Printing Input Parameters.....

parameters	unit	values	Unnamed: 3
Basin Area	sq mile	1.0	nan
Avg_GL	feet-PWD	6.0	nan
Highest Water Level ,RS	feet-PWD	12.95	nan
Lowest Water Level,RS	feet-PWD	-6.88	16.293999999999997
Moonsoon Lowest Water Level	feet-PWD	-4.92	nan
Embankment Crest Level	feet-PWD	19.68	nan
Embankment Top Width	feet-PWD	19.68	nan
C/S Slope (1:N)	nan	2.0	nan
R/S Slope	nan	3.0	nan
Invert Level	feet-PWD	0.656	nan
Discharge/sq mile	cfs/sqmile	35.0	nan
No Vent	nan	1.0	nan
Vent Width	feet	3.0	nan
Vent Height	feet	4.0	nan
Pier_width	inch	24.0	nan
Abutment_width	inch	24.0	nan
flare_Angle_min	degree	8.0	nan
flare_Angle_max	degree	12.0	nan
glacis_drop_min	feet	2.0	nan
glacis_drop_max	feet	3.0	nan
Barrel Length	feet	32.8	nan
cutoff_depth_min	min	3.28	nan

cutoff_depth_max	max	19.68	nan
Laycey's Silt Factor	nan	0.4	nan
maximum head difference	feet	15.25	nan
Allowable Exit Gradient	nan	0.143	nan
maximum_floor_thickness	feet	1.968	nan
Top_slab_thickness	inch	21.64	nan
unit weight of fill soil	pcf	120.0	nan
friction Angle of fill soil	degree	20.0	nan
surcharge height	feet	1.0	nan
return wall level	feet-pwd	13.12	nan

Printing Stilling Basin Calcualtion in FPS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
113.38	8.0	2.0	3.0	37.793	3.54	10.676	4.686	24.193	1.222	19.801	11.777	9.627	4.878	1.974	3.157	25.227	72.0	2.05	28.0
113.38	8.0	3.0	3.0	37.793	3.54	10.676	5.53	20.503	0.941	21.784	13.047	8.69	4.817	1.804	3.957	26.746	61.4	3.211	38.6
113.38	9.0	2.0	3.0	37.793	3.54	10.676	4.901	23.135	1.163	19.896	12.844	8.827	4.797	1.84	3.252	25.077	70.6	2.151	29.4
113.38	9.0	3.0	3.0	37.793	3.54	10.676	5.851	19.378	0.886	21.865	14.2	7.985	4.706	1.697	4.093	26.356	59.8	3.341	40.2
113.38	10.0	2.0	3.0	37.793	3.54	10.676	5.116	22.162	1.109	19.983	13.901	8.156	4.719	1.728	3.344	24.912	69.2	2.248	30.8
113.38	10.0	3.0	3.0	37.793	3.54	10.676	6.174	18.364	0.837	21.937	15.333	7.394	4.601	1.607	4.225	25.972	58.3	3.461	41.7
113.38	11.0	2.0	3.0	37.793	3.54	10.676	5.333	21.261	1.06	20.062	14.949	7.585	4.645	1.633	3.434	24.735	68.0	2.34	32.0
113.38	11.0	3.0	3.0	37.793	3.54	10.676	6.499	17.446	0.793	22.002	16.449	6.893	4.502	1.531	4.354	25.595	57.0	3.574	43.0
113.38	12.0	2.0	3.0	37.793	3.54	10.676	5.551	20.426	1.014	20.135	15.987	7.092	4.572	1.551	3.523	24.55	66.8	2.428	33.2
113.38	12.0	3.0	3.0	37.793	3.54	10.676	6.826	16.61	0.753	22.06	17.55	6.46	4.409	1.465	4.48	25.227	55.7	3.68	44.3

Printing Stilling Basin Calcualtion in MKS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
3.21	8.0	0.61	0.91	3.51	1.08	3.25	1.43	2.25	0.37	6.04	3.59	0.89	1.49	0.6	3.157	8.0	72.0	0.62	28.0
3.21	8.0	0.91	0.91	3.51	1.08	3.25	1.69	1.91	0.29	6.64	3.98	0.81	1.47	0.55	3.957	9.0	61.4	0.98	38.6
3.21	9.0	0.61	0.91	3.51	1.08	3.25	1.49	2.15	0.35	6.07	3.92	0.82	1.46	0.56	3.252	8.0	70.6	0.66	29.4
3.21	9.0	0.91	0.91	3.51	1.08	3.25	1.78	1.8	0.27	6.67	4.33	0.74	1.43	0.52	4.093	9.0	59.8	1.02	40.2
3.21	10.0	0.61	0.91	3.51	1.08	3.25	1.56	2.06	0.34	6.09	4.24	0.76	1.44	0.53	3.344	8.0	69.2	0.69	30.8
3.21	10.0	0.91	0.91	3.51	1.08	3.25	1.88	1.71	0.26	6.69	4.67	0.69	1.4	0.49	4.225	8.0	58.3	1.06	41.7
3.21	11.0	0.61	0.91	3.51	1.08	3.25	1.63	1.98	0.32	6.12	4.56	0.7	1.42	0.5	3.434	8.0	68.0	0.71	32.0
3.21	11.0	0.91	0.91	3.51	1.08	3.25	1.98	1.62	0.24	6.71	5.01	0.64	1.37	0.47	4.354	8.0	57.0	1.09	43.0
3.21	12.0	0.61	0.91	3.51	1.08	3.25	1.69	1.9	0.31	6.14	4.87	0.66	1.39	0.47	3.523	8.0	66.8	0.74	33.2
3.21	12.0	0.91	0.91	3.51	1.08	3.25	2.08	1.54	0.23	6.73	5.35	0.6	1.34	0.45	4.48	8.0	55.7	1.12	44.3

Printing Basin Selection Data.....

