

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:	9/23/2020	Time:	10:23:23 AM	Test ID:	PT1_White GT
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1156+50
Latitude,N:	42.49756333	Longitude,W:	-91.91380167	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.				

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	18.3	25.5	24.9	198	226	4,698,158
LOAD	20	18.7	27.2	26.3	167	194	5,026,805
LOAD	40	18.7	27.1	26.3	176	205	5,287,305
LOAD	80	18.7	27.3	26.4	211	247	6,484,466
LOAD	120	18.5	26.6	25.8	242	280	6,717,471
RE-LOAD	10	18.0	24.5	23.9	191	214	3,811,094
RE-LOAD	40	17.6	23.4	23.0	265	293	4,412,748
RE-LOAD	79	17.6	23.4	22.9	357	395	5,945,773

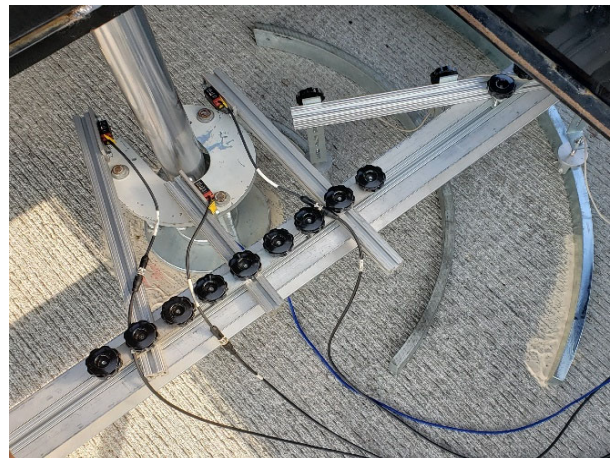
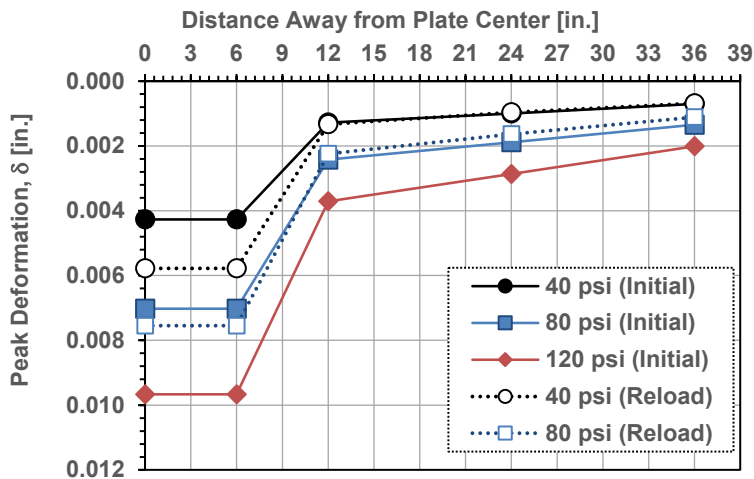
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{395} \text{ psi/in}$$

$$E_{PCC} = \boxed{5,945,773} \text{ psi}$$

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
 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:	9/23/2020	Time:	11:35:23 AM	Test ID:	PT2_White GT
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1155+50
Latitude,N:	42.49755833	Longitude,W:	-91.91416833	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.				

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	19.3	30.0	28.6	91	111	4,055,221
LOAD	20	19.4	30.8	29.3	74	92	3,667,882
LOAD	40	19.9	33.5	31.4	85	111	5,883,842
LOAD	80	20.5	37.6	34.4	94	133	10,131,984
LOAD	120	20.6	39.0	35.4	101	146	12,389,082
RE-LOAD	10	16.2	19.7	19.5	383	406	3,185,028
RE-LOAD	40	19.6	32.0	30.2	232	294	13,319,223
RE-LOAD	80	20.1	35.1	32.6	231	310	18,983,163

