U.S. Department
of Transportation
Federal Highway
Administration

LTPP Seasonal Monitoring Program

Site Monitoring Suspension
Status Report
Section 231026
East Dixfield, Maine

Report No. FHWA-TS-98-23-01

January 1998

SEASONAL MONITORING PROGRAM SUSPENSION STATUS REPORT MAINE SECTION 231026

I. INTRODUCTION

Seasonal monitoring equipment was initially installed at site 231026 on US Highway 2 in East Dixfield, Maine in September 1993 and was used to collect data continuously from November 10, 1993 to June 26, 1995 (Round 1) and from October 15, 1996 to October 21, 1997 (Round 2). On October 21, 1997, Round 2 site suspension activities were completed according to LTPP Directive SM-8 "Suspension of SMP Site Monitoring Activities". See Table 1 for a summary of the Round 2 data collected. The site will remain out of operation until a decision relative to further testing is reached. It should be noted that the site was overlaid with 42mm of conventional mix asphalt concrete on September 27, 1996. The overlay averaged 67mm in the testing area.

This report entitled "SMP Site Monitoring Suspension Status Report" details the suspension preparation activities, site specific conditions, and provides information pertinent to seasonal site 231026.

II. SUSPENSION PREPARATION ACTIVITIES

The suspension preparation activities at site 231026 were conducted during the final site visit of Round 2 on October 21, 1997. The PK nails were reconfirmed. Replacement was not necessary. The site markings were refreshed. Three sets of FWD tests were completed. A Manual Distress Survey and Transverse Dipstick surveys were completed. One set of elevations and a distress survey of the instrumentation area were obtained. The instrumentation area is considered to be in good condition. The instrument hole is not visible because of the previously mentioned overlay. A 1.1m low severity crack parallel to the instrumentation trench was cleaned and sealed as necessary. Water table measurements and manual resistivity measurements (2 and 4 point) were performed in the morning and afternoon. The onsite datalogger was downloaded before being dismantled. Two sets of TDR traces and resistance voltages were extracted by the mobile datalogger.

The air temperature probe, tipping bucket, and the upper part of the support pole were dismantled. The lead wires from the air temperature probe and tipping bucket were removed from the cabinet and sprayed with an anti-corrosive compound. A galvanized wire was left in the underground conduit that runs between the support pole and equipment cabinet and will be used to pull the instrumentation wires back if data collection is re-initiated at this site. The bottom part of the support pole was cleaned and lubricated before installing the end cap.

The solar panel was disconnected. After all wires to the control panel were disconnected, the panel was detached from the equipment cabinet along with the CR10 datalogger, terminal strip and battery pack. The TDR cables, resistivity cable and MRC lead wires were sprayed with an anti-corrosive compound and sealed with desiccant packs in air tight bags. All cables/wires were hung up high inside the equipment cabinet. After the last piezometer reading was recorded, the pipe was cleaned and sealed with grease. The access cover and seat were cleaned and lubricated before being covered and brought up to grade with native soil.

The Profilometer survey corresponding to the close out was conducted on October 26, 1997.

All the necessary suspension activities were completed on October 21, 1997. The dismantled equipment was removed from the site. The suspended site contains all the underground instrumentation and equipment and an equipment cabinet with all the cables in it. The equipment cabinet was locked before leaving the site. The site was cleaned and left in a condition such that the instrumentation could be easily accessed when the need arises.

III. SPECIAL SITE CONDITIONS

The installation of site 231026 followed the "LTPP Seasonal Monitoring Program Installation and Data Collection Guidelines" closely. The presence of boulders and cobbles in the subgrade soil made backfill and compaction of the instrumentation hole difficult. This resulted in some material being left over when the instrumentation hole backfill was completed. There was some concern over possible settlement because of this excess material. Over the course of the Round 1 visits, there was no noticeable settlement. Due to the formation of ruts in the wheel paths, this site was overlaid on September 27, 1996. The nominal thickness of the asphalt concrete overlay was 42mm.

