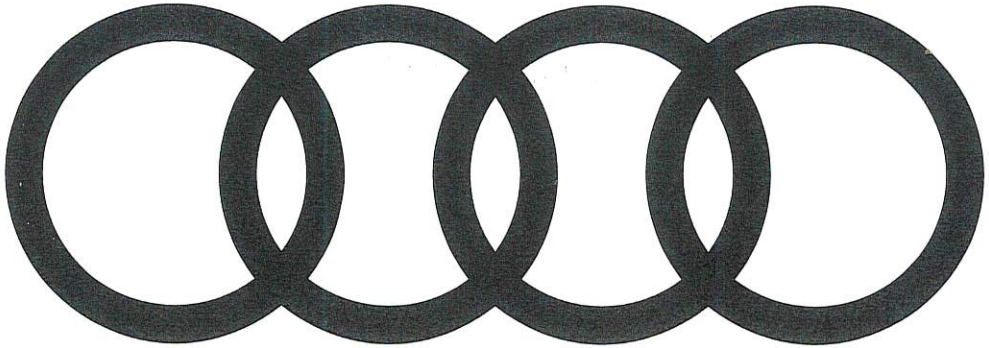
EXHIBIT C



Audi

Audi Naperville
1527 Aurora Avenue, Naperville, IL 60540
Pylon Package

Blair Image Elements
5107 Kissell Avenue
Altoona, PA 16601
P: (814) 949.8287
blairimage.com

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IMAGE ELEMENTS

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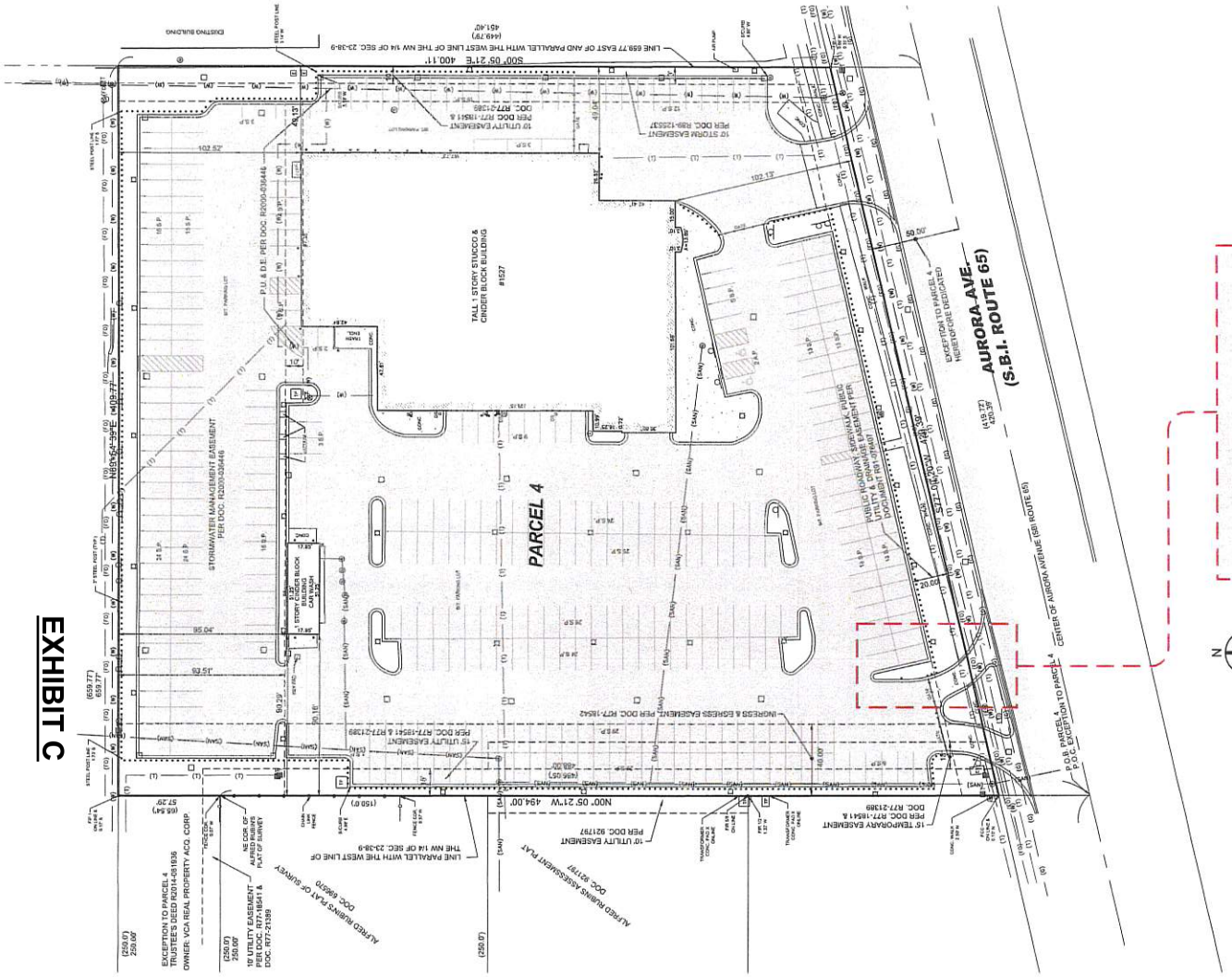
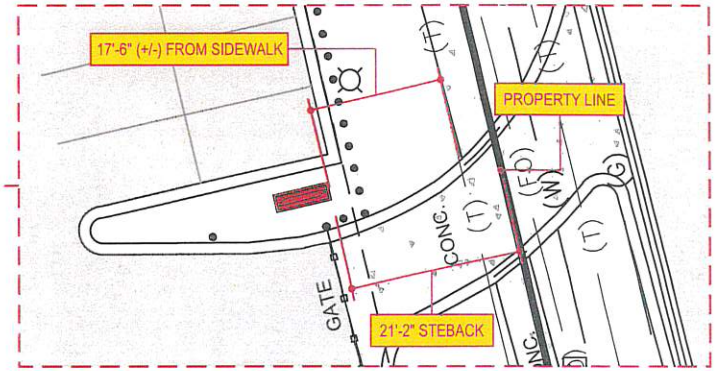