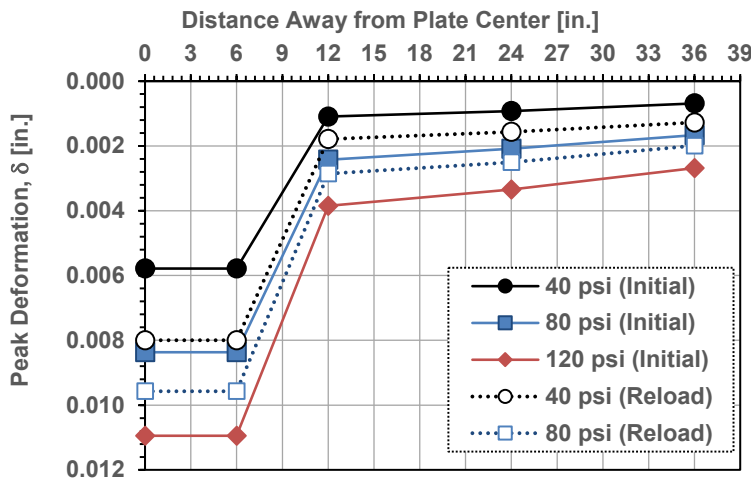
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{310} \text{ psi/in}$$

$$E_{PCC} = \boxed{18,983,163} \text{ psi}$$

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}

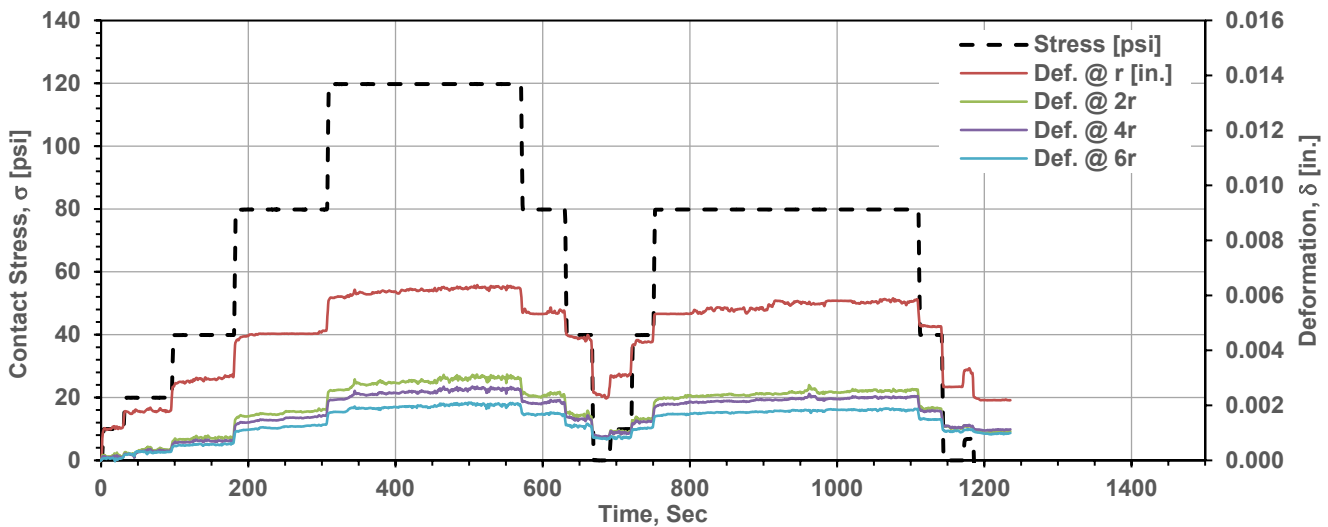
Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



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:	9/23/2020	Time:	12:36:11 PM	Test ID	PT3_Control
Tested By	HG, CV	Location:	D16, WB Lane	Sta.	1154+00
Latitude,N:	42.49755500	Longitude,W:	-91.91477833	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC. Control section - no geotextile at the interface.				

Step	Stage	Load, P (lbs)	Stress, σ (psi)	$\Delta\delta$ (in./min)	Avg. δ_r (in.)	Avg. δ_{2r} (in.)	Avg. δ_{4r} (in.)	Avg. δ_{6r} (in.)
0	Seating	179	1.6	0.0000	0.0004	0.0350	0.0727	0.0285
ZERO RESET								
1	LOAD	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
2	LOAD	1127	10.0	-0.0002	0.0012	0.0001	0.0001	0.0001
3	LOAD	2256	19.9	-0.0003	0.0018	0.0004	0.0004	0.0003
5	LOAD	4513	39.9	0.0003	0.0030	0.0008	0.0007	0.0006
6	LOAD	9030	79.8	0.0005	0.0047	0.0018	0.0016	0.0013
7	LOAD	13419	118.7	-0.0003	0.0061	0.0028	0.0024	0.0019
8	UNLOAD	9029	79.8	0.0002	0.0053	0.0022	0.0020	0.0016
9	UNLOAD	4514	39.9	0.0003	0.0044	0.0016	0.0015	0.0013
10	UNLOAD	6	0.1	-0.0003	0.0026	0.0009	0.0009	0.0008
11	RE-LOAD	1128	10.0	0.0000	0.0031	0.0010	0.0010	0.0008
12	RE-LOAD	4516	39.9	0.0001	0.0045	0.0017	0.0015	0.0013
13	RE-LOAD	9030	79.8	0.0005	0.0058	0.0026	0.0023	0.0019
14	UNLOAD	4514	39.9	0.0001	0.0049	0.0019	0.0018	0.0015
15	UNLOAD	-1	0.0	0.0000	0.0027	0.0011	0.0012	0.0010



In-situ Test Results - Applied Stress and Measured Deformations

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:	9/23/2020	Time:	12:36:11 PM	Test ID	PT3_Control
Tested By	HG, CV	Location:	D16, WB Lane	Sta.	1154+00
Latitude,N:	42.49755500	Longitude,W:	-91.91477833	Elev. (ft):	NA
Comments:	Nominal 6 in. PCC overlay on nominal 12 in. ACC. Control section - no geotextile at the interface.				

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	19.7	32.1	30.3	112	143	6,567,608
LOAD	20	21.3	45.8	39.8	73	122	16,636,798
LOAD	40	21.2	45.4	39.5	90	149	19,674,730
LOAD	80	20.8	40.6	36.5	144	215	20,709,222
LOAD	119	20.6	38.5	35.0	184	264	21,590,426
RE-LOAD	10	15.6	18.3	18.1	783	819	4,820,608
RE-LOAD	40	19.7	32.6	30.7	269	345	16,592,065
RE-LOAD	80	20.1	34.8	32.4	283	378	22,622,081

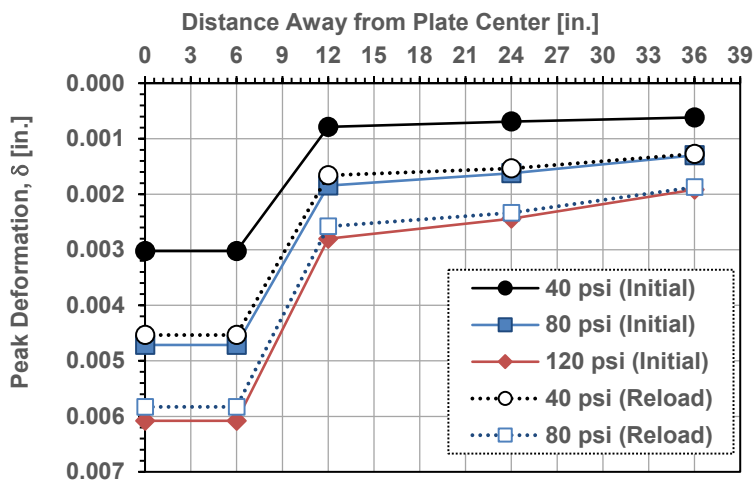
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{378} \text{ psi/in}$$

