

THE CITY OF NAPOLEON

BUILDING & ZONING DEPARTMENT

255 W. RIVERVIEW

(419)592-4010

Sign Permit

Permit Number: SG2009-1

Page 1 of 1

Printed: 1/16/2009

ADDRESS:

1400 Scott St. suite 400

Applicant

Name: National Illumination & Signs

Address: PO Box 563

6525 Angola Rd
Holland, OH 43528

Approval Date: 1/16/2009

419-866-1666

Owners

Name: MTC Properties

Address: 7635 Chestnut Ridge Ln

Maumee, OH 43537

Phone: 419-445-0000

Contractors

Contractor Type: Sign

Name: National Illumination & Signs

Address: PO Box 563

6525 Angola Rd

Holland, OH 43528

Phone: 419-866-1666

Fees and Receipts:

| Number | Description | Amount |
|------------------------|-------------|----------------|
| FEE2009-78 | Sign (Auto) | \$35.00 |
| Total Fees: | | \$35.00 |
| RCPT2009-76 | | \$35.00 |
| Total Receipts: | | \$35.00 |

Pole Sign Dollar General

APPLICANTS SIGNATURE: _____ DATE: _____

REMINDER: YOU MUST CALL (419)592-4010 FOR AN INSPECTION

Zoning Permit Only!
other permits may be required





CITY OF NAPOLEON
BUILDING & ZONING DEPARTMENT
255 W. Riverview Avenue, PO Box 151, Napoleon, OH 43545
Phone: 419-592-4010 - Fax: 419-599-8393

APPLICATION FOR SIGN PERMIT

LOCATION OF PROPERTY: 1400 N Scott St. Suite 400

OWNER NAME: Dollar General PHONE: (615) 855-4000

OWNER ADDRESS: 100 Mission Ridge, Goodlettsville, TN 37072

CONTRACTOR NAME: National Illumination & Sign PHONE: (419) 866-1666

IS CONTRACTOR REGISTERED WITH THE CITY OF NAPOLEON? YES NO

SIGN INFORMATION

TYPE: POST WALL GROUND AWNING

DIMENSIONS: 4' x 8' = TOTAL S.F. 32

** PLEASE INCLUDE ANY AND ALL SITE PLANS AND PLANS OF ABOVE SIGNS.

FEES:

