Printing Input Parameters.....

parameters	unit	values	Unnamed: 3	Unnamed: 4	Unnamed: 5	Unnamed: 6	Unnamed: 7	Unnamed: 8
Basin Area	sq mile	4.18	nan	nan	nan	nan	nan	nan
Avg_GL	feet-PWD	4.92	nan	nan	nan	nan	nan	nan
Highest Water Level, HS	feet-PWD	12.956	nan	nan	nan	nan	nan	nan
Lowest Water Level, LS	feet-PWD	-4.92	17.875999999999998	nan	nan	nan	nan	nan
Moonsoon Lowest Water Level	feet-PWD	-4.592	nan	nan	nan	nan	nan	nan
Embankment Crest Level	feet-PWD	18.04	nan	nan	nan	nan	nan	nan
Embankment Top Width	feet-PWD	19.68	nan	nan	nan	nan	nan	nan
C/S Slope (1:N)	nan	2.0	nan	nan	nan	nan	nan	nan
R/S Slope	nan	3.0	nan	nan	nan	nan	nan	nan
Invert Level	feet-PWD	-4.92	nan	nan	nan	nan	nan	nan
Discharge/sq mile	cfs/sqmile	54.0	nan	nan	nan	nan	nan	nan
No Vent	nan	2.0	nan	nan	nan	nan	nan	nan
Vent Width	feet	5.0	nan	nan	nan	nan	nan	nan
Vent Height	feet	6.0	nan	nan	nan	nan	nan	nan
Pier_width	inch	15.0	nan	nan	nan	nan	nan	nan
Abutment_width	inch	18.0	nan	nan	nan	nan	nan	nan
flare_Angle_min	degree	8.0	nan	nan	nan	nan	nan	nan
flare_Angle_max	degree	12.0	nan	nan	nan	nan	nan	nan
glacis_drop_min	feet	3.0	nan	nan	nan	nan	nan	nan
glacis_drop_max	feet	4.0	nan	nan	nan	nan	nan	nan
Barrel Length	feet	34.0	nan	nan	nan	nan	nan	nan
cutoff_depth_min	min	9.84	nan	nan	nan	nan	nan	nan

cutoff_depth_max	max	21.32	nan	nan	nan	nan	nan	nan
Laycey's Silt Factor	nan	0.4	nan	nan	nan	nan	nan	nan
maximum head difference	feet	17.876	nan	nan	nan	nan	nan	nan
Allowable Exit Gradient	nan	0.143	nan	nan	nan	nan	nan	nan
maximum_floor_thickness	feet	3.28	nan	nan	nan	nan	nan	nan
Top_slab_thickness	inch	20.0	nan	nan	nan	nan	nan	nan
unit weight of fill soil	pcf	120.0	nan	nan	nan	nan	nan	nan
friction Angle of fill soil	degree	20.0	nan	nan	nan	nan	nan	nan
surcharge height	feet	11.5	nan	nan	nan	nan	nan	nan
return wall level	feet-pwd	12.956	nan	nan	nan	nan	nan	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(%)
850.34	8.0	3.0	11.25	75.585	5.619	13.451	13.78	61.709	2.586	23.864	24.974	34.048	8.358	4.074	2.615	39.827	80.5	2.224	19.5
850.34	8.0	4.0	11.25	75.585	5.619	13.451	14.623	58.151	2.274	25.573	26.777	31.756	8.541	3.718	2.989	43.241	74.5	3.168	25.5
850.34	9.0	3.0	11.25	75.585	5.619	13.451	14.101	60.304	2.517	23.956	26.734	31.807	8.297	3.833	2.661	39.882	79.8	2.311	20.2
850.34	9.0	4.0	11.25	75.585	5.619	13.451	15.051	56.496	2.201	25.664	28.715	29.613	8.453	3.503	3.048	43.135	73.6	3.282	26.4
850.34	10.0	3.0	11.25	75.585	5.619	13.451	14.424	58.953	2.452	24.044	28.5	29.836	8.237	3.622	2.706	39.916	79.0	2.396	21.0
850.34	10.0	4.0	11.25	75.585	5.619	13.451	15.482	54.925	2.133	25.75	30.65	27.744	8.367	3.316	3.107	43.011	72.7	3.393	27.3
850.34	11.0	3.0	11.25	75.585	5.619	13.451	14.749	57.654	2.39	24.127	30.273	28.089	8.177	3.435	2.751	39.932	78.3	2.48	21.7
850.34	11.0	4.0	11.25	75.585	5.619	13.451	15.915	53.429	2.068	25.83	32.582	26.098	8.282	3.151	3.165	42.872	71.8	3.501	28.2
850.34	12.0	3.0	11.25	75.585	5.619	13.451	15.076	56.403	2.33	24.207	32.051	26.53	8.117	3.268	2.795	39.931	77.6	2.562	22.4
850.34	12.0	4.0	11.25	75.585	5.619	13.451	16.351	52.004	2.007	25.906	34.513	24.638	8.199	3.005	3.222	42.721	71.0	3.605	29.0

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(%)
24.09	8.0	0.91	3.43	7.02	1.71	4.1	4.2	5.74	0.79	7.28	7.61	3.16	2.55	1.24	2.615	13.0	80.5	0.68	19.5
24.09	8.0	1.22	3.43	7.02	1.71	4.1	4.46	5.4	0.69	7.8	8.16	2.95	2.6	1.13	2.989	14.0	74.5	0.97	25.5
24.09	9.0	0.91	3.43	7.02	1.71	4.1	4.3	5.6	0.77	7.3	8.15	2.96	2.53	1.17	2.661	13.0	79.8	0.7	20.2
24.09	9.0	1.22	3.43	7.02	1.71	4.1	4.59	5.25	0.67	7.82	8.75	2.75	2.58	1.07	3.048	14.0	73.6	1.0	26.4
24.09	10.0	0.91	3.43	7.02	1.71	4.1	4.4	5.48	0.75	7.33	8.69	2.77	2.51	1.1	2.706	13.0	79.0	0.73	21.0
24.09	10.0	1.22	3.43	7.02	1.71	4.1	4.72	5.1	0.65	7.85	9.34	2.58	2.55	1.01	3.107	14.0	72.7	1.03	27.3
24.09	11.0	0.91	3.43	7.02	1.71	4.1	4.5	5.36	0.73	7.36	9.23	2.61	2.49	1.05	2.751	13.0	78.3	0.76	21.7
24.09	11.0	1.22	3.43	7.02	1.71	4.1	4.85	4.97	0.63	7.88	9.93	2.43	2.53	0.96	3.165	14.0	71.8	1.07	28.2
24.09	12.0	0.91	3.43	7.02	1.71	4.1	4.6	5.24	0.71	7.38	9.77	2.47	2.47	1.0	2.795	13.0	77.6	0.78	22.4
24.09	12.0	1.22	3.43	7.02	1.71	4.1	4.99	4.83	0.61	7.9	10.52	2.29	2.5	0.92	3.222	14.0	71.0	1.1	29.0

Printing Basin Selection Data.....