Overall Site Plan
Scale: 1/64" = 1'-0" @ 11x17



Enlarged Site Plan
Scale: 1/16"=1'-0" @ 11x17

SEE PAGE 102 FOR ADDITIONAL LOCATION INFORMATION AND SHEET 103 FOR PLAT PLAN

Audi

CLIENT: Audi Naperville (Pylon)	**SHEET CALLOUT**
LOCATION: 1527 Aurora Avenue, Naperville, IL 60540	101
BLAIR PROJECT #: 100201	**PAGE NUMBER:** 2
BLAIR SALES ORDER #: 70848	**DRAWN BY:** DJG
DATE: 03.22.23	

REV	DESCRIPTION	DATE	BY
A	ADDED PYLON DETAILS	03.28.23	DJG
B	ADDED SITE PLAN W/SETBACK	03.30.23	DJG
C	REVISED SITE MAP/ADDED PLAT PLAN	09.26.23	DJG

CUSTOMER APPROVAL

Print Name | Title

Signature | Date

☐ Approved
☐ Approved as Noted
☐ Not Approved Resubmit with Changes

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Pylon Key Plan

Scale: N.T.S. @ 11x17

EXISTING SIDEWALK

EXISTING LIGHT POLE

REPLACE SHRUBS AS REQUIRED IF DISTURBED BY NEW SIGN CONSTRUCTION. MATCH EXISTING SPECIES

NEW PYLON SIGN (BY OWNER)

Sign #1
AP-6000
126.67 SqFt
Sheet 401

17'-6" +/- FROM SIDEWALK

7'-4"

CENTER IN ISLAND

2'-4"