Parmeter Name	Unit	Values
Discharge/ft	cfs/ft	37.793
Flare Angle	Degree	8.0
Glasis_Drop	Feet	2.0
Exit Velocity	Feet/sec	1.97
Fr1		3.16
Jump_Length	Feet	25.23
Energy Loss(%)	%	28.0
Floor Length	Feet	105.0
Point_1	Feet	0.0
Point_2	Feet	36.0
Point_3	Feet	69.0
Point_4	Feet	105.0

Printing Seepage Calcualtion Data.....

locations	uncorrected	mc_corr	corrected
Phi_E	39.61	-3.3097353495280366	41.8
Phi_C1	60.39	3.3097353495280366	64.82

Printing thickness calcualtion data.....

location	p(%)	p(feet)	th_min(feet)
1.0	64.82	9.89	0.0
2.0	56.93	8.68	0.0
3.0	49.69	7.58	5.41
4.0	41.8	6.37	4.55

Printing Detiled thickness calcualtion data.....

dist	P%	Hw	Bi	-WwL	Net(Hw)	t_req
0.0	41.8	6.37	8.0	5.28	1.09	0.78
3.0	42.45771428571428	6.47	7.58	5.57	0.9	0.64
6.0	43.115428571428566	6.58	7.17	5.89	0.69	0.49
9.0	43.77314285714285	6.68	6.75	6.26	0.42	0.3
12.0	44.43085714285714	6.78	6.33	6.67	0.11	0.08
15.0	45.08857142857143	6.88	5.92	7.14	-0.26	-0.19
18.0	45.74628571428571	6.98	5.5	7.68	-0.7	-0.5
21.0	46.403999999999996	7.08	5.08	8.31	-1.23	-0.88
24.0	47.06171428571428	7.18	4.67	9.05	-1.87	-1.34
27.0	47.719428571428566	7.28	4.25	9.94	-2.66	-1.9
30.0	48.37714285714286	7.38	3.83	11.02	-3.64	-2.6
33.0	49.03485714285714	7.48	3.42	12.36	-4.88	-3.49
36.0	49.692571428571426	7.58	3.0	14.08	-6.5	-4.64

Printing Input Data for Load Calcualtions.....

Parameter Name	Unit	Parameter Value	Detail Name
VW	feet	3.0	Vent Inner Span/width
VH	feet	4.0	Vent Height
NV	nos	1.0	No of Vents
Tt	inch	21.64	Top Slab thicjness
Ts	inch	24.0	Abutmet Thicknes
Tb	inch	9.36	Bottom Slab Thicknes
Tp	inch	24.0	Pier Thicknes
gamma_s	pcf	120.0	Soil Fill Unit Wieght
phi	degree	20.0	friction angle of back fill soil
H	feet	1.0	Height of srcharge above pier
MPF	unitless	1.2	Multiple Presnce Factor
IM	unitless	1.3	Impact factor for Dynamic Loading
INVERT_LEVEL	ft-pwd	0.656	Invert Level of Regulator
EMBANKMENT_CREST_LEVEL	ft-pwd	19.68	Emnakment Crest Level
h_prime	ft	3.0	Additional Surcharge load above Embankemt

Printing Barrel Load.....

Notations	LoadName	LoadUnits	LoadType	Load_Value_Maximum	Load_Value_Minimum
TSL	Load on Top Slab	klf	UDL	-1.906	-1.906
BSL	Load on Bottom Slab	klf	UDL	2.249	2.249
SWL+	Load on Left Side Wall	klf	Trapizoidal	1.03324	1.3507399999999998
SWL(-)	Load on Right Side Wall	klf	Trapizoidal	-1.03324	-1.3507399999999998

Wrtitng Node Info.....

JointNo	Marker	Xcoordiante	Ycoordinate	R_x	R_y	R_rotation
1	A	0.0	63.5	1	1	0
2	B	60.0	63.5	1	1	0
3	C	0.0	0.0	1	1	0
4	D	60.0	0.0	1	1	0

Writing Member Info.....