Parmeter Name	Unit	Values
Discharge/ft	cfs/ft	75.585
Flare Angle	Degree	11.0
Glasis_Drop	Feet	4.0
Exit Velocity	Feet/sec	3.15
Fr1		3.16
Jump_Length	Feet	42.87
Energy Loss(%)	%	28.2
Floor Length	Feet	158.0
Point_1	Feet	0.0
Point_2	Feet	62.0
Point_3	Feet	96.0
Point_4	Feet	158.0

Printing Seepage Calcualtion Data.....

locations	uncorrected	mc_corr	t_corrr	corrected
Phi_E	32.29	-1.4660634479078605	1.53	32.22
Phi_C1	67.71	1.4660634479078605	1.53	70.71

Printing thickness calcualtion data.....

location	p(%)	p(feet)	th_min(feet)
1.0	70.71	12.64	0.0
2.0	55.61	9.94	0.0
3.0	47.32	8.46	6.04
4.0	32.22	5.76	4.11

Printing Detiled thickness calcualtion data.....

dist	P%	Hw	Bi	-WwL	Net(Hw)	t_req
0.0	32.22	5.76	23.0	2.78	2.98	2.13
3.0	32.95082278481013	5.89	22.43	2.85	3.04	2.17
6.0	33.68164556962025	6.02	21.86	2.92	3.1	2.21
9.0	34.41246835443038	6.15	21.29	3.0	3.15	2.25
12.0	35.1432911392405	6.28	20.73	3.08	3.2	2.29
15.0	35.87411392405063	6.41	20.16	3.17	3.24	2.31
18.0	36.604936708860755	6.54	19.59	3.26	3.28	2.34
21.0	37.335759493670885	6.67	19.02	3.36	3.31	2.36
24.0	38.06658227848101	6.8	18.45	3.46	3.34	2.39
27.0	38.79740506329114	6.94	17.88	3.57	3.37	2.41
30.0	39.52822784810127	7.07	17.31	3.69	3.38	2.41
33.0	40.25905063291139	7.2	16.75	3.81	3.39	2.42
36.0	40.98987341772152	7.33	16.18	3.95	3.38	2.41
39.0	41.72069620253164	7.46	15.61	4.09	3.37	2.41
42.0	42.45151898734177	7.59	15.04	4.25	3.34	2.39
45.0	43.1823417721519	7.72	14.47	4.41	3.31	2.36
48.0	43.91316455696202	7.85	13.9	4.59	3.26	2.33
51.0	44.643987341772146	7.98	13.33	4.79	3.19	2.28
54.0	45.374810126582275	8.11	12.77	5.0	3.11	2.22
57.0	46.105632911392405	8.24	12.2	5.24	3.0	2.14
60.0	46.83645569620253	8.37	11.63	5.49	2.88	2.06

Printing Input Data for Load Calcualtions.....

Parameter Name	Unit	Parameter Value	Detail Name
VW	feet	5.0	Vent Inner Span/width
VH	feet	6.0	Vent Height
NV	nos	2.0	No of Vents
Tt	inch	20.0	Top Slab thicjness
Ts	inch	18.0	Abutmet Thicknes
Tb	inch	29.04	Bottom Slab Thicknes
Tp	inch	15.0	Pier Thicknes
gamma_s	pcf	120.0	Soil Fill Unit Wieght
phi	degree	20.0	friction angle of back fill soil
H	feet	11.5	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	-4.92	Invert Level of Regulator
EMBANKMENT_CREST_LEVEL	ft-pwd	18.04	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	-2.128	-2.128
BSL	Load on Bottom Slab	klf	UDL	2.396	2.396
SWL+	Load on Left Side Wall	klf	Trapizoidal	1.1576	1.6402
SWL(-)	Load on Right Side Wall	klf	Trapizoidal	-1.1576	-1.6402

Wrtitng Node Info.....

JointNo	Marker	Xcoordiante	Ycoordinate	R_x	R_y	R_rotation
1	A	0.0	96.52	1	1	0
2	B	76.5	96.52	1	1	0
3	C	153.0	96.52	1	1	0
4	D	0.0	0.0	1	1	0
5	E	76.5	0.0	1	1	0
6	F	153.0	0.0	1	1	0

Writing Member Info.....

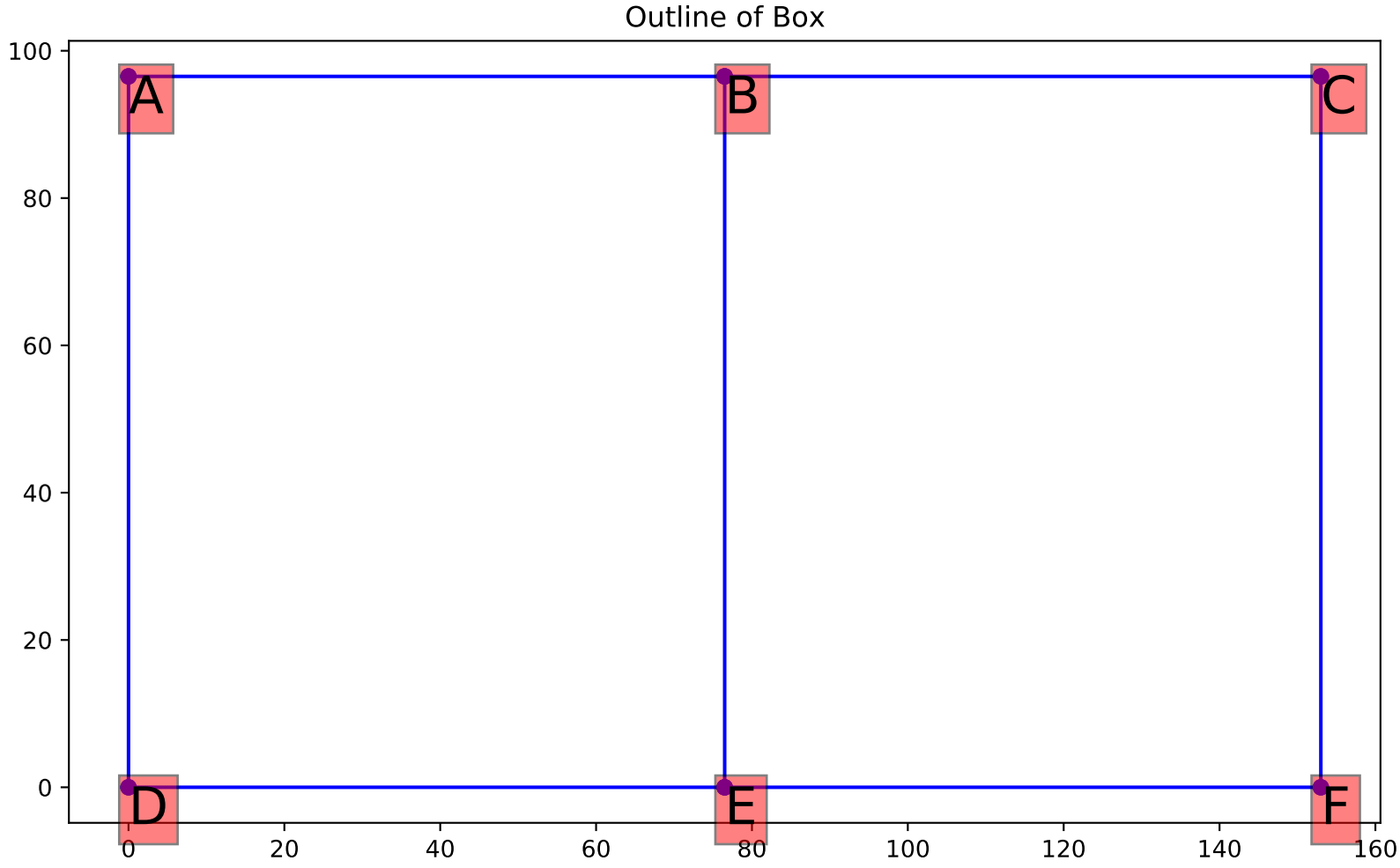
MemberNo	joint_i	joint_k	Area	I	E
1.0	1.0	2.0	240.0	8000.0	3122.0
2.0	2.0	3.0	240.0	8000.0	3122.0
3.0	4.0	5.0	348.48	24490.059264	3122.0
4.0	5.0	6.0	348.48	24490.059264	3122.0
5.0	1.0	4.0	1.5	5832.0	3122.0
6.0	2.0	5.0	180.0	3375.0	3122.0
7.0	3.0	6.0	1.5	5832.0	3122.0