EXISTING SHRUBS TO REMAIN

EXISTING ENTRY DRIVE

EXISTING SHRUBS TO REMAIN

EXHIBIT C

Pylon Location Plan

Scale: 3/16"=1'-0" @ 11x17

NOTE: LANDSCAPE CONTRACTOR TO ENSURE ONE SQUARE FOOT OF LANDSCAPED AREA PER ONE SQUARE FOOT OF SIGN IS PROVIDED

ALL NOTES IN RED ARE BY OTHERS ONLY SIGN IS PROVIDED BY BIE

NEW FOOTING SUPPLIED BY BIE

Audi

CLIENT: Audi Naperville (Pylon)
LOCATION: 1527 Aurora Avenue, Naperville, IL 60540
BLAIR PROJECT #: 100201
BLAIR SALES ORDER #: 70848
DATE: 03.22.23

SHEET CALLOUT 102
PAGE NUMBER: 3
DRAWN BY: DJG

REV	DESCRIPTION	DATE	BY
A	ADDED PYLON DETAILS	03.28.23	DJG
B	ADDED SITE PLAN W/SETBACK	03.30.23	DJG
C	REVISED SITE MAP/ADDED PLAT PLAN	09.26.23	DJG

CUSTOMER APPROVAL

Print Name | Title | Signature | Date

☐ Approved
☐ Approved as Noted
☐ Not Approved Resubmit with Changes

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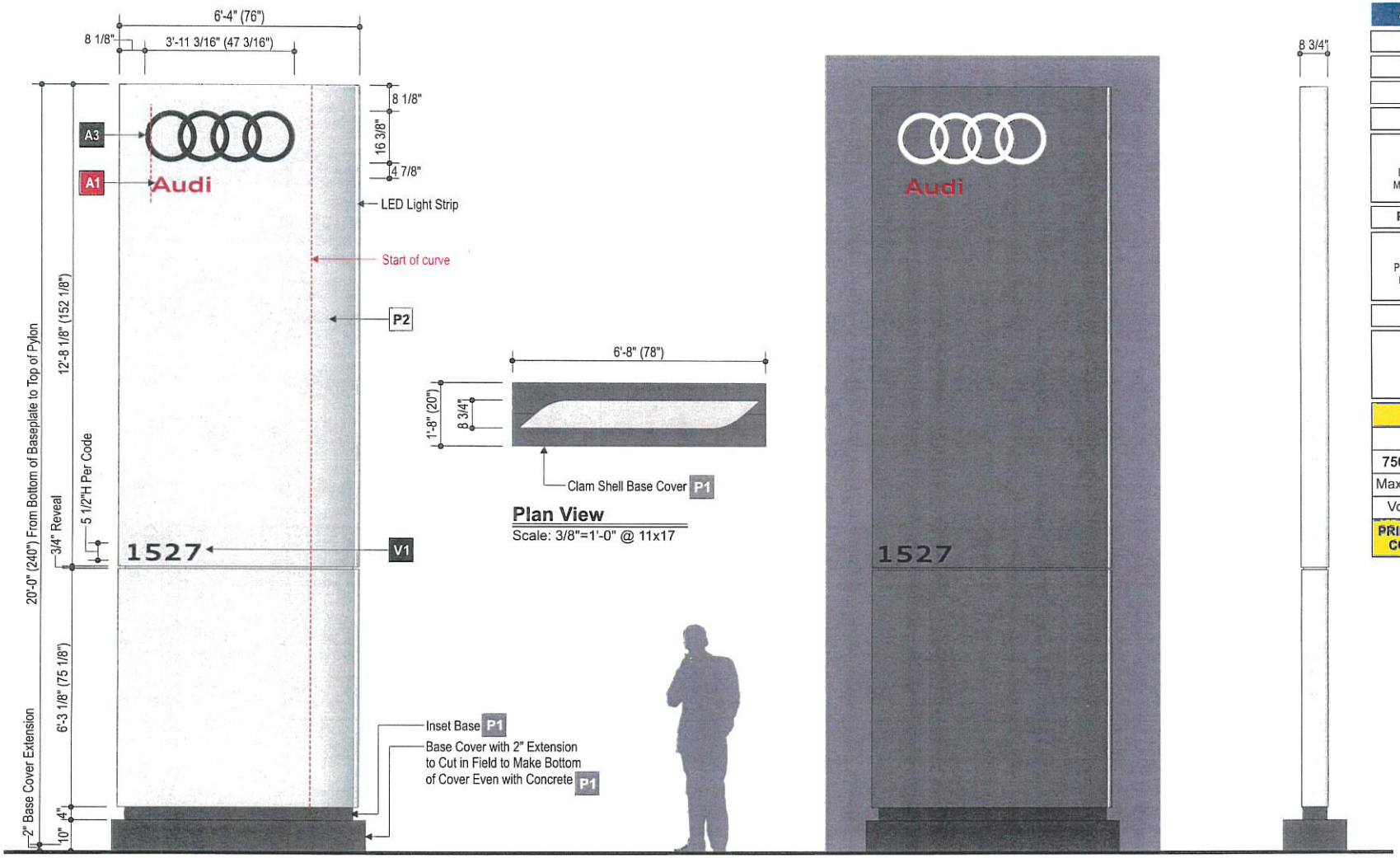