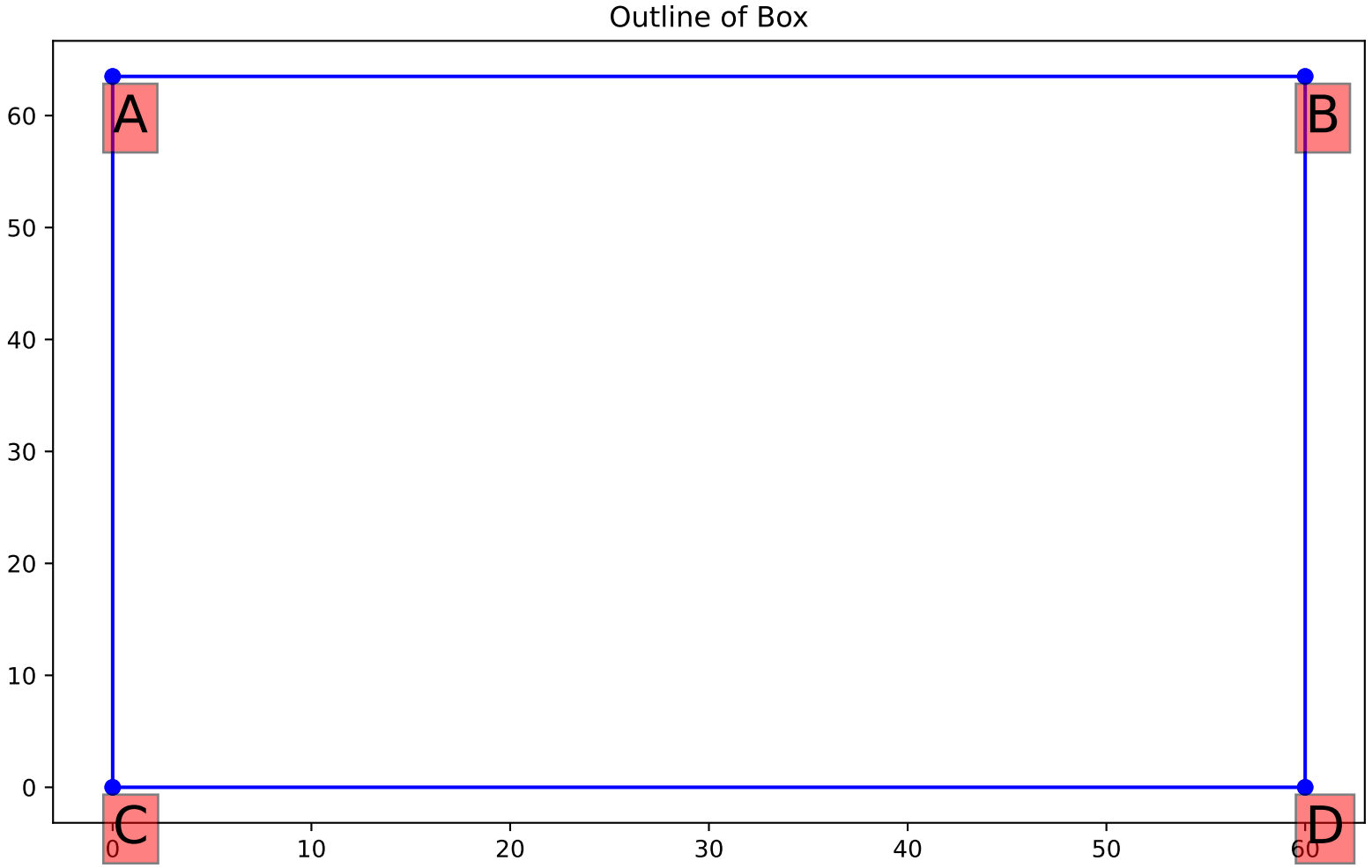
MemberNo	joint_i	joint_k	Area	I	E
1.0	1.0	2.0	259.68	10133.786944000001	3122.0
2.0	3.0	4.0	112.32	820.0258559999999	3122.0
3.0	1.0	3.0	2.0	13824.0	3122.0
4.0	2.0	4.0	2.0	13824.0	3122.0

Writing Member Load Info.....

load_value	application_point	Type	memberNo	w2
-0.15883333333333333	0.0	3.0	1.0	-0.15883333333333333
0.18741666666666668	0.0	3.0	2.0	0.18741666666666668
0.08610333333333332	0.0	7.0	3.0	0.11256166666666666
-0.08610333333333332	0.0	7.0	4.0	-0.11256166666666666

Wrting Joint Load Info.....