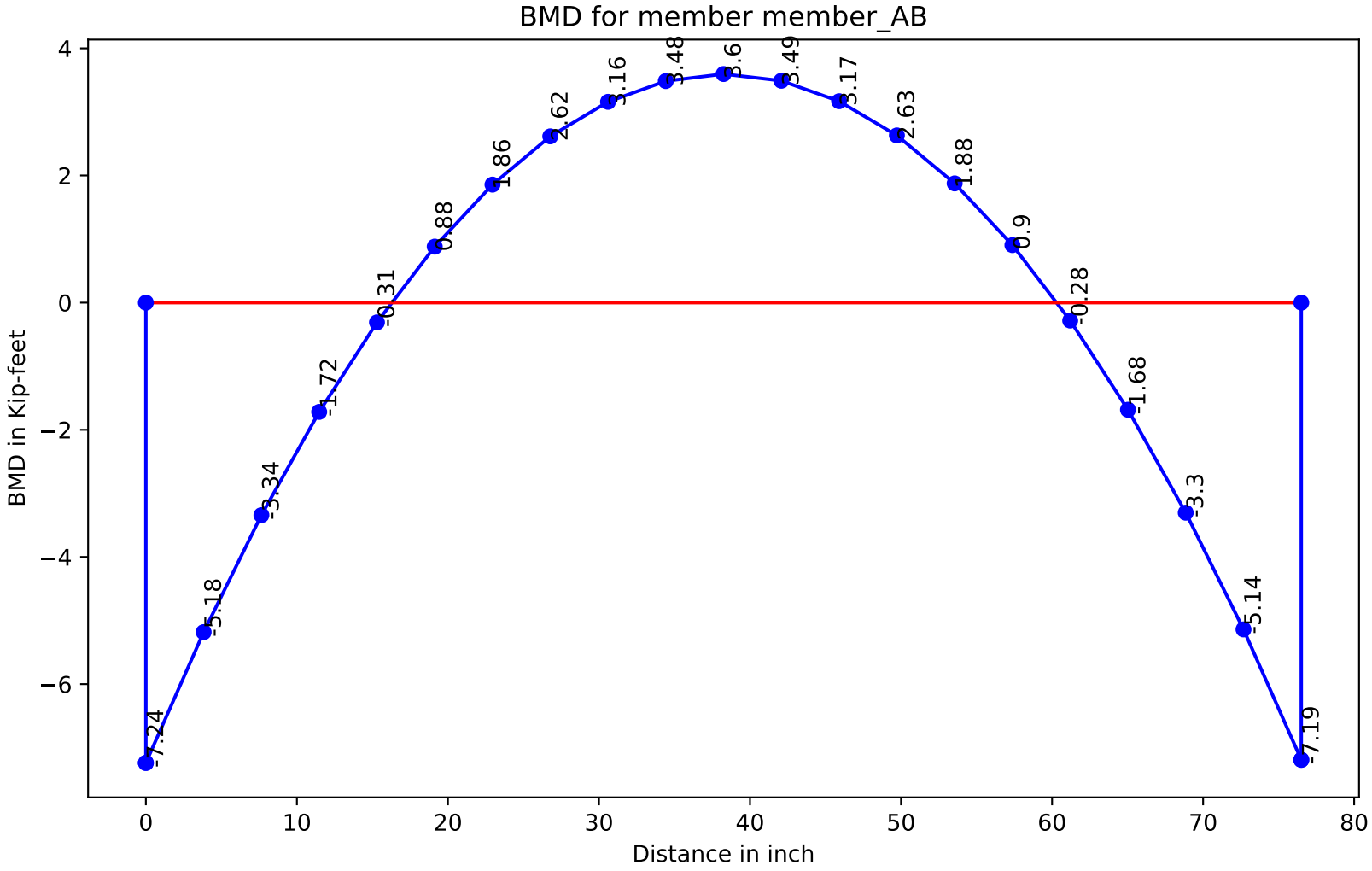
Writing Member Load Info.....