Plan View
Scale: 3/8"=1'-0" @ 11x17

Front/Rear Elevation
Scale: 3/8"=1'-0" @ 11x17

Front/Rear Night View
Scale: 3/8"=1'-0" @ 11x17

Side Elevation
Scale: 3/8"=1'-0" @ 11x17

AP-6000
PYLON SIGN

AP-6000/ADIDK00010A

Sign #1

240" x 76" = 126.67 SqFt

Approx Weight: 2000 Lbs

Finish Specifications

P1	P2
Dark Grey Mica DB 703	RAL 9006 Silver (30% Matt)

Plexiglas Specifications

A1	A3
Plexiglas G5 Red 3H67	Plexiglass LED Black & White 9H001 GT

Vinyl Specifications

V1
4500-03
Black Vinyl

Electrical

RED LEDs "Audi"

7500k White Led's (Rings)

Max. Amps Req'd: 4.8 (T.B.V.)

Voltage Req'd: 120V-277V

PRIMARY CIRCUIT AND FINAL CONNECTION BY OTHERS

Audi

CLIENT: Audi Naperville (Pylon)	
LOCATION: 1527 Aurora Avenue, Naperville, IL 60540	
BLAIR PROJECT #: 100201	
BLAIR SALES ORDER #: 70848	
DATE: 03.22.23	

SHEET CALLOUT
401
PAGE NUMBER: 5
DRAWN BY: DJG

REV	DESCRIPTION	DATE	BY
A	ADDED PYLON DETAILS	03.28.23	DJG
B	ADDED SITE PLAN W/SETBACK	03.30.23	DJG
C	REVISED SITE MAP/ADDED PLAT PLAN	09.26.23	DJG

CUSTOMER APPROVAL

Print Name

Signature

Title

Date

☐ Approved

☐ Approved as Noted

☐ Not Approved Resubmit with Changes

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ROBERT-JAMES & ASSOCIATES, Inc.
12255 West 187th Street
Mokena, Illinois 60448
(708) 479-8385

File : Blair1078b.mcd

Site : Audi Naperville
1527 Aurora Avenue
Naperville, Illinois 60540

Sign Type : 20'-2" overall height, including bottom trim, x 6'-4" wide monolith ID sign with twin poles on caisson footings.
Drawing No. 2310051 rev. A

Design wind load is based on the 2018 International Building Code (ASCE 7-16) using Exposure C and 115 mph wind speed.

