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LTPP Seasonal Monitoring Program

Site Monitoring Suspension Status Draft Final Report for GPS Section 274040 (27D) Grand Rapids, Minnesota

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 274040 (27D)
Grand Rapids, Minnesota

FHWA CONTRACT No. DTFH61-96C-00013

Prepared by

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16. Abstract

This report contains information on suspension of data collection activities for the Long Term Pavement Performance (LTPP) General Pavement Study (GPS) section 274040 conducted on September 9 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.

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Table of Contents

LTPP Seasonal Monitoring Program
Site Monitoring Suspension Status
Draft Final Report for
GPS Section 274040 (27D)
Grand Rapids, Minnesota

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 274040 for a period of one year effective September 9, 1997. The test section, which is part of the Seasonal Monitoring Program (SMP) managed by the Federal Highway Administration (FHWA) LTPP Division, is approximately 15 kilometers west of Grand Rapids, Minnesota, on the westbound driving lanes of US Highway 2. 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 274040 (27D), Grand Rapids, Minnesota,* dated January 1996 (1).

This report contains information on data collection activities conducted on September 9, 1997. After the installation of instrumentation in the test section on September 21, 1993, the test section was visited 26 times for SMP data collection by Braun Intertec, until June 16, 1995. The test section was then visited 11 times

for onsite SMP data collection by MN-DOT. Beginning October 9, 1996, the site was visited 14 times for SMP data collection by ERES Consultants. As of September 9, 1997, MN-DOT 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 9, 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.
- Joint opening and joint faulting 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 failed on July 18, 1997, MRC

#2 failed on July 24, 1997, and TDR traces #3 and #8 are lacking maximum and minimum points. All other TDR sensors function as expected at this site.

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 and snap ring holes in the pavement have been filled with silicone sealant.

3.2 Unique Site Features

This test section is the 4th 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 274040, conducted on September 9, 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 13, 1997, through September 10, 1997; however, MRC #1 and #2 failed on July 18 and 24, 1997, respectively. All the TDR traces except for #3 and #8 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 274040 (27D) Grand Rapids, Minnesota,* 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

27SD-274040, US-2 WB LANES, 9 MILES WEST OF GRAND RAPIDS, MN (MP 173.1)

		ONSITE Data			MOBILE Data				Manual Data						FWD Data				Distress		Profile		
Date dd/mmm/yy	Visit ID	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	Comments
2-Jun-93																				X			
28-Jul-93																			X				
20-Aug-93																					X		
21-Sep-93	93A														X		1						ONLY J0 AND J1 FWD TESTS PERFORMED, INSTALLATION,
22-Sep-93	93B	P	P	P	P	P					P	P		P	X	3	3	3					HD RESISTIVITY SWITCH BOX, INSTALLED JOINT SNAP
18-Oct-93	93C	P	P	P	P	P					P		P		X	2	2	2					SEALED INSTRUMENTATION BLOCK, NO RESISTIVITY
4-Nov-93																					X		
16-Nov-93	93D	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					TWO ONSITE FILES, ADDED RELAY TO ONSITE PANEL.
16-Dec-93	93E	P	P	P	P	P					P		P	P	X	1	1	1					WEATHER LIMITED TESTING, BAD RESISTIVITY SWITCH
20-Jan-94	94A	P	P	P	P	P																	WEATHER CONDITIONS LIMITED TESTING, BAD
17-Feb-94	94B	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2	X				
21-Feb-94																					X		
17-Mar-94	94C	P	P	P	P	P					P		P		X	1	1	1					BAD RESISTIVITY DATA, BAD FAULTMETER DATA.
31-Mar-94	94D	P	P	P	P	P					P	P	P	P	X	2	2	2					PARTIAL RESISTIVITY DATA.
14-Apr-94	94E	P	P	P	P	P			P	P	P		P	P	X	2	2	2					
21-Apr-94																					X		
4-May-94	94F	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					
18-May-94	94G	P	P	P	P	P			P	P	P		P	P	X	1	1	1					FWD D1 READINGS BAD.
23-Jun-94	94H	P	P	P	P	P			P	P	P		P	P	X	1	1	1					
16-Jul-94																					X		
28-Jul-94	94I	P	P	P	P	P			P	P	P		P	P	X	2	2	2					
25-Aug-94	94J	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					REPLACED INSTR. BLOCK (SEE PHOTOS), MISSING SOME
30-Sep-94	94K	P	P	P	P	P			P	P	P		P	P	X	2	2	2					SEALED NEW INSTRUMENTATION BLOCK.
13-Oct-94	94L	P	P	P	P	P			P	P	P		P	P	X	2	2	2					FAULTMETER PROBLEMS, PIEZ. NOT COVERED PRIOR TO
9-Nov-94																					X		
10-Nov-94	94M	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					
17-Nov-94																					X		PROFILE DATA NOT RECEIVED BY RCO.
8-Dec-94	94N	P	P	P	P	P			P	P													WEATHER CONDITIONS LIMITED TESTING.
12-Jan-95	95A	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					TWO ONSITE FILES, ADDED RELAY TO PANEL.
20-Jan-95																							
9-Feb-95	95B	P	P	P	P	P			P	P	P												PROFILE DATA NOT RECEIVED BY RCO.
17-Mar-95	95C	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					WEATHER CONDITIONS LIMITED TESTING, PROBLEM WITH
31-May-95	95D	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2	X				
14-Apr-95	95E	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					
22-Apr-95																					S		
28-Apr-95	95F	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					
11-May-95	95G	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
16-Jun-95	95H	P	P	P	P	P			P	P	P	P	P	P	X	2	2	2					
27-Jun-95																					S		