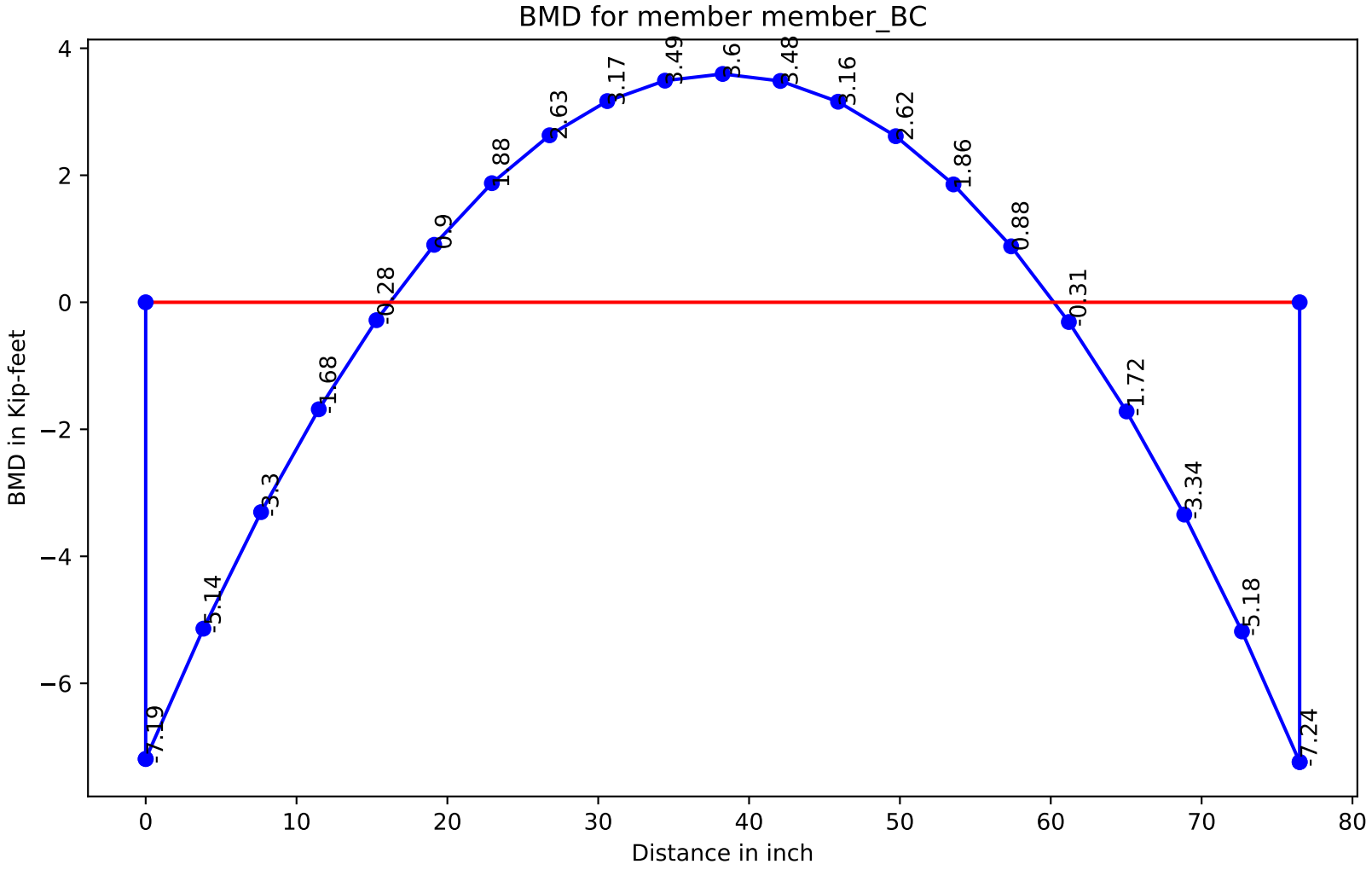
load_value	application_point	Type	memberNo	w2
-0.17733333333333334	0.0	3.0	1.0	-0.17733333333333334
-0.17733333333333334	0.0	3.0	2.0	-0.17733333333333334
0.19966666666666666	0.0	3.0	3.0	0.19966666666666666
0.19966666666666666	0.0	3.0	4.0	0.19966666666666666
0.09646666666666666	0.0	7.0	5.0	0.13668333333333335
-0.09646666666666666	0.0	7.0	7.0	-0.13668333333333335

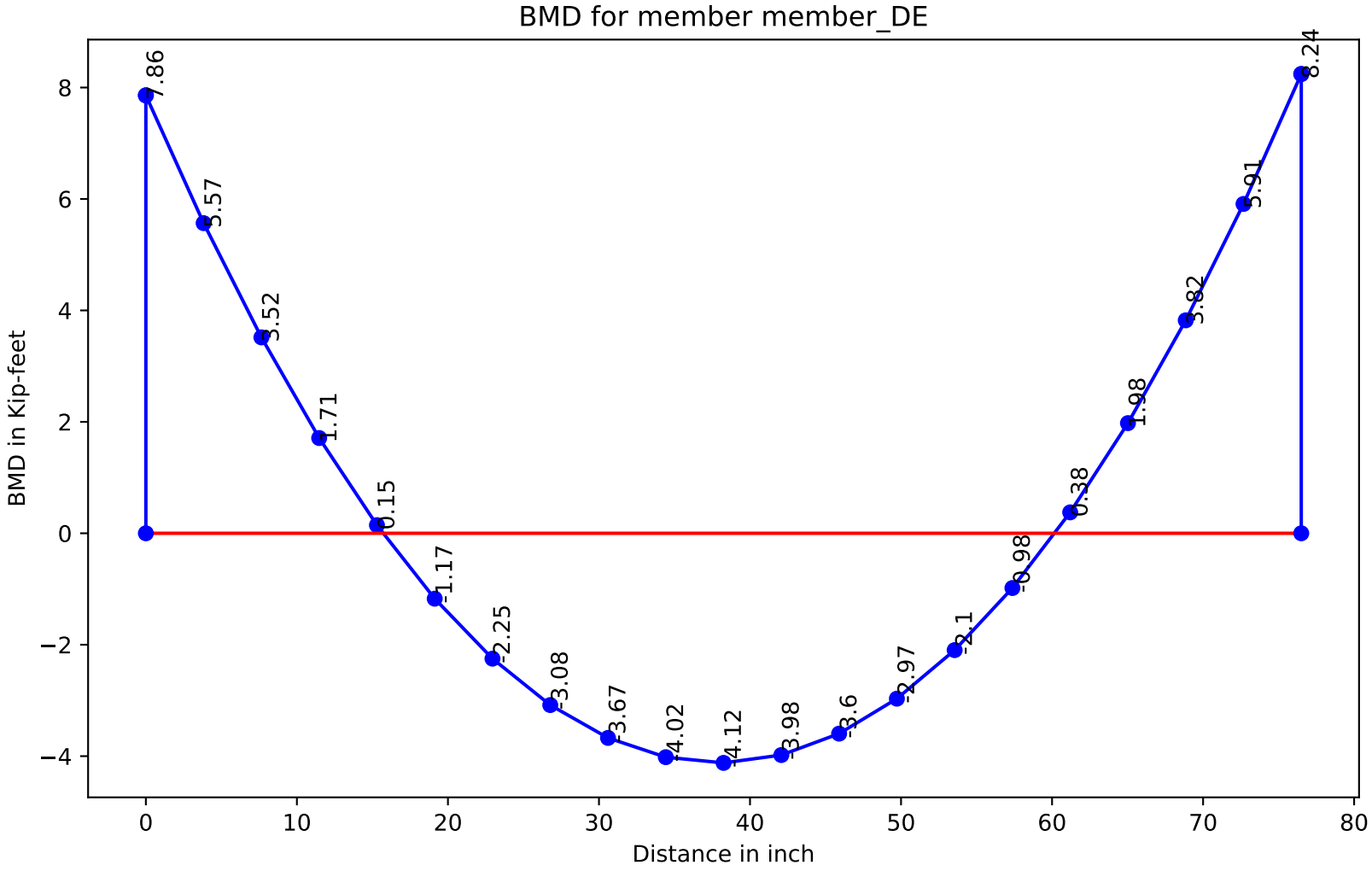
Wrting Joint Load Info.....

