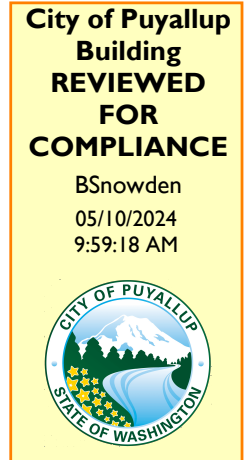


PRFN20240667

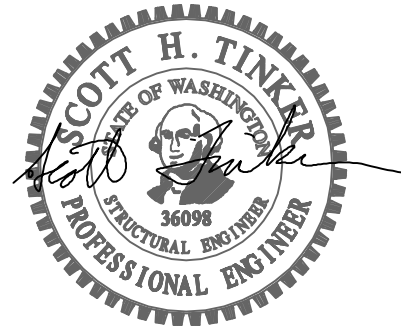


April 09, 2024

STRUCTURAL CALCULATIONS
(Permit Submittal)

**CENTERIS DATA CENTER
CHAIN LINK FENCE FOUNDATION**
1023 39th Avenue SE
Puyallup, WA 98374

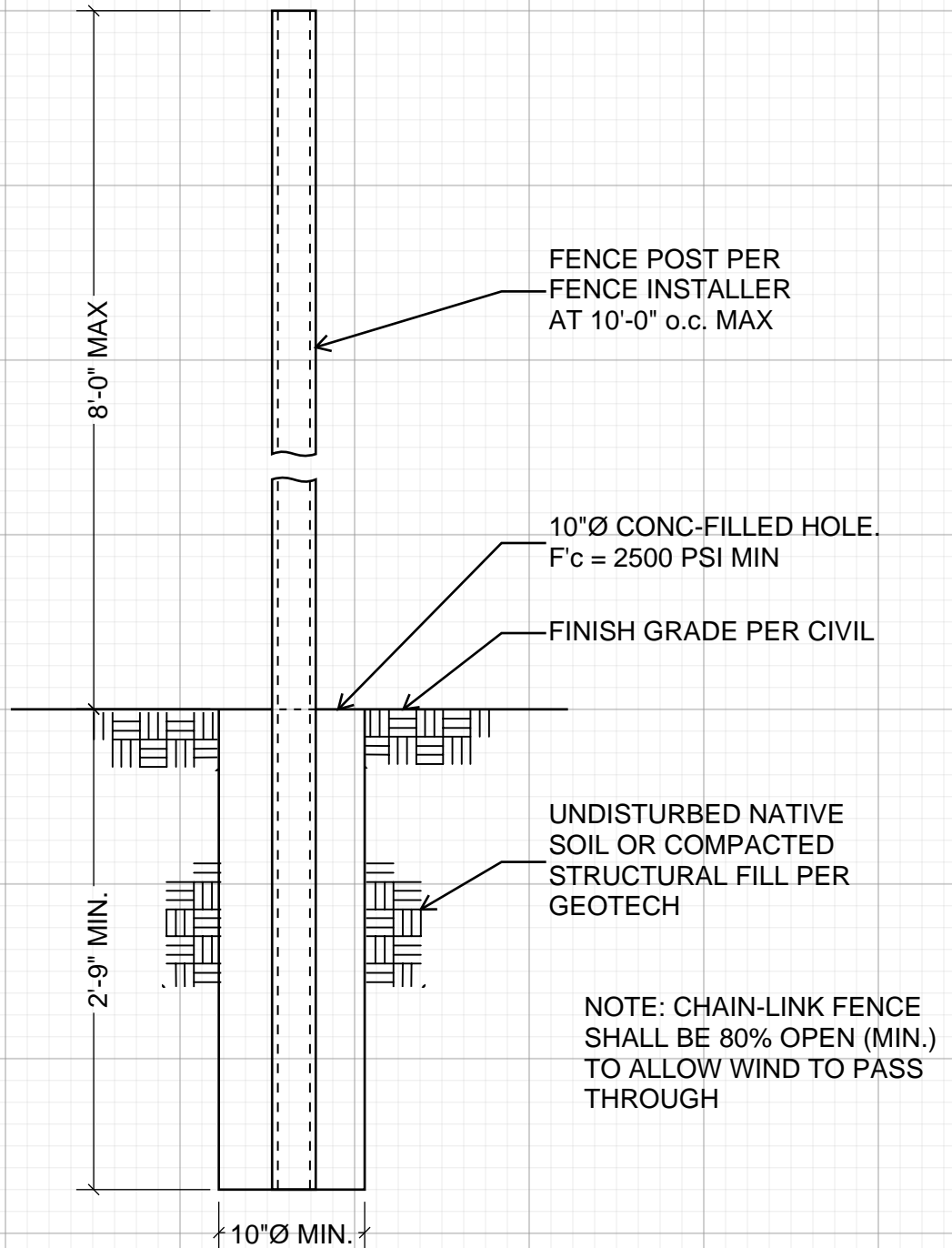
Quantum Job Number: 23444.01



Prepared for:
CENTERIS DATA CENTERS
18300 Cascade Avenue S
Seattle, WA 981188

Prepared by:
QUANTUM CONSULTING ENGINEERS
1511 Third Avenue, Suite 323
Seattle, WA 98101
TEL 206.957.3900
FAX 206.957.3901

Calculations required to be provided by the Permittee on site for all Inspections



TYPICAL CHAIN-LINK FENCE POST FOUNDATION

SCALE: N.T.S.



1511 THIRD AVENUE
SUITE 323
SEATTLE, WA 98101
TEL 206.957.3900
FAX 206.957.3901
www.quantumce.com

CENTERIS DATA CENTER - SOUTH HILL
project

CENTERIS
client

04/04/2024
date

drawn by:
TVM
design by:

23444.01
job no.

SSK-11
sheet no.

⚠ This is a beta release of the new ATC Hazards by Location website. Please [contact us](#) with feedback.

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

ATC Hazards by Location

Search Information

Address: 1015 39th Ave SE Puyallup, WA 98374
Coordinates: 47.1590004, -122.2794422
Elevation: 489 ft
Timestamp: 2023-12-01T15:13:57.333Z
Hazard Type: Wind



ASCE 7-16

MRI 10-Year 67 mph
 MRI 25-Year 73 mph
 MRI 50-Year 78 mph
 MRI 100-Year 82 mph
 Risk Category I 92 mph
 Risk Category II 97 mph
 Risk Category III 104 mph
 Risk Category IV 108 mph

ASCE 7-10

MRI 10-Year 72 mph
 MRI 25-Year 79 mph
 MRI 50-Year 85 mph
 MRI 100-Year 91 mph
 Risk Category I 100 mph
 Risk Category II 110 mph
 Risk Category III-IV 115 mph

ASCE 7-05

ASCE 7-05 Wind Speed 85 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. [Find out why.](#)

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Fence Wind Loading

ASCE 7-16 Chapter 29 Procedure

1.) Fence Parameters

Height = 8 ft
Post Spacing = 10 ft
% Open = 20 % (Conservative)
Wind Speed = 104 mph
Exposure Cat. B
Exposure Coe. $K_z = 0.57$ Table 26.10-1 ($H = 15'$)
Direction Coe. $K_d = 0.85$ Table 26.6-1
Topo Coe. $K_{zt} = 1.00$ Sec. 26.8

2.) Wind Load

V_Pressure $q_z = 13.42$ psf EQ 26.10-1
C_f = 1.80 Figure 29.4-2
F = 386 plf EQ 29.3-1



Quantum Consulting Engineers LLC
1511 Third Avenue, Suite 323
Seattle, WA 98101

Project: Centeris
Client: Centeris

Date: 4/8/24 Job No: 23444.01
Designer: TVM Sheet: 1
Checked:

Pole Footing Embedded in Soil

Lic. #: KW-06005835

DESCRIPTION: Fence Foundation

Code References

Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16

Load Combinations Used : ASCE 7-16

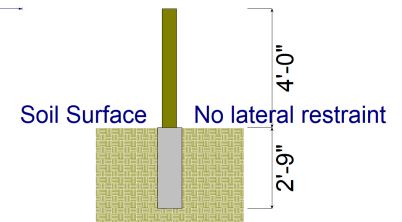
General Information

Pole Footing Shape Circular
 Pole Footing Diameter 10.0 in
 Calculate Min. Depth for Allowable Pressures
 No Lateral Restraint at Ground Surface
 Allow Passive 700.0 pcf
 Max Passive psf

Allowable passive pressure = 350 psf applied of 2D

Controlling Values	
Governing Load Combination :	+0.60W
Lateral Load	0.2316 k
Moment	0.9264 k-ft
NO Ground Surface Restraint	
Pressures at 1/3 Depth	
Actual	626.40 psf
Allowable	632.12 psf
Minimum Required Depth 2.750 ft	
Footing Base Area	0.5454 ft ²
Maximum Soil Pressure	0.0 ksf

Point Load



Applied Loads

Lateral Concentrated Load (k)	Lateral Distributed Loads (klf)	Vertical Load (k)
D : Dead Load k	k/ft	k
Lr : Roof Live k	k/ft	k
L : Live k	k/ft	k
S : Snow k	k/ft	k
W : Wind 0.3860 k	k/ft	k
E : Earthquake k	k/ft	k
H : Lateral Earth k	k/ft	k
Load distance above ground surface 4.0 ft	TOP of Load above ground surface ft	
	BOTTOM of Load above ground surface ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
	0.000	0.000	0.13	0.0	0.0	1.000
+0.60W	0.232	0.926	2.75	626.4	632.1	1.000
+0.450W	0.174	0.695	2.50	563.7	565.3	1.000