Notes

- P — Denotes data collected and processed by Braun Intertec Corp
- P — Denotes data collected and processed by ERES Consultants, Inc
- X — Denotes data collected by Braun Intertec Corp.
- X — Denotes data collected by ERES Consultants, Inc.
- X — Denotes data collected by Braun Intertec Corp. and processed by ERES Consultants, Inc.
- S — Denotes data collected and processed by SME

27SD-274040, US-2 WB LANES, 9 MILES WEST OF GRAND RAPIDS, MN (MP 173.1)

		ONSITE Data			MOBILE Data				Manual Data						FWD Data				Distress		Profile		
Date dd/mmm/yy	Visit ID	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	Comments
11-Nov-95	95I	M	M	M																			
22-Dec-95	95J	M	M	M																			
15-Jan-96	96A	M	M	M																			
3-Mar-96	96B	M	M	M																			
15-May-96	96C	M	M	M																			
29-May-96	96D	M	M	M																			
11-Jun-96	96E	M	M	M																			
11-Jun-96	96F	M	M	M																			
1-Jul-96	96G	M	M	M																			
2-Jul-96	96H	M	M	M																			
17-Aug-96	96I	M	M	M																			
9-Oct-96	96J	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
7-Nov-96	96K	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
3-Dec-96	96L				P	P			P	P						0	0	0					
7-Jan-97	97A	P	P	P																			
5-Feb-97	97B	P	P	P	P	P			P	P				P		1	1	1					No TDR 1-4, couldn't find piezo, ice in snap rings
18-Mar-97	97C	P	P	P		P			P	P			P	P		3	3	3					Couldn't find piezo., bad multiplexer
8-Apr-97	97D	P	P	P	P	P			P	P		P		P		1	1	1					CR10 inactive; reprogrammed.
20-Apr-97																					X		
22-Apr-97	97E	P	P	P	P	P			P	P		P	P	P	X	3	3	3					
6-May-97	97F	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
28-May-97	97G	P	P	P	P	P			P	P	P		P	P	X	2	2	2					
10-Jun-97	97H	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
11-Jul-97	97 I				P	P																	No traffic control, onsite cr10 not working
13-Aug-97	97J	P	P	P	P	P			P	P	P	P	P	P	X	3	3	3					
9-Sep-97	97K	P	P	P	P	P			P	P	P	P			X	2	2	2	X				

Notes

P Denotes data collected and processed by Braun Intertec Corp

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X Denotes data collected by Braun Intertec Corp.

X Denotes data collected by ERES Consultants, Inc.

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

M Denotes data collected by MN-DOT.

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 [27] LTPP Section ID [4040]

Onsite Datalogger and Instrumentation		
File Name - *.ONS	275D97KI	Comments:
Battery Replace	Yes - (No)	Voltages 12.1
Repairs/Calib.	MRC #1+2 out.	
Other: _____		

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

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

FWD and Associated Data		
FWD Testing	Sets (0 2)	Operator: DSP
JCP - Snap Rings	Sets (__)	No bolts for caliper
JCP - Faulting	Sets (__)	Faultmeter inop.
Other: _____		

IF REQUIRED, ATTACH SKETCHES TO THIS DATA SHEET

Comments: Traffic Control pulled up early - 2:00

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 09 / SEP / 97 Daylight Savings Time (Y or N): Y

LTPP Seasonal Monitoring Program Data Sheet SMP-D03 Contact Resistance Measurements	Agency Code [27] LTPP Section ID [4049]

Start Time (military): 0910

Test Position	Switch Settings		Voltage (ACV)		Current (ACA)		Comments
	I1 V1	I2 V2	Range Setting	Reading	Range Setting	Reading	
1	1	2	mil	~~1.5~~ 167.6	mic	17.4	
2	2	3		~~1.2~~ 127.1		11.7	
3	3	4		58.6		11.2	
4	4	5		41.4		7.9	
5	5	6		~~44.5~~ (48.7)		8.0	
6	6	7		48.6		7.9	
7	7	8		47.5		8.2	
8	8	9		0.2		1.1	
9	9	10		43.9		7.6	
10	10	11		47.5		7.2	
11	11	12		40.4		7.5	
12	12	13		38.5		7.3	
13	13	14		38.3		6.9	
14	14	15		39.6		7.0	
15	15	16		36.8		6.3	
16	16	17		38.3		6.8	
17	17	18		33.8		6.3	
18	18	19		43.0		6.2	
19	19	20		43.5		6.7	
20	20	21		40.6		6.4	
21	21	22		38.9		6.1	
22	22	23		42.0		6.1	
23	23	24		7.7		1.5	
24	24	25		28.7		6.6	
25	25	26		34.7		6.6	
26	26	27		30.6		6.4	
27	27	28		28.1		6.7	
28	28	29		28.1		6.8	
29	29	30		35.7		7.0	
30	30	31		34.9		7.3	
31	31	32		35.7		7.5	
32	32	33		34.0		7.7	
33	33	34		36.3		6.6	
34	34	35		71.4		5.9	
35	35	36		55.1		6.3	
36	36	37		0.1		64.5	R1 =
37	37	38		6.0		56.5	R2 =
38	38	39		46.1		45.8	R3 =
39	39	00		217.3		0.2	R4 =

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

Comments: _____

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 09/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D04 Four-Point Resistivity Measurements	Agency Code [27] LTPP Section ID [4040]

Start Time (military): 1025

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	14.8	mic	2.2	
2	2	3	4	5		6.1		2.2	
3	3	4	5	6		4.3		3.1	
4	4	5	6	7		2.8		2.9	
5	5	6	7	8		2.9		2.6	
6	6	7	8	9		2.8		2.5	
7	7	8	9	10		3.0		2.4	
8	8	9	10	11		1.1		1.3	
9	9	10	11	12		3.1		2.1	
10	10	11	12	13		2.8		2.0	
11	11	12	13	14		2.9		2.9	
12	12	13	14	15		2.8		2.1	
13	13	14	15	16		2.6		2.0	
14	14	15	16	17		2.7		2.0	
15	15	16	17	18		2.3		1.9	
16	16	17	18	19		2.5		1.8	
17	17	18	19	20		2.4		1.9	
18	18	19	20	21		2.4		1.8	
19	19	20	21	22		2.6		1.9	
20	20	21	22	23		2.4		2.0	
21	21	22	23	24		2.4		2.1	
22	22	23	24	25		2.1		2.2	
23	23	24	25	26		0.6		1.4	
24	24	25	26	27		2.2		2.5	
25	25	26	27	28		2.2		2.4	
26	26	27	28	29		2.2		2.3	
27	27	28	29	30		2.2		2.5	
28	28	29	30	31		2.2		2.7	
29	29	30	31	32		2.3		2.6	
30	30	31	32	33		2.4		2.7	
31	31	32	33	34		2.4		2.4	
32	32	33	34	35		2.6		2.6	
33	33	34	35	36		2.6		2.7	
36	36	36	37	37		0.1		63.3	R1 =
37	37	37	38	38		5.9		55.3	R2 =
38	38	38	39	39		45.1		44.9	R3 =
39	39	39	00	00		212.8		0.2	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): 09/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D05 Ground Water Table Measurement	Agency Code [27] LTPP Section ID [4040]

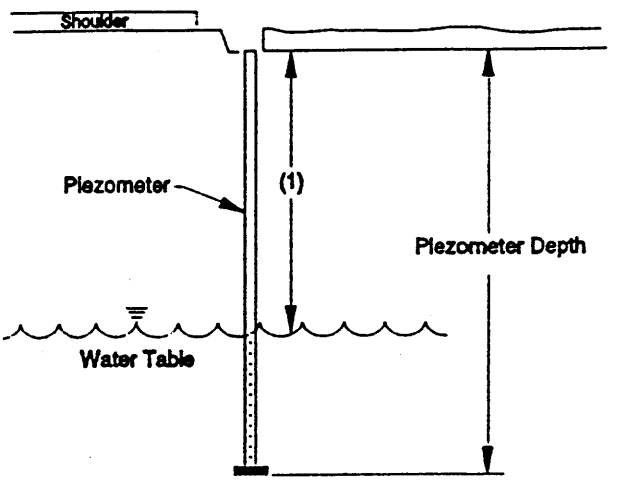
Piezometer Depth (m): 4.260

Measurement Number	Time (military)	Depth to Water[1,2] (m)	Comments
1	0905	1.55	
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.

3
4.126
2.71
1.55



Comments: _____

_____

_____

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 09/SEP/97

LTPP Seasonal Monitoring Program Data Sheet SMP-D09 Elevation Measurements - PCC	Agency Code [27] LTPP Section ID [4040]

Type of Instrument: NA 2000

Start Time (military): 1215

BM	Station	BS	HI	IFS	FS	ELEV	CLOSE
Piez.	4+50	1.5716		1.5716			1.5718
Other	5+16	2.2272					2.2274

	Station	Offset (PE): 0.30 m	Offset (ML): 1.83 m	Offset (ILE): 3.35 m	Comments
1.3	3+85	1.0810	1.0560	1.0362	AJ
1.6	3+99	1.0926	1.0646	1.0481	MP
5.6	4+12	1.1087	1.0827	1.0655	BJ
5.7	4+12	1.1800	1.0833	1.0664	AJ
9.8	4+26	1.1208	1.0960	1.0806	MP
4.1	4+40	1.1409	1.1154	1.0972	BJ
4.2	4+40	1.1497	1.1214	1.1013	AJ
8.1	4+53	1.1619	1.1298	1.1101	MP
2.0	4+66	1.1817	1.1514	1.1326	DJ
2.1	4+66	1.1826	1.1526	1.1336	AJ
6.3	4+80	1.1991	1.1672	1.1452	MP
0.6	4+94	1.2151	1.1819	1.1603	DJ
0.7	4+94	1.2165	1.1827	1.1609	AJ
4.5	5+07	1.2205	1.1891	1.1683	MP
8.8	5+21	1.2335	1.2048	1.1853	DJ

Comments: _____

Prepared by: GFE Employer: ERES/NCR

Date (dd/mmm/yy): 09/SEP/97

2 7 S D 9 7 K

LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page Distress Survey of Instrumentation Area	Agency Code [27] Test Section Number [4 0 4 0]

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: _____

Additional Comments: _____

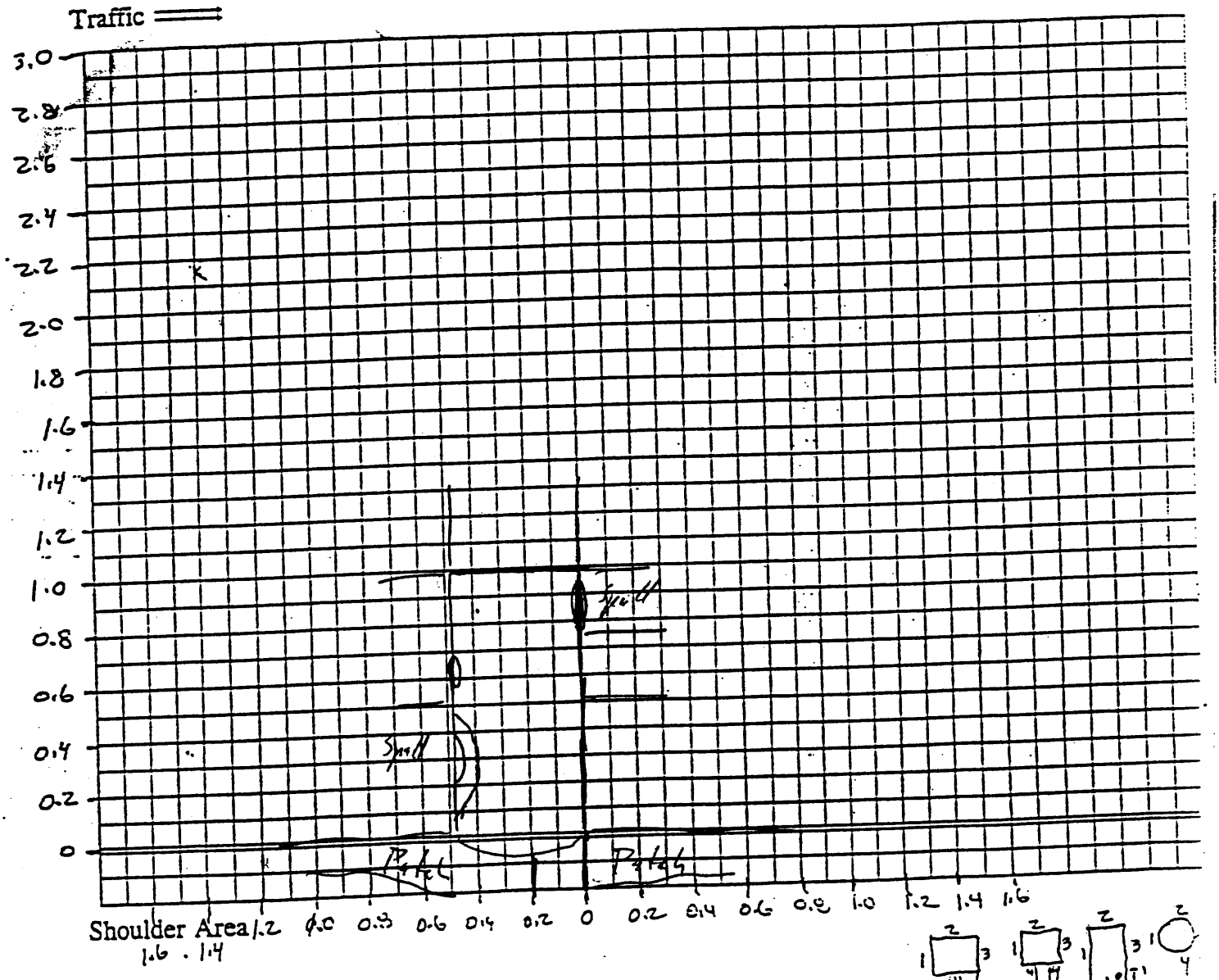
Prepared by: GFE Employer: ERES/NCR

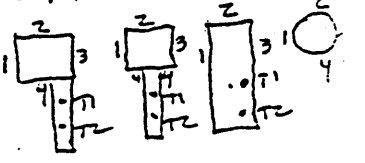
Date: 9/Sep/97

27 S D 9 7 K

LTPP Seasonal Monitoring Program Data Sheet SMP-M1 (Page Distress Survey of Instrumentation Area	Agency Code [27] SHRP Section ID [4049] Survey Date [09/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)





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)

274040 - 27SD

LOCATION - US-2 WB Lanes, 9 Miles West of Grand Rapids, MN (MP 173.1)
CONTACTS - Andy Istvanovich (218) 327-4493, Receptionist (218) 749-7793
TEMP HOLES - Sta 5+03, Depths about 1.0", 4.2", and 7.0" (PCC thickness = 8.0")

TEST LOCATIONS:	J1	J2	J3	J4	J5
	399	386	399	385	386
	426	413	426	412	413
	453	441	454	440	441
	480	467	481	466	467
	507	495	BLK	494	495
	--	--	--	521	522

DISTRESS COMMENTS:

Sta J1 - Midpanel tests.

507 D3 ADJACENT TO INSTRUMENTATION HOLE

Sta J2 and J3 - Corner and Mid-edge tests.
(none)

Sta J4 and J5 - Load transfer tests in the OWP.
(none)

PIEZOMETER - Sta 4+50, 2.0 feet from edge of paved shoulder, Depth = 4.265M

FROST TUBE - Sta 5+35, midlane.

ELEVATIONS - Mn/DOT BM 5+16, 16 feet from edge of paved shoulder.

Offsets:	PE	ML	ILE
(M)	0.30	1.83	3.35
(ft)	1.0	6.0	11.0
	(hole)	(hole)	(hole)

Sta:	--	BJ/AJ		385	412	440	466	494	521		
	--	at MP		399	426	453	480	507			
		Only **AJ** at **Sta. 3+85** and **BJ** at **Sta. 5+21.**									

FAULTMETER	Offsets:	OWP	ML	IWP
	(M)	0.76	1.83	2.90
	(ft)	2.5	6.0	9.5

Sta: 3+85, 4+12, 4+40, 4+66, 4+94, 5+21

COMMENTS -- Traffic control - Marty and Bob
-- Test J1 at Sta 5+07 (black cross). Do not test Sta 5+11.