Design Wind Speed : (mph.) $V := 115.0$ Based on Risk Category II

Velocity Pressure Coefficient at a Height of Less Than 20', Exposure C : $Kz := 0.94$ Based on Table 29.3-1

Topographic Factor : $Kzt := 1.00$ Based on Table 26.8-1

Wind Directionality Factor : $Kd := 0.95$ Based on Table 26.6-1

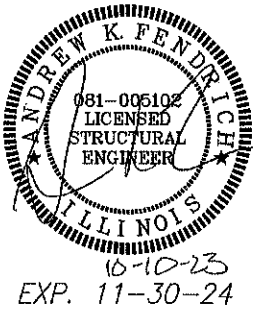
Velocity Pressure : (PSF) $qz := 0.00256 \cdot Kz \cdot Kzt \cdot Kd \cdot V^2$ $qz = 30.233$ Based on 29.3-1

For Figure 29.4-1

Overall Height : (ft.) $h := 20.17$ Overall Width : (ft.) $B := 6.33$

Where 's' equals 'h' $s := 20.17$

$\frac{s}{h} = 1$ $\frac{B}{s} = 0.314$



Force Coefficient : $Cf := 1.61$ Based on Figure 29.4-1

Gust Effect Factor : $G := 0.85$ Based on 26.9.4 for Other Structures

ASD Conversion Factor : $LCF := 0.60$

Design Pressure : (PSF) $F := qz \cdot Cf \cdot G \cdot LCF$ $F = 24.825$ Use : $WL := 24.9$

Reference : Manual of Steel Construction, AISC 13th Edition.

Tube : ASTM A-500 Gr. B Fy = 46.0 ksi. ; Fb = 30.36 ksi. ; Fv = 18.40 ksi.

Plate : ASTM A-36 Fy = 36.0 ksi. ; Fb = 27.00 ksi. ; Fv = 14.40 ksi.

Anchor Bolts : ASTM F-1554 Gr. 36 Fu = 58.0 ksi. ; Ft = 19.14 ksi. ; Fv = 14.40 ksi.

Reference : American Concrete Institute, Code 318.14

Rebar : ASTM A-615 Grade 60 Fy = 60.0 ksi.

Concrete : 3,000 psi. compressive strength at 28 days.

Design Loads at Grade :

Shear : (lbs.) $ShrGrd := (20.17 \cdot 6.33 \cdot WL)$ $ShrGrd = 3179.135$

EXHIBIT C

Moment : (ft.lbs.) $MtGrd := ShrGrd \cdot \left(\left(\frac{20.17}{2}\right) + (0.05 \cdot 20.17)\right)$ $MtGrd = 35267.733$

Design of Pole Structures at Grade :

Section Modulus of Tube : (in.3) HSS 5-1/2" x 5-1/2" x 5/16" wall - $TubeSM := 9.43$

Moment per Pole : (ft.lbs.) $MtPoleGrd := \frac{MtGrd}{2}$ $MtPoleGrd = 17633.866$

Bending Stress : (psi.) $f_b := \frac{MtPoleGrd \cdot 12}{TubeSM}$ $f_b = 22439.703$

Area of Tube : (in.2) HSS 5-1/2" x 5-1/2" x 5/16" wall - $TubeArea := 5.85$

Shear per Pole : (lbs.) $ShrPoleGrd := \frac{ShrGrd}{2}$ $ShrPoleGrd = 1589.567$

Shear Stress : (psi.) $f_v := \frac{ShrPoleGrd}{TubeArea}$ $f_v = 271.721$

Unity Check - Poles : $UCPoles := \frac{f_b}{30360} + \frac{f_v}{18400}$ $UCPoles = 0.754$ < 1.00 OK

Design of Anchor Bolts at Grade :

Anchor Bolt Diameter : (in.) $AncBltDia := 1.00$

Stress Area : (in.2) $AncBltArea := \frac{\pi \cdot AncBltDia^2}{4}$ $AncBltArea = 0.785$
(Based on nominal diameter per AISC 4-3)

Allowable Tension : (lbs.) $AllwTen := 19140 \cdot AncBltArea$ $AllwTen = 15033$

Allowable Shear : (lbs.) $AllwShr := 14400 \cdot AncBltArea$ $AllwShr = 11310$

Number of Anchor Bolts in Tension per Pole : $NoTen := 2$

Front to Back Distance Between Anchor Bolts : (in.) $LvrArm := 15.75$

Tension Load per Anchor Bolt : (lbs.) $TenAncBlt := \frac{MtPoleGrd \cdot 12}{NoTen \cdot LvrArm}$ $TenAncBlt = 6717.66$

