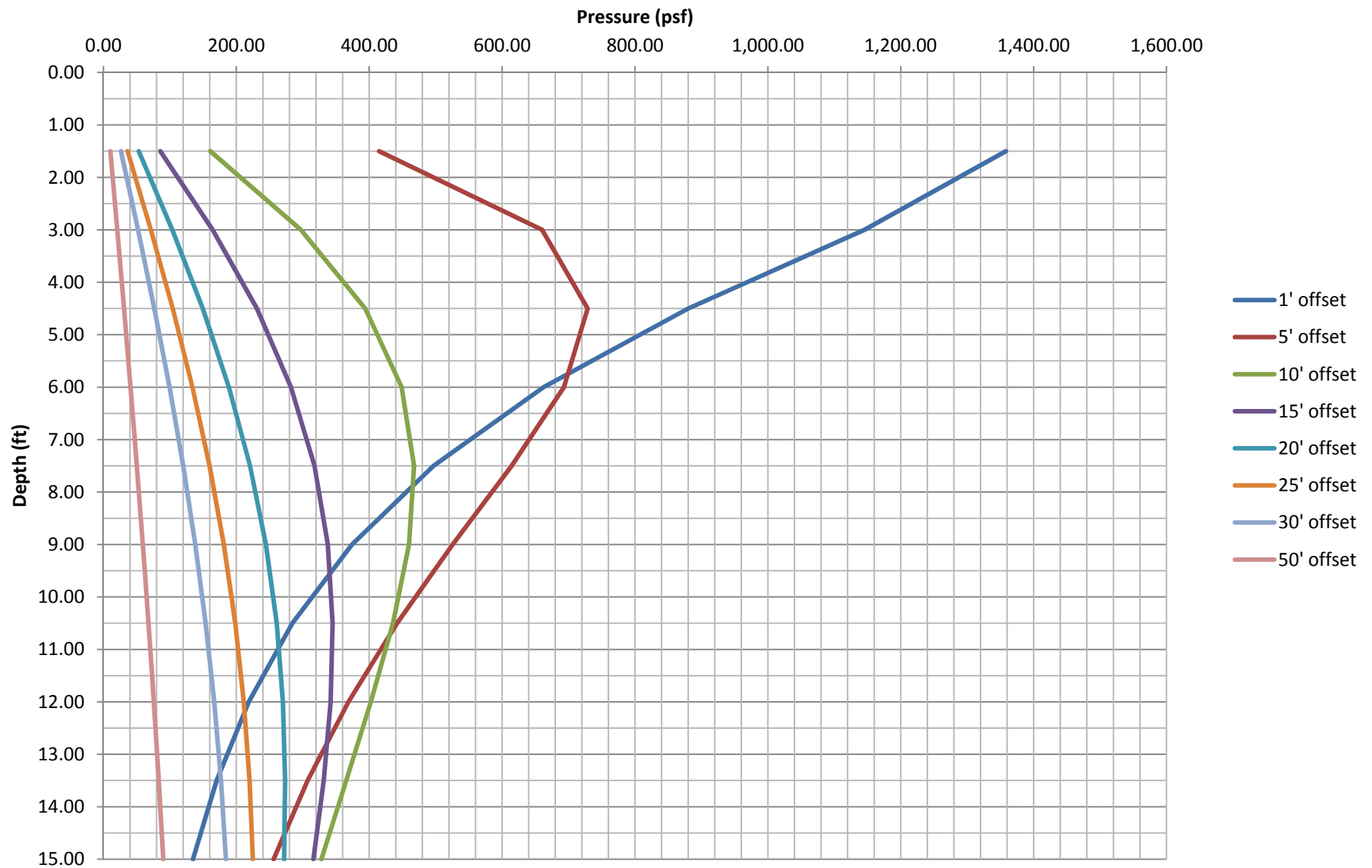


**lateral pressure acting on retaining wall for CSX Cooper E80 railroad
load (1,882 psf x 8.5' wide) at various offset distances**



Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 1' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	1.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	0.59	0.83	1,358.28	2,037	8,588
2	0.2	3.00	0.32	0.94	1,145.42	1,718	
3	0.3	4.50	0.22	0.91	880.19	1,320	
4	0.4	6.00	0.17	0.84	662.57	994	
5	0.5	7.50	0.13	0.77	496.75	745	
6	0.6	9.00	0.11	0.70	374.11	561	
7	0.7	10.50	0.09	0.64	284.39	427	
8	0.8	12.00	0.08	0.59	218.77	328	
9	0.9	13.50	0.07	0.54	170.49	256	
10	1	15.00	0.07	0.50	134.61	202	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 5' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	5.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.28	0.18	414.88	622	7,517
2	0.2	3.00	1.03	0.32	660.36	991	
3	0.3	4.50	0.84	0.41	728.82	1,093	
4	0.4	6.00	0.69	0.46	693.12	1,040	
5	0.5	7.50	0.59	0.48	614.28	921	
6	0.6	9.00	0.51	0.48	525.60	788	
7	0.7	10.50	0.44	0.47	441.97	663	
8	0.8	12.00	0.39	0.45	368.83	553	
9	0.9	13.50	0.35	0.43	307.18	461	
10	1	15.00	0.32	0.41	256.19	384	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 10' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	10.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.42	0.07	160.71	241	5,639
2	0.2	3.00	1.28	0.13	297.03	446	
3	0.3	4.50	1.15	0.18	393.95	591	
4	0.4	6.00	1.03	0.23	448.72	673	
5	0.5	7.50	0.93	0.26	467.46	701	
6	0.6	9.00	0.84	0.28	459.95	690	
7	0.7	10.50	0.76	0.29	435.73	654	
8	0.8	12.00	0.69	0.30	402.43	604	
9	0.9	13.50	0.64	0.30	365.40	548	
10	1	15.00	0.59	0.30	328.08	492	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 15' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	15.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.47	0.04	85.50	128	4,129
2	0.2	3.00	1.37	0.07	164.28	246	
3	0.3	4.50	1.28	0.10	230.96	346	
4	0.4	6.00	1.19	0.13	282.35	424	
5	0.5	7.50	1.11	0.15	317.59	476	
6	0.6	9.00	1.03	0.17	337.70	507	
7	0.7	10.50	0.96	0.19	344.91	517	
8	0.8	12.00	0.90	0.20	341.94	513	
9	0.9	13.50	0.84	0.21	331.51	497	
10	1	15.00	0.79	0.22	316.03	474	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 20' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	20.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.50	0.02	53.16	80	3,055
2	0.2	3.00	1.42	0.04	103.76	156	
3	0.3	4.50	1.35	0.06	149.55	224	
4	0.4	6.00	1.28	0.08	188.82	283	
5	0.5	7.50	1.21	0.10	220.57	331	
6	0.6	9.00	1.15	0.12	244.47	367	
7	0.7	10.50	1.09	0.13	260.75	391	
8	0.8	12.00	1.03	0.14	270.09	405	
9	0.9	13.50	0.98	0.15	273.43	410	
10	1	15.00	0.93	0.16	271.82	408	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 25' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	25.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.51	0.02	36.28	54	2,311
2	0.2	3.00	1.45	0.03	71.37	107	
3	0.3	4.50	1.39	0.04	104.20	156	
4	0.4	6.00	1.34	0.06	133.84	201	
5	0.5	7.50	1.28	0.07	159.64	239	
6	0.6	9.00	1.23	0.08	181.18	272	
7	0.7	10.50	1.17	0.09	198.31	297	
8	0.8	12.00	1.12	0.10	211.10	317	
9	0.9	13.50	1.08	0.11	219.80	330	
10	1	15.00	1.03	0.12	224.80	337	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 30' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	30.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.52	0.01	26.35	40	1,791
2	0.2	3.00	1.47	0.02	52.07	78	
3	0.3	4.50	1.42	0.03	76.59	115	
4	0.4	6.00	1.37	0.04	99.39	149	
5	0.5	7.50	1.33	0.05	120.04	180	
6	0.6	9.00	1.28	0.06	138.25	207	
7	0.7	10.50	1.23	0.07	153.82	231	
8	0.8	12.00	1.19	0.08	166.66	250	
9	0.9	13.50	1.15	0.09	176.80	265	
10	1	15.00	1.11	0.09	184.35	277	

Cooper E80 Railroad Surcharge - Strip Load (AASHTO procedure) - 50' Offset

General Info	
Uniformly loaded strip pressure, p (psf)	1,882
Distance that edge of strip is offset from wall (ft)	50.00
Width of strip (ft)	8.50
Total depth to be considered (ft)	15.00

Point #	% of total depth	Z (ft)	α (rad)	δ (rad)	A_{ps} (psf)	Force / Unit Depth (lbs/ft)	Total Force (lbs/ft)
1	0.1	1.50	1.54	0.00	10.43	16	794
2	0.2	3.00	1.51	0.01	20.76	31	
3	0.3	4.50	1.48	0.01	30.90	46	
4	0.4	6.00	1.45	0.02	40.76	61	
5	0.5	7.50	1.42	0.02	50.26	75	
6	0.6	9.00	1.39	0.03	59.31	89	
7	0.7	10.50	1.36	0.03	67.86	102	
8	0.8	12.00	1.34	0.03	75.85	114	
9	0.9	13.50	1.31	0.04	83.23	125	
10	1	15.00	1.28	0.04	89.97	135	