$$E_{PCC} = \boxed{22,622,081} \text{ psi}$$

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}

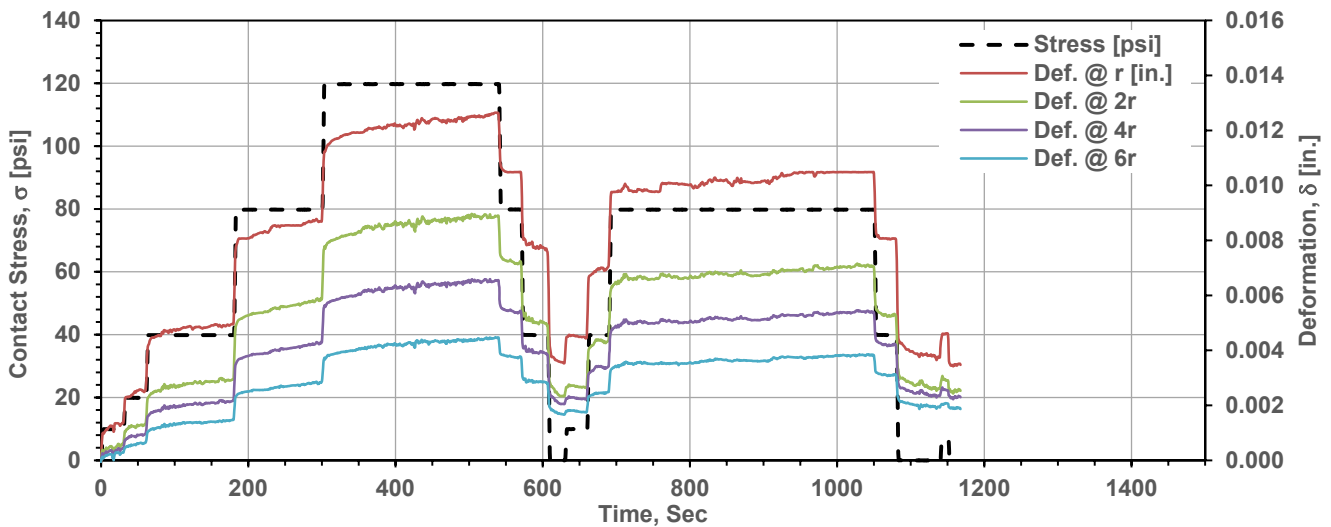
Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



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:	9/23/2020	Time:	1:43:49 PM	Test ID: PT4_Control
Tested By:	HG, CV	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.			

Step	Stage	Load, P (lbs)	Stress, σ (psi)	$\Delta\delta$ (in./min)	Avg. δ_r (in.)	Avg. δ_{2r} (in.)	Avg. δ_{4r} (in.)	Avg. δ_{6r} (in.)
0	Seating	178	1.6	0.0003	0.0006	0.0455	0.0165	0.0188
ZERO RESET								
1	LOAD	0	0.0	0.0003	0.0000	0.0000	0.0000	0.0000
2	LOAD	1158	10.2	0.0005	0.0015	0.0007	0.0005	0.0003
3	LOAD	2254	19.9	-0.0001	0.0027	0.0014	0.0010	0.0007
5	LOAD	4510	39.9	0.0003	0.0049	0.0029	0.0022	0.0015
6	LOAD	9027	79.8	-0.0002	0.0088	0.0059	0.0043	0.0029
7	LOAD	13542	119.7	0.0002	0.0124	0.0087	0.0064	0.0044
8	UNLOAD	9032	79.9	0.0000	0.0105	0.0072	0.0054	0.0038
9	UNLOAD	4450	39.3	-0.0012	0.0070	0.0043	0.0034	0.0026
10	UNLOAD	-1	0.0	-0.0006	0.0036	0.0024	0.0021	0.0017
11	RE-LOAD	1125	9.9	-0.0002	0.0046	0.0027	0.0023	0.0018
12	RE-LOAD	4512	39.9	0.0000	0.0070	0.0043	0.0034	0.0025
13	RE-LOAD	9027	79.8	0.0000	0.0104	0.0070	0.0054	0.0038
14	UNLOAD	4511	39.9	0.0001	0.0080	0.0053	0.0042	0.0031
15	UNLOAD	-3	0.0	-0.0006	0.0037	0.0026	0.0023	0.0019



In-situ Test Results - Applied Stress and Measured Deformations

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:	9/23/2020	Time:	1:43:49 PM	Test ID:	PT4_Control
Tested By:	HG, CV	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.				

