



Supplemental Structural Calculations For:

Clarkson Residence

8613 West Mercer Way
Mercer Island, WA 98040



Prepared for: Brandt Design Group

Job #: 01519-2021-11

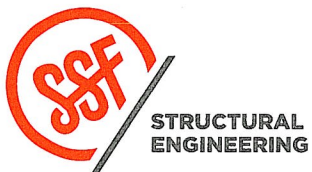
Date: May 27, 2022

Gravity Design

Main Floor West Deck joists

L= 14' $f_b= 1042$ psi
w= 93 plf $f_c= 52$ psi
R= 0.7 k $\Delta= 0.3''$
M= 2.3 k-ft L/521

LVL 1-3/4x9-1/2 @ 16"oc



Clarkson

PROJECT

05/27/22

DATE

01519-2021-11

PROJ. #

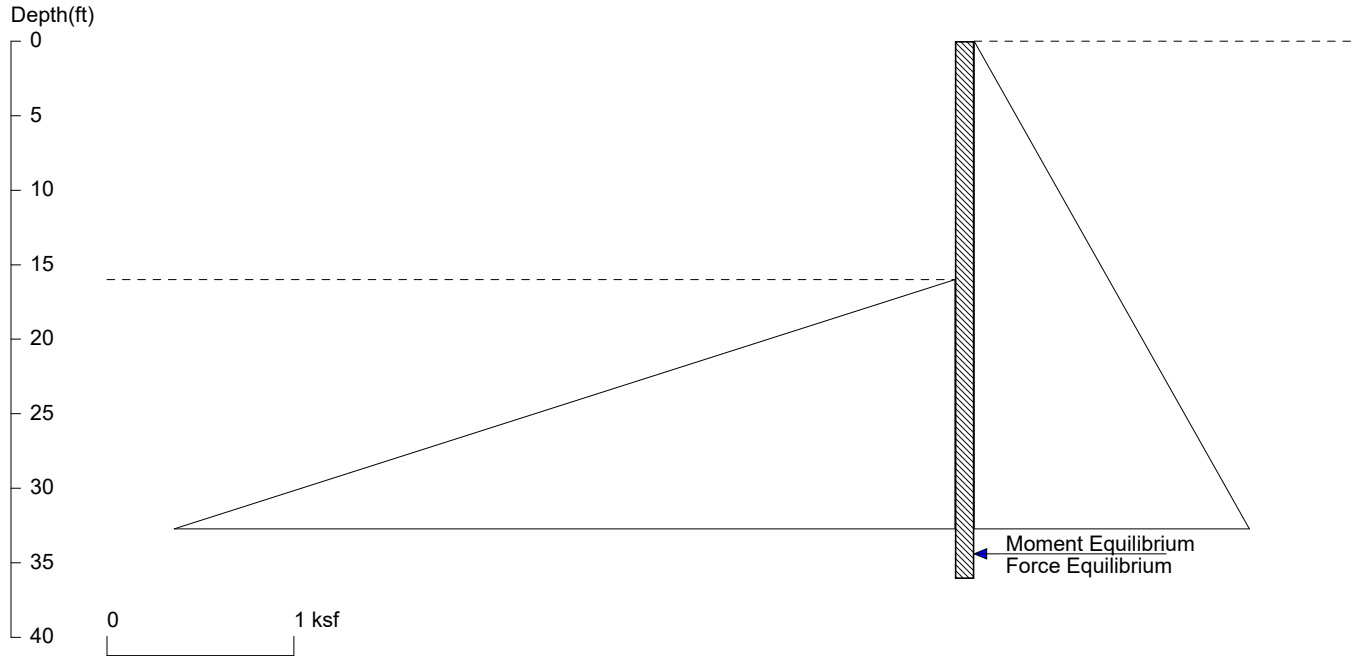
haa

DESIGN

1

SHEET

Clarkson Soil Stabilization Wall



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File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\Site Stabilization wall.sh8

Wall Height=16.0 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=20.07 Min. Pile Length=36.07

MOMENT IN PILE: Max. Moment=417.07 per Pile Spacing=6.0 at Depth=24.87

PILE SELECTION:

Request Min. Section Modulus = 151.7 in³/pile=2485.31 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66
W30X90 has Section Modulus = 245.0 in³/pile=4014.82 cm³/pile. It is greater than Min. Requirements!
Top Deflection = 0.79(in) based on E (ksi)=29000.00 and I (in⁴)/pile=3610.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	90	4.050	.045

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
16	0	90	18.50	.25

ACTIVE SPACING:

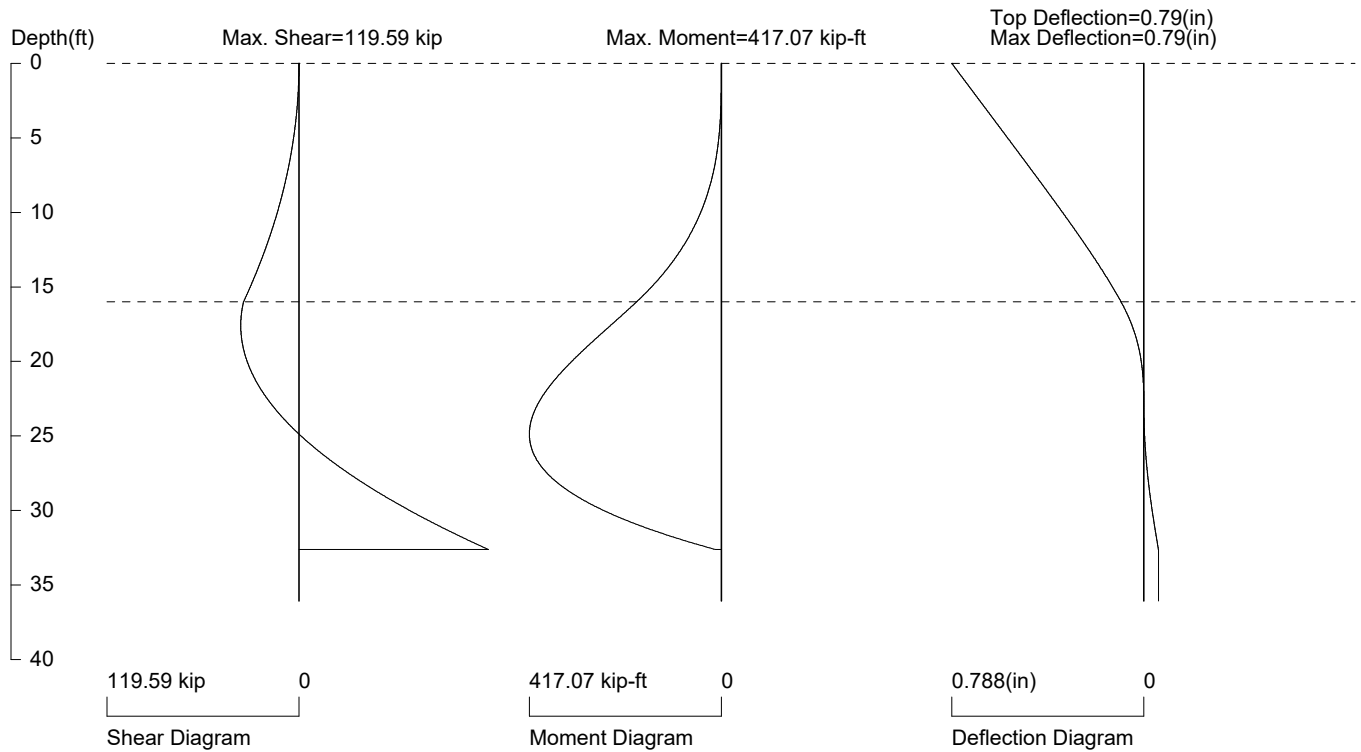
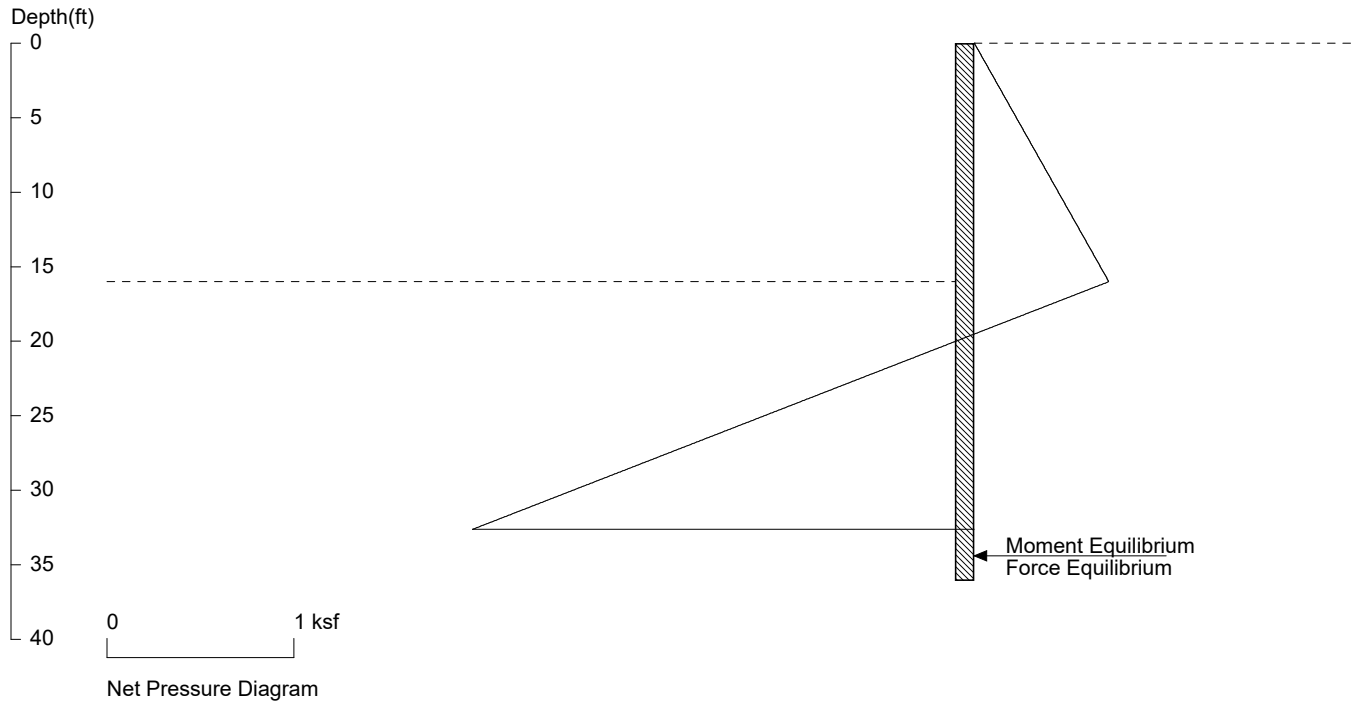
No.	Z depth	Spacing
1	0.00	6.00
2	16.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	16.00	6.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson Soil Stabilization Wall



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

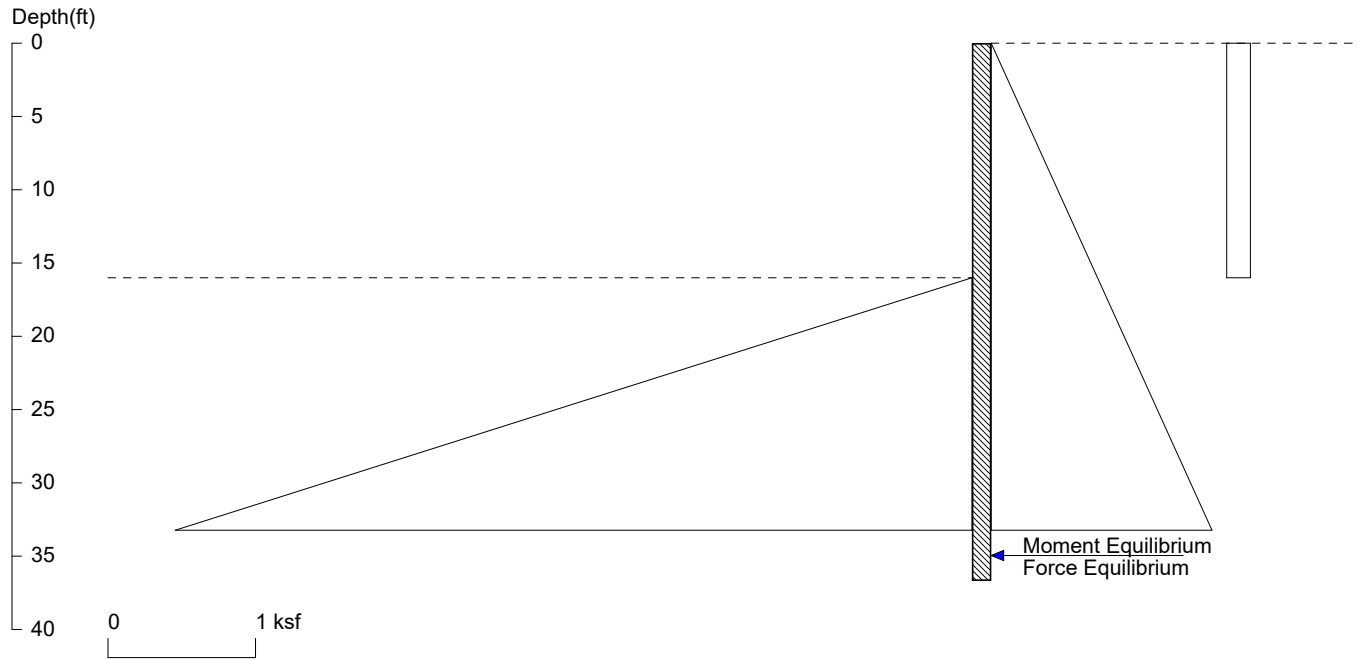
Based on pile spacing: 6.0 foot or meter

User Input Pile, W30x90: E (ksi)=29000.0, I (in⁴)/pile=3610.0

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Clarkson

Soil Stabilization Wall w/ eq



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Wall Height=16.0 Pile Diameter=3.0 Pile Spacing=6.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=20.69 Min. Pile Length=36.69

MOMENT IN PILE: Max. Moment=632.24 per Pile Spacing=6.0 at Depth=24.93

PILE SELECTION:

Request Min. Section Modulus = 229.9 in³/pile=3767.46 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66

W30X90 has Section Modulus = 245.0 in³/pile=4014.82 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.32(in) based on E (ksi)=29000.00 and I (in⁴)/pile=3610.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	90	4.050	.045
*	eq			
0	.16	16	0.160	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
16	0	90	23.16	.313

ACTIVE SPACING:

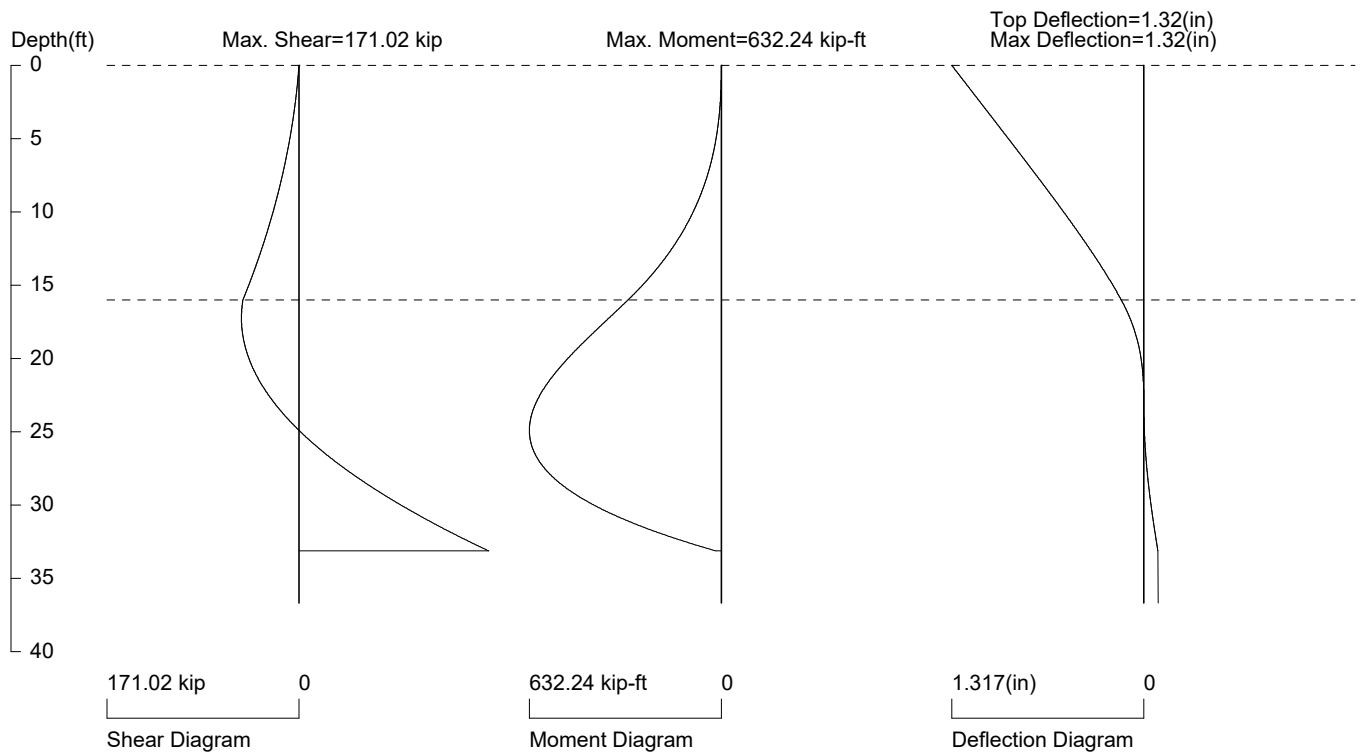
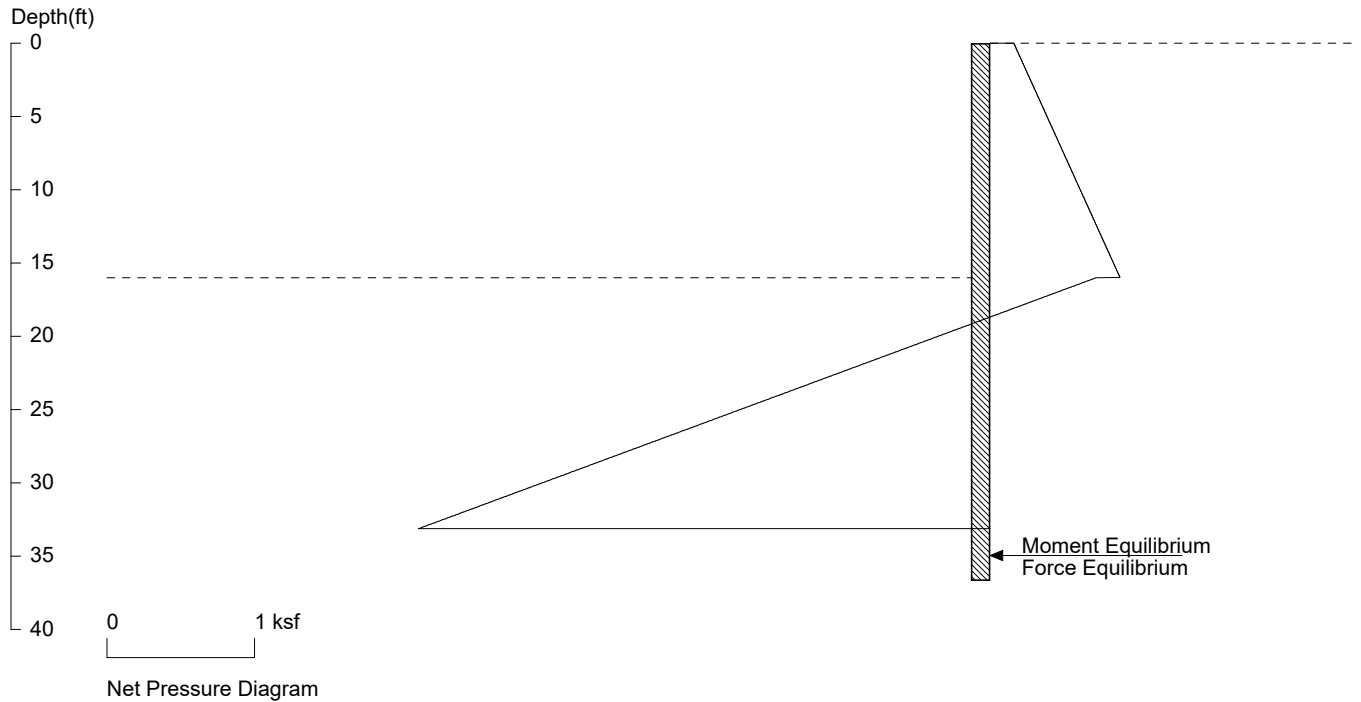
No.	Z depth	Spacing
1	0.00	6.00
2	16.00	3.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	16.00	6.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson Soil Stabilization Wall w/ eq