IV. SUPPLEMENTAL INFORMATION

Figure 1 shows the locations of the installed instrumentation at the site. The instrumentation hole is at Station 0-15 and the piezometer is at Station 1+00. Table 2 gives the elevations of the portion of test section 231026 that was used for elevation measurements. All offsets are from the PK nails found at the outside pavement edge.

At the time of suspension, TDR sensors #2, 4 and 9 were not functioning. TDR sensor #4 was not functioning at the beginning of Round 2 data collection activities in October 1996. Figure 2 shows the last set of mobile data collected before the site was suspended. Other than TDR sensors #2, 4 and 9, there were no unresolved problems with any of the sensors at the time of site suspension activities. The plots from ONSFIELD, MOBFIELD and SMPCHECK follow expected trends and produce expected values.

TABLE 1:
SUMMARY OF ROUND TWO NORTHERN LOOP SMP DATA COLLECTION TO DATE

Agency Code [2 3]
LTPP Section I.D. [1 0 2 6]
Location E. Dixfield, Maine

Test Date dd/mmm/yy	Visit Ident./ Code	ONSITE Data			MOBILE Data		Manual Data								FWD Data				Distress Data		Profile Data		
		Pav Temp.	Ambient Temp.	Rainfall	Moisture (TDR)	Frost Depth (Resist.)	Backup Pav. Temp.	Backup Moisture (TDR)	Frost Depth 2 - point	Frost Depth 4 - point	Water Table	Surface Elev.	Joint Open.	Joint Fault.	Surface Layer Temp.	No. of Cycles/Visit OWP	ML	PE	Manual	PASCO	Profiler	Dipstick	Comments
15-Oct-96	A	X	X	X	X	X			X	X	X	X			X	1	1		X			X	Re-commission
12-Nov-96	B	X	X	X	X	X					X				X	2	2				15-Nov-96		Solar Panel installed. New AC
10-Dec-96	C	X	X	X	X	X			X	X	X	X			X	3	3						Instrumentation hole is covered
21-Jan-97	A	X	X	X	X	X			X	X	X	X			X	3	3				15-Jan-97		
11-Feb-97	B	X	X	X	X	X			X	X	X	X			X	1	1				12-Feb-97		
11-Mar-97	C								X	X					X	4	4						no ONS/MOB data due to dual FWD mobilization
25-Mar-97	D	X	X	X	X	X					X				X	3	3				07-Apr-97		
08-Apr-97	E	X	X	X	X	X					X				X	3	3						
22-Apr-97	F	X	X	X	X	X			X	X	X	X			X	4	4						
13-May-97	G	X	X	X	X	X			X	X	X				X	1	1		X			X	
10-Jun-97	H	X	X	X	X	X					X				X	3	3						
15-Jul-97	I	X	X	X	X	X			X	X	X	X			X	3	3						
12-Aug-97	J	X	X	X	X	X					X				X	4	4				26-Aug-97		
18-Sep-97	K	X	X	X	X	X					X				X	3	3						
21-Oct-97	L	X	X	X	X	X			X	X	X	X			X	3	3		X		26-Oct-97	X	De-commission