JointNo	xvalue	yvalue	mvalue
0	0	0	0


Outline of Box
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B
C
D
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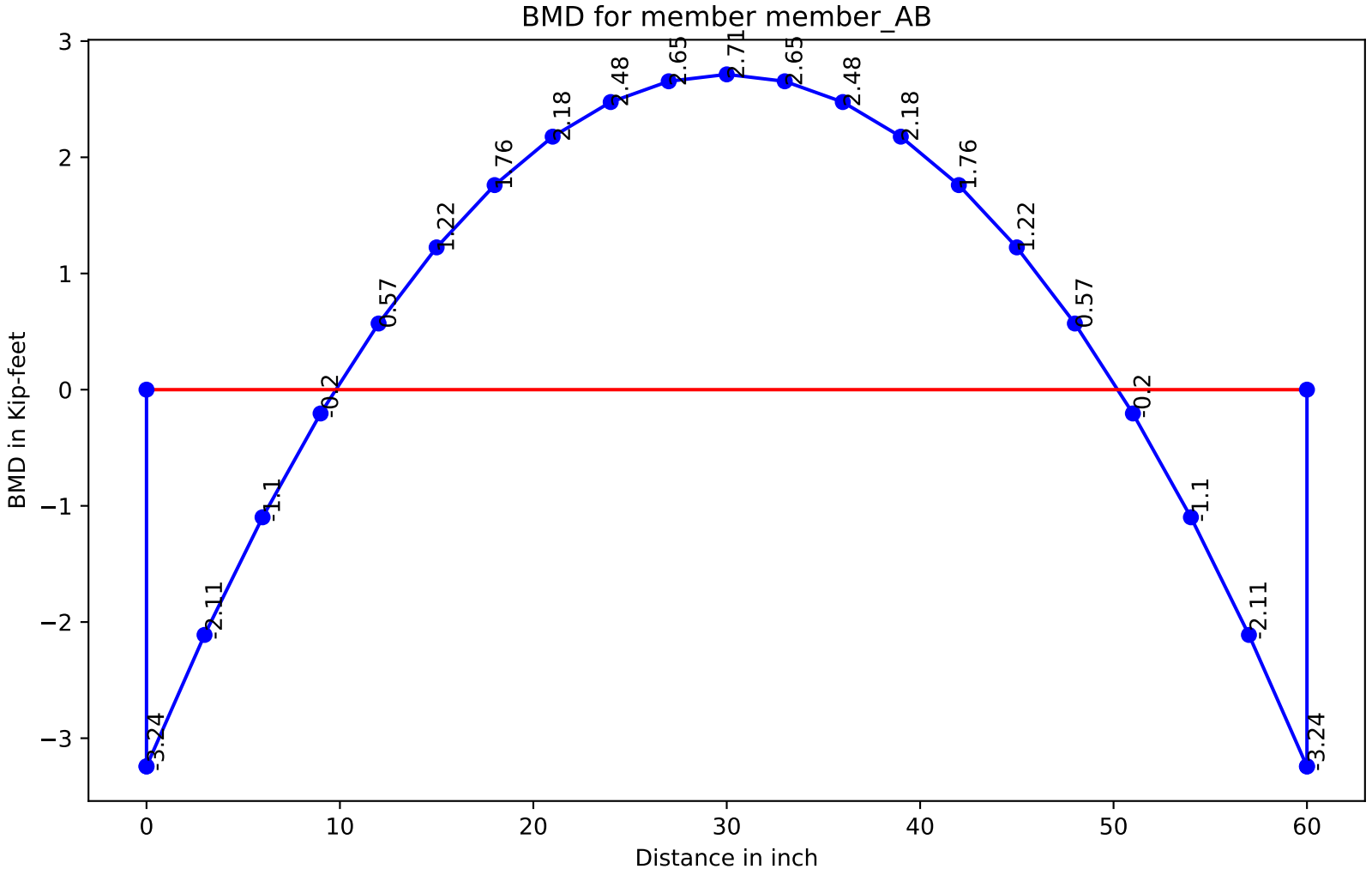
50
40
30
20
10
0
0
10
20
30
40
50
60


BMD for member member_AB
BMD in Kip-feet
Distance in inch
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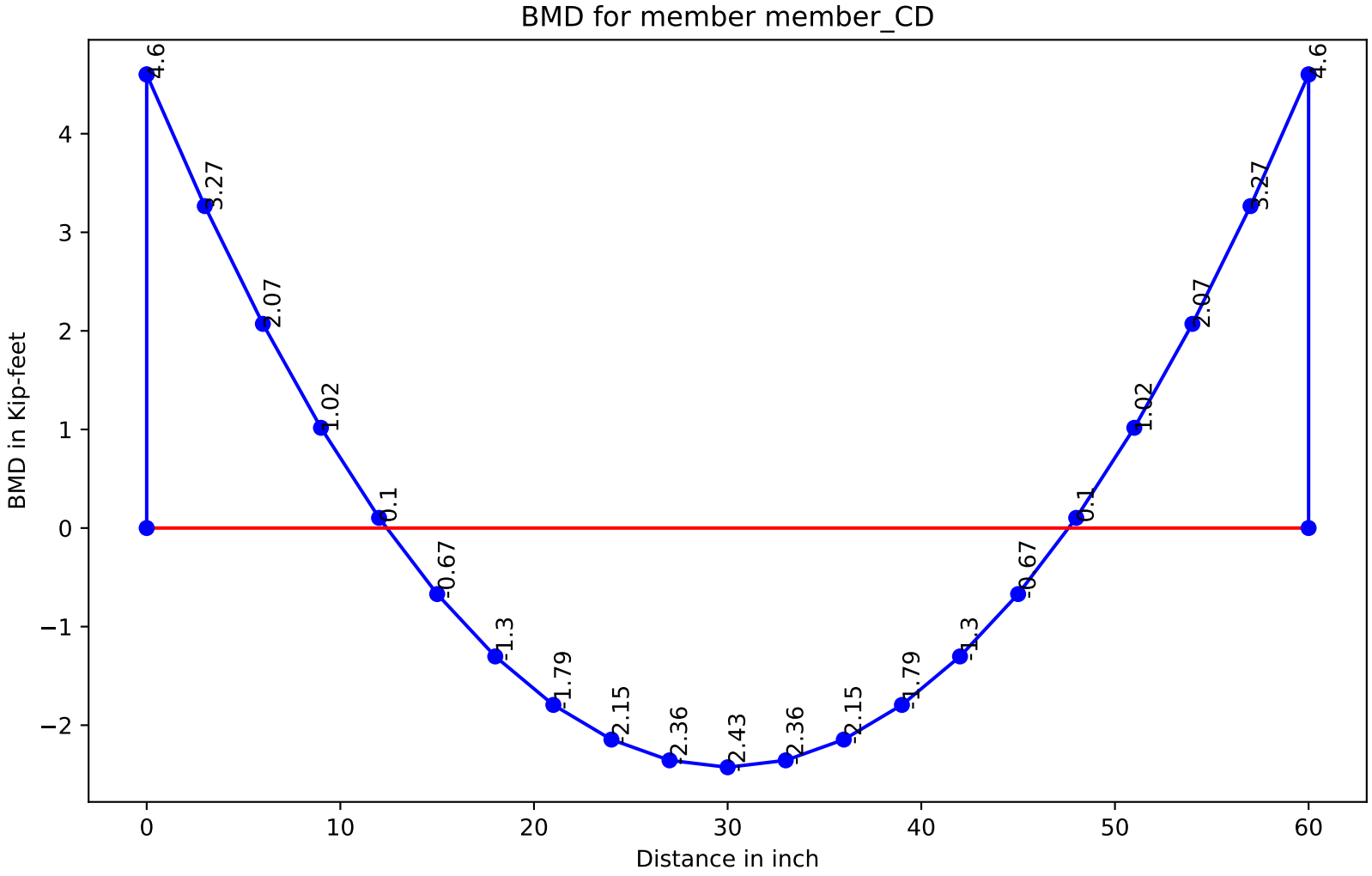
2
1
0
−1
−2
−3
0
10
20
30
40
50
60
-3.24
-2.11
-1.1
-0.2
0.57
1.22
1.76
2.18
2.48
2.65
2.71
2.65
2.48
2.18
1.76
1.22
0.57
-0.2
-1.1
-2.11
-3.24