0

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	17.4	22.7	22.4	177	194	2,635,553
LOAD	20	17.6	23.3	22.8	189	209	3,094,248
LOAD	40	17.8	23.9	23.5	193	215	3,537,669
LOAD	80	17.7	23.6	23.2	224	249	3,894,340
LOAD	120	17.9	24.3	23.7	226	253	4,370,512
RE-LOAD	10	14.7	16.7	16.6	505	521	2,162,543
RE-LOAD	40	16.5	20.3	20.1	386	412	3,685,365
RE-LOAD	80	17.3	22.3	22.0	322	351	4,459,747

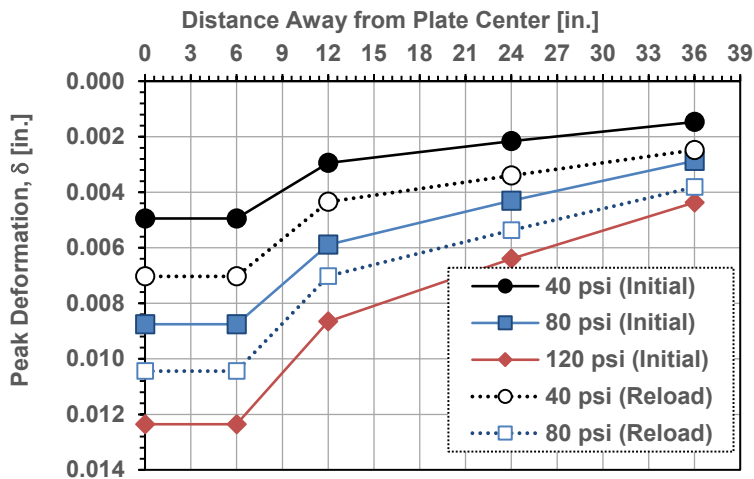
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{351} \text{ psi/in}$$

$$E_{PCC} = \boxed{4,459,747} \text{ psi}$$

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:	9/23/2020	Time:	2:55:23 PM	Test ID:	PT5_Std. Black
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1162+00
Latitude,N:	42.49759500	Longitude,W:	-91.91175167	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.				

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	17.8	23.8	23.4	147	164	2,643,483
LOAD	20	18.4	25.9	25.2	145	166	3,632,847
LOAD	40	18.6	26.8	25.9	151	175	4,309,418
LOAD	80	18.7	27.1	26.2	186	217	5,602,739
LOAD	119	18.9	28.3	27.3	188	224	6,704,406
RE-LOAD	10	17.8	24.1	23.6	144	160	2,682,195
RE-LOAD	40	18.2	25.3	24.6	226	257	5,146,402
RE-LOAD	80	18.4	26.3	25.5	240	276	6,348,570