Number of Anchor Bolts in Shear per Pole : $NoShr := 4$

Shear Load per Anchor Bolt : (lbs.) $ShrAncBlt := \frac{ShrPoleGrd}{NoShr}$ $ShrAncBlt = 397.39$

Unity Check : Anchor Bolts $UCAncBlts := \frac{TenAncBlt}{AllwTen} + \frac{ShrAncBlt}{AllwShr}$ $UCAncBlts = 0.482$ < 1.00 OK

EXHIBIT C

Allowable Bond Stress : (lbs./ in.2) $U := \left(\frac{1}{2}\right) \cdot \left(\frac{4.8 \cdot \sqrt{3000}}{AncBltDia}\right)$ $U = 131.453$

Development Length : (in.) $Ld := \frac{TenAncBlt}{U \cdot \pi \cdot AncBltDia}$ $Ld = 16.267$

Embedment Length : (in.) $AncBltEmb := 36 - 6.0$ $AncBltEmb = 30$
(36" overall length minus 6" of thread projection.)

Unity Check : Anchor Bolt Embedment $UCABEmb := \frac{Ld}{AncBltEmb}$ $UCABEmb = 0.542$ < 1.00 OK

Use : Four (4) 1" Diameter x 36" long with 6" of top thread and 3" of bottom thread per pole.

Design of Base Plates at Grade :

Plate Thickness : (in.) $PltThk := 0.875$ Plate Width : (in.) $PltWdth := 18.875$

Transfer Distance : (in.) $PLS := 4.71$ (Measured in AutoCAD to gussets.)

Minimum Thickness Required : (in.) $ReqdThk := \sqrt{\left(\frac{TenAncBlt \cdot NoTen \cdot PLS \cdot 6}{(PltWdth \cdot 27000)}\right)}$

$ReqdThk = 0.863$

Unity Check - Base Plate : $UCBasePlt := \frac{ReqdThk}{PltThk}$ $UCBasePlt = 0.986$ < 1.00 OK

Use : 3/4" thick x 18-7/8" x 18-7/8" base plates with four (4) 1-3/16" diameter holes on a 15-3/4" square bolt pattern with gussets.

Design of Caisson Footings :

Overturning Moment per Footing : (ft.lbs.)	$Ma := MtPoleGrd$	$Ma = 17633.866$
Shear per Footing : (lbs.)	$Va := ShrPoleGrd$	$Va = 1589.567$
Applied Lateral Force : (lbs.)	$P := Va$	$P = 1589.567$
Allowable Lateral Soil Pressure : (lbs./ft.2 per ft.)		$LP := 250$
Diameter of Round Footing : (ft.)		$b1 := 2.5$
Distance in Feet From Ground Surface to Point of Application of "P"	$h := \frac{Ma}{Va}$	$h = 11.094$
Depth of Footing Below Grade : (ft.)		$d1 := 6.5$
Allowable Lateral Soil Bearing Pressure Pursuant to the 2018 International Building Code Section 1807.3.2.1 and Table 1806.2.	$S1 := d1 \cdot \frac{(LP \cdot 1.33)}{3}$	$S1 = 720.417$

EXHIBIT C

$$A := 2.34 \cdot \frac{P}{Sl \cdot b1} \qquad A = 2.065$$

$$d2 := \left(\frac{A}{2}\right) \cdot \left(1 + \left(\sqrt{1 + 4.36 \cdot \frac{h}{A}}\right)\right) \qquad d2 = 6.135 \quad \leq \quad d1 = 6.5 \qquad \text{OK}$$

Check Tensile Stress in Footing :

Overturning Moment About Heel Point : (ft.lbs.) $Mh := Ma + (Va \cdot d1)$ $Mh = 27966.055$
Treat as a cantilever at bottom.