BMD for member member_CD
BMD in Kip-feet
Distance in inch
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3.27
2.07
1.02
0.1
-0.67
-1.3
-1.79
-2.15
-2.36
-2.43
-2.36
-2.15
-1.79
-1.3
-0.67
0.1
1.02
2.07
3.27
4.6
0
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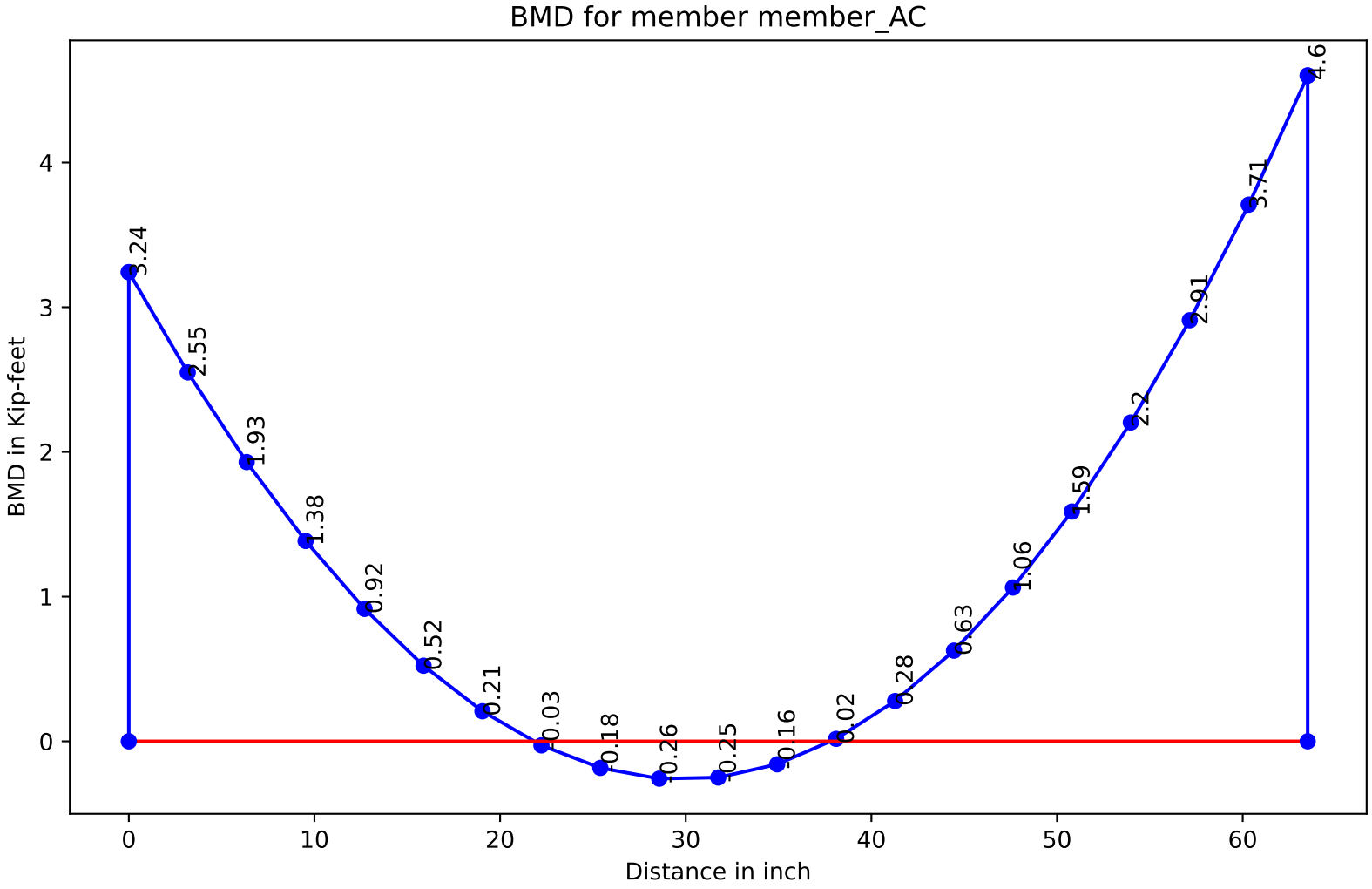
20
30
40
50
60
4
3
2
1
0
−1
−2