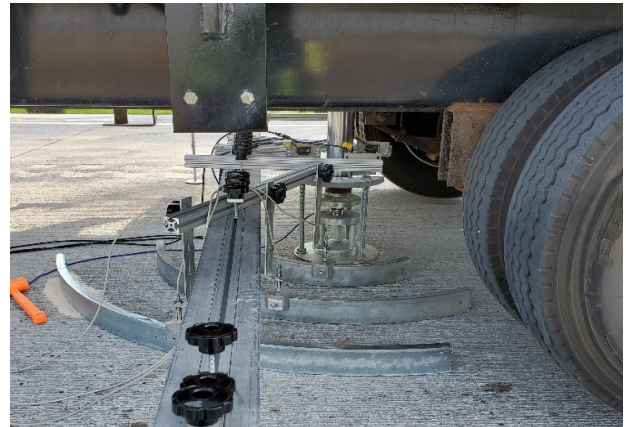
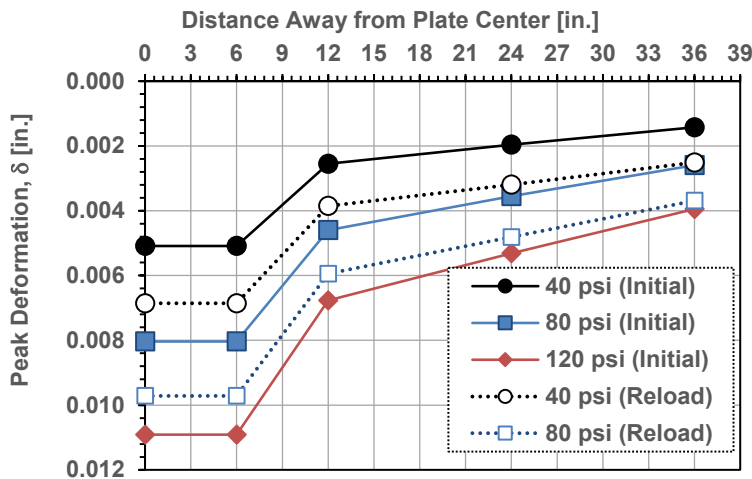
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{276} \text{ psi/in}$$

$$E_{PCC} = \boxed{6,348,570} \text{ psi}$$

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
 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:	9/23/2020	Time:	3:49:15 PM	Test ID:	PT6_Std. Black
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1166+00
Latitude,N:	42.49761167	Longitude,W:	-91.91026167	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.				

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	19.5	31.4	29.8	97	122	5,205,726
LOAD	20	19.2	29.6	28.3	167	202	7,092,244
LOAD	40	19.2	29.7	28.4	161	196	6,917,599
LOAD	80	19.2	29.7	28.4	204	248	8,755,558
LOAD	120	19.1	29.1	27.9	243	293	9,694,852
RE-LOAD	10	18.2	25.4	24.8	207	235	4,819,919
RE-LOAD	40	18.5	26.5	25.7	337	390	9,243,290
RE-LOAD	80	19.2	29.6	28.3	276	335	11,633,236

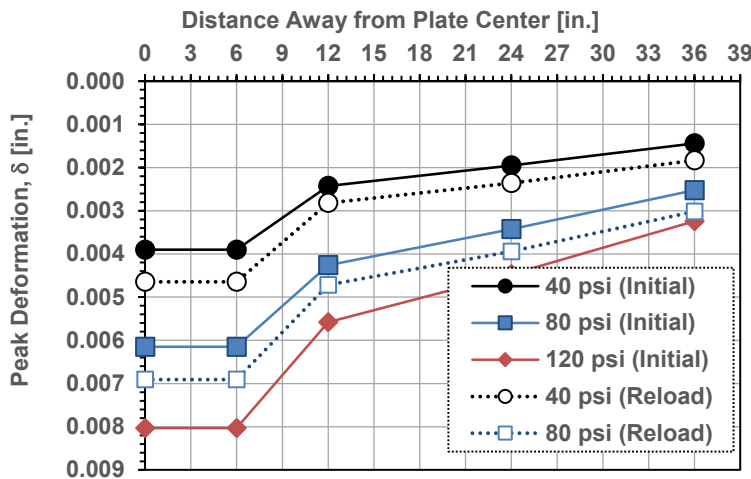
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{335} \text{ psi/in}$$