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 6.0 foot or meter

User Input Pile, W30x90: E (ksi)=29000.0, I (in⁴)/pile=3610.0

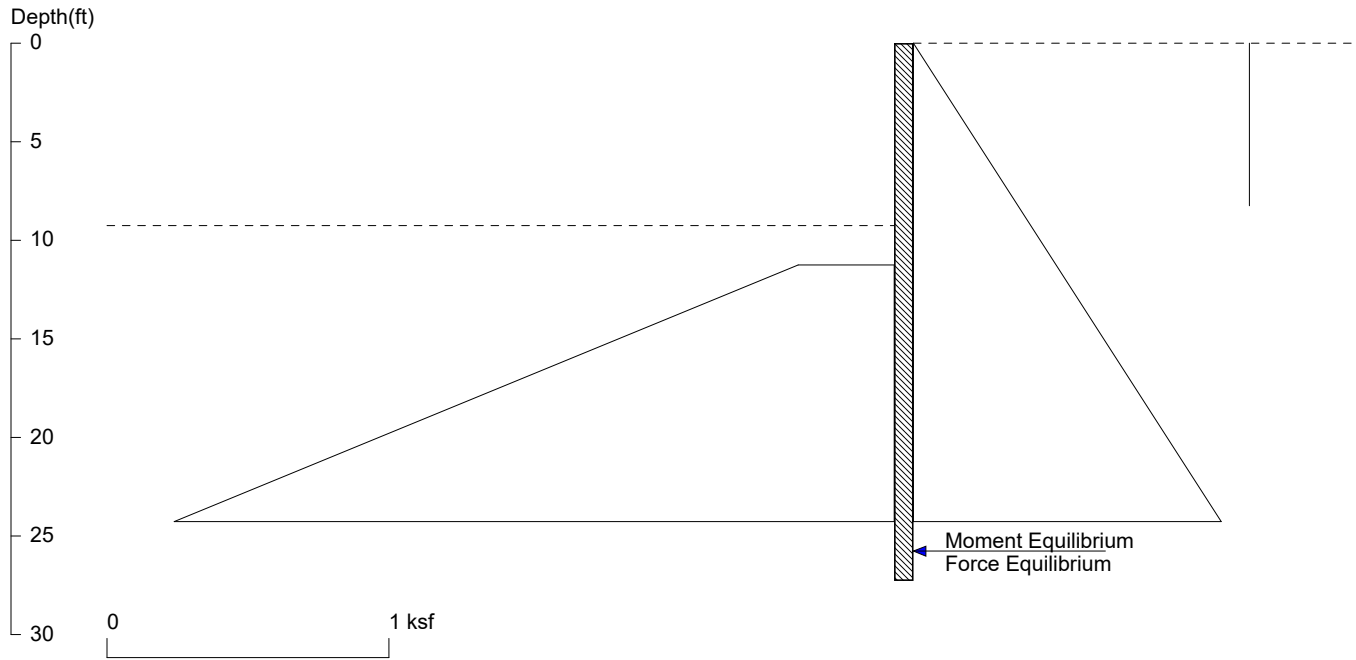
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P1 - P3 Permanent Non-Seismic



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Wall Height=9.3 Pile Diameter=2.0 Pile Spacing=6.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=18.02 Min. Pile Length=27.27

MOMENT IN PILE: Max. Moment=120.65 per Pile Spacing=6.3 at Depth=17.58

PILE SELECTION:

Request Min. Section Modulus = 43.9 in³/pile=718.92 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W18X50 has Section Modulus = 88.9 in³/pile=1456.80 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.48(in) based on E (ksi)=29000.00 and I (in⁴)/pile=800.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	8.25	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
11.25	.34	60	8.628	.17

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	6.33
2	9.25	2.00

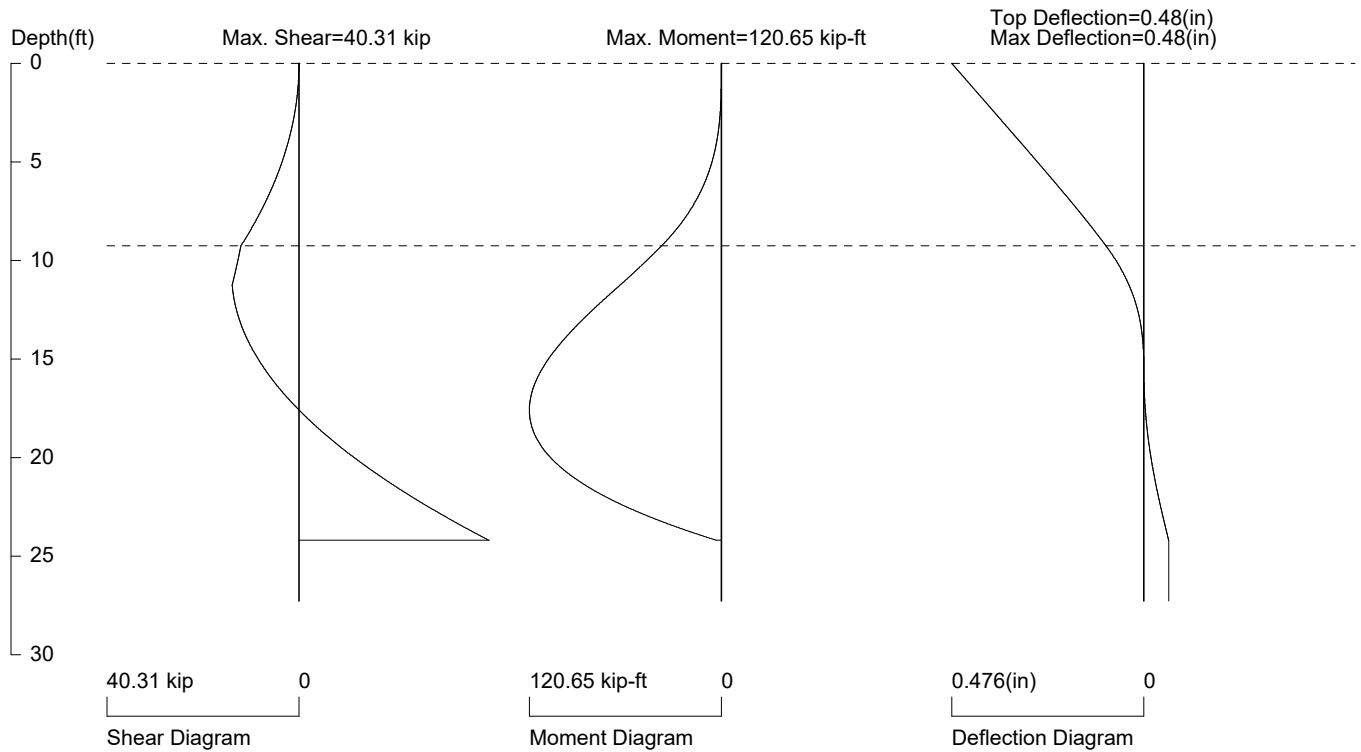
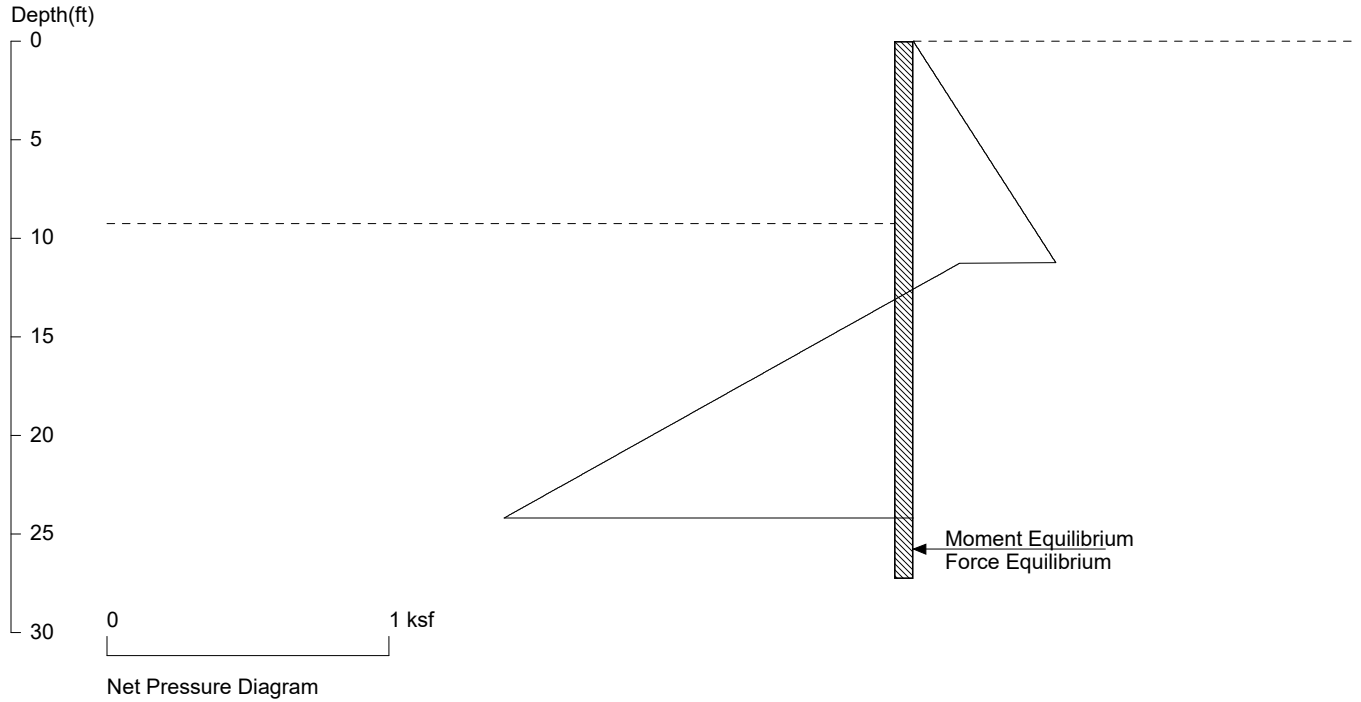
PASSIVE SPACING:

No.	Z depth	Spacing
1	9.25	4.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson

P1 - P3 Permanent Non-Seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 6.3 foot or meter

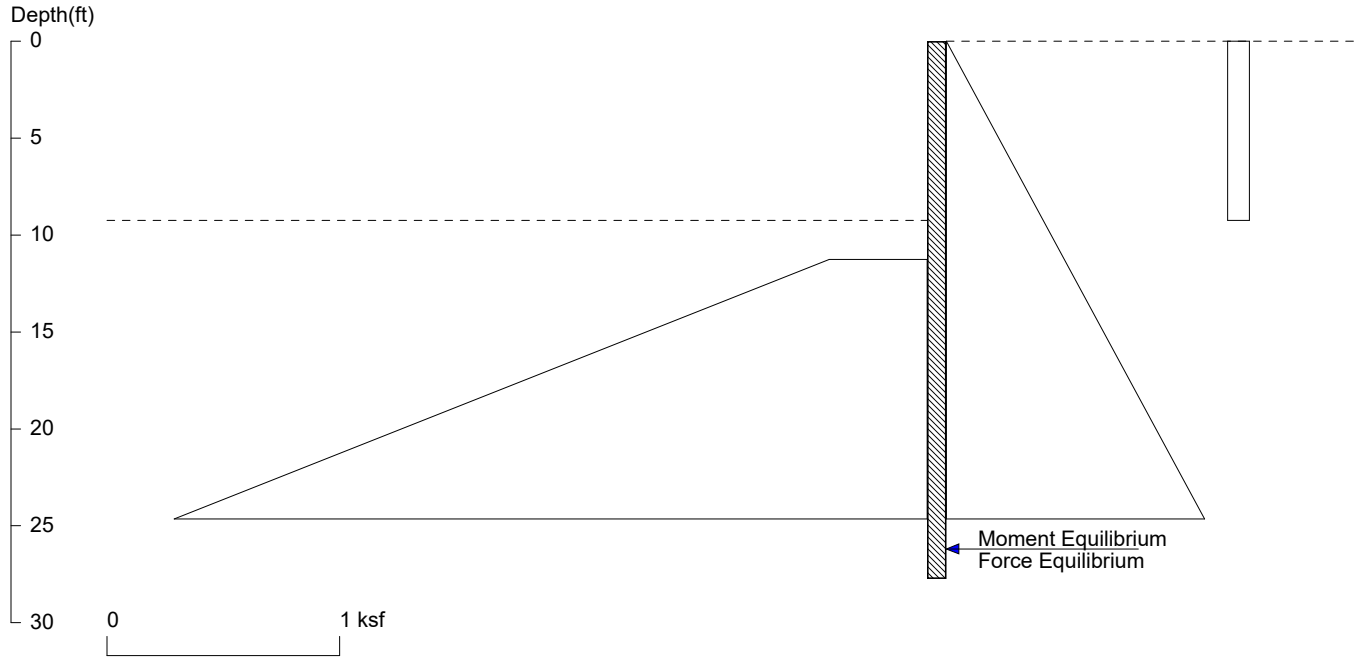
User Input Pile, W18X50: E (ksi)=29000.0, I (in⁴)/pile=800.0

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Wall Height=9.3 Pile Diameter=2.0 Pile Spacing=6.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=18.48 Min. Pile Length=27.73

MOMENT IN PILE: Max. Moment=178.02 per Pile Spacing=6.3 at Depth=17.61

PILE SELECTION:

Request Min. Section Modulus = 64.7 in³/pile=1060.81 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66
 W18X50 has Section Modulus = 88.9 in³/pile=1456.80 cm³/pile. It is greater than Min. Requirements!
 Top Deflection = 0.75(in) based on E (ksi)=29000.00 and I (in⁴)/pile=800.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	.093	9.25	0.093	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
11.25	.42	60	10.65	.21

ACTIVE SPACING:

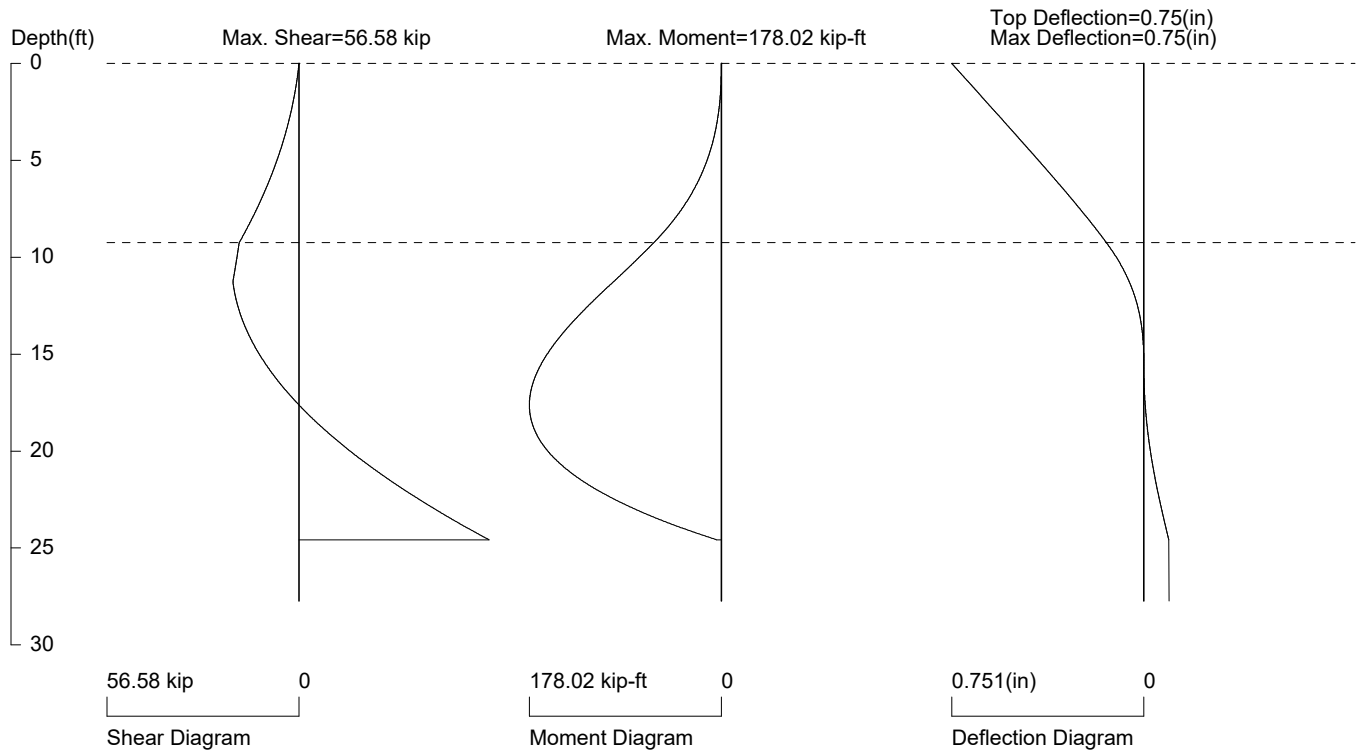
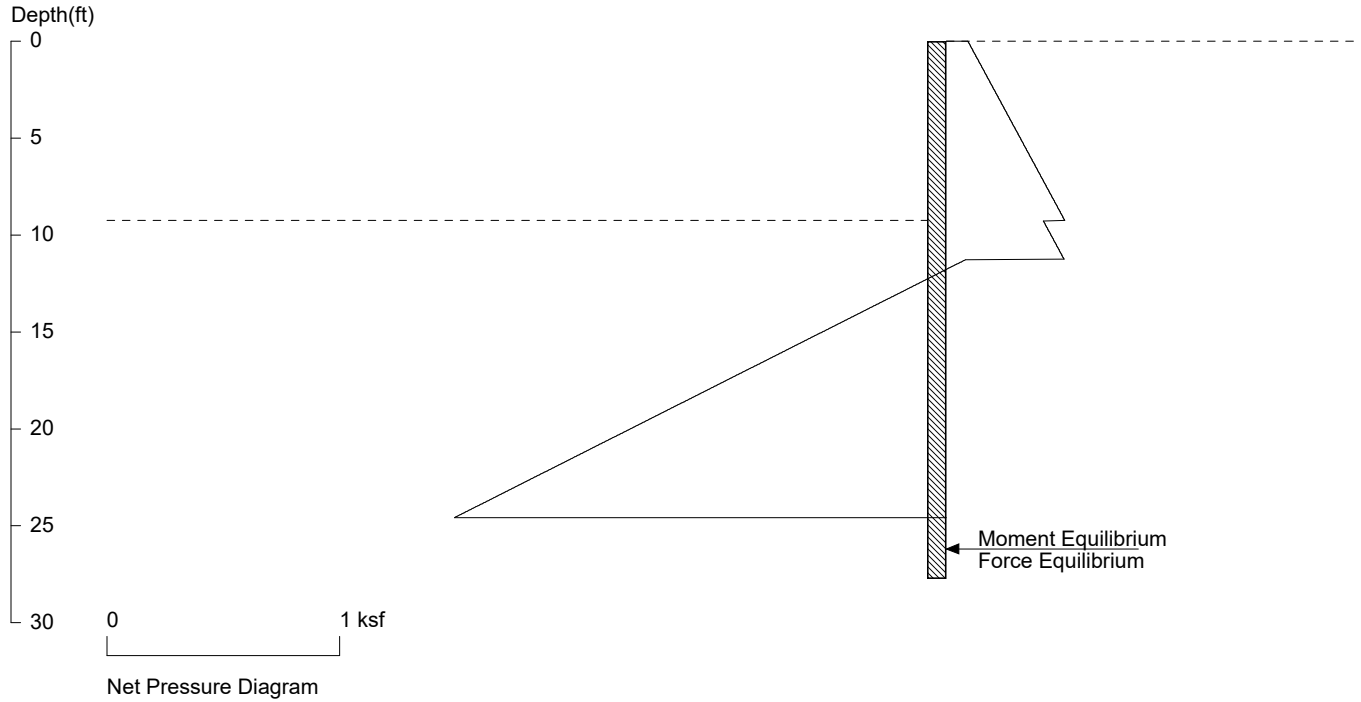
No.	Z depth	Spacing
1	0.00	6.33
2	9.25	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	9.25	4.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
 Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P1 - P3 Seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 6.3 foot or meter