BMD for member member_AC
BMD in Kip-feet
Distance in inch
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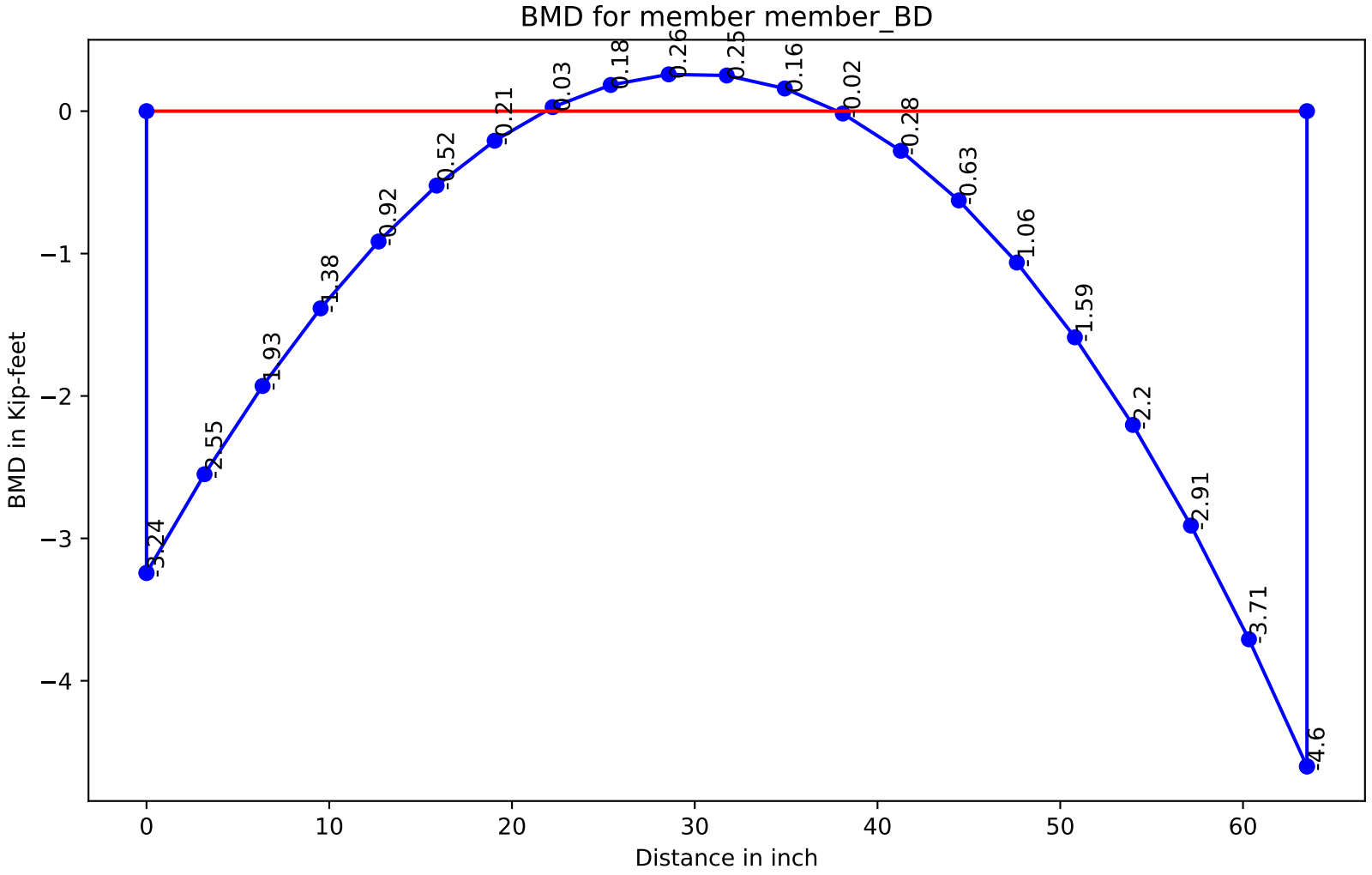
10
20
30
40
50
60
0
1
2
3
4
3.24
2.55
1.93
1.38
0.92
0.52
0.21
0.03
0.18
0.26
0.25
0.16
0.02
0.28
0.63
1.06
1.59
2.2
2.91
3.71
4.6