$$E_{PCC} = \boxed{11,633,236} \text{ psi}$$

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}

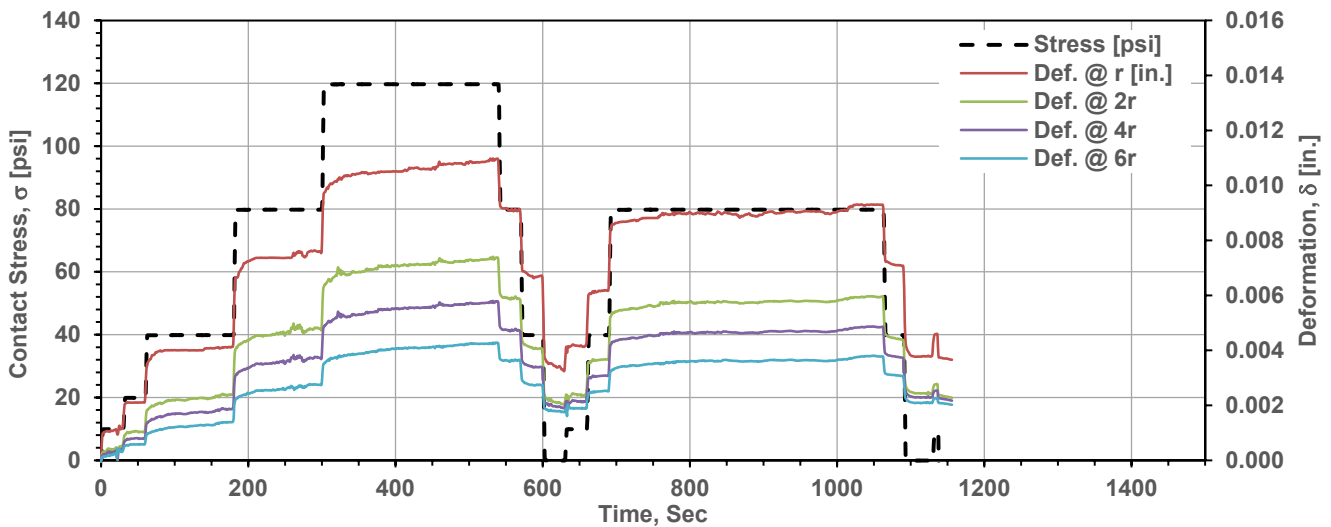
Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



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:	9/23/2020	Time:	4:49:52 PM	Test ID:	PT7_Thin Black
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1174+00
Latitude,N:	42.49765667	Longitude,W:	-91.90729167	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.				

Step	Stage	Load, P (lbs)	Stress, σ (psi)	$\Delta\delta$ (in./min)	Avg. δ_r (in.)	Avg. δ_{2r} (in.)	Avg. δ_{4r} (in.)	Avg. δ_{6r} (in.)
0	Seating	185	1.6	0.0000	0.0007	0.0286	0.0179	0.0259
ZERO RESET								
1	LOAD	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
2	LOAD	1126	10.0	0.0006	0.0013	0.0006	0.0005	0.0004
3	LOAD	2250	19.9	0.0000	0.0021	0.0010	0.0008	0.0006
5	LOAD	4510	39.9	0.0003	0.0046	0.0027	0.0021	0.0016
6	LOAD	9022	79.8	-0.0002	0.0075	0.0047	0.0037	0.0027
7	LOAD	13538	119.7	0.0003	0.0109	0.0073	0.0058	0.0043
8	UNLOAD	9025	79.8	0.0000	0.0091	0.0059	0.0047	0.0036
9	UNLOAD	4510	39.9	0.0003	0.0067	0.0041	0.0034	0.0027
10	UNLOAD	-4	0.0	-0.0009	0.0034	0.0021	0.0019	0.0018
11	RE-LOAD	1126	10.0	0.0002	0.0045	0.0027	0.0024	0.0020
12	RE-LOAD	4508	39.9	0.0001	0.0063	0.0037	0.0031	0.0025
13	RE-LOAD	9024	79.8	0.0000	0.0092	0.0059	0.0048	0.0038
14	UNLOAD	4508	39.9	-0.0003	0.0068	0.0041	0.0035	0.0029
15	UNLOAD	-6	0.0	0.0000	0.0039	0.0024	0.0023	0.0021



In-situ Test Results - Applied Stress and Measured Deformations

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:	9/23/2020	Time:	4:49:52 PM	Test ID:	PT7_Thin Black
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1174+00
Latitude,N:	42.49765667	Longitude,W:	-91.90729167	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.				