Compressive Strength of Concrete : (psi.) $fc := 3000$

Yield Strength of Rebar : (psi.) $fy := 60000$

Section Modulus of Footing : (in.3) $Sw := \frac{\pi \cdot (b1 \cdot 12)^3}{32}$ $Sw = 2650.719$

Tensile Stress in Concrete : (psi.) $ft := \left(\frac{(Mh \cdot 12)}{Sw}\right)$ $ft = 126.604$

Allowable Concrete Stress : (psi.) $\phi Ft := 0.65 \cdot \left(5 \cdot \sqrt{fc}\right)$ $\phi Ft = 178.01 \quad > \quad ft = 126.604$

REBAR NOT REQUIRED FOR STRESS

Design of Temperature and Shrinkage Steel in Caisson :

Moment for USD Design : $Mu := 1.7 \cdot Mh$ $Mu = 47542.293$

$d := ((b1 \cdot 12) \cdot .80) - 3$ $d = 21$

To Plot for " ju " : $coeff := \frac{Mu \cdot 12}{fc \cdot b1 \cdot 12 \cdot d^2}$ $coeff = 0.014$ $ju := 0.88$

Required Area : (in.2) $As := \frac{Mu \cdot 12}{ju \cdot fy \cdot d \cdot 0.90}$ $As = 0.572$

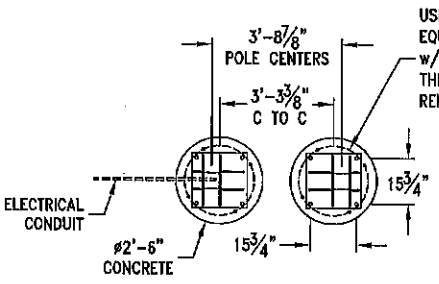
Rebar Size : $Number := 5$

Rebar Area : (in.2) $Area := \frac{\pi \cdot \left(\frac{Number}{8}\right)^2}{4}$ $Area = 0.31$

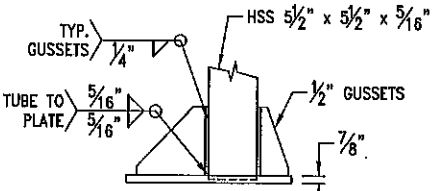
Number Required : $\left(\frac{As}{Area}\right) \cdot 2 = 3.727$ Use four (4) #5 Rebar x 6'-0" LG. equally spaced on a 24" circle with nine (9) #3 Rebar ties. The top three (3) ties in the first 5", three (3) on 8" centers and the remaining three (3) on 14" centers.

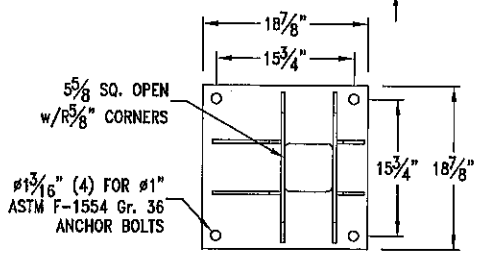
Quantity of Concrete : (yds.3) $CY := \frac{\pi \cdot b1^2 \cdot d1}{4 \cdot 27}$ $CY = 1.182$ Each

