

Automated Plate Load Test [APLT]

Test:	In-situ Static Plate Load Test: Incremental loading, 10 psi to 120 psi, 12 in. diameter loading plate				
Date:	9/1/2021	Time:	1:28:44 PM	Test ID:	PT4_Control
Tested By:	DW, HG	Location:	D16, WB Lane	Sta.:	1140+47
Latitude,N:	42.49750500	Longitude,W:	-91.91979167	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC.				
Pavement surface temperature at the time of test = 74.8oF					

Stage	Stress, σ (psi)	AREA, A_3 (in.)	L_{est} (in.)	L_{adj} (in.)	k (psi/in)	k_{corr} (psi/in.)	E_{PCC} (psi)
LOAD	10	16.1	19.3	19.2	272	287	2,112,010
LOAD	20	16.4	20.1	19.9	295	314	2,677,408
LOAD	40	15.9	18.8	18.7	343	361	2,394,871
LOAD	80	16.2	19.5	19.4	357	377	2,873,982
LOAD	120	16.2	19.5	19.3	397	420	3,196,485
RE-LOAD	10	15.3	17.8	17.7	301	314	1,679,459
RE-LOAD	40	15.9	19.0	18.8	377	396	2,698,415
RE-LOAD	80	15.9	18.8	18.7	454	477	3,156,888
RE-LOAD	120	16.1	19.2	19.1	473	499	3,603,953

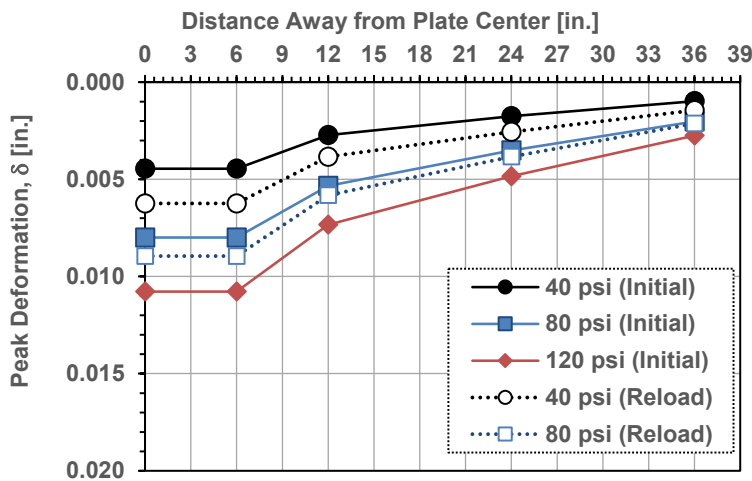
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{477} \text{ psi/in}$$

$$E_{PCC} = \boxed{3,156,888} \text{ psi}$$

Note: k-value and E_{PCC} at nominal 80 psi applied stress during re-load step.

* k_{corr} = Corrected k-values for finite slab size (assumed as 11.25 ft wide), per Croveti (1993)



In-situ Test Results: k-value and E_{PCC}

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Automated Plate Load Test [APLT]

Test:	In-situ Static Plate Load Test: Incremental loading, 10 psi to 120 psi, 12 in. diameter loading plate				
Date:	9/1/2021	Time:	1:28:44 PM	Test ID:	PT5_Std. Black
Tested By:	DW, HG	Location:	D16, WB Lane	Sta.:	1162+00
Latitude,N:	42.49759500	Longitude,W:	-91.91174333	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC. Standard Black geotextile interlayer between the PCC overlay and the underlying existing ACC. Pavement surface temperature at the time of test = 86.7oF				

Stage	Stress, σ (psi)	AREA, A_3 (in.)	L_{est} (in.)	L_{adj} (in.)	k (psi/in)	k_{corr} (psi/in.)	E_{PCC} (psi)
LOAD	10	17.9	24.1	23.6	223	249	4,202,829
LOAD	20	17.8	23.9	23.4	226	251	4,127,367
LOAD	40	17.9	24.3	23.8	223	250	4,319,915
LOAD	80	18.2	25.2	24.6	265	300	5,992,075
LOAD	119	18.4	26.0	25.3	273	313	6,979,721
RE-LOAD	10	17.1	21.8	21.5	361	392	4,567,109
RE-LOAD	40	17.7	23.5	23.0	343	380	5,800,778
RE-LOAD	80	18.1	25.0	24.4	327	369	7,069,413
RE-LOAD	120	18.3	25.6	24.9	323	368	7,731,794