Table 2. Surface Elevation Measurements

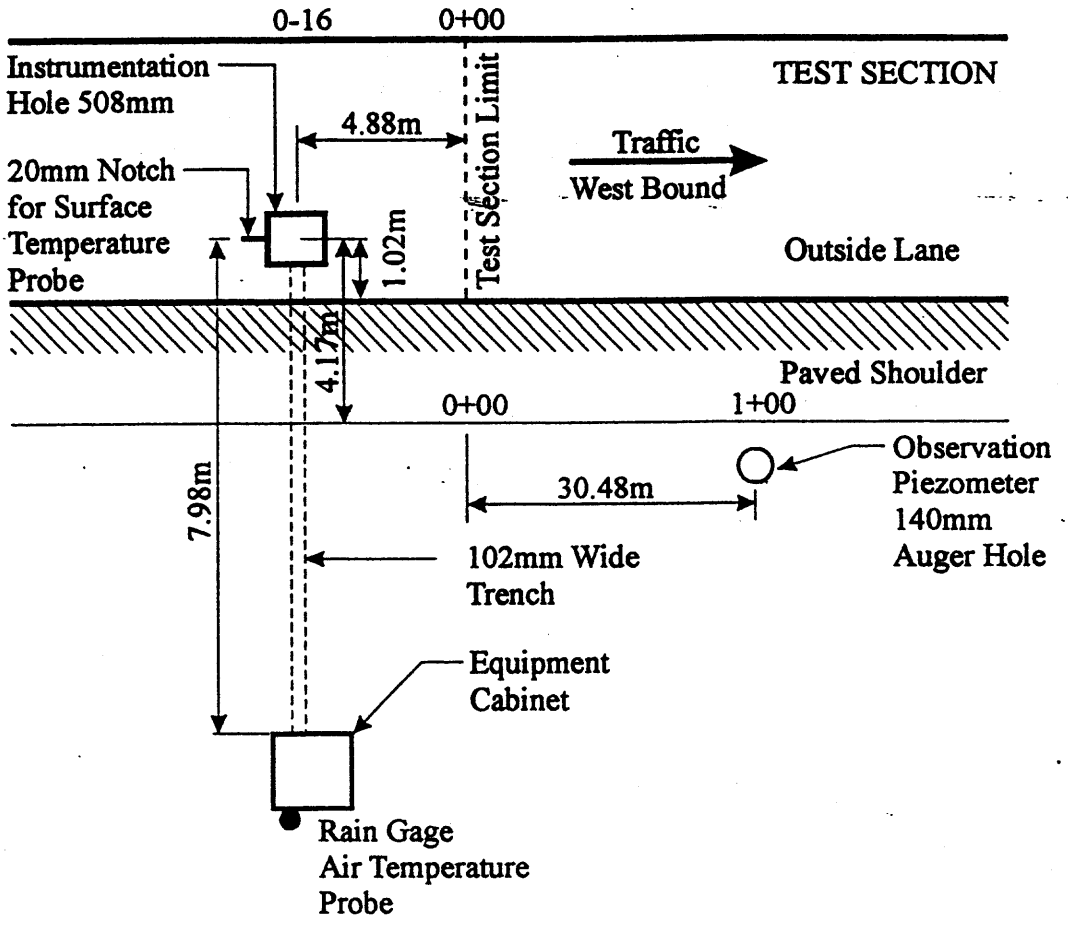
LTPP Seasonal Monitoring Study	State Code	[23]
Surface Elevation Measurements	Test Section Number	[1026]

Survey Date	October 21, 1997
Surveyed By	AL/DS
Surface Type	AC
Benchmark	Observation Piezometer - 1.000 meters - assumed

STATION	PE m offset 0.30m	OWP m offset 0.91m	ML m offset 1.83m	IWP m offset 2.74m	ILE m offset 3.35m
0-40	2.1975	2.2050	2.2325	2.2425	2.2525
0-30	2.1475	2.1550	2.1775	2.1875	2.1975
0-21	2.0975	2.1025	2.1225	2.1375	2.1475
0-15	2.0625	2.0675 [IH]	2.0875	2.1025	2.1150
0-09	2.0225	2.0350	2.0575	2.0725	2.0825
0+00	1.9750	1.9850	2.0075	2.0250	2.0325
0+25	1.8375	1.8425	1.8625	1.8800	1.8925
0+50	1.7025	1.7100	1.7275	1.7425	1.7525
0+75	1.5775	1.5875	1.6075	1.6225	1.6275
1+00	1.4650	1.4725	1.4925	1.5050	1.5125
1+25	1.3500	1.3575	1.3800	1.3925	1.4025
1+50	1.2425	1.2500	1.2700	1.2850	1.2950
1+75	1.1300	1.1400	1.1625	1.1775	1.1875
2+00	1.0250	1.0325	1.0525	1.0650	1.0750

PE	Pavement Edge
OWP	Outer Wheel Path
ML	Mid Lane
IWP	Inner Wheel Path
ILE	Inner Lane Edge

Note: Offsets are measured from the PK nails at the outside of the pavement stripe at the pavement edge.
[IH] Instrument Hole location.



- Height of Air Temperature Probe (center): 3.10m
- Height of Tipping Bucket Rain Gage (center): 3.02m
- Total Depth of Piezometer: 4.29m
- Distance of Piezometer Below Ground Level: 102mm

Figure 1. Location for Seasonal Monitoring Instrumentation Installed at GPS 231026

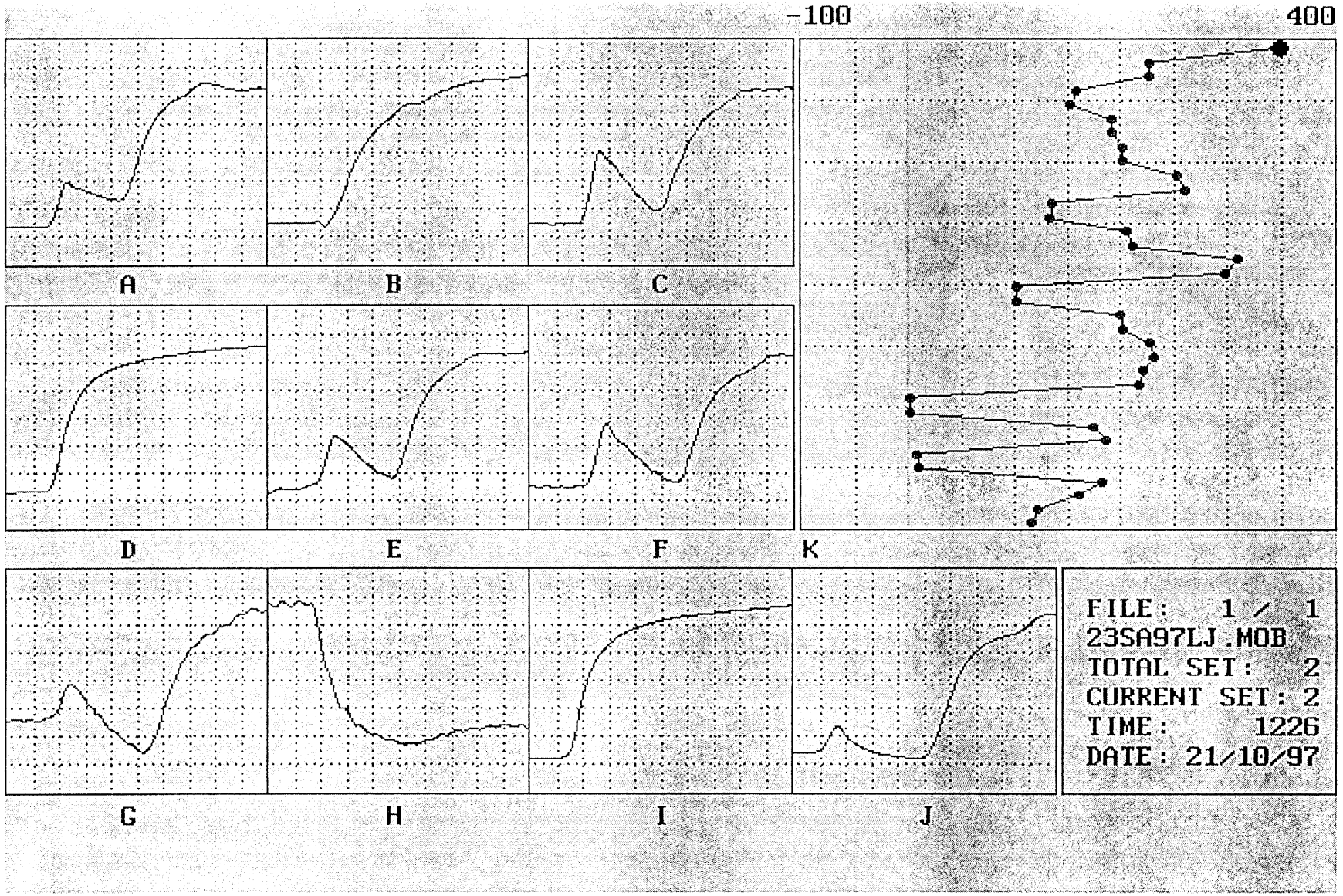