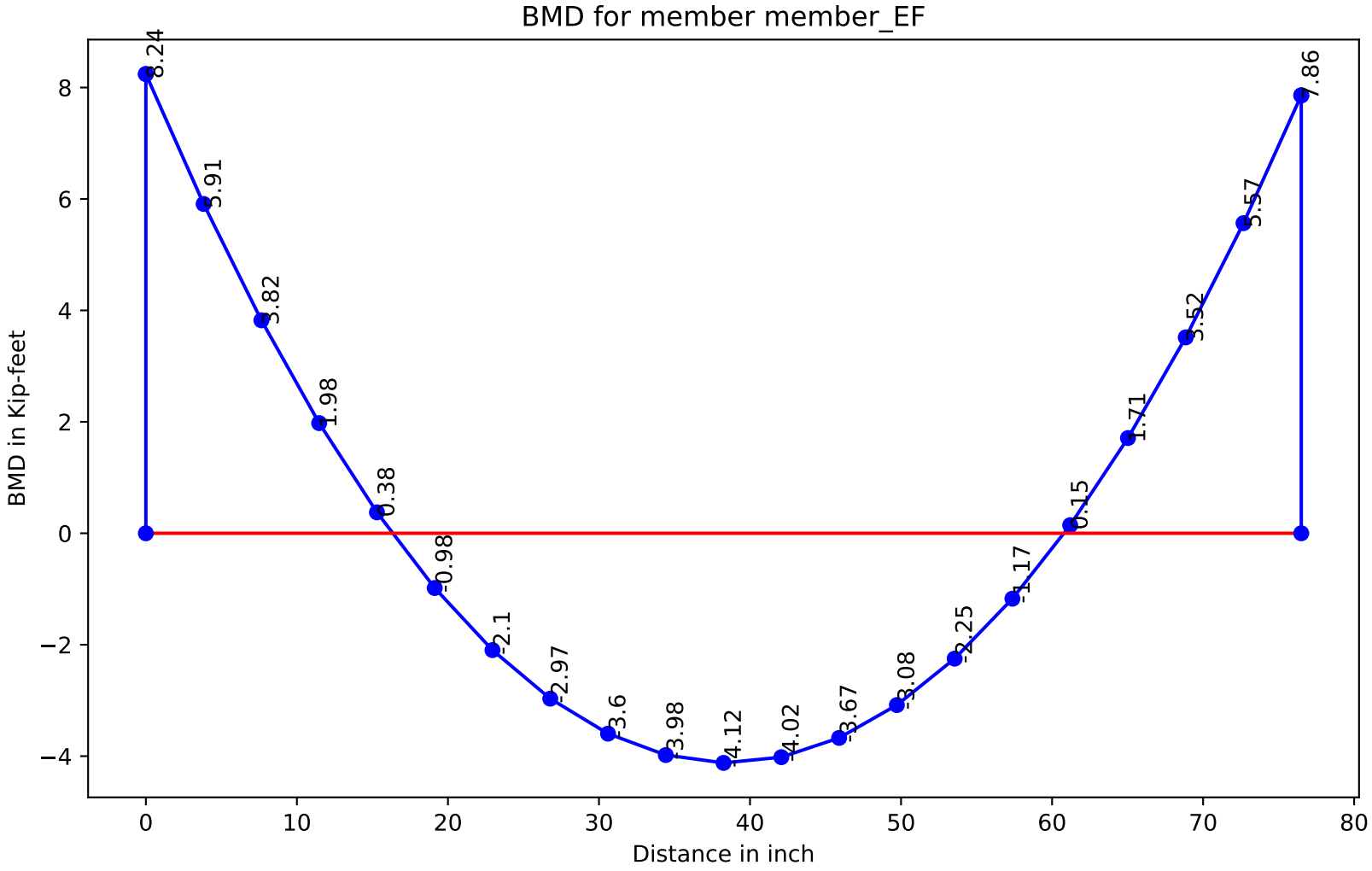
JointNo	xvalue	yvalue	mvalue
0	0	0	0

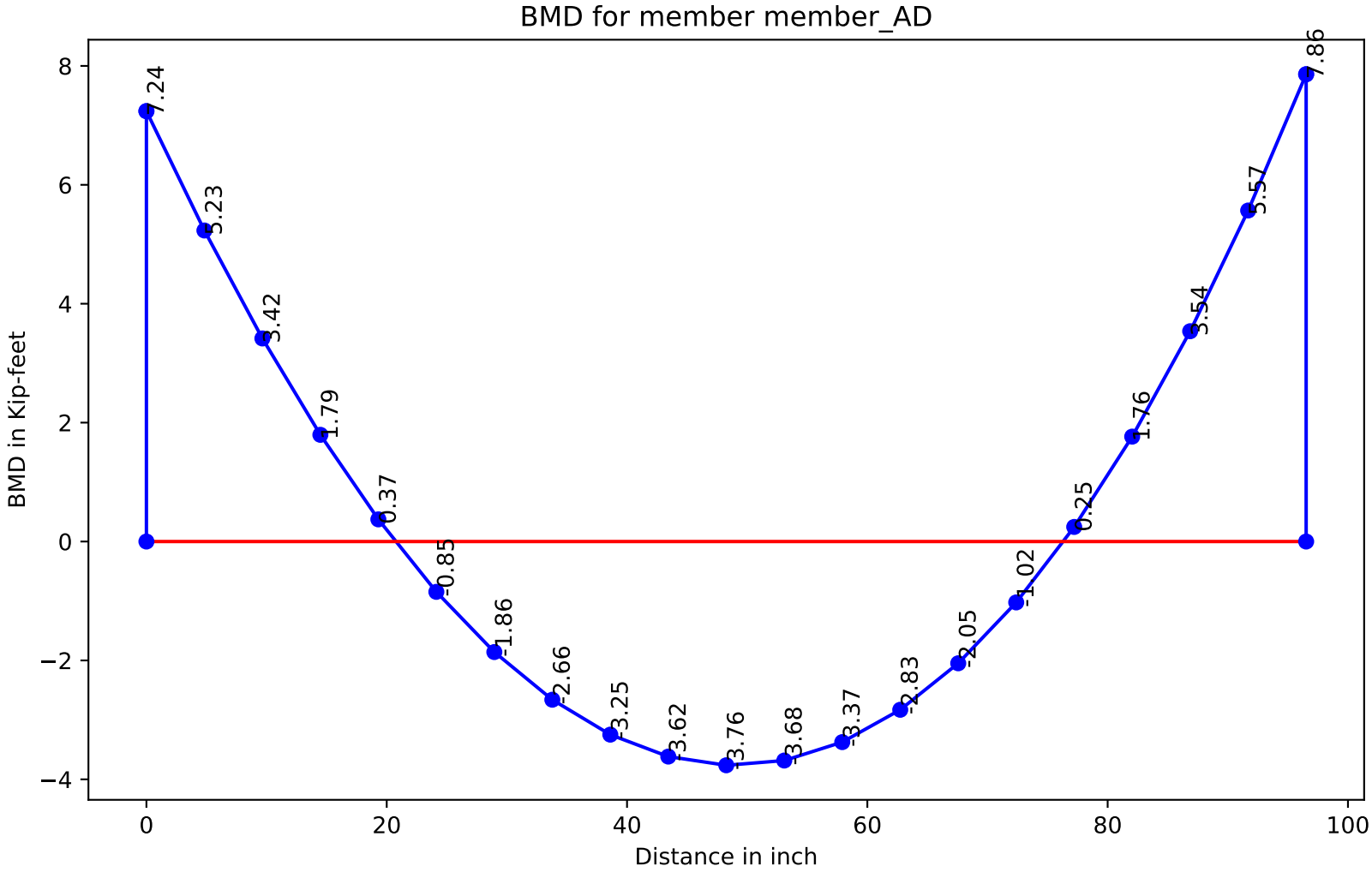

Outline of Box
A
B
C
D
E
F
100
80
60
40
20
0
0
20
40
60
80
100
120
140
160

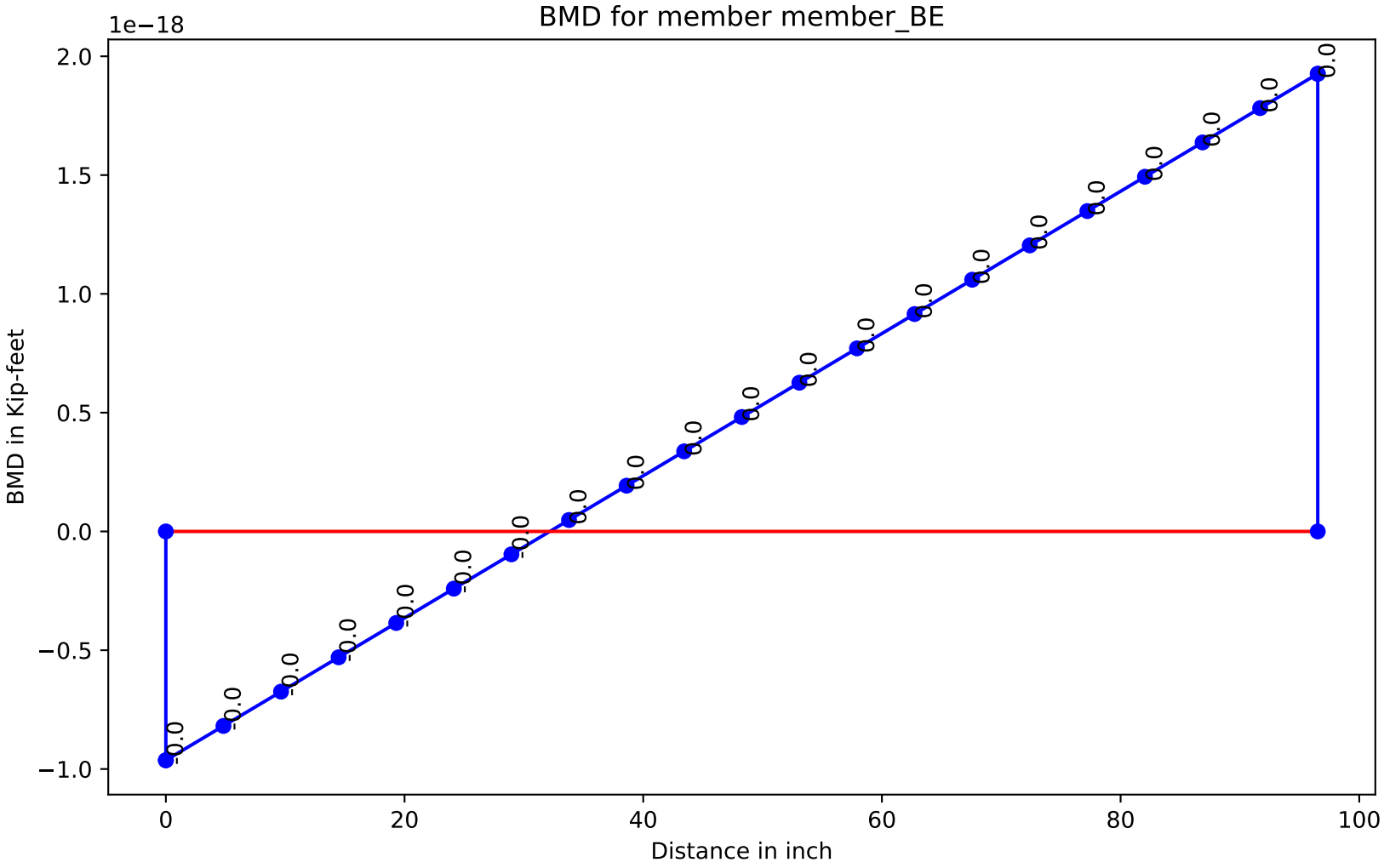

BMD for member member_AB
BMD in Kip-feet
Distance in inch
4
2
0
−2
−4
−6
0
10
20
30
40
50
60
70
80
-7.24
-5.18
-3.34
-1.72
-0.31
0.88
1.86
2.62
3.16
3.48
3.6
3.49
3.17
2.63
1.88
0.9
-0.28
-1.68
-3.3
-5.14
-7.19