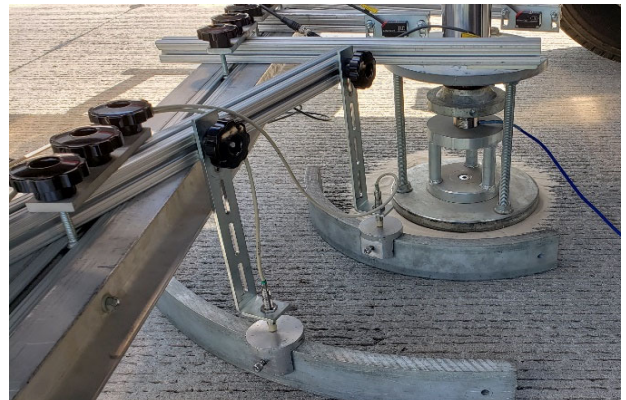
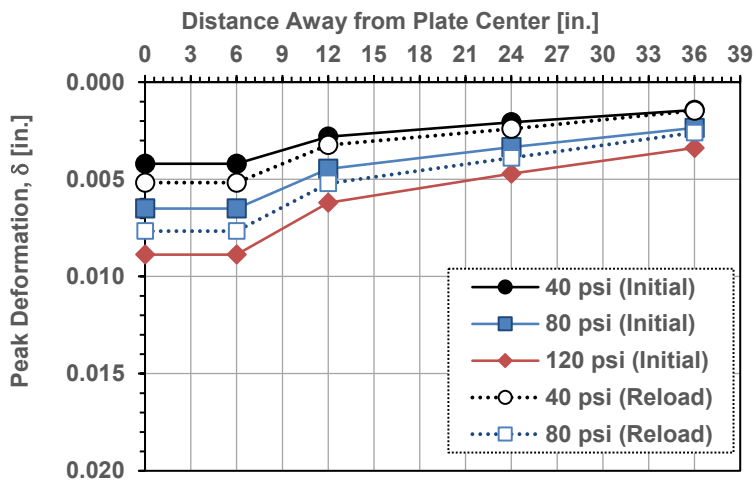
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{369} \text{ psi/in}$$

$$E_{PCC} = \boxed{7,069,413} \text{ psi}$$

Note: k-value and E_{PCC} at nominal 80 psi applied stress during re-load step.

* k_{corr} = Corrected k-values for finite slab size (assumed as 11.25 ft wide), per Croveti (1993)



In-situ Test Results: k-value and E_{PCC}

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Automated Plate Load Test [APLT]

Test:	In-situ Static Plate Load Test: Incremental loading, 10 psi to 120 psi, 12 in. diameter loading plate				
Date:	9/1/2021	Time:	2:34:00 PM	Test ID:	PT7_Thin Black
Tested By:	DW, HG	Location:	D16, WB Lane	Sta.:	1175+00
Latitude,N:	42.49766500	Longitude,W:	-91.90691000	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC. Thin Black geotextile interlayer between the PCC overlay and the underlying existing ACC. Pavement surface temperature at the time of testing =90.6oF				

Stage	Stress, σ (psi)	AREA, A_3 (in.)	L_{est} (in.)	L_{adj} (in.)	k (psi/in)	k_{corr} (psi/in.)	E_{PCC} (psi)
LOAD	10	17.2	22.1	21.8	171	186	2,284,803
LOAD	20	16.9	21.3	21.0	231	249	2,654,983
LOAD	40	17.1	21.7	21.5	238	258	2,967,737
LOAD	80	17.0	21.5	21.2	291	314	3,430,616
LOAD	120	17.0	21.7	21.4	312	338	3,826,897
RE-LOAD	10	16.5	20.3	20.1	204	217	1,917,317
RE-LOAD	40	16.5	20.3	20.1	360	383	3,418,033
RE-LOAD	80	16.7	20.8	20.6	370	397	3,865,635
RE-LOAD	120	16.8	20.9	20.7	395	423	4,193,732