BMD for member member_BD
BMD in Kip-feet
Distance in inch
0
−1
−2
−3
−4
0
10
20
30
40
50
60
-3.24
-2.55
-1.93
-1.38
-0.92
-0.52
-0.21
-0.03
-0.18
-0.26
-0.25
-0.16
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-0.28
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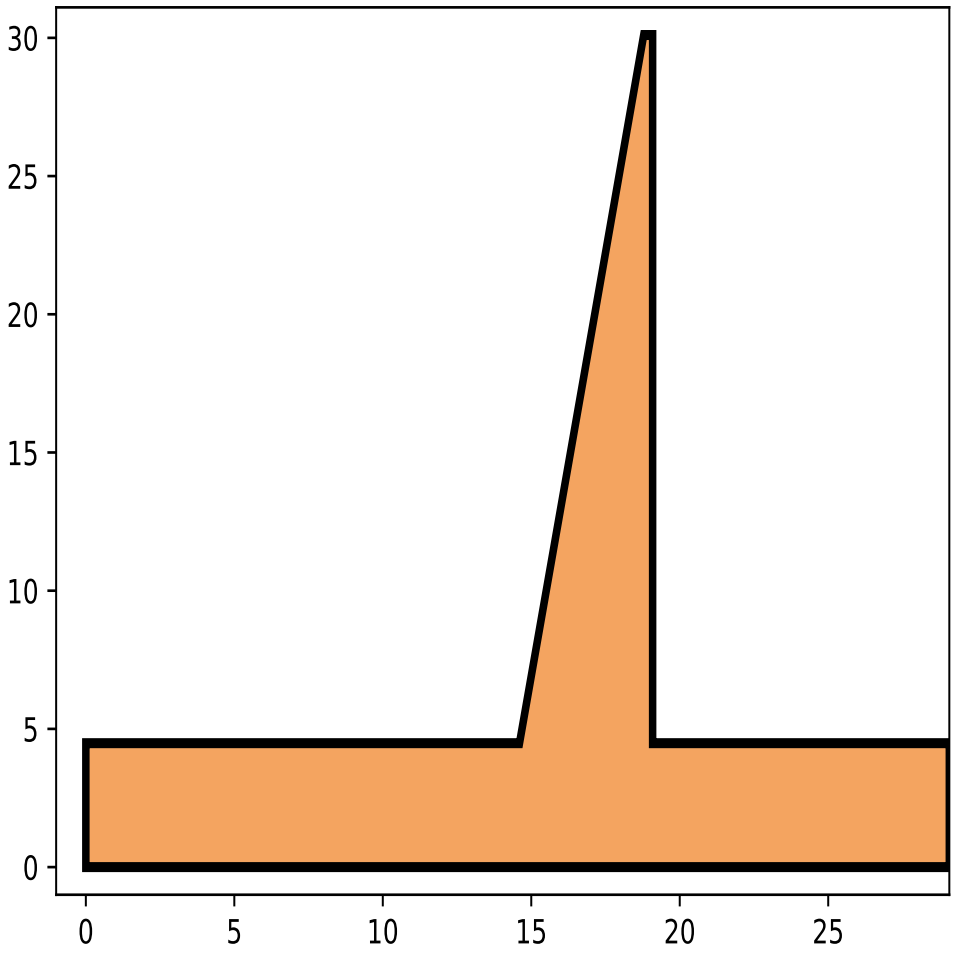
-1.59
-2.2
-2.91
-3.71
-4.6


30
25
20
15
10
5
0
0
5
10
15
20
25

Printing Earth Pressure Calcualtion for CASE(B) After Construction

component	area	PV	PH	Arm_V	Arm_H	M
C1	7.686	-1152.9	0.0	-10.1418	0.0	11692.481220000001
C2	53.590635000000006	-8038.595250000001	0.0	-11.686300000000003	0.0	93941.43567007504
C3	130.37435145	-19556.1527175	0.0	-14.53935	0.0	284333.74901318364
S1	53.590635000000006	-5894.96985	0.0	-11.686300000000003	0.0	68890.38615805501
S2	374.13910799999996	-41155.30188	0.0	-21.777	0.0	896239.00904076
SH	0.0	0.0	24422.6481951375	0.0	13.023500000000002	-318068.35876937327

Printing Earth Pressure Calcualtion for CASE(C) During Operation

component	area	PV	PH	Arm_V	Arm_H	M
C1	7.686	-1152.9	0.0	-10.1418	0.0	11692.481220000001
C2	53.590635000000006	-8038.595250000001	0.0	-11.686300000000003	0.0	93941.43567007504
C3	130.37435145	-19556.1527175	0.0	-14.53935	0.0	284333.74901318364
S1	18.623609601873536	-2048.597056206089	0.0	-19.766895199063235	0.0	40494.40331513521
S2	0.08164519906323209	-8.98097189695553	0.0	-10.400660265417645	0.0	93.40803755349792
S3	359.535708	-43144.28496	0.0	-21.777	0.0	939553.09357392
S4	49.488780199063235	-5938.653623887588	0.0	-13.135230132708822	0.0	78005.58202820868
W	9.991800000000001	-623.48832	0.0	-4.995900000000001	0.0	3114.8852978880004
U	846.2919454500001	52808.61739608	0.0	-14.53935	0.0	-767802.9713376958
P1	0.0	0.0	26.95	0.0	29.436833333333333	-793.3226583333333
P2	0.0	0.0	1568.67865	0.0	14.55175	-22827.0195451375
P3	0.0	0.0	38379.885329471996	0.0	9.701166666666667	-372329.6642287628
P4	0.0	0.0	1043.6048142	0.0	1.8278333333333334	-1907.5356662219

