Sta 5+03, Depths are about 0.8", 1.4", and 2.0" (AC thickness = 2.75")

DISTRESS COMMENTS:

Sta	F1 - Tests at 25 foot intervals from Sta 3+00 to Sta 5+00, and at Sta 5+15..
300	M-LONG.CR. ALONG ALL SENSORS AND L-TRANS.CR 1' BEHIND
325	L-TRANS.CR. 2' BEHIND LP
350	H-TRANS.CR. 1" BEHIND LP
375	M-TRANS.CR. UNDER LP
400	L-LONG.CR. 1' RT OF LP AND AL.CR. 2' LT OF LP
425	H-TRANS.CR. 30" BEHIND LP
450	H-TRANS.CR. UNDER D5
475	H-TRANS.CR. BETWEEN D6 AND D7
500	H-TRANS.CR 1' IN FRONT OF D7
515	LP ADJACENT TO INSTRUMENTATION HOLE

Sta	F3 - Tests at 25 foot intervals from Sta 3+00 to Sta 5+00, and at Sta 5+10, 5+20, and 5+25.
300	L-TRANS.CR. UNDER LP
325	L.TRANS.CR. 18" BEHIND LP
350	AL.CR. 1' BEHIND AND 2' AHEAD OF LP
375	M-AL.CR. ENTIRE BASIN
400	L-TRANS.CR. 1' BEHIND LP AND L-TRANS.CR. UNDER LP
425	H-TRANS.CR. 30" BEHIND LP AND PARTIAL TRANS.CR. BETWEEN D6 AND D7
450	H-TRANS.CR. UNDER D5
475	PARTIAL TRANS.CR UNDER LP ANDH-TRANS.CR. BETWEEN D6 AND D7 AND L-TRANS.CR. BETWEEN D5 AND D6
500	M-TRANS.CR. IN FRONT OF D7 AND PARTIAL L-TRANS.CR UNDER LP AND L-LONG.CR. ALL SENSORS
510	D7 ON INSTRUMENT HOLE AND PARTIAL L-TRANS.CR D4 AND D5
520	L-TRANS.CR. 1' BEHIND LP
525	M-TRANS.CR. BETWEEN D5 AND D6

PIEZOMETER - Sta 4+01, 1.0 feet from the edge of paved shoulder, Depth = 4.286M?.

FROST TUBE - Sta 5+45, on shoulder next to the driving lane.

ELEVATIONS - No DOT BM.

Offsets:	PE	OWP	ML	IWP	ILE
(M)	0.16	0.76	1.83	2.90	3.51
(ft)	.05	2.5	6.0	9.5	11.5
	(nail)	(hole)	(hole)	(hole)	(nail)

Sta: Transverse profiles every 25 feet from Sta 3+00 to Sta 5+00, and at Sta 5+10, 5+15, 5+20, and 5+25.

COMMENTS -- Call Harvey Kock at (306) 787-4921 to arrange Benkelman Beam tests.