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	19.2	29.5	28.2	123	148	5,110,236
LOAD	20	18.5	26.6	25.8	182	211	5,051,949
LOAD	40	18.7	27.3	26.4	162	190	4,984,490
LOAD	80	18.8	27.8	26.9	189	223	6,293,428
LOAD	120	18.9	28.3	27.2	191	226	6,724,627
RE-LOAD	10	17.2	22.0	21.7	247	269	3,252,417
RE-LOAD	40	17.3	22.5	22.1	377	412	5,383,885
RE-LOAD	80	18.2	25.3	24.6	297	336	6,714,403

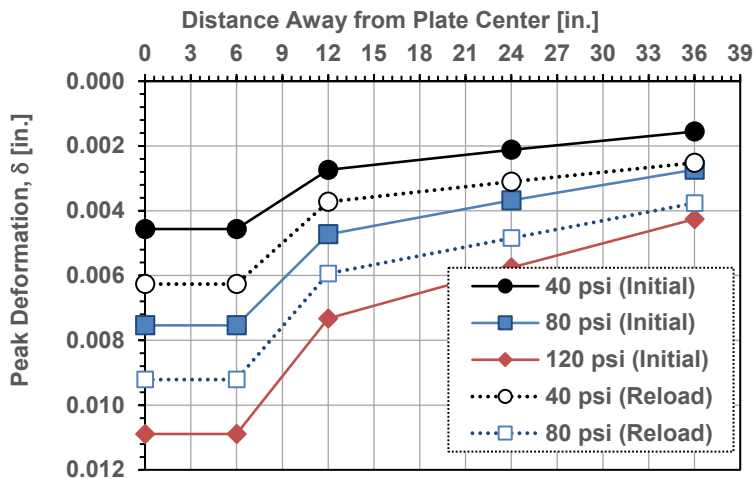
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{336} \text{ psi/in}$$

$$E_{PCC} = \boxed{6,714,403} \text{ psi}$$

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:	9/23/2020	Time:	5:43:26 PM	Test ID:	PT7_Thin Black
Tested By:	HG, CV	Location:	D16, WB Lane	Sta.:	1176+00
Latitude,N:	42.49766000	Longitude,W:	-91.90654333	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.				

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	16.3	19.8	19.6	184	195	1,577,874
LOAD	20	16.9	21.3	21.0	206	222	2,338,194
LOAD	40	17.1	21.9	21.5	230	249	2,918,604
LOAD	80	17.3	22.4	22.0	270	294	3,756,655
LOAD	120	17.5	23.1	22.7	272	300	4,327,794
RE-LOAD	10	16.3	19.8	19.7	446	474	3,850,713
RE-LOAD	40	16.4	20.1	19.9	459	489	4,192,080
RE-LOAD	80	17.3	22.5	22.1	387	423	5,516,860

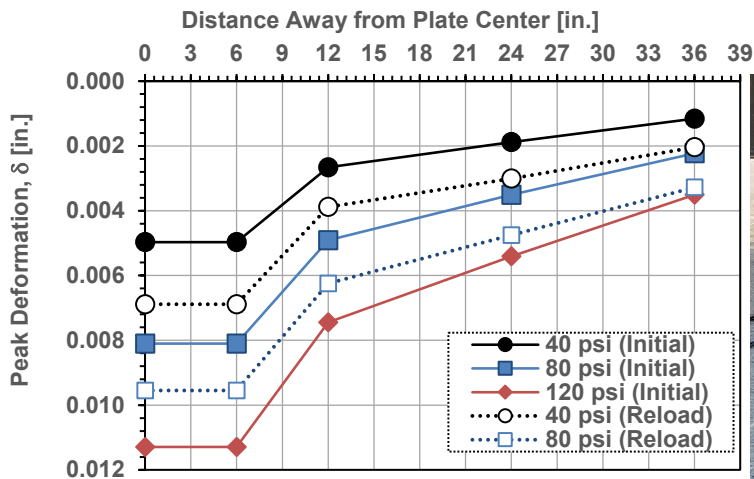
Structural Design Parameters - 18-kip ESWL

$$k\text{-value} = \boxed{423} \text{ psi/in}$$

$$E_{PCC} = \boxed{5,516,860} \text{ psi}$$

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