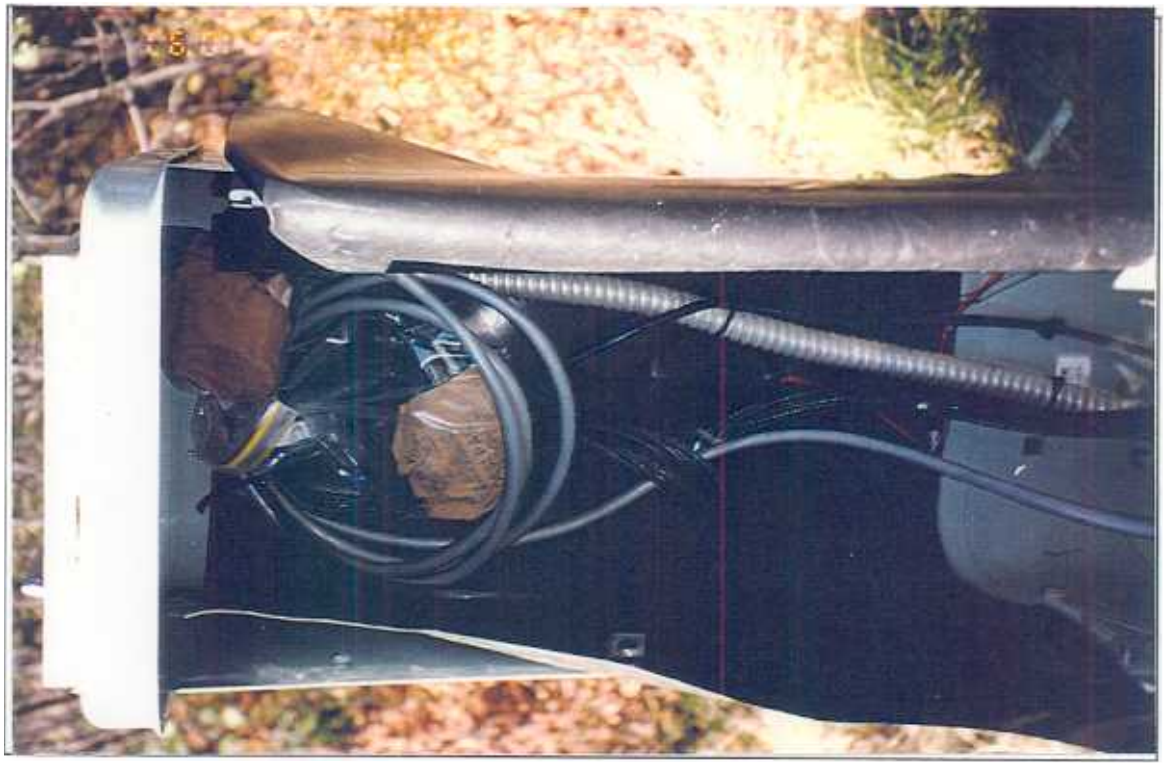


Figure 2: Second Set of Mobile Data Collected on October 21, 1997



Inside Equipment Cabinet, Seasonal Site 231026 - Oct. 1997, after Suspension Activities

Equipment Cabinet, Lower portion of inst. pole, Seasonal Site 231026 - Oct. 1997, after Suspension Activities