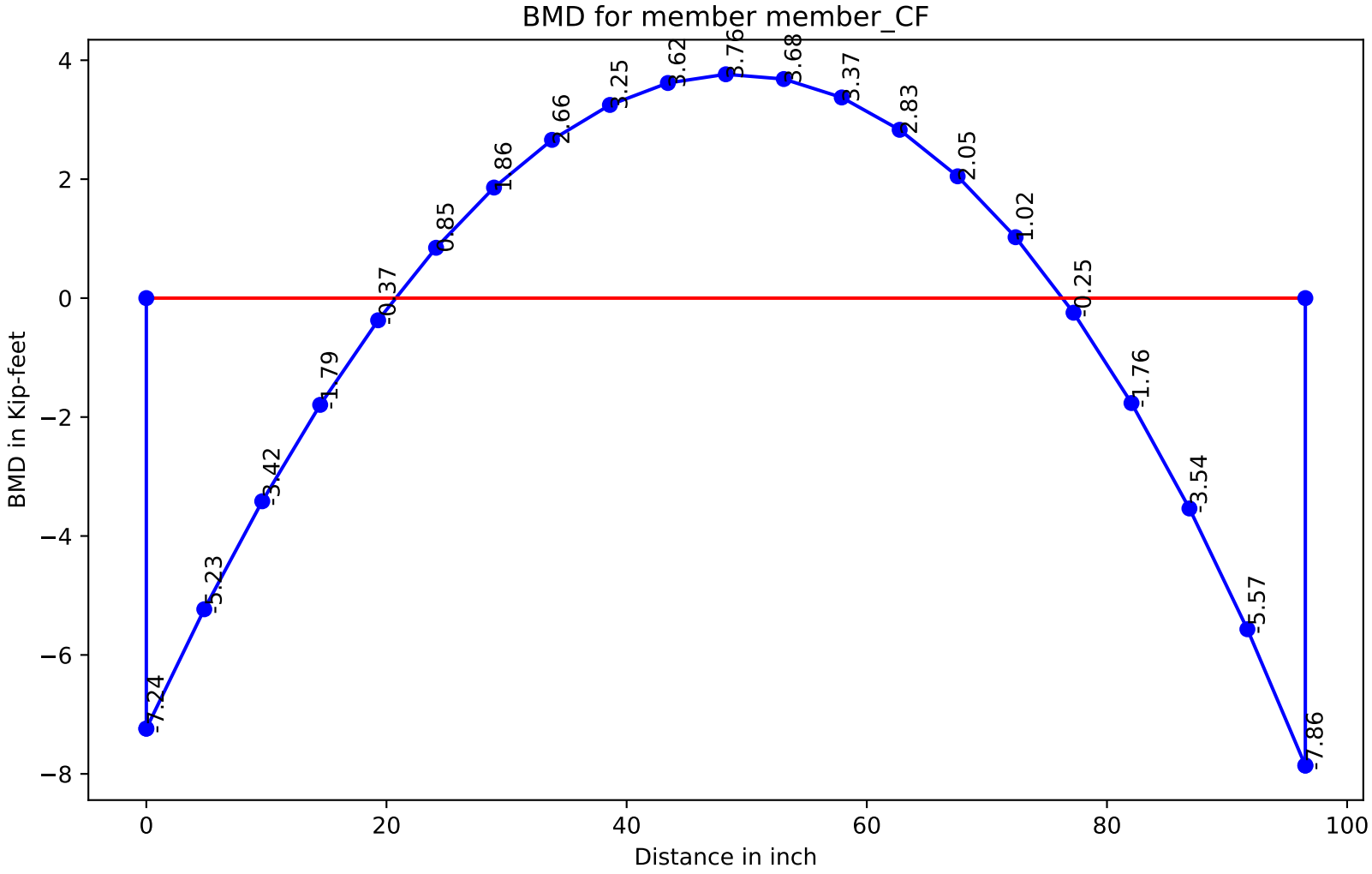

BMD for member member_BC
BMD in Kip-feet
Distance in inch
4
2
0
−2
−4
−6
0
10
20
30
40
50
60
70
80
-7.19
-5.14
-3.3
-1.68
-0.28
0.9
1.88
2.63
3.17
3.49
3.6
3.48
3.16
2.62
1.86
0.88
-0.31
-1.72
-3.34
-5.18
-7.24

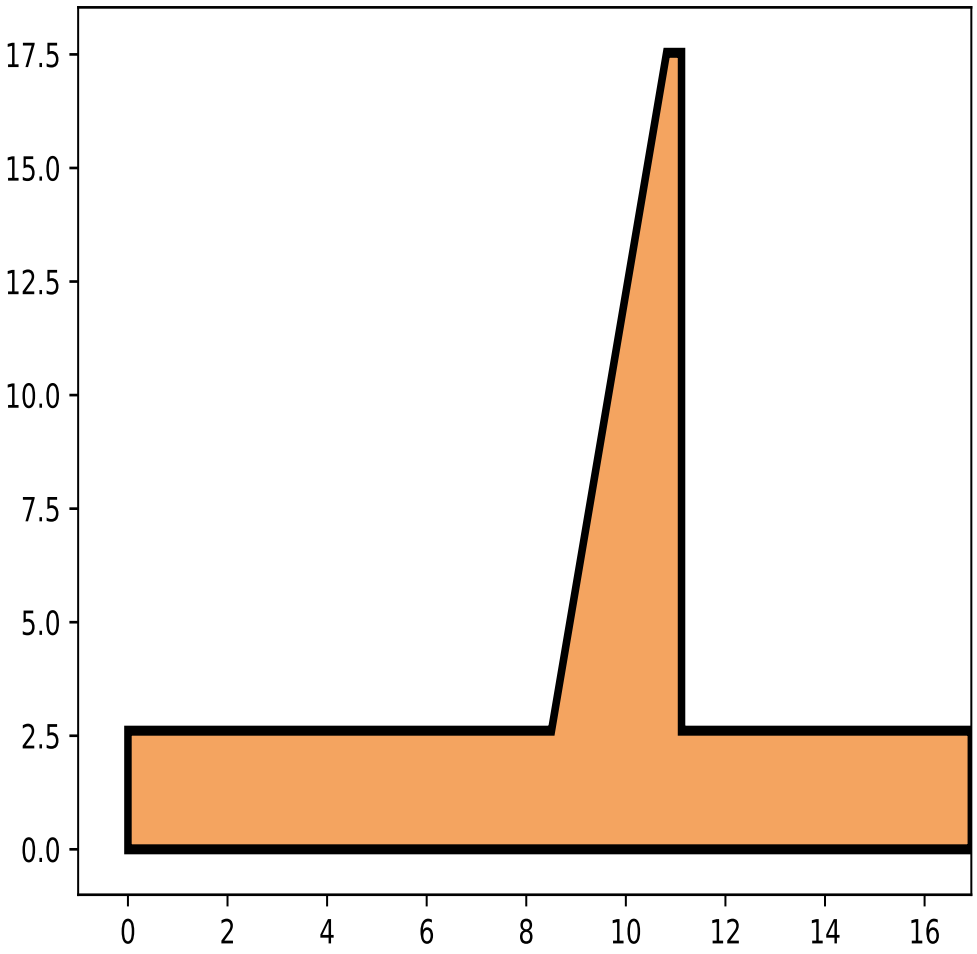

BMD for member member_DE
BMD in Kip-feet
Distance in inch
7.86
5.57
3.52
1.71
0.15
-1.17
-2.25
-3.08
-3.67
-4.02
-4.12
-3.98
-3.6
-2.97
-2.1
-0.98
0.38
1.98
3.82
5.91
8.24


BMD for member member_EF
BMD in Kip-feet
Distance in inch
8.24
5.91
3.82
1.98
0.38
-0.98
-2.1
-2.97
-3.6
-3.98
-4.12
-4.02
-3.67
-3.08
-2.25
-1.17
0.15
1.71
3.52
5.57
7.86
8
6
4
2
0
−2
−4
0
10
20
30
40
50
60
70
80


BMD for member member_AD
BMD in Kip-feet
Distance in inch
7.24
5.23
3.42
1.79
0.37
-0.85
-1.86
-2.66
-3.25
-3.62
-3.76
-3.68
-3.37
-2.83
-2.05
-1.02
0.25
1.76
3.54
5.57
7.86


BMD for member member_BE
1e−18
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
BMD in Kip-feet
0
20
40
60
80
100
Distance in inch
0.0


BMD for member member_CF
BMD in Kip-feet
Distance in inch
4
2
0
−2
−4
−6
−8
0
20
40
60
80
100
-7.24
-5.23
-3.42
-1.79
-0.37
0.85
1.86
2.66
3.25
3.62
3.76
3.68
3.37
2.83
2.05
1.02
-0.25
-1.76
-3.54
-5.57
-7.86