User Input Pile, W18X50: E (ksi)=29000.0, I (in⁴)/pile=800.0

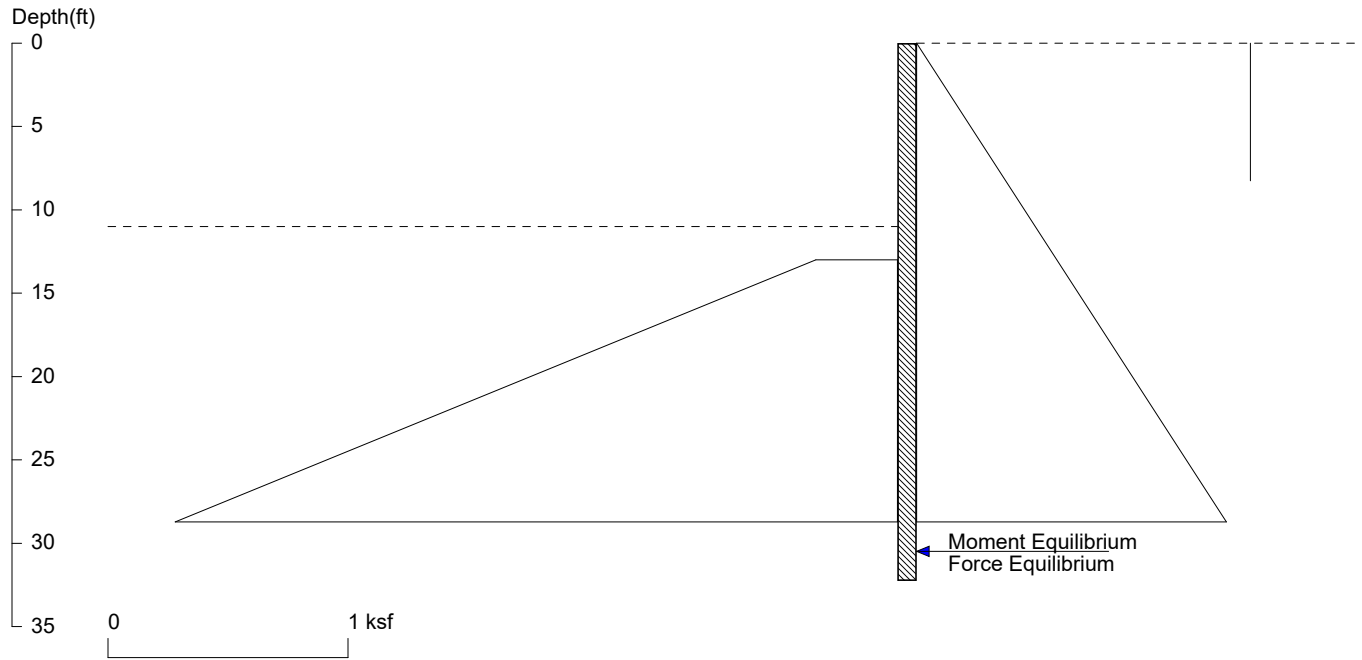
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P1 - P3 temporary



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Wall Height=11.0 Pile Diameter=2.0 Pile Spacing=6.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=21.25 Min. Pile Length=32.25

MOMENT IN PILE: Max. Moment=198.58 per Pile Spacing=6.3 at Depth=20.79

PILE SELECTION:

Request Min. Section Modulus = 72.2 in³/pile=1183.33 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W18X50 has Section Modulus = 88.9 in³/pile=1456.80 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.09(in) based on E (ksi)=29000.00 and I (in⁴)/pile=800.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	8.25	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13	.34	60	8.330	.17

ACTIVE SPACING:

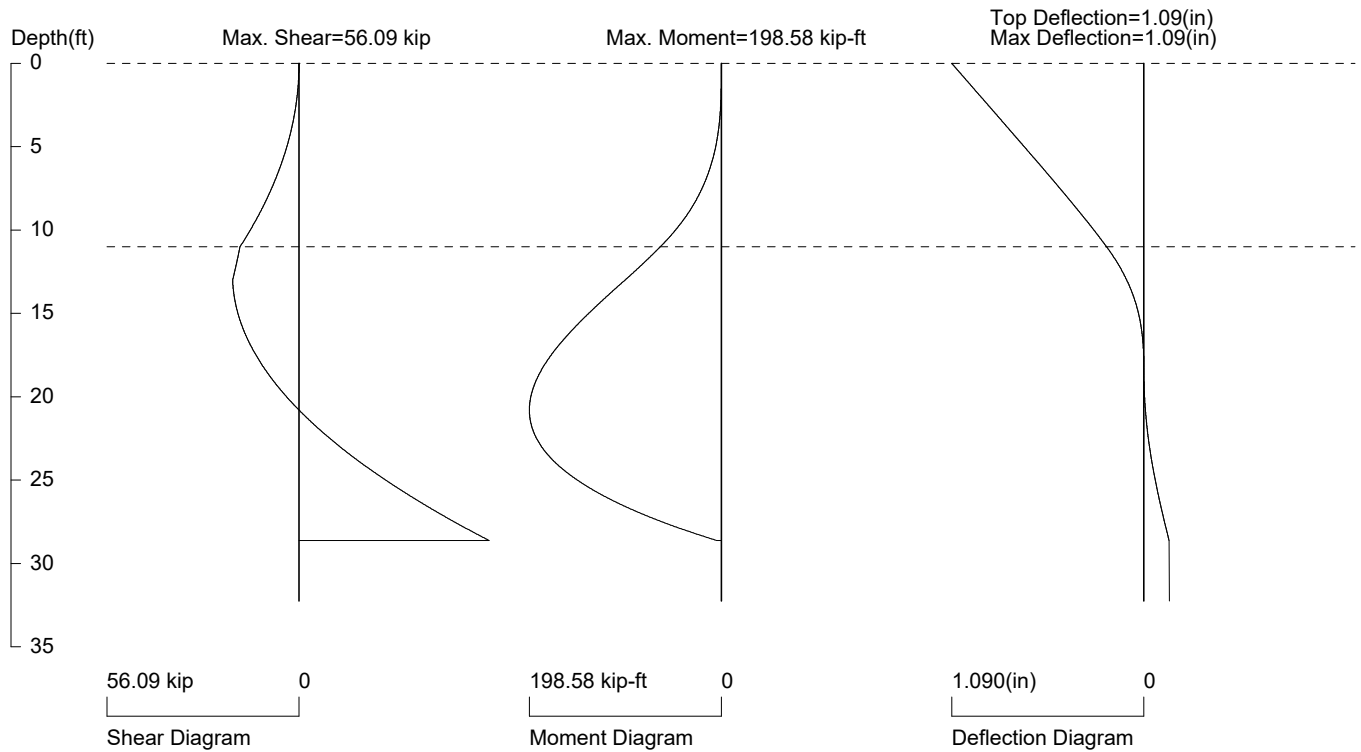
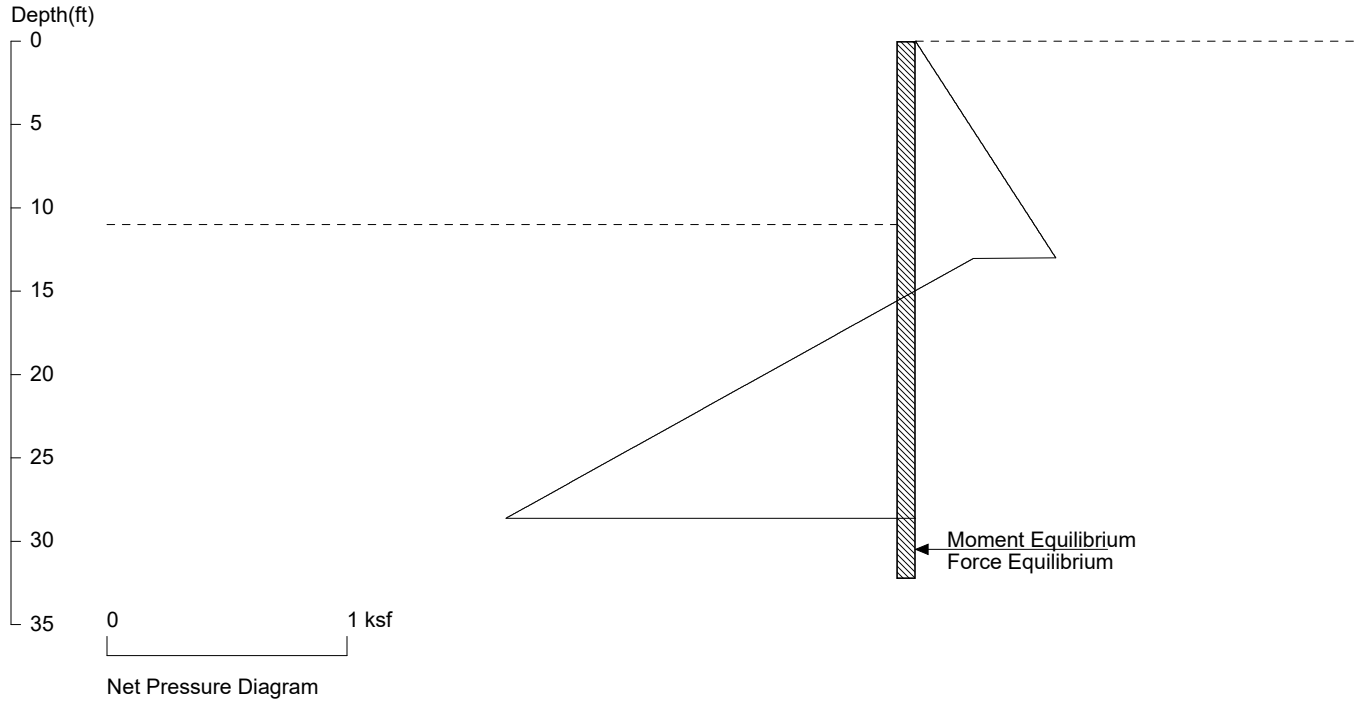
No.	Z depth	Spacing
1	0.00	6.33
2	11.00	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	4.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P1 - P3 temporary



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 6.3 foot or meter

User Input Pile, W18X50: E (ksi)=29000.0, I (in⁴)/pile=800.0

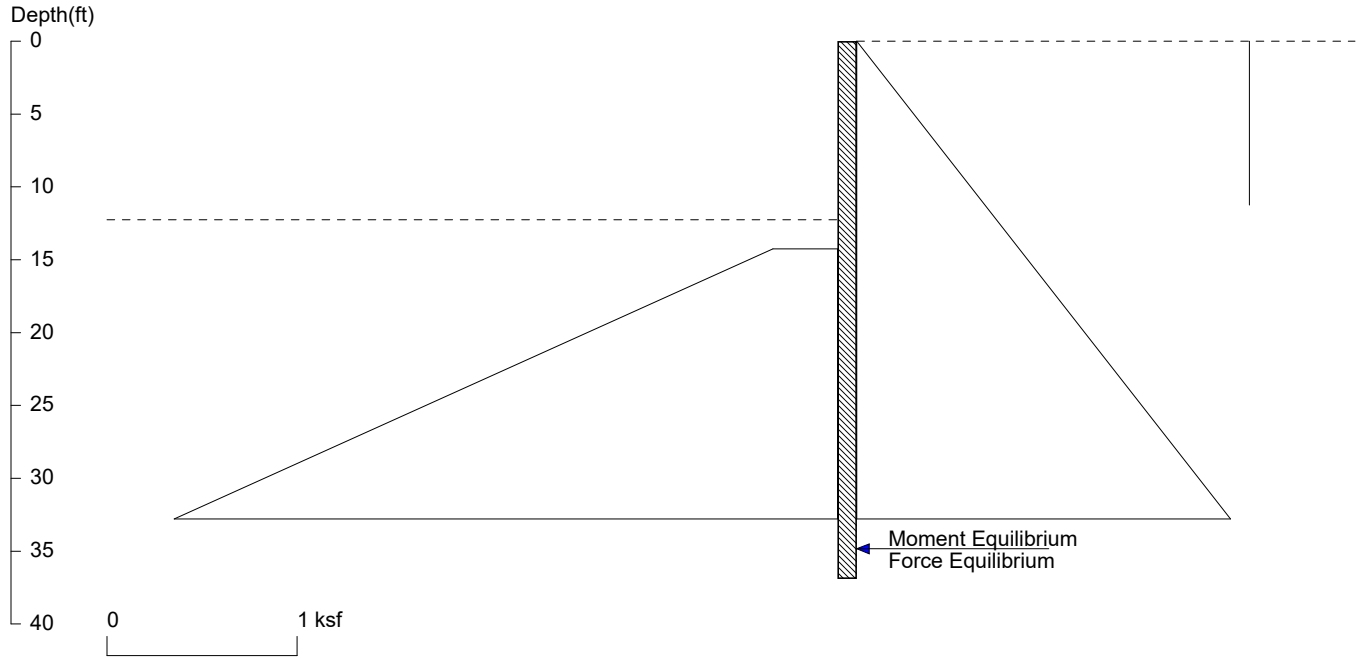
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Clarkson

P4 - P9 Permanent Non Seismic



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Wall Height=12.3 Pile Diameter=2.5 Pile Spacing=5.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=24.65 Min. Pile Length=36.90

MOMENT IN PILE: Max. Moment=335.30 per Pile Spacing=5.3 at Depth=23.82

PILE SELECTION:

Request Min. Section Modulus = 121.9 in³/pile=1998.01 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66

W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.77(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	3.600	.06
*	eq			
0	0	11.25	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
14.25	.34	60	8.118	.17

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	5.33
2	12.25	2.50

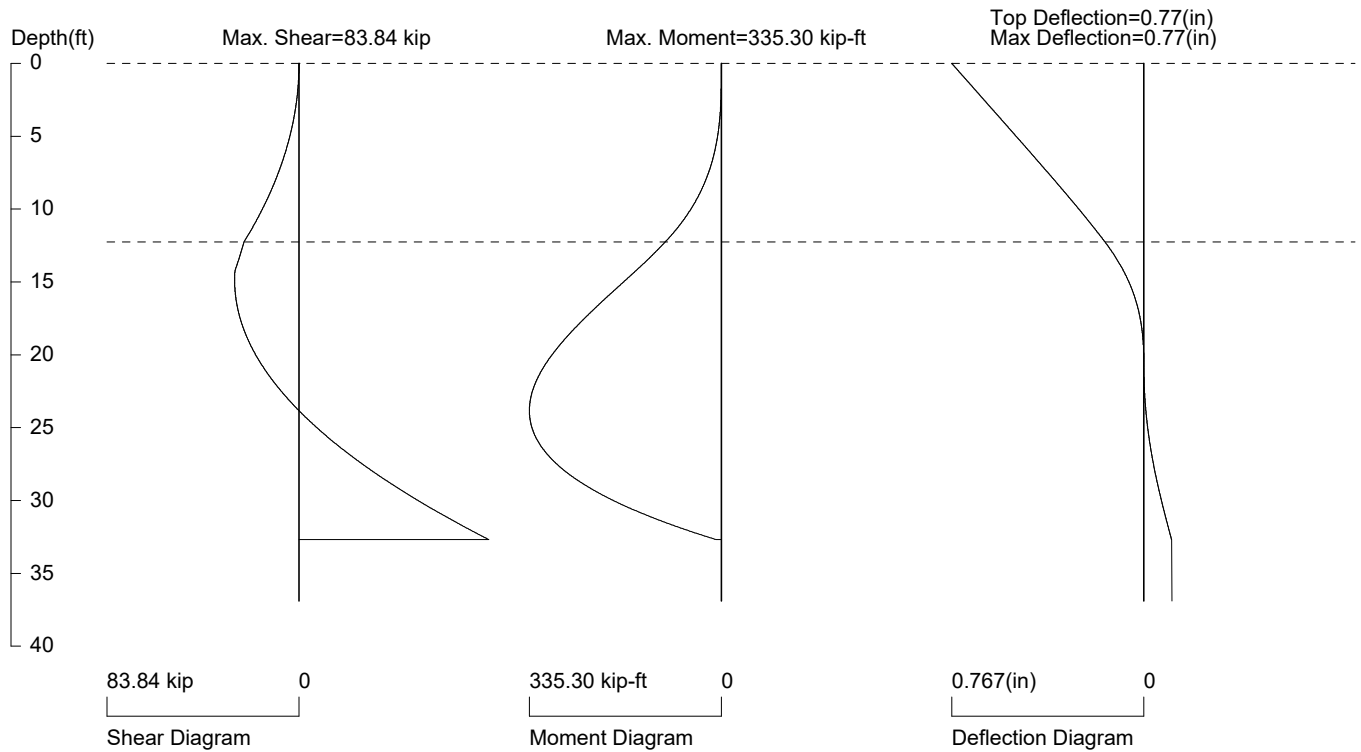
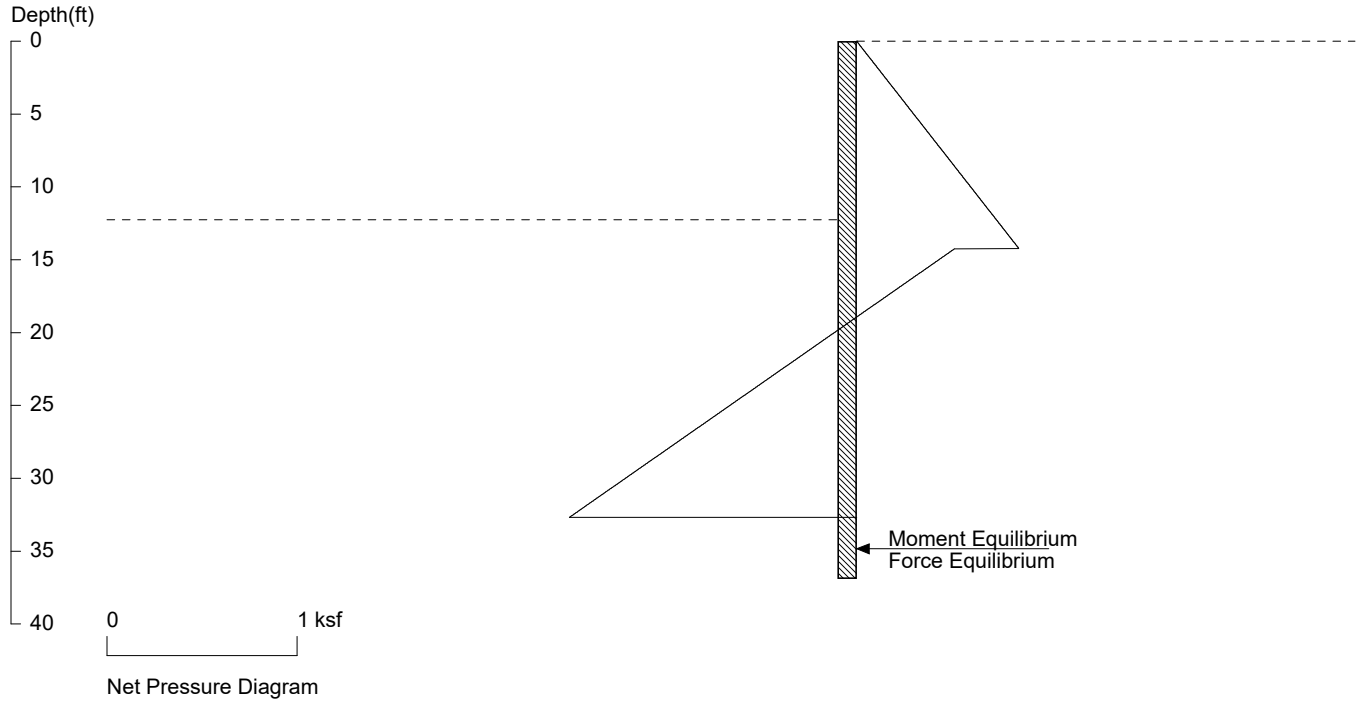
PASSIVE SPACING:

No.	Z depth	Spacing
1	12.25	5.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson

P4 - P9 Permanent Non Seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 5.3 foot or meter

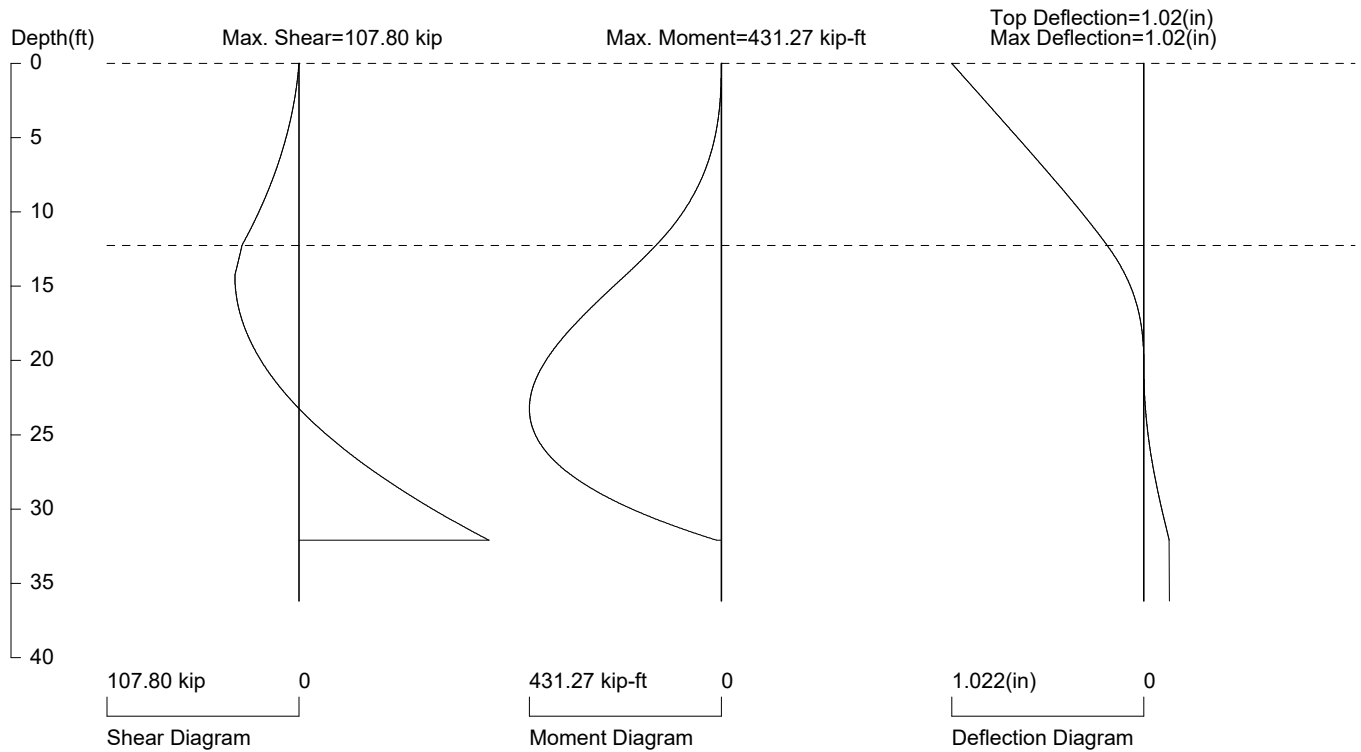
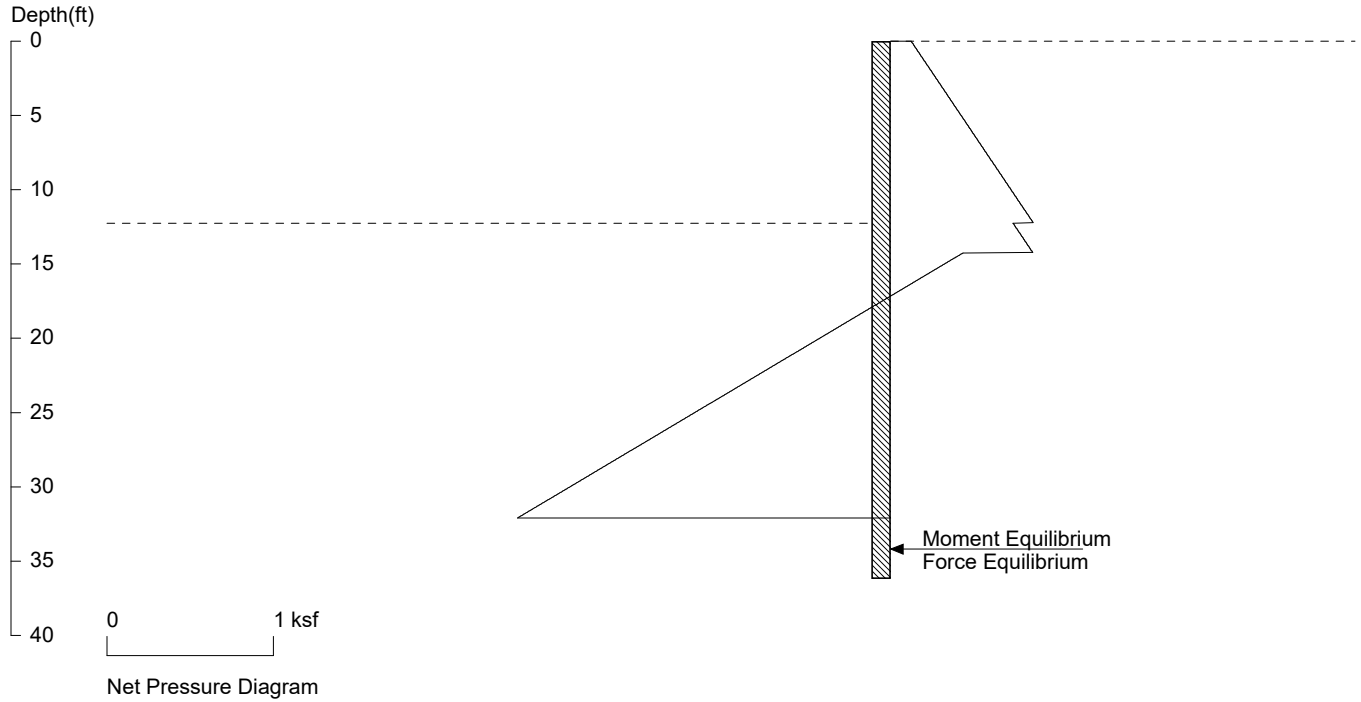
User Input Pile, W24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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Clarkson P4 - P9 Seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

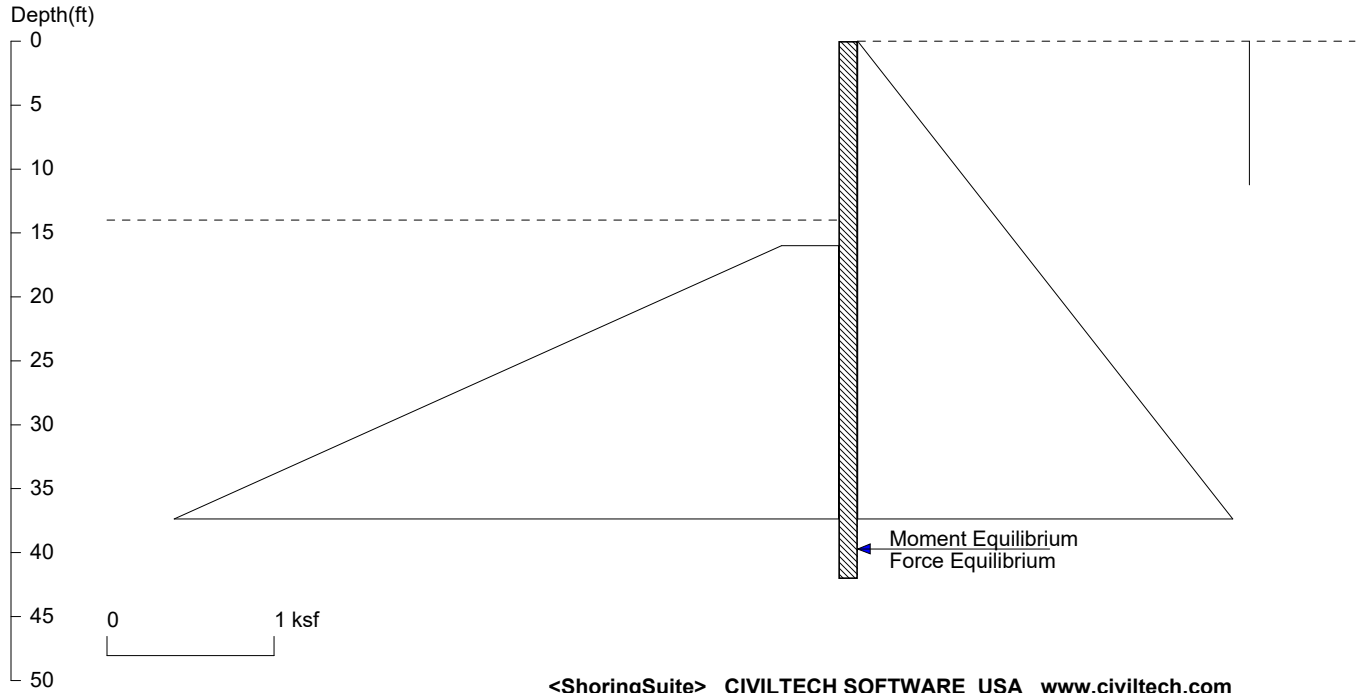
Based on pile spacing: 5.3 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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P4 - P9 Temporary



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Wall Height=14.0 Pile Diameter=2.5 Pile Spacing=5.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=28.05 Min. Pile Length=42.05

MOMENT IN PILE: Max. Moment=494.75 per Pile Spacing=5.3 at Depth=27.15

PILE SELECTION:

Request Min. Section Modulus = 179.9 in³/pile=2948.15 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66

W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.47(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	3.600	.06
*	eq			
0	0	11.25	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
16	.34	60	7.820	.17

ACTIVE SPACING:

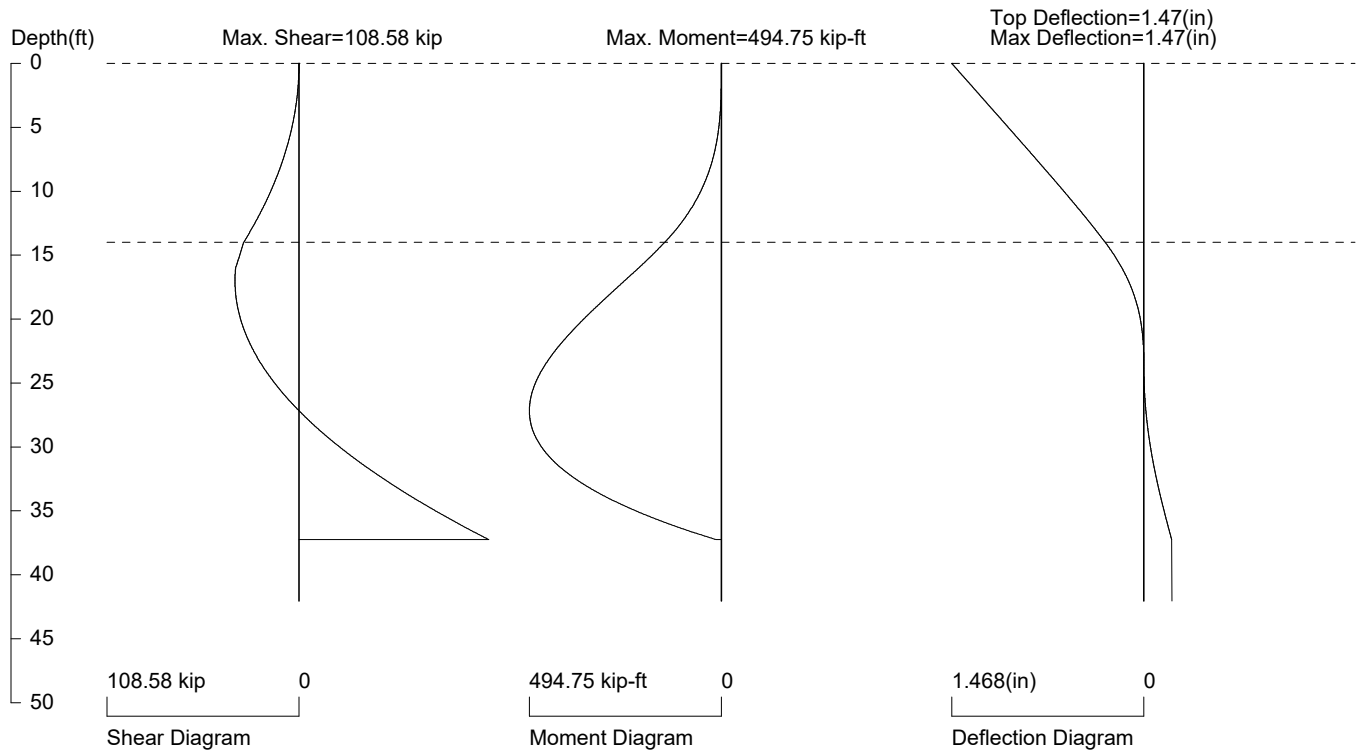
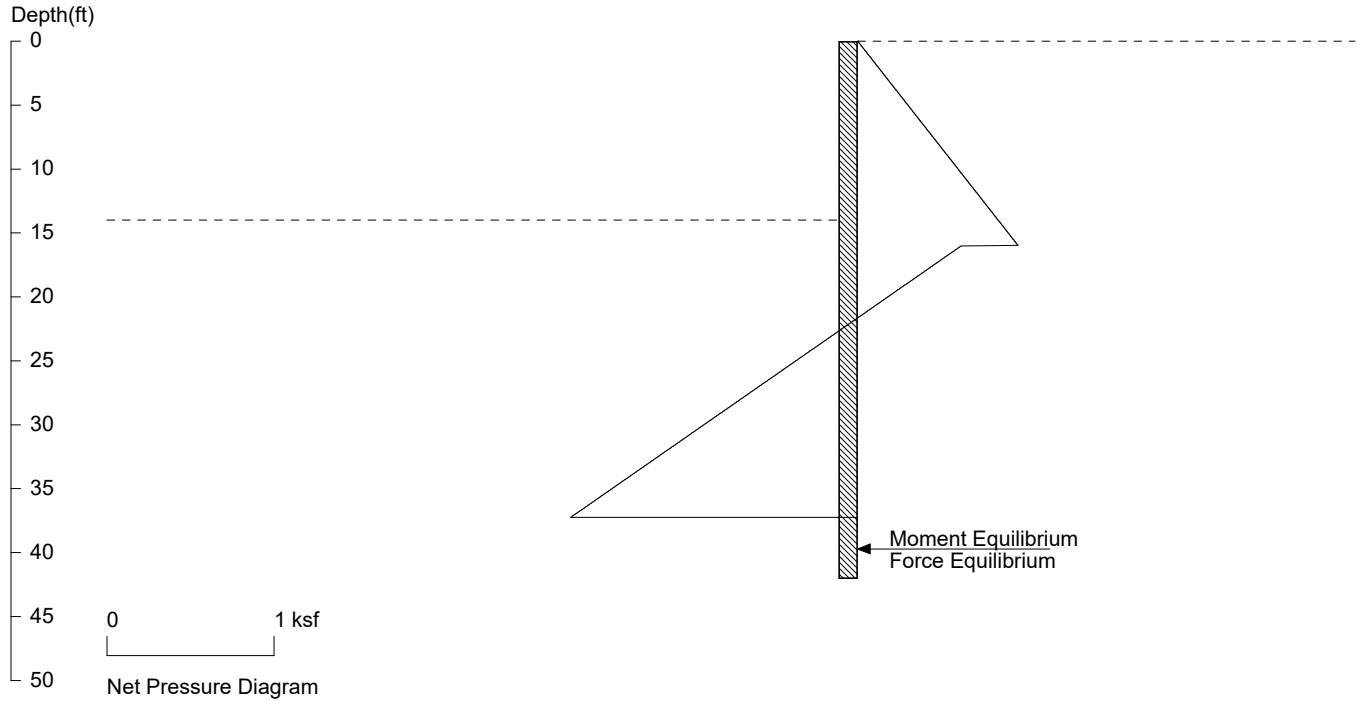
No.	Z depth	Spacing
1	0.00	5.33
2	14.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	14.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P4 - P9 Temporary



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 5.3 foot or meter

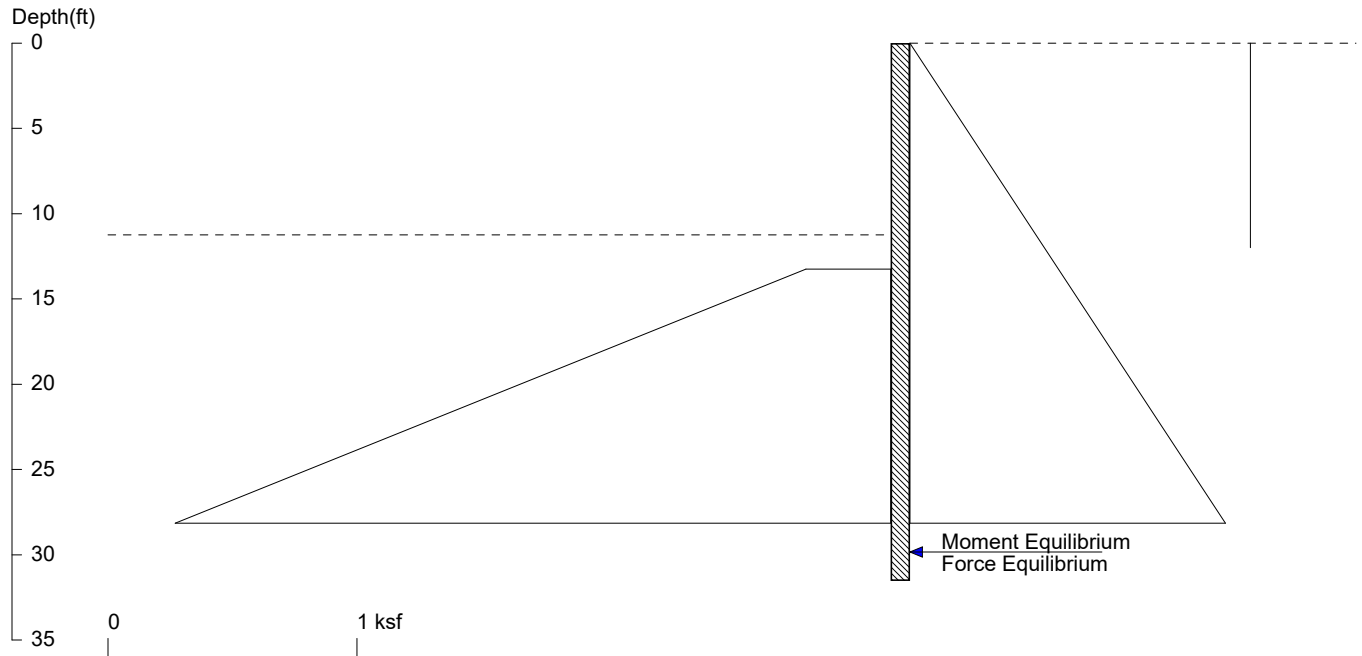
User Input Pile, W24X84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P4-P9 temp.sh8

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P10 permanent nonseismic



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Wall Height=11.3 Pile Diameter=2.0 Pile Spacing=5.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=20.28 Min. Pile Length=31.53

MOMENT IN PILE: Max. Moment=170.63 per Pile Spacing=5.3 at Depth=20.61

PILE SELECTION:

Request Min. Section Modulus = 62.0 in³/pile=1016.77 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W18X65 has Section Modulus = 117.0 in³/pile=1917.28 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.68(in) based on E (ksi)=29000.00 and I (in⁴)/pile=1070.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	12	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13.25	.34	60	8.288	.17

ACTIVE SPACING:

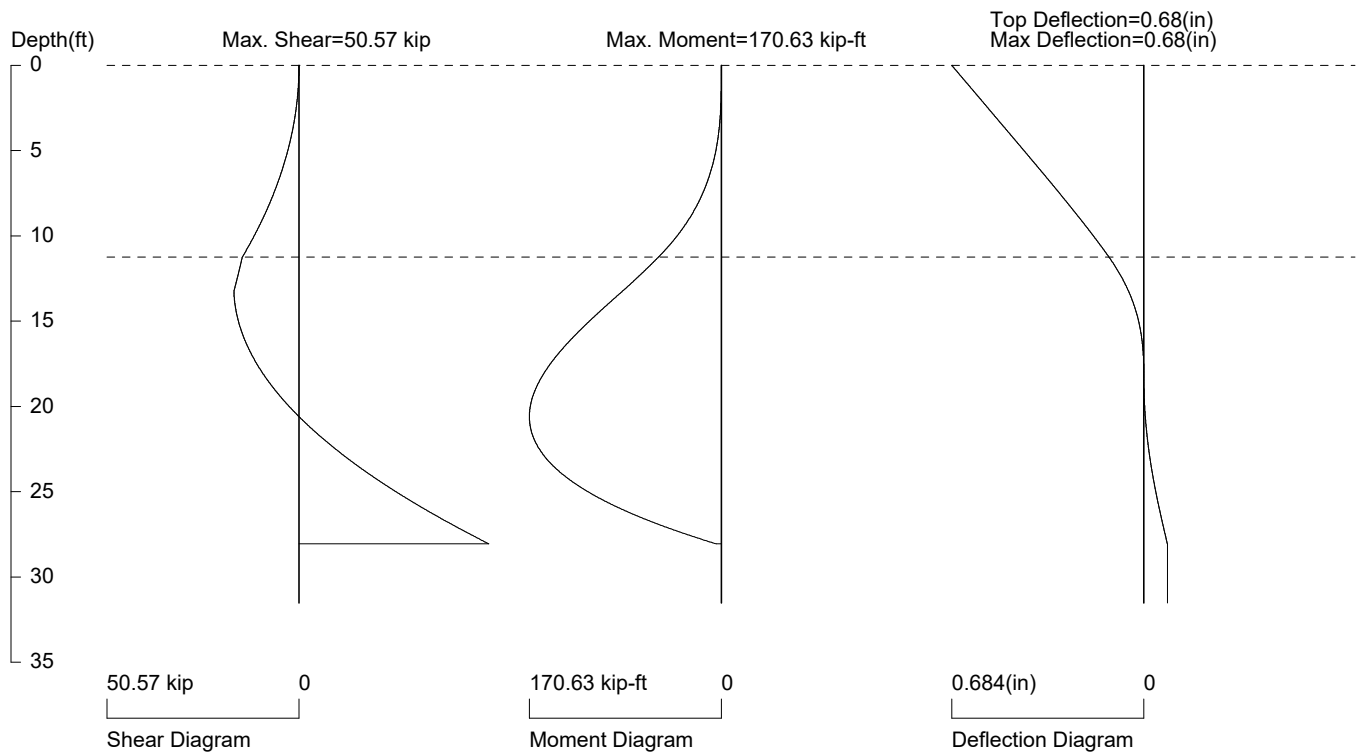
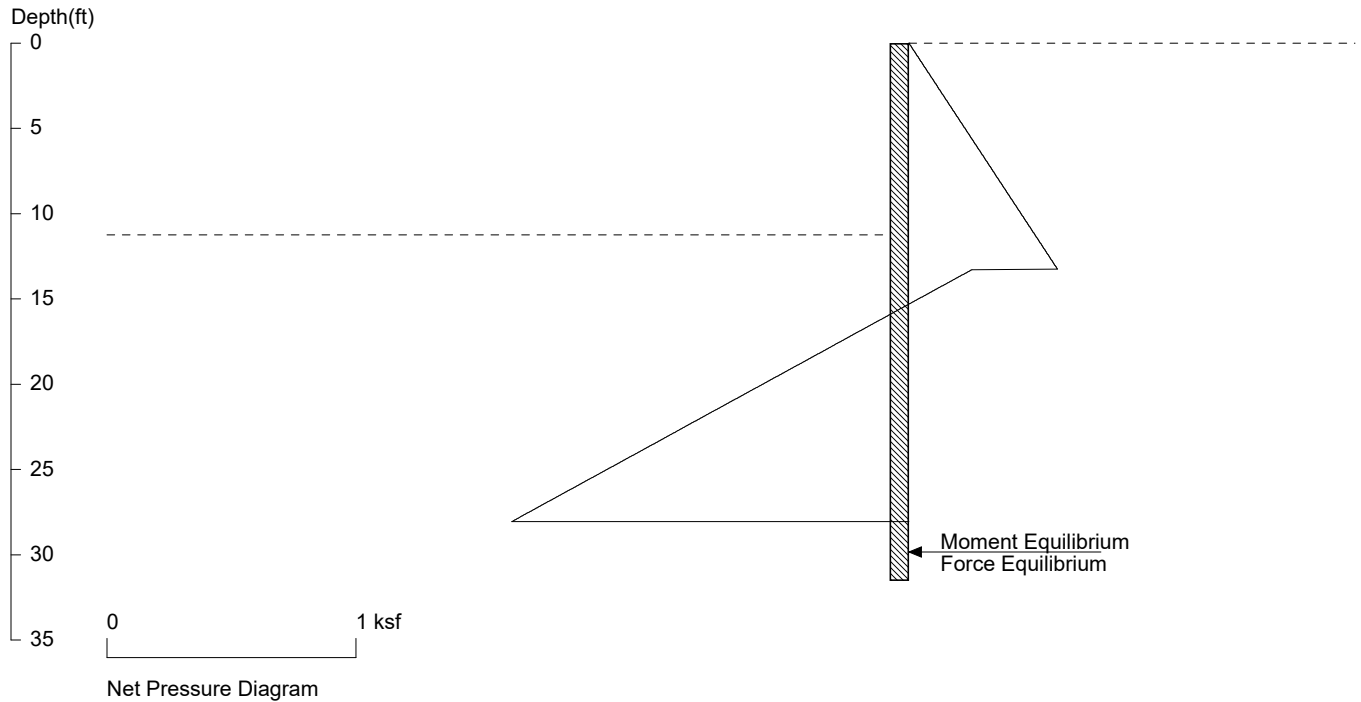
No.	Z depth	Spacing
1	0.00	5.25
2	11.25	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.25	4.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P10 permanent nonseismic



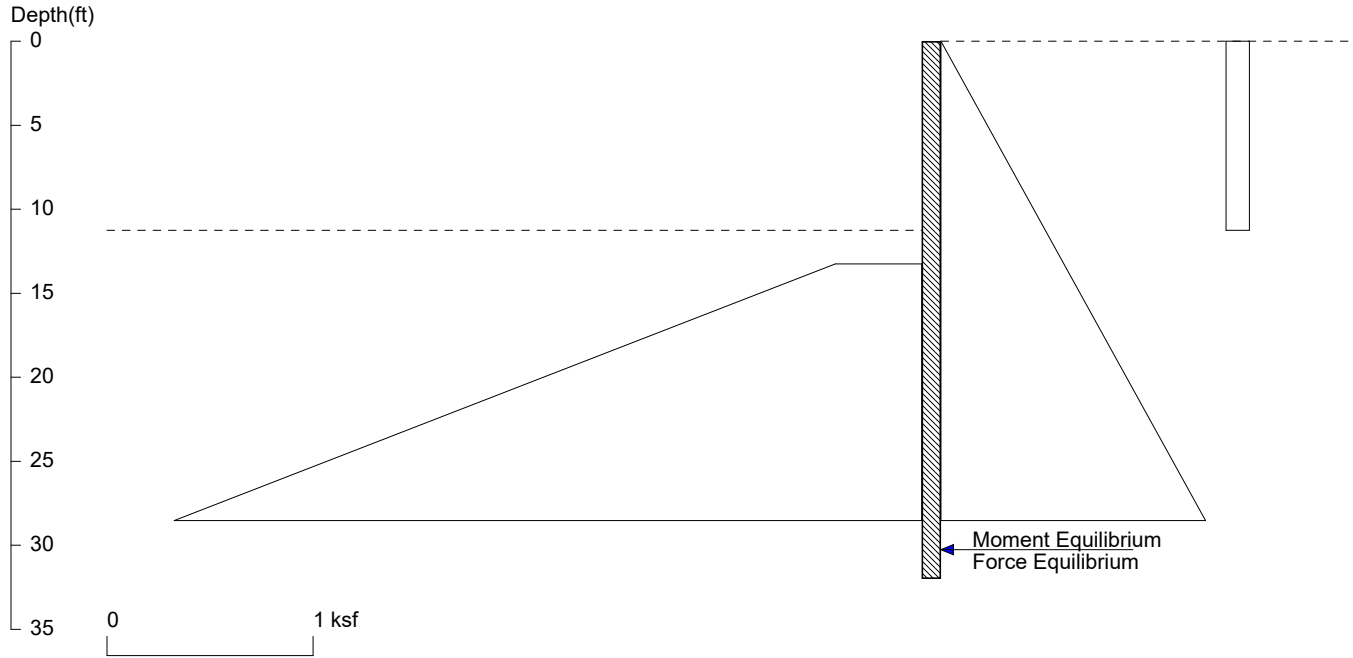
PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 5.3 foot or meter

User Input Pile, W18X65: E (ksi)=29000.0, I (in⁴)/pile=1070.0

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Clarkson P10 seismic



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File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P10 seismic.sh8

Wall Height=11.3 Pile Diameter=2.0 Pile Spacing=5.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=20.74 Min. Pile Length=31.99

MOMENT IN PILE: Max. Moment=251.34 per Pile Spacing=5.3 at Depth=20.60

PILE SELECTION:

Request Min. Section Modulus = 91.4 in³/pile=1497.73 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W18X65 has Section Modulus = 117.0 in³/pile=1917.28 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.10(in) based on E (ksi)=29000.00 and I (in⁴)/pile=1070.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	.113	11.25	0.113	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13.25	.42	60	10.23	.21

ACTIVE SPACING:

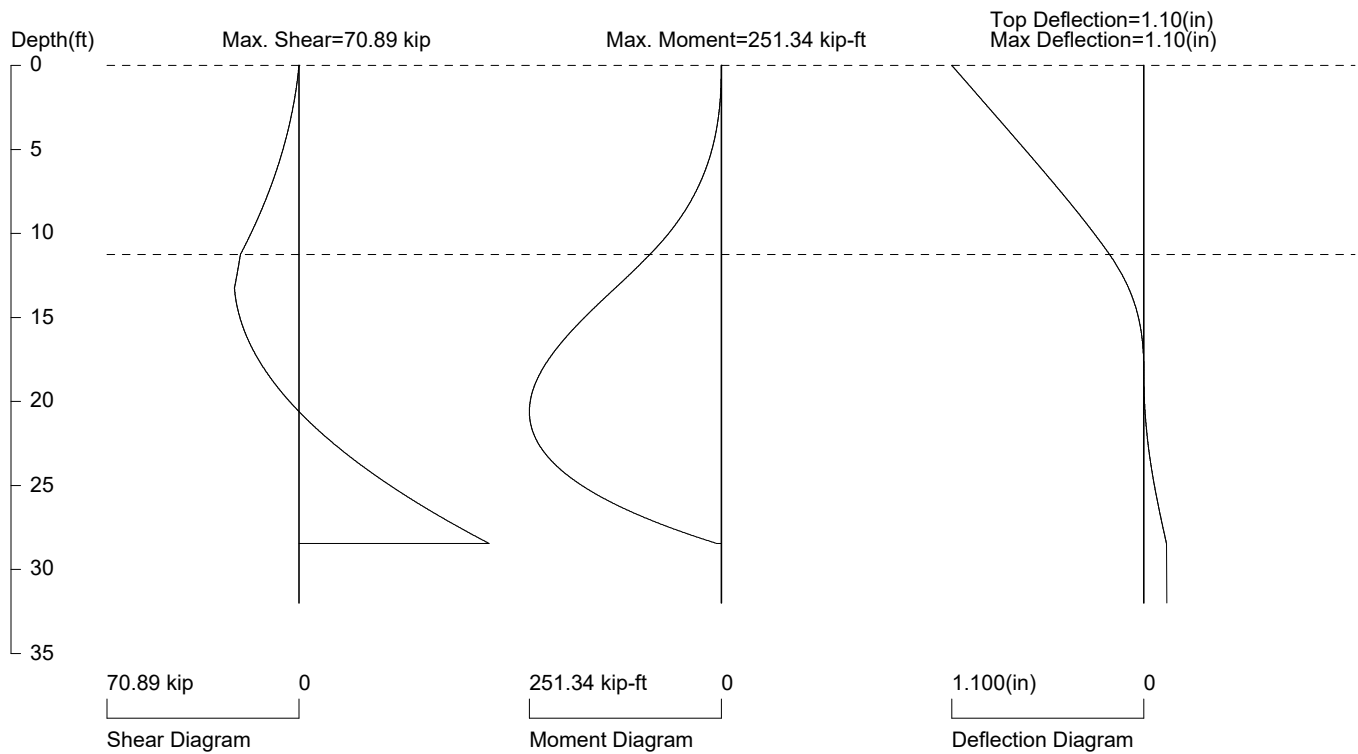
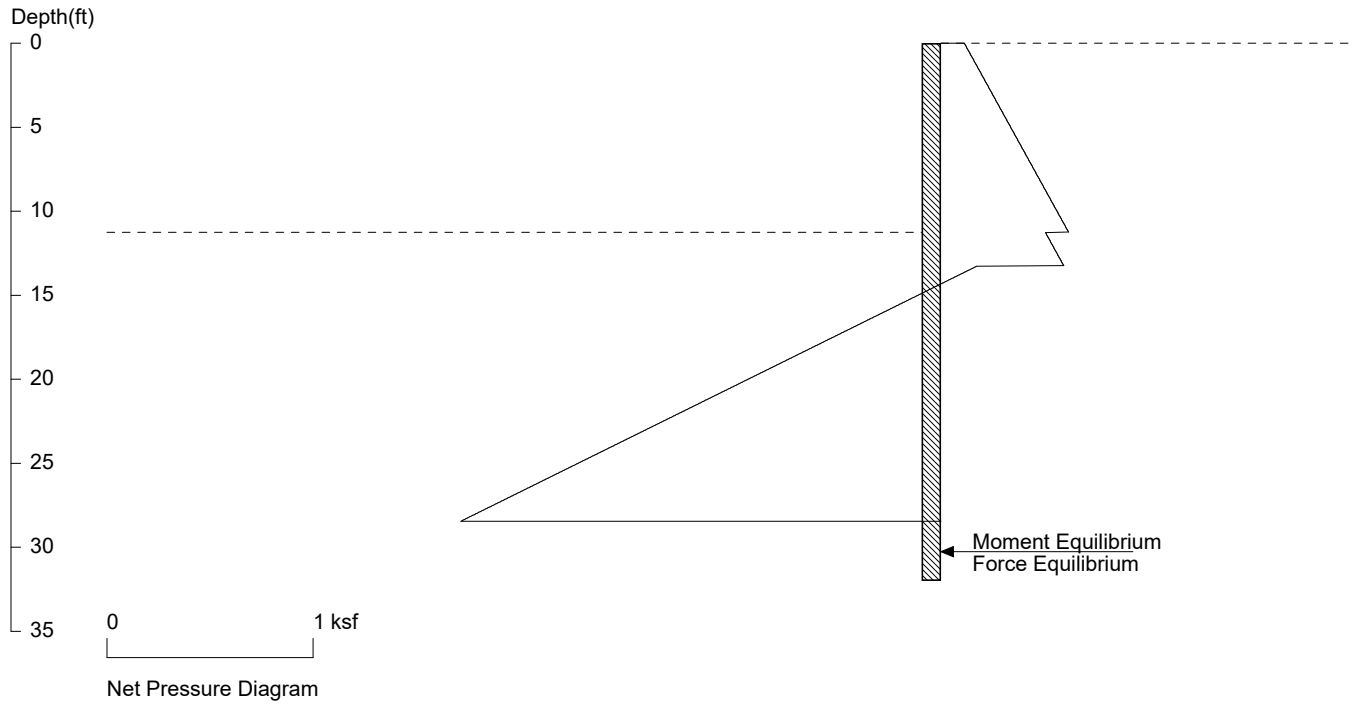
No.	Z depth	Spacing
1	0.00	5.25
2	11.25	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.25	4.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P10 seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 5.3 foot or meter

User Input Pile, W18X65: E (ksi)=29000.0, I (in⁴)/pile=1070.0

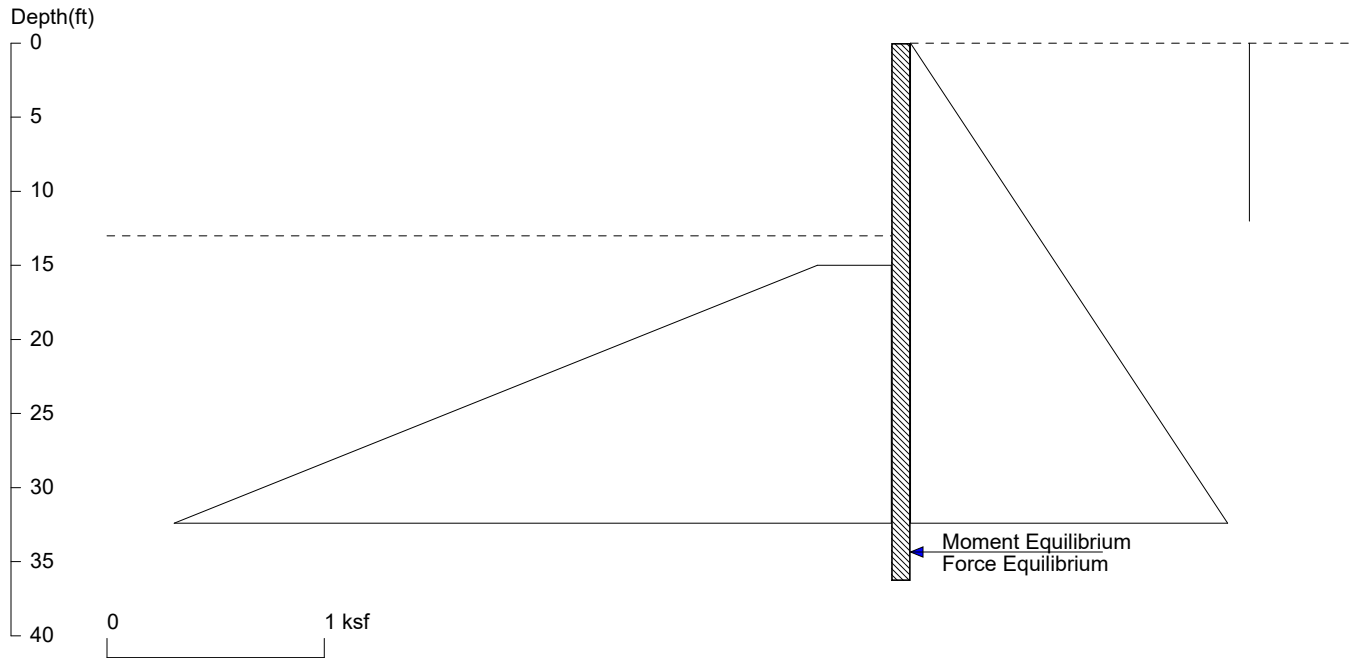
File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P10 seismic.sh8

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Date: 5/27/2022

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Wall Height=13.0 Pile Diameter=2.0 Pile Spacing=5.3 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=23.29 Min. Pile Length=36.29

MOMENT IN PILE: Max. Moment=259.37 per Pile Spacing=5.3 at Depth=23.72

PILE SELECTION:

Request Min. Section Modulus = 94.3 in³/pile=1545.53 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66

W18X65 has Section Modulus = 117.0 in³/pile=1917.28 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 1.38(in) based on E (ksi)=29000.00 and I (in⁴)/pile=1070.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	12	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
15	.34	60	7.990	.17

ACTIVE SPACING:

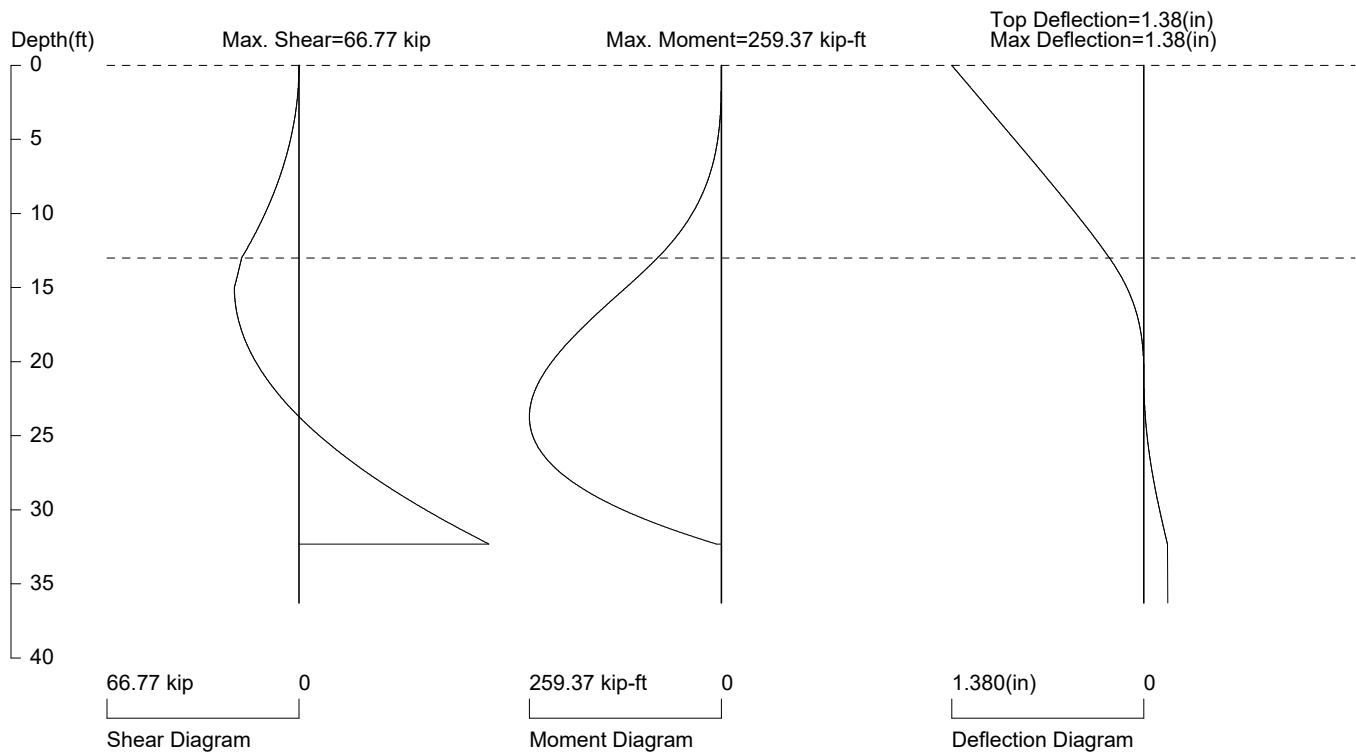
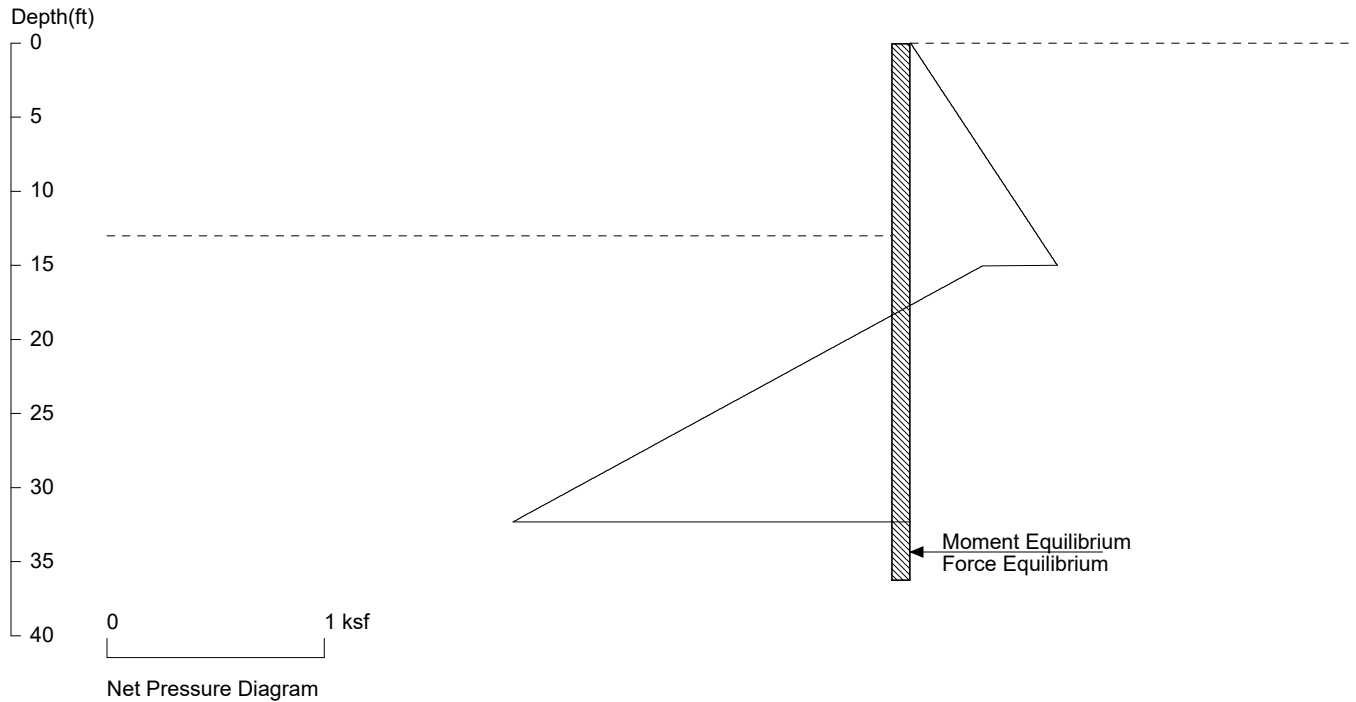
No.	Z depth	Spacing
1	0.00	5.25
2	13.00	2.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	13.00	4.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P10 temporary



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

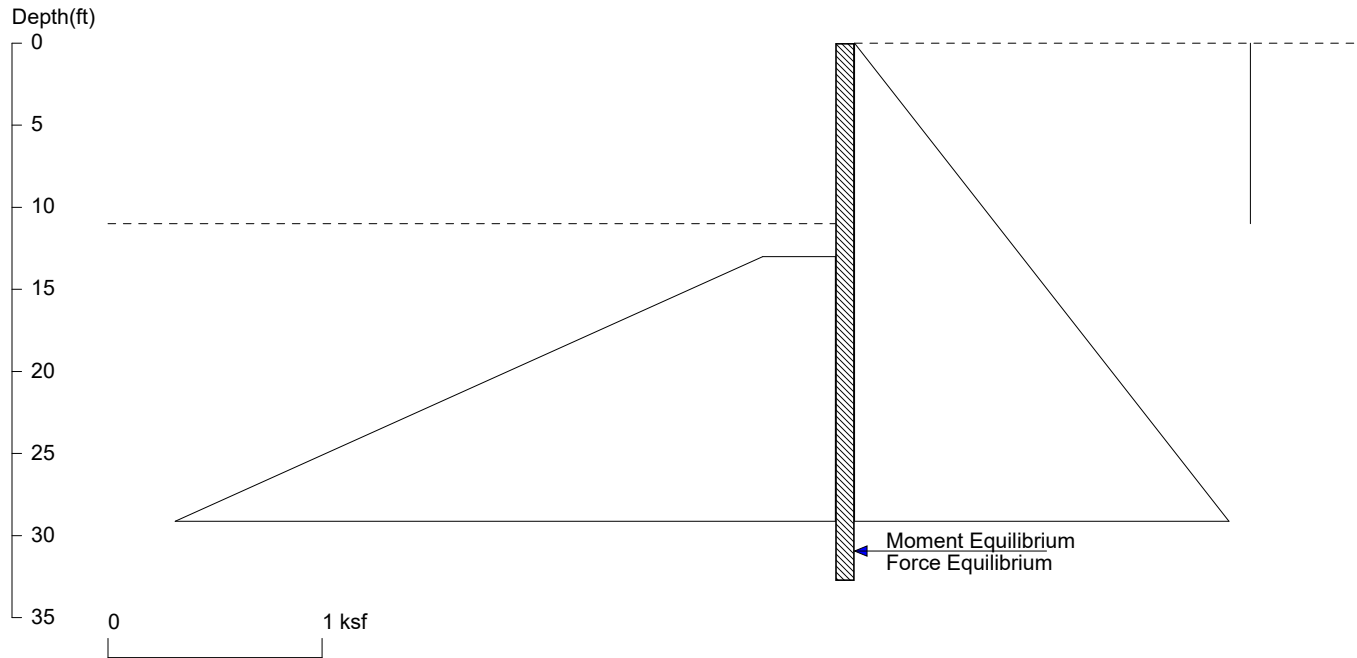
Based on pile spacing: 5.3 foot or meter

User Input Pile, W18X65: E (ksi)=29000.0, I (in⁴)/pile=1070.0

File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P10 temp.sh8

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P11 - P14 permanent nonseismic



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Wall Height=11.0 Pile Diameter=2.5 Pile Spacing=5.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=21.76 Min. Pile Length=32.76

MOMENT IN PILE: Max. Moment=228.78 per Pile Spacing=5.0 at Depth=21.26

PILE SELECTION:

Request Min. Section Modulus = 83.2 in³/pile=1363.31 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.41(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	3.600	.06
*	eq			
0	0	11	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13	.34	60	8.330	.17

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	5.00
2	11.00	2.50

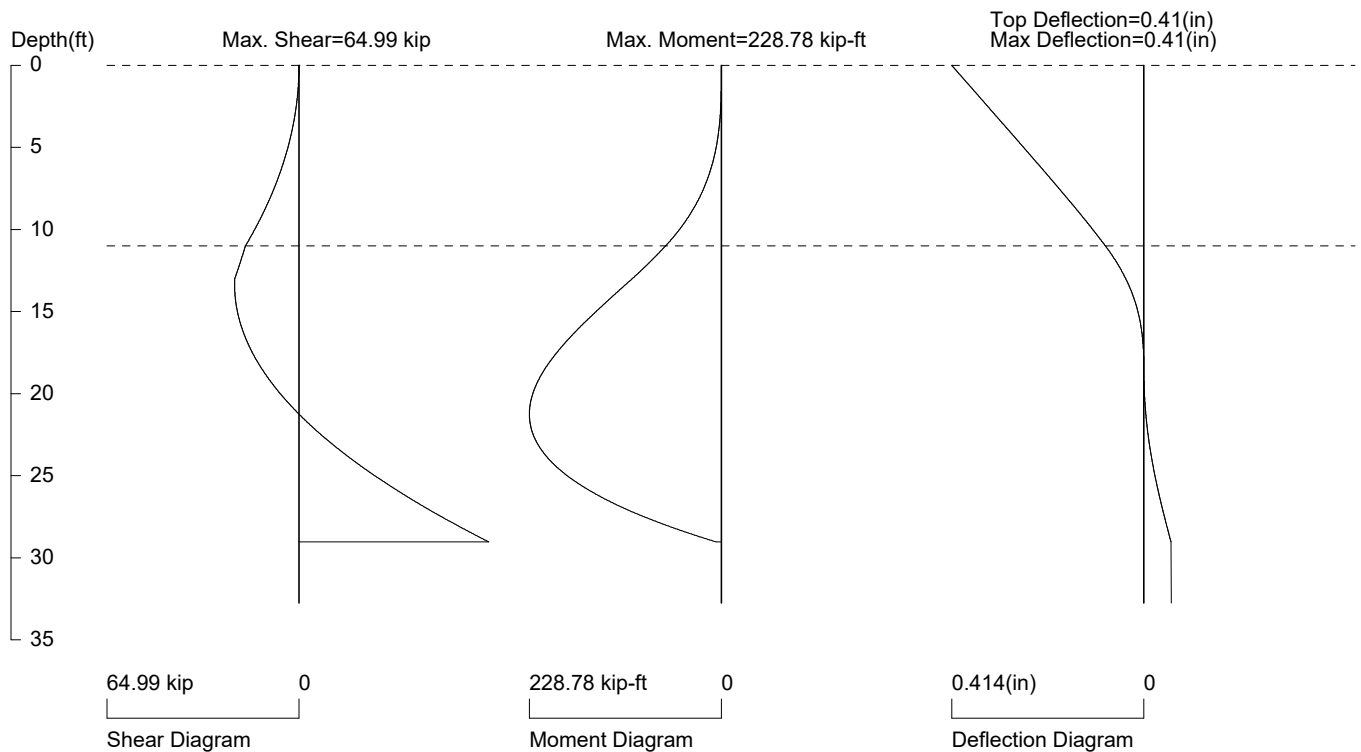
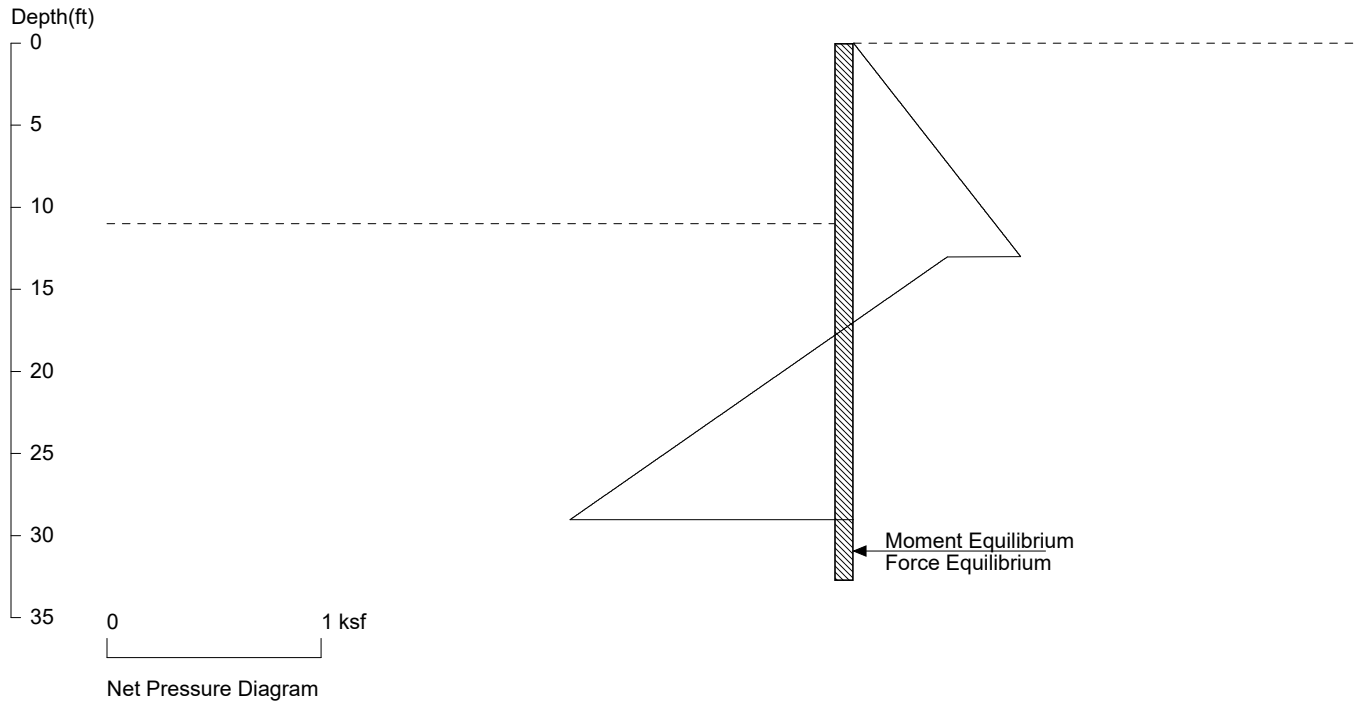
PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

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P11 - P14 permanent nonseismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

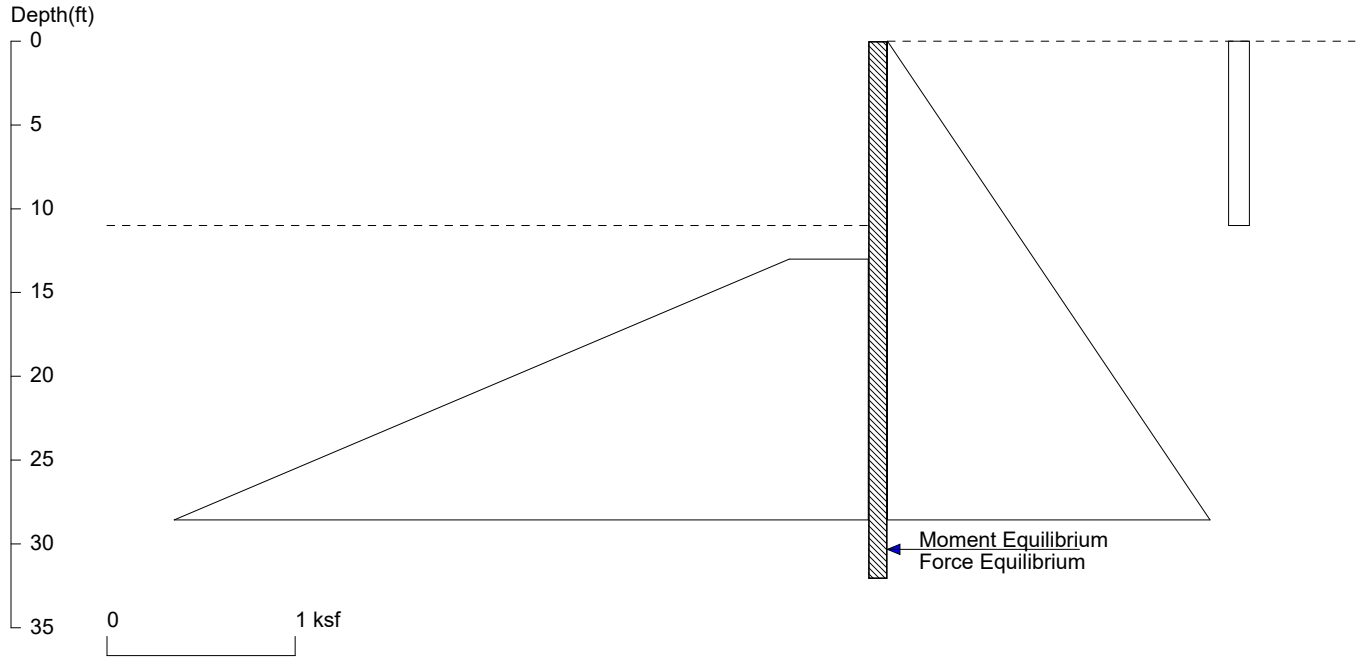
Based on pile spacing: 5.0 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P11-P14 perm nonseismic.sh8

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P11 - P14 seismic



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Wall Height=11.0 Pile Diameter=2.5 Pile Spacing=5.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=21.09 Min. Pile Length=32.09

MOMENT IN PILE: Max. Moment=292.86 per Pile Spacing=5.0 at Depth=20.69

PILE SELECTION:

Request Min. Section Modulus = 106.5 in³/pile=1745.12 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66
W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!
Top Deflection = 0.55(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	3.600	.06
*	eq			
0	.11	11	0.110	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13	.42	60	10.29	.21

ACTIVE SPACING:

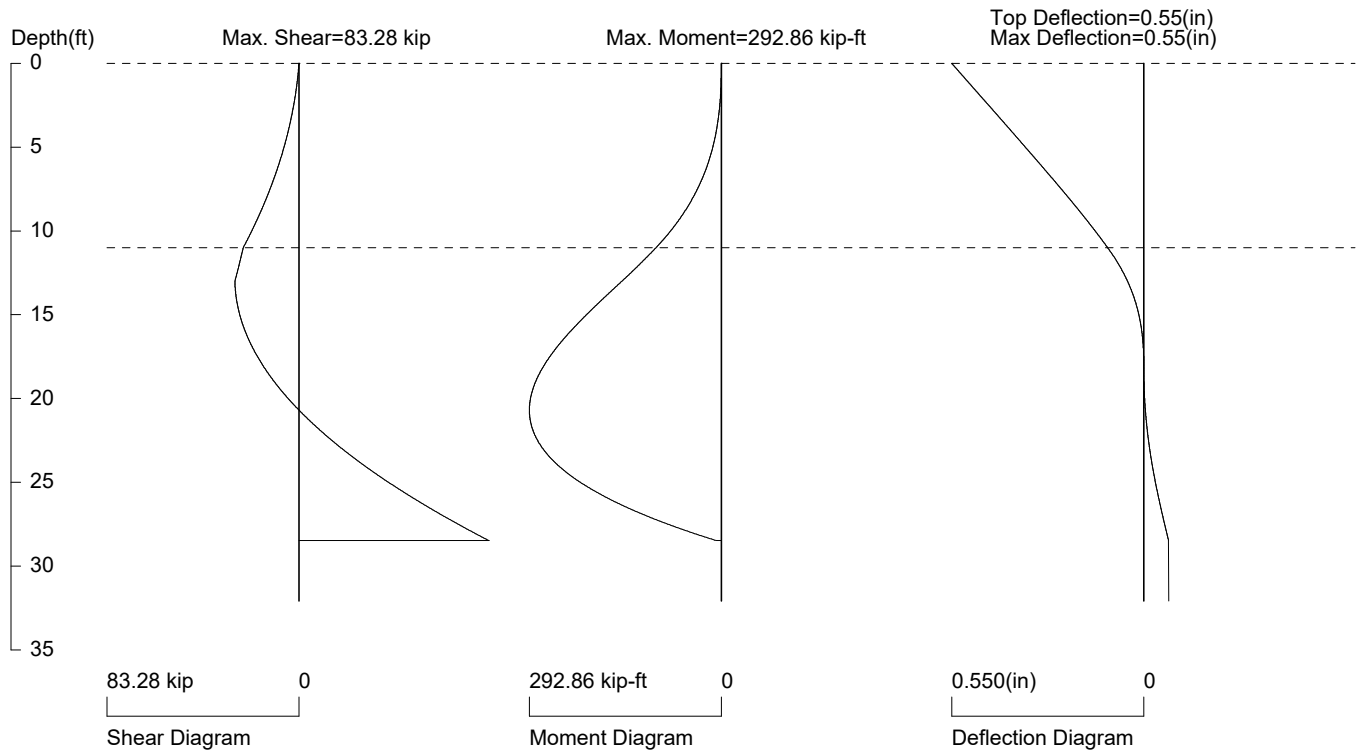
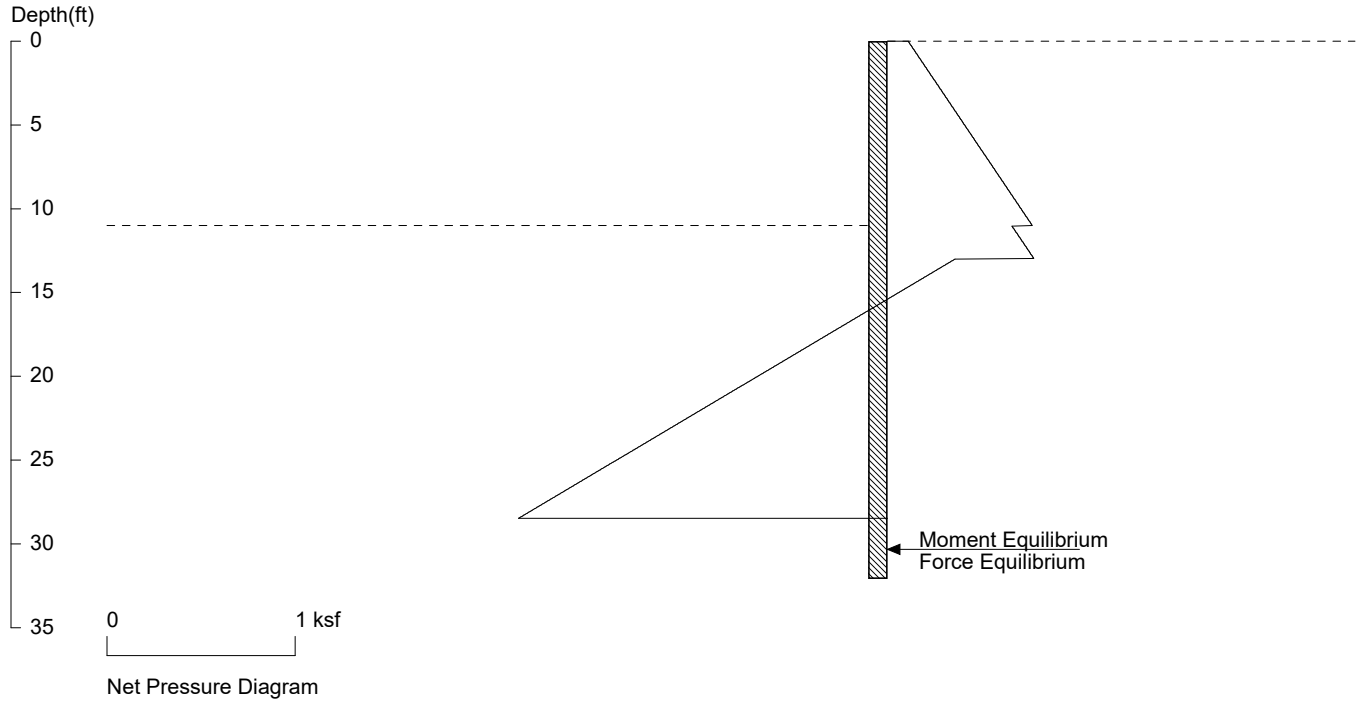
No.	Z depth	Spacing
1	0.00	5.00
2	11.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P11 - P14 seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

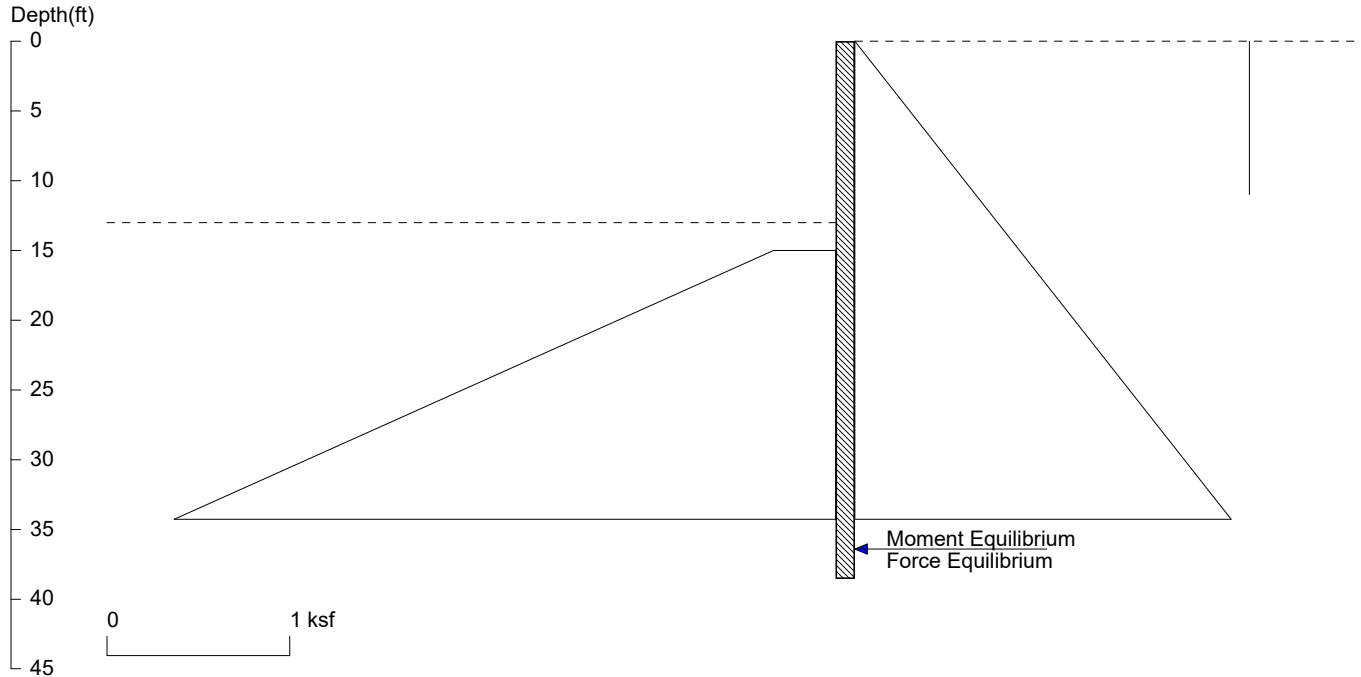
Based on pile spacing: 5.0 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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P11 - P14 temporary



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Wall Height=13.0 Pile Diameter=2.5 Pile Spacing=5.0 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=25.54 Min. Pile Length=38.54

MOMENT IN PILE: Max. Moment=370.98 per Pile Spacing=5.0 at Depth=25.02

PILE SELECTION:

Request Min. Section Modulus = 134.9 in³/pile=2210.65 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66
 W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!
 Top Deflection = 0.93(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	3.600	.06
*	eq			
0	0	11	0.000	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
15	.34	60	7.990	.17

ACTIVE SPACING:

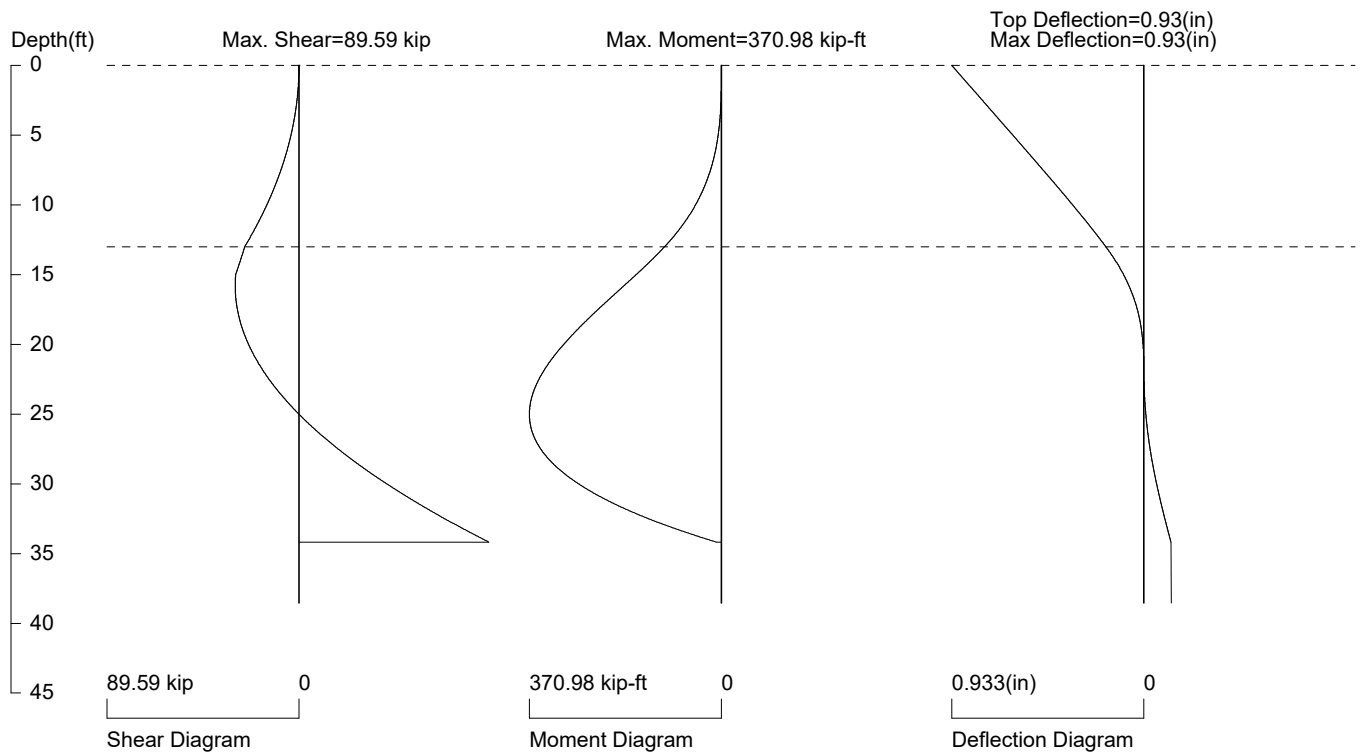
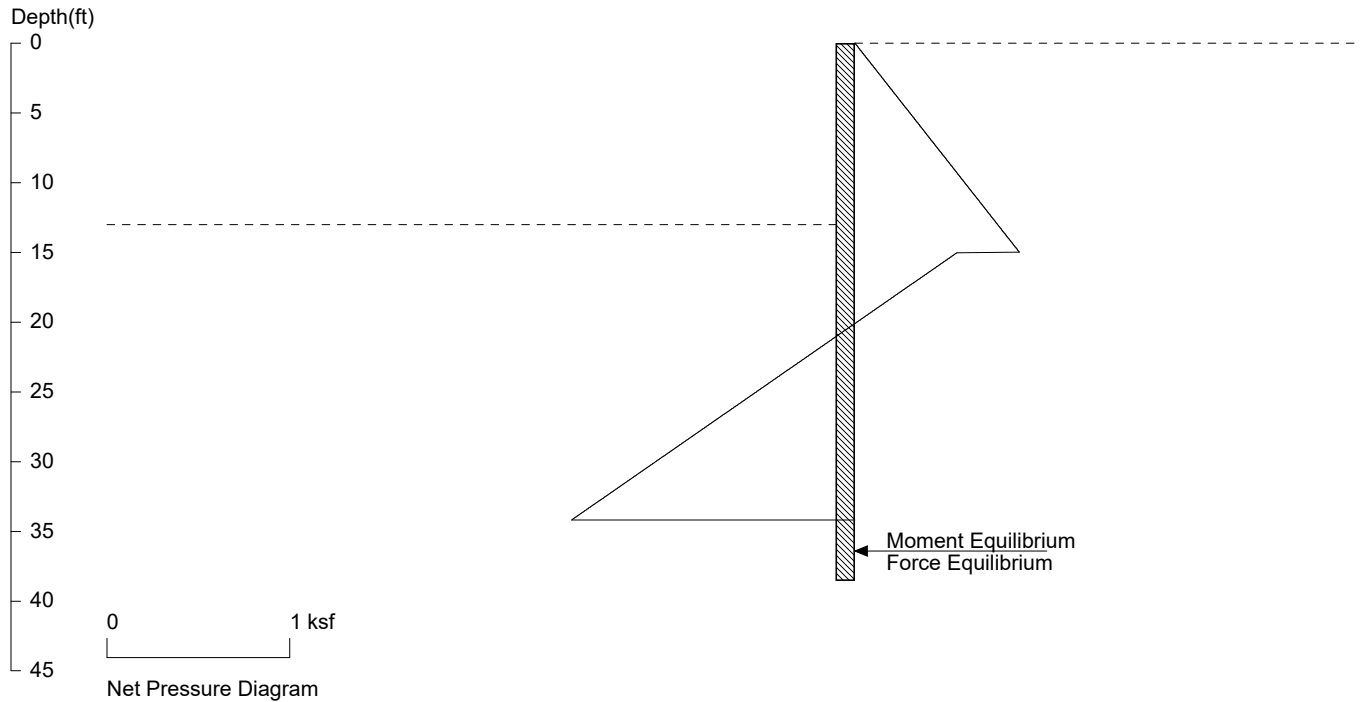
No.	Z depth	Spacing
1	0.00	5.00
2	13.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	13.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
 Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

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PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

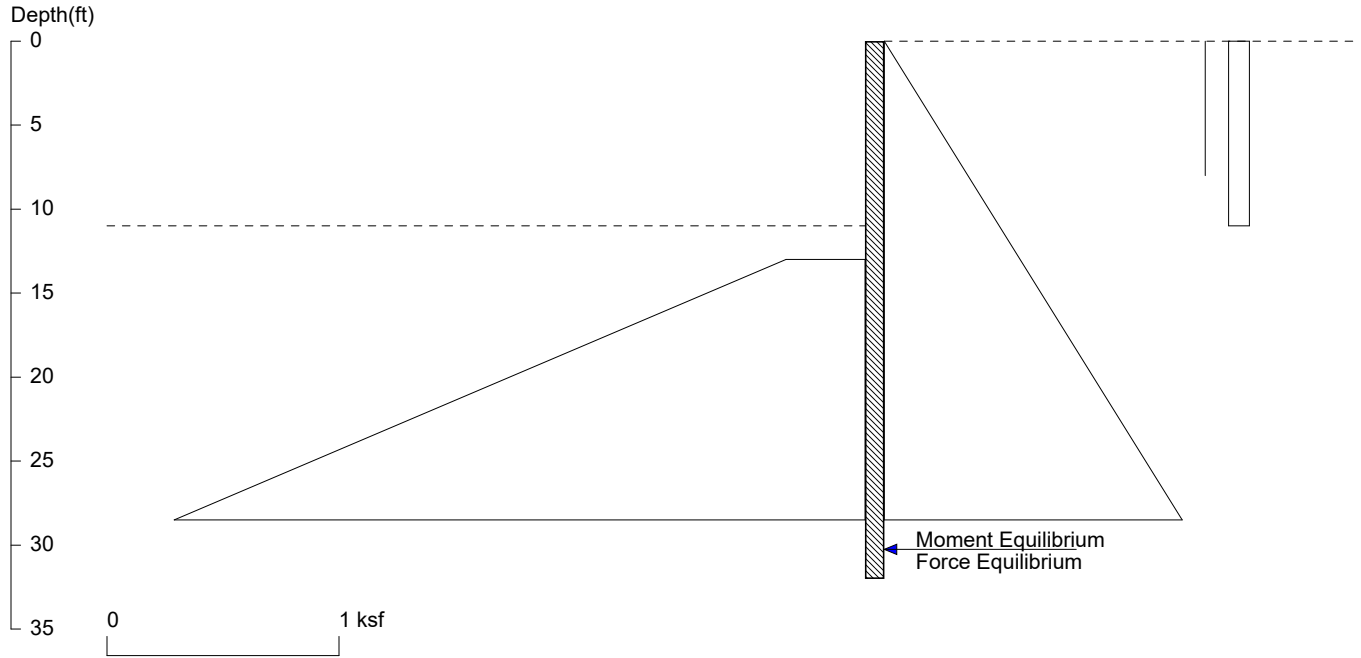
Based on pile spacing: 5.0 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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P15 - P21 permanent nonseismic



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Wall Height=11.0 Pile Diameter=2.5 Pile Spacing=5.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=21.01 Min. Pile Length=32.01

MOMENT IN PILE: Max. Moment=243.20 per Pile Spacing=5.5 at Depth=20.61

PILE SELECTION:

Request Min. Section Modulus = 88.4 in³/pile=1449.20 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.46(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	8	0.000	0
*	traff			
0	.09	11	0.090	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13	.34	60	8.330	.17

ACTIVE SPACING:

No.	Z depth	Spacing
1	0.00	5.50
2	11.00	2.50

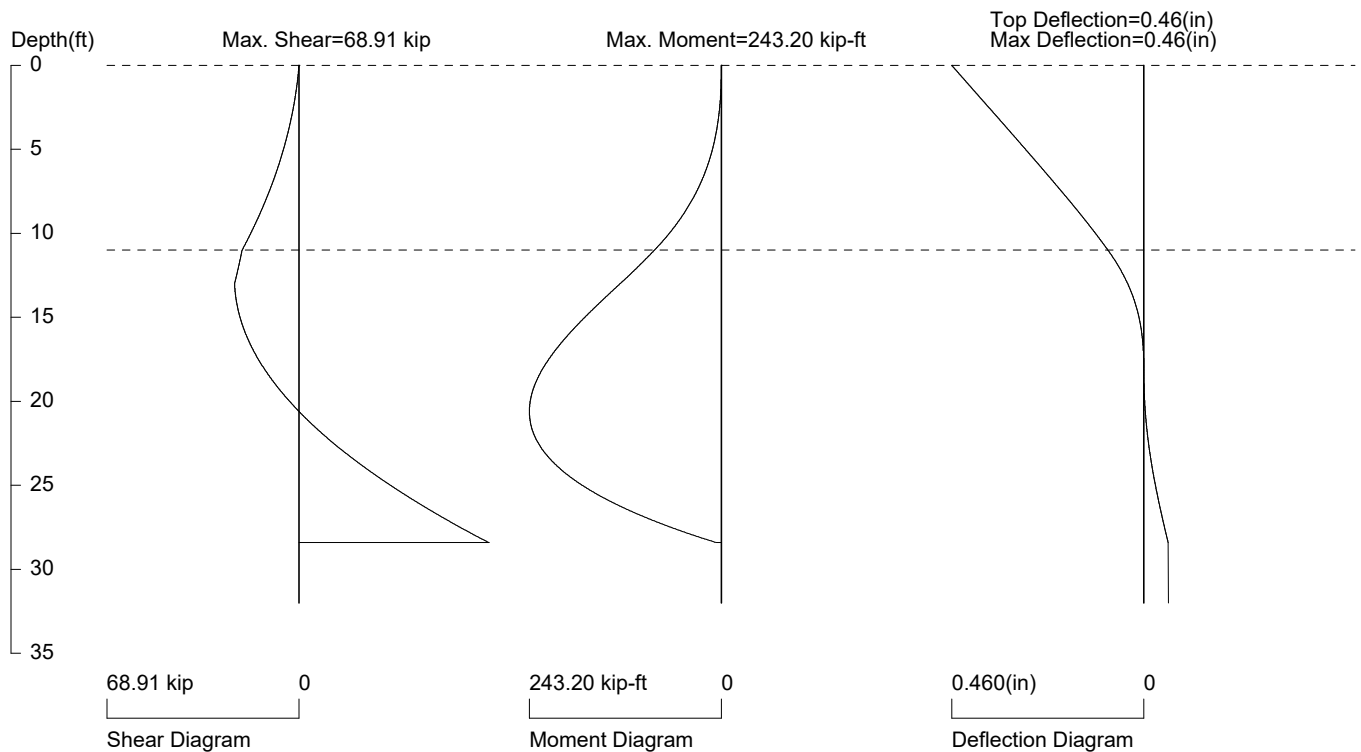
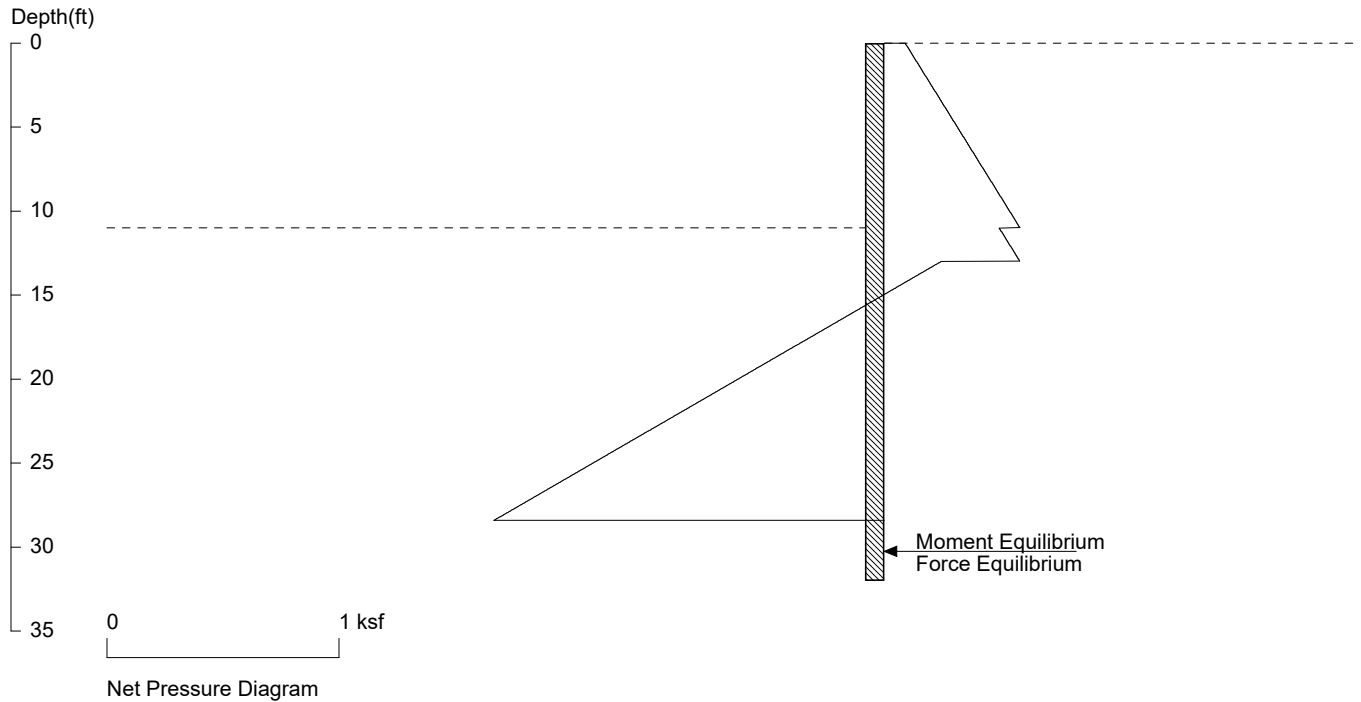
PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	5.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

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P15 - P21 permanent nonseismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