EXHIBIT C

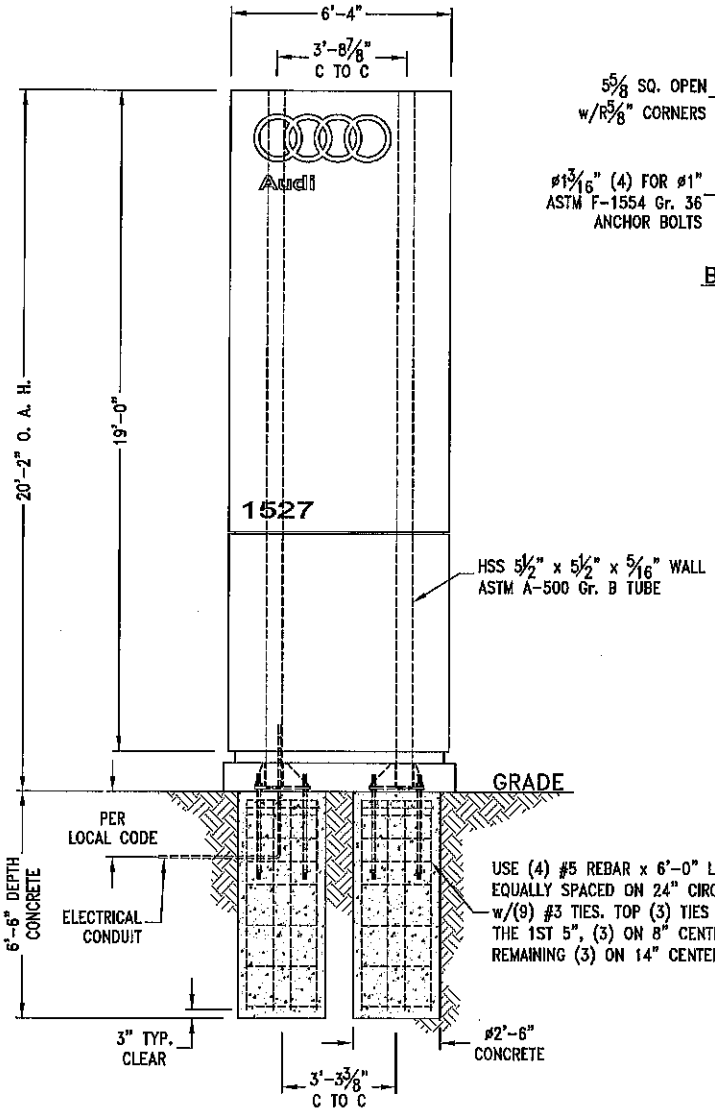


PLAN VIEW
QTY. CONCRETE: 1.2 CU. YDS. EACH

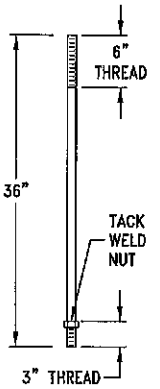




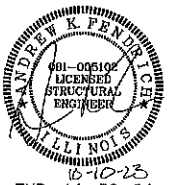
BASE PLATE DETAIL
7/8" ASTM A-36 STEEL



ELEVATION VIEW



ANCHOR BOLT DETAIL
ø1" ASTM F-1554 Gr. 36 STEEL



10-10-23
EXP. 11-30-24

FOUNDATION DESIGN NOTES:
1. Concrete shall have a minimum compressive strength of 3000 PSI at 28 days.
2. Reinforcing steel shall be ASTM A-615 Gr. 60.
3. Caisson footings designed using a soil bearing force of 250 PSF per foot Lateral. If these soil conditions do not exist, it is the Erector's responsibility to have a new base designed for the existing soil conditions by a Licensed Structural Engineer.
4. Anchor bolts shall be ASTM F-1554 Gr. 36 steel.

DESIGN WIND LOAD:
Based on the 2018 International Building Code (ASCE 7-16) using Risk Category II, Exposure C and 115 mph wind speed.

ILLINOIS DESIGN FIRM LICENSE NO. 184.001794

SITE:
Audi Naperville
1527 Aurora Avenue
Naperville, Illinois 60540

REV	DATE	DESCRIPTION	APPROVED
A	10 Oct 23	RELEASED FOR PERMITTING	J. HOGAN

Fendrich Engineering, Inc.
305 East Monroe Street, Springfield Illinois 62701

Robert-James & Associates, Inc.
phone: 708-479-8385 fax: 708-479-8395 email: rja37@comcast.net

TITLE: 20'-2" OAH TWIN POLES FOR 19'-0" x 6'-4" MONOLITH ID SIGN

DRAWN BY	DATE	SCALE	DRAWING NUMBER	SHEET	REV.
A. HOGAN	10 Oct 23	NONE	2310051	1 OF 1	A
CHECKED BY J. HOGAN	DATE 10 Oct 23				

EXHIBIT C