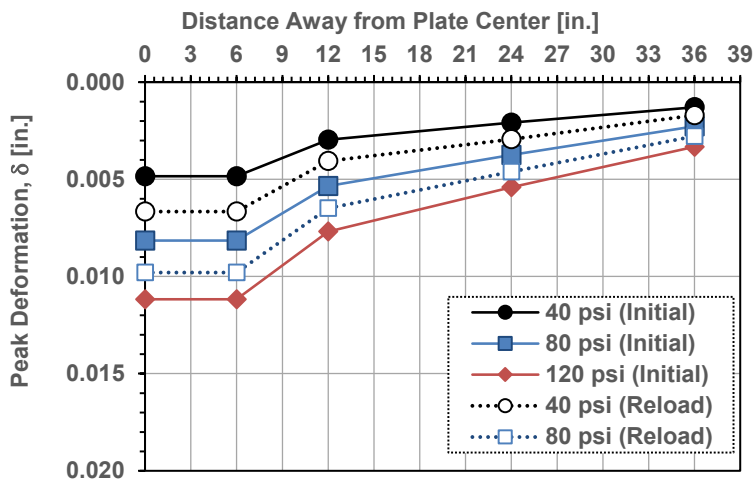
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{397} \text{ psi/in}$$

$$E_{PCC} = \boxed{3,865,635} \text{ psi}$$

Note: k-value and E_{PCC} at nominal 80 psi applied stress during re-load step.

* k_{corr} = Corrected k-values for finite slab size (assumed as 11.25 ft wide), per Croveti (1993)



In-situ Test Results: k-value and E_{PCC}

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Automated Plate Load Test [APLT]

Test:	In-situ Static Plate Load Test: Incremental loading, 10 psi to 120 psi, 12 in. diameter loading plate				
Date:	9/1/2021	Time:	12:21:40 PM	Test ID:	PT1_White GT
Tested By:	DW, HG	Location:	D16, WB Lane	Sta.:	1156+35
Latitude,N:	42.49757000	Longitude,W:	-91.91384333	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC. White geotextile interlayer between the PCC overlay and the underlying existing ACC. Pavement surface temperature at the time of testing = 86.1oF				

Stage	Stress, σ (psi)	AREA, A_3 (in.)	L_{est} (in.)	L_{adj} (in.)	k (psi/in)	k_{corr} (psi/in.)	E_{PCC} (psi)
LOAD	10	15.9	19.0	18.8	431	453	3,096,704
LOAD	20	16.9	21.2	21.0	356	384	4,013,892
LOAD	40	17.2	22.2	21.9	371	404	5,001,637
LOAD	80	17.9	24.1	23.6	340	379	6,413,348
LOAD	120	18.1	25.1	24.5	321	363	7,062,245
RE-LOAD	10	15.4	17.9	17.8	608	633	3,430,065
RE-LOAD	40	14.2	15.9	15.8	1282	1316	4,465,531
RE-LOAD	80	16.0	19.1	19.0	922	971	6,823,651
RE-LOAD	119	16.7	20.8	20.6	866	929	9,079,595

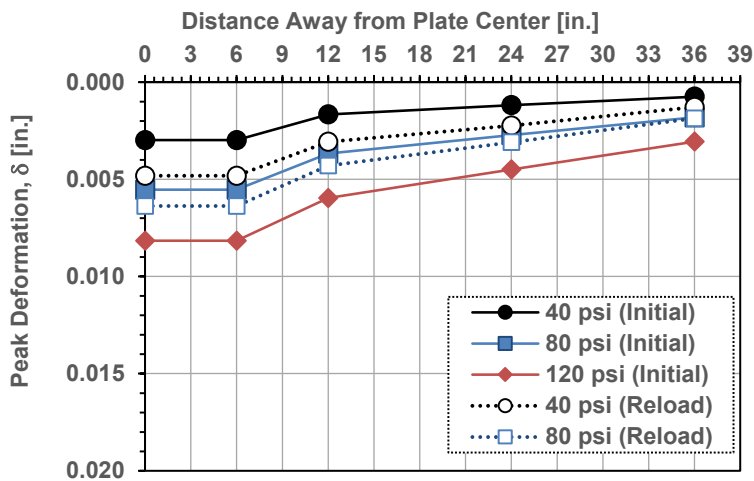
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{971} \text{ psi/in}$$

$$E_{PCC} = \boxed{6,823,651} \text{ psi}$$

Note: k-value and E_{PCC} at nominal 80 psi applied stress during re-load step.

* k_{corr} = Corrected k-values for finite slab size (assumed as 11.25 ft wide), per Crovetti (1993)



In-situ Test Results: k-value and E_{PCC}

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
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