17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
0
2
4
6
8
10
12
14
16

Printing Earth Pressure Calcualtion for CASE(B) After Construction

component	area	PV	PH	Arm_V	Arm_H	M
C1	4.4772	-671.5799999999999	0.0	-5.970360000000001	0.0	4009.5743688000002
C2	17.2499054	-2587.48581	0.0	-6.890926666666669	0.0	17830.174967750605
C3	44.238907258	-6635.8360887	0.0	-8.46937	0.0	56201.351094553116
S1	17.2499054	-1897.489594	0.0	-6.890926666666669	0.0	13075.46164301711
S2	126.95369231999999	-13964.906155199998	0.0	-12.6854	0.0	177150.42054117404
SH	0.0	0.0	5581.1390569935	0.0	7.586366666666667	-42340.56730400692

Printing Earth Pressure Calcualtion for CASE(C) During Operation

component	area	PV	PH	Arm_V	Arm_H	M
C1	4.4772	-671.5799999999999	0.0	-5.970360000000001	0.0	4009.5743688000002
C2	17.2499054	-2587.48581	0.0	-6.890926666666669	0.0	17830.174967750605
C3	44.238907258	-6635.8360887	0.0	-8.46937	0.0	56201.351094553116
S1	92.9418178960879	-10223.599968569668	0.0	-12.308687697668185	0.0	125839.09915901432
S2	7.820049243956044	-860.2054168351648	0.0	-7.159210263557581	0.0	6158.391448974139
S3	41.376491519999995	-4965.1789824	0.0	-12.6854	0.0	62985.281463336956
S4	1.8323286385419457	-219.8794366250335	0.0	-8.180918465112123	0.0	1798.8157431841873
W	28.310231039999998	-1766.558416896	0.0	-2.91018	0.0	5141.002973682401
U	126.62893861799999	7901.6457697631995	0.0	-8.46937	0.0	-66921.96163305934
P1	0.0	0.0	1828.382979456	0.0	10.8213	-19785.480735587214
P2	0.0	0.0	2723.665439088	0.0	3.73785	-10180.65286149508
P3	0.0	0.0	2274.7874273049597	0.0	2.4919	-5668.542790101229
P4	0.0	0.0	1886.3991272879998	0.0	2.4919	-4700.717985288967

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	25757.3	16.94	1520.5	405.1	-8.47	-47.83	-7727.0	161.55	1682.05
8.51	25757.3	16.94	1520.5	405.1	0.04	10127.5	-7727.0	-0.76	1519.74
10.82	25757.3	16.94	1520.5	405.1	2.35	172.38	-7727.0	-44.83	1475.67
11.12	25757.3	16.94	1520.5	405.1	2.65	152.87	-7727.0	-50.55	1469.95
16.94	25757.3	16.94	1520.5	405.1	8.47	47.83	-7727.0	-161.55	1358.95

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	20028.68	16.94	1182.42	405.01	-8.47	-47.82	-3076.05	64.33	1246.74
8.51	20028.68	16.94	1182.42	405.01	0.04	10855.17	-3076.05	-0.28	1182.14
10.82	20028.68	16.94	1182.42	405.01	2.35	172.42	-3076.05	-17.84	1164.58
11.12	20028.68	16.94	1182.42	405.01	2.65	152.89	-3076.05	-20.12	1162.3
16.94	20028.68	16.94	1182.42	405.01	8.47	47.82	-3076.05	-64.33	1118.09

Stem Design Force.....

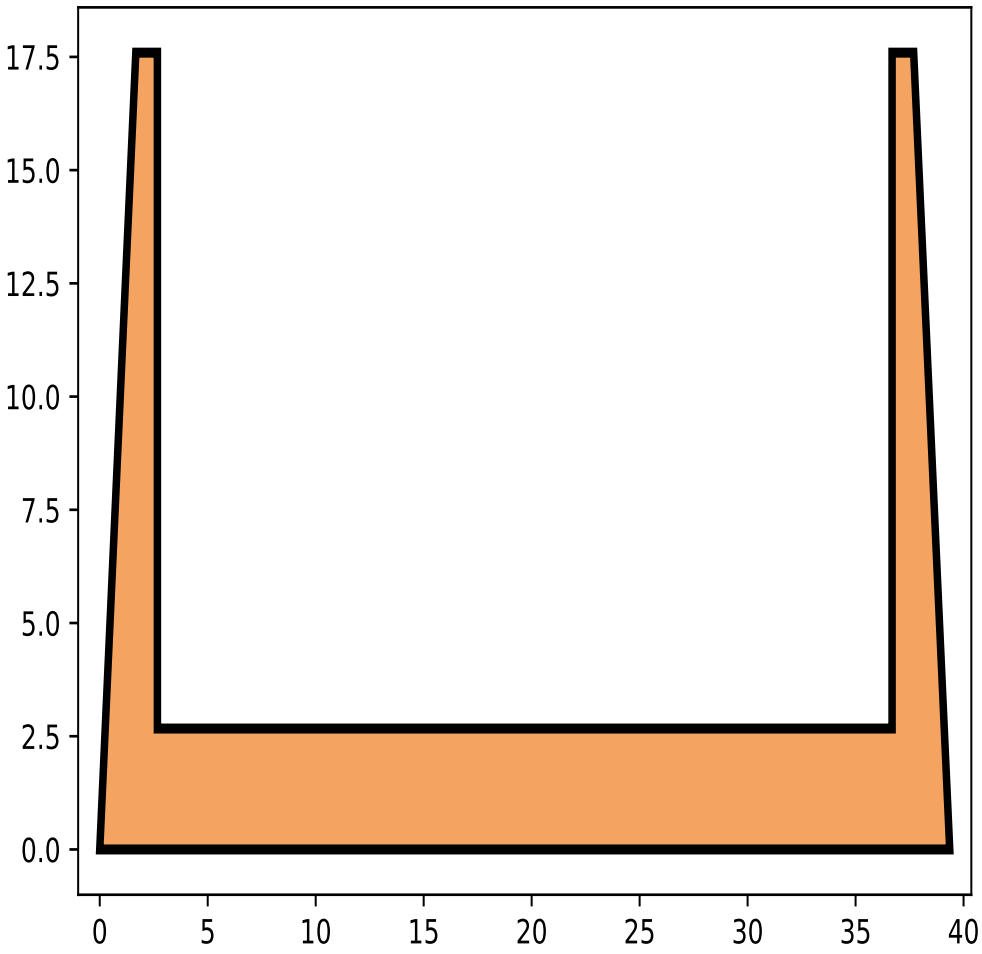
Case	Desc	V	M
Case B	After Construction	4042.4728344000005	20109.9548601952
Case C	During Operation	4563.5079264	20881.448491003288

Toe Design Force.....

Case	Desc	V	M
Case B	After Construction	5952.0849000000035	17007.247359000015
Case C	During Operation	7070.855817600002	20451.39886221601

Heel Design Force.....

Case	Desc	V	M
Case B	After Construction	-3680.574999999999	-14681.304422416659
Case C	During Operation	-7290.250466800002	-14041.991366832677


17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
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	11989.67	0.0	0.0	34937.1
After Construction	B	13290.42	4042.47	20109.95	25889.98
During Operation	C	13207.28	3611.11	19184.5	18914.23
During Maintenance	D	7288.78	4581.17	20987.53	25012.41