Printing Earth Pressure Calcualtion for CASE(B) After Construction

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	75797.92	29.08	2606.53	2049.28	-14.54	-140.94	65186.0	-462.51	2144.02
14.6	75797.92	29.08	2606.53	2049.28	0.06	34154.67	65186.0	1.91	2608.44
18.79	75797.92	29.08	2606.53	2049.28	4.25	482.18	65186.0	135.19	2741.72
19.09	75797.92	29.08	2606.53	2049.28	4.55	450.39	65186.0	144.73	2751.26
29.08	75797.92	29.08	2606.53	2049.28	14.54	140.94	65186.0	462.51	3069.04

Printing Earth Pressure Calcualtion for CASE(C) During Operation

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	27703.04	29.08	952.69	2049.01	-14.54	-140.93	117215.6	-831.74	120.95
14.6	27703.04	29.08	952.69	2049.01	0.06	31990.76	117215.6	3.66	956.36
18.79	27703.04	29.08	952.69	2049.01	4.25	482.4	117215.6	242.99	1195.68
19.09	27703.04	29.08	952.69	2049.01	4.55	450.57	117215.6	260.15	1212.84
29.08	27703.04	29.08	952.69	2049.01	14.54	140.93	117215.6	831.74	1784.43

Stem Design Force.....

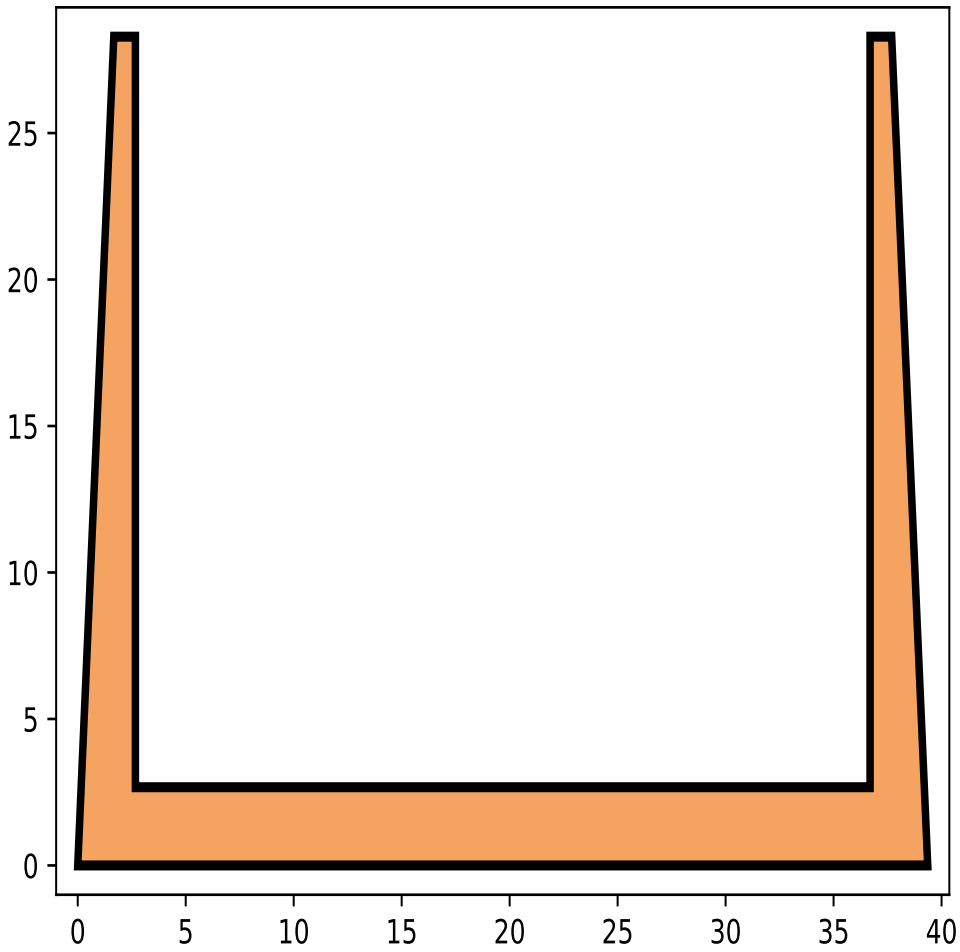
Case	Desc	V	M
Case B	After Construction	17689.55958	151068.8388132
Case C	During Operation	28819.5830528	242409.23144664534

Toe Design Force.....

Case	Desc	V	M
Case B	After Construction	22353.873749999995	114300.47236274998
Case C	During Operation	26395.262315999997	136598.06353166996

Heel Design Force.....

Case	Desc	V	M
Case B	After Construction	-16271.627000000004	-127032.52436666674
Case C	During Operation	-8288.323639999995	-162155.778628


25
20
15
10
5
0
0
5
10
15
20
25
30
35
40

Design Load Effects on Utype wing wall.....

Description	Load Case	F	P	Mend	Mcl
During Construction	A	14932.86	0.0	0.0	59968.96
After Construction	B	16871.04	17689.56	151068.84	-74615.68
During Operation	C	3656.8	21172.2	172356.55	-103804.59
During Maintenance	D	-2261.7	22142.27	174159.58	-97706.42