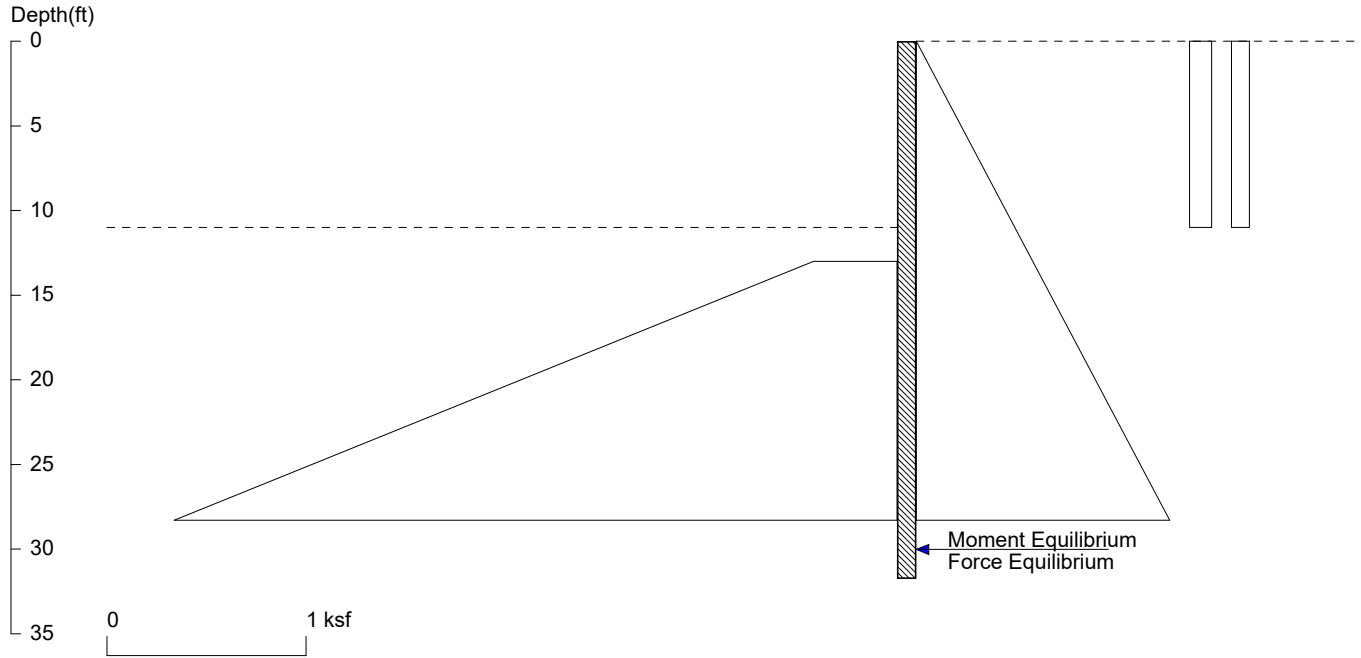
Based on pile spacing: 5.5 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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P15 - P21 seismic



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Wall Height=11.0 Pile Diameter=2.5 Pile Spacing=5.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=20.75 Min. Pile Length=31.75

MOMENT IN PILE: Max. Moment=317.81 per Pile Spacing=5.5 at Depth=20.30

PILE SELECTION:

Request Min. Section Modulus = 115.6 in³/pile=1893.77 cm³/pile, F_y= 50 ksi = 345 MPa, F_b/F_y=0.66

W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!

Top Deflection = 0.62(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	.11	11	0.110	0
*	traff			
0	.09	11	0.090	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
13	.42	60	10.29	.21

ACTIVE SPACING:

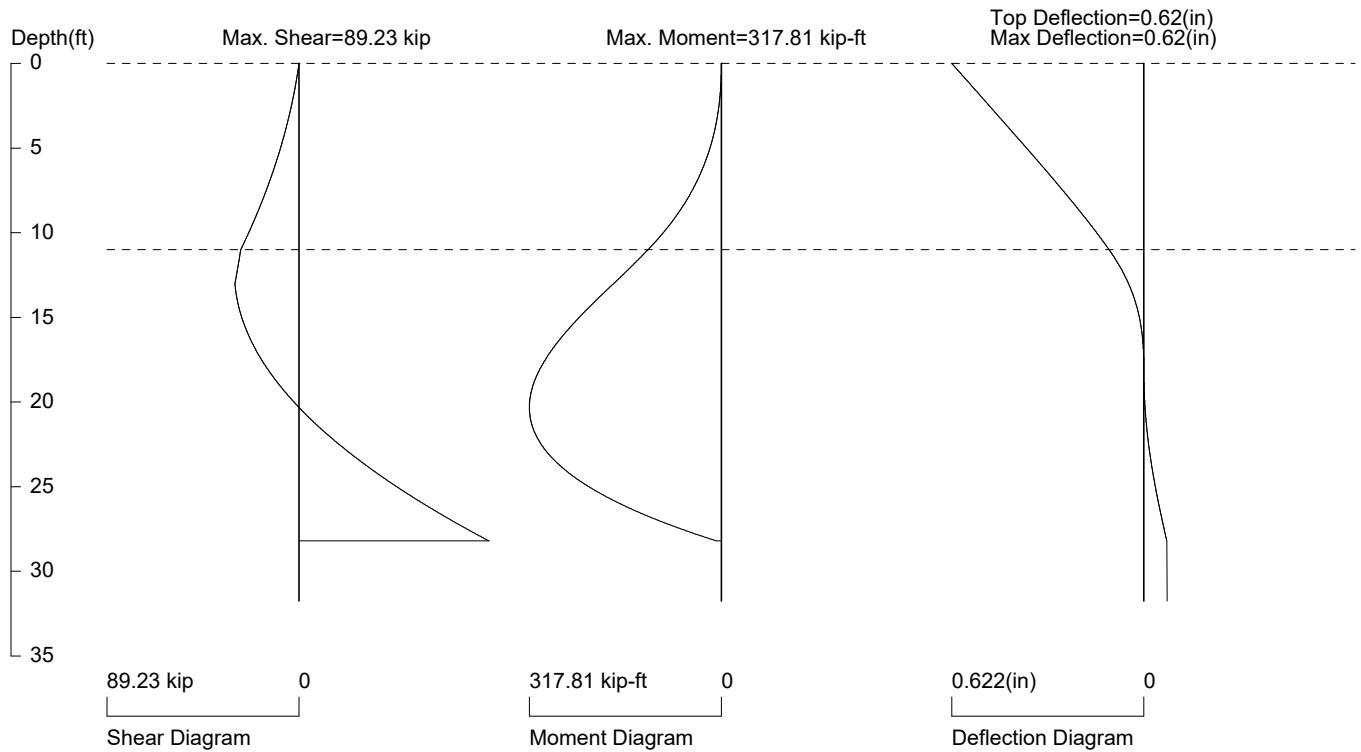
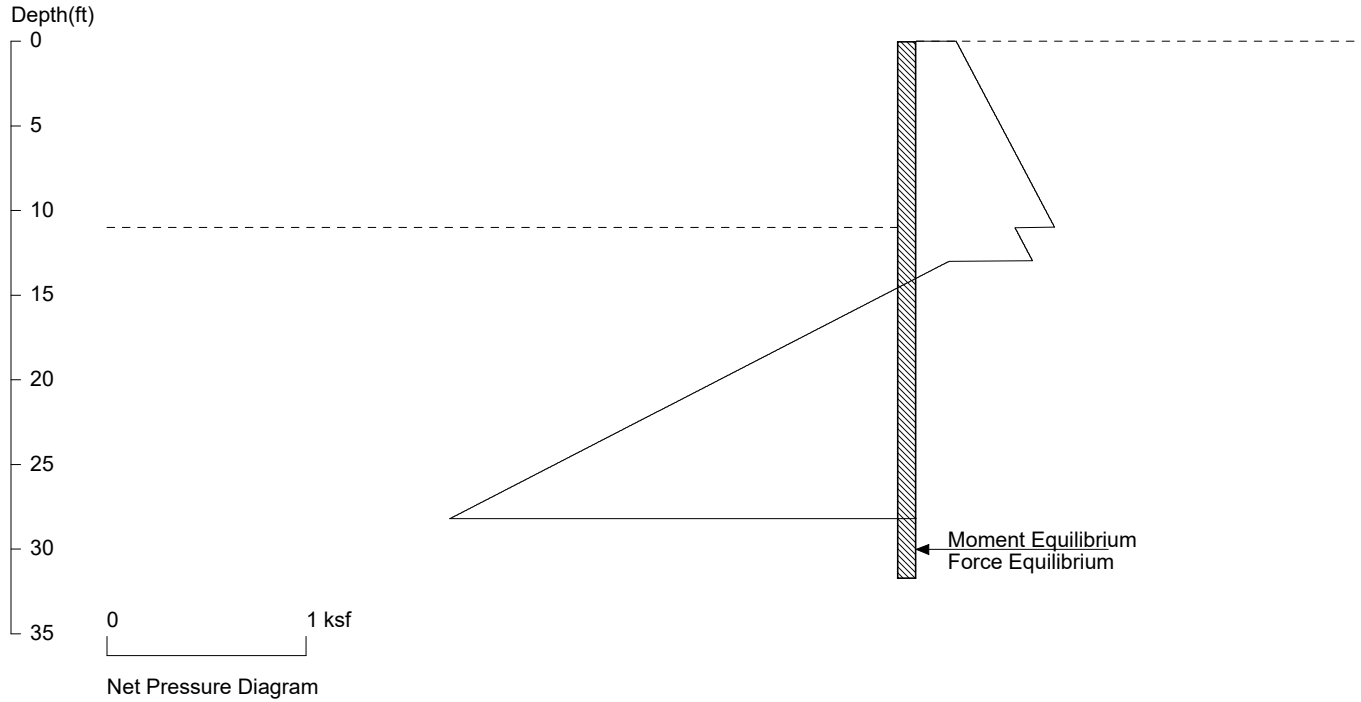
No.	Z depth	Spacing
1	0.00	5.50
2	11.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	11.00	5.00

UNITS: Width, Spacing, Diameter, Length, and Depth - ft; Force - kip; Moment - kip-ft
Friction, Bearing, and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P15 - P21 seismic



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

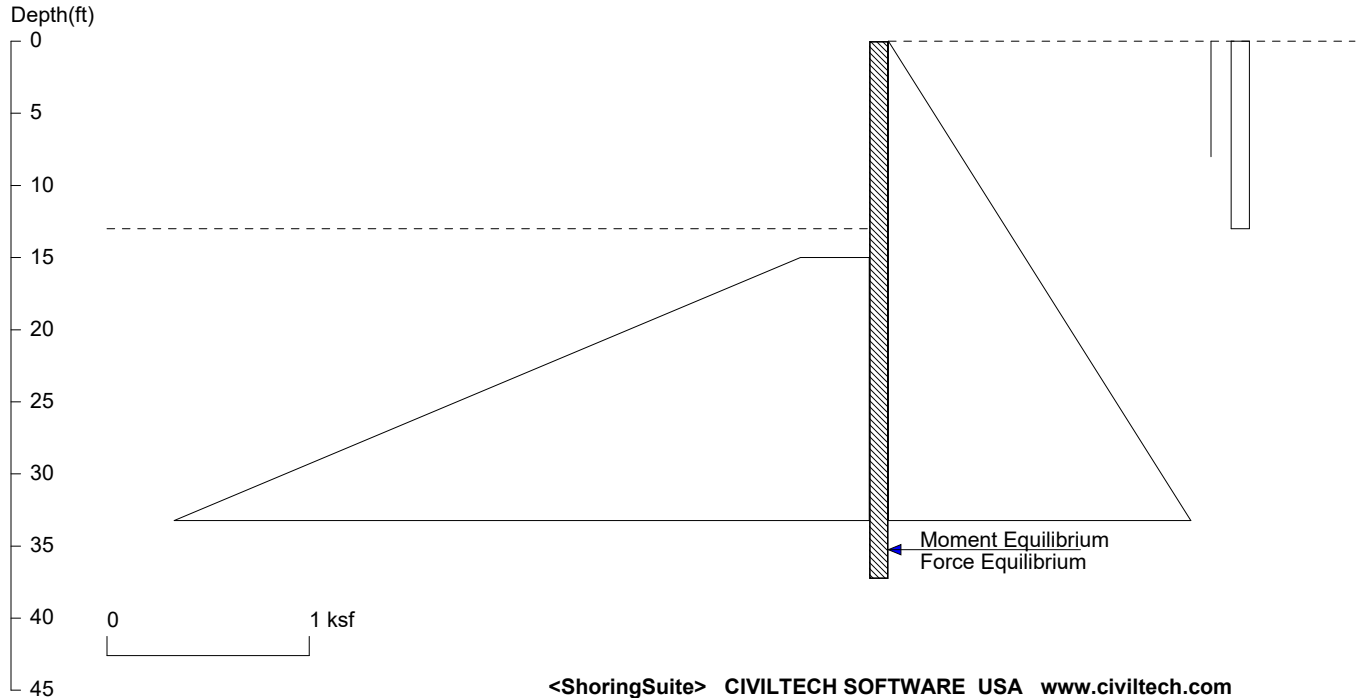
Based on pile spacing: 5.5 foot or meter

User Input Pile, w24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

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P15 - P21 temporary



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Date: 5/27/2022

File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P15-P21 temp.sh8

Wall Height=13.0 Pile Diameter=2.5 Pile Spacing=5.5 Wall Type: 2. Soldier Pile, Drilled

PILE LENGTH: Min. Embedment=24.27 Min. Pile Length=37.27

MOMENT IN PILE: Max. Moment=374.62 per Pile Spacing=5.5 at Depth=24.06

PILE SELECTION:

Request Min. Section Modulus = 136.2 in³/pile=2232.34 cm³/pile, Fy= 50 ksi = 345 MPa, Fb/Fy=0.66
 W24X84 has Section Modulus = 196.0 in³/pile=3211.85 cm³/pile. It is greater than Min. Requirements!
 Top Deflection = 0.97(in) based on E (ksi)=29000.00 and I (in⁴)/pile=2370.0

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

Z1	P1	Z2	P2	Slope
0	0	60	2.700	.045
*	eq			
0	0	8	0.000	0
*	traff			
0	.09	13	0.090	0

PASSIVE PRESSURES:

Z1	P1	Z2	P2	Slope
15	.34	60	7.990	.17

ACTIVE SPACING:

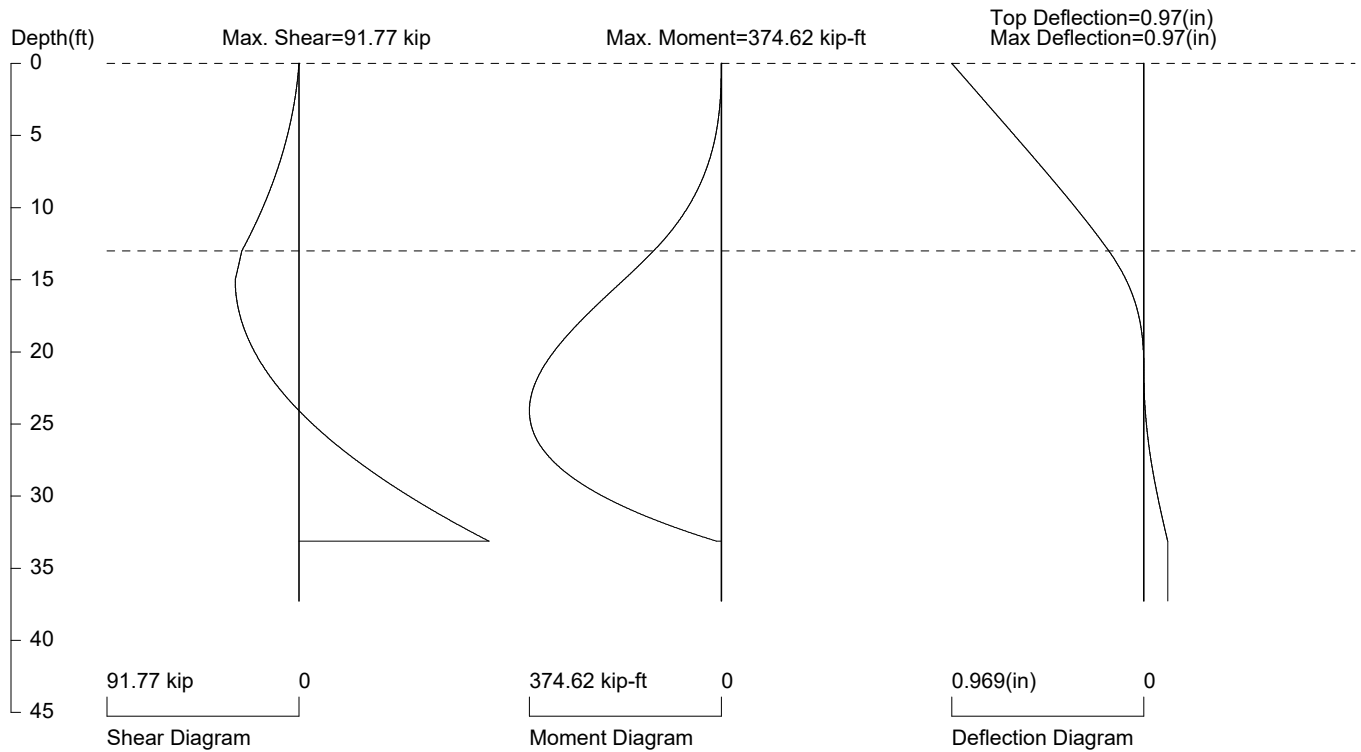
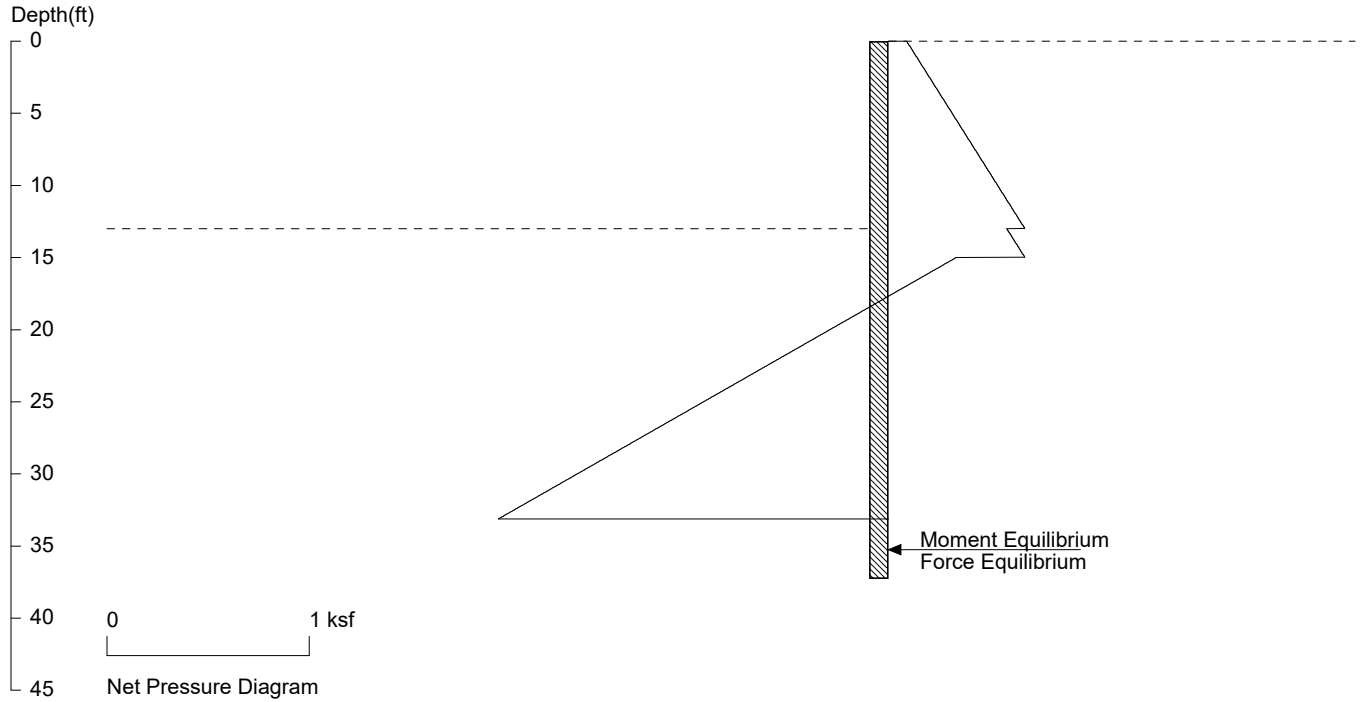
No.	Z depth	Spacing
1	0.00	5.50
2	13.00	2.50

PASSIVE SPACING:

No.	Z depth	Spacing
1	13.00	5.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
 Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Clarkson P15 - P21 temporary



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 5.5 foot or meter

User Input Pile, W24x84: E (ksi)=29000.0, I (in⁴)/pile=2370.0

File: K:\2021\01519-2021-11 Clarkson mercer island\Shoring\P15-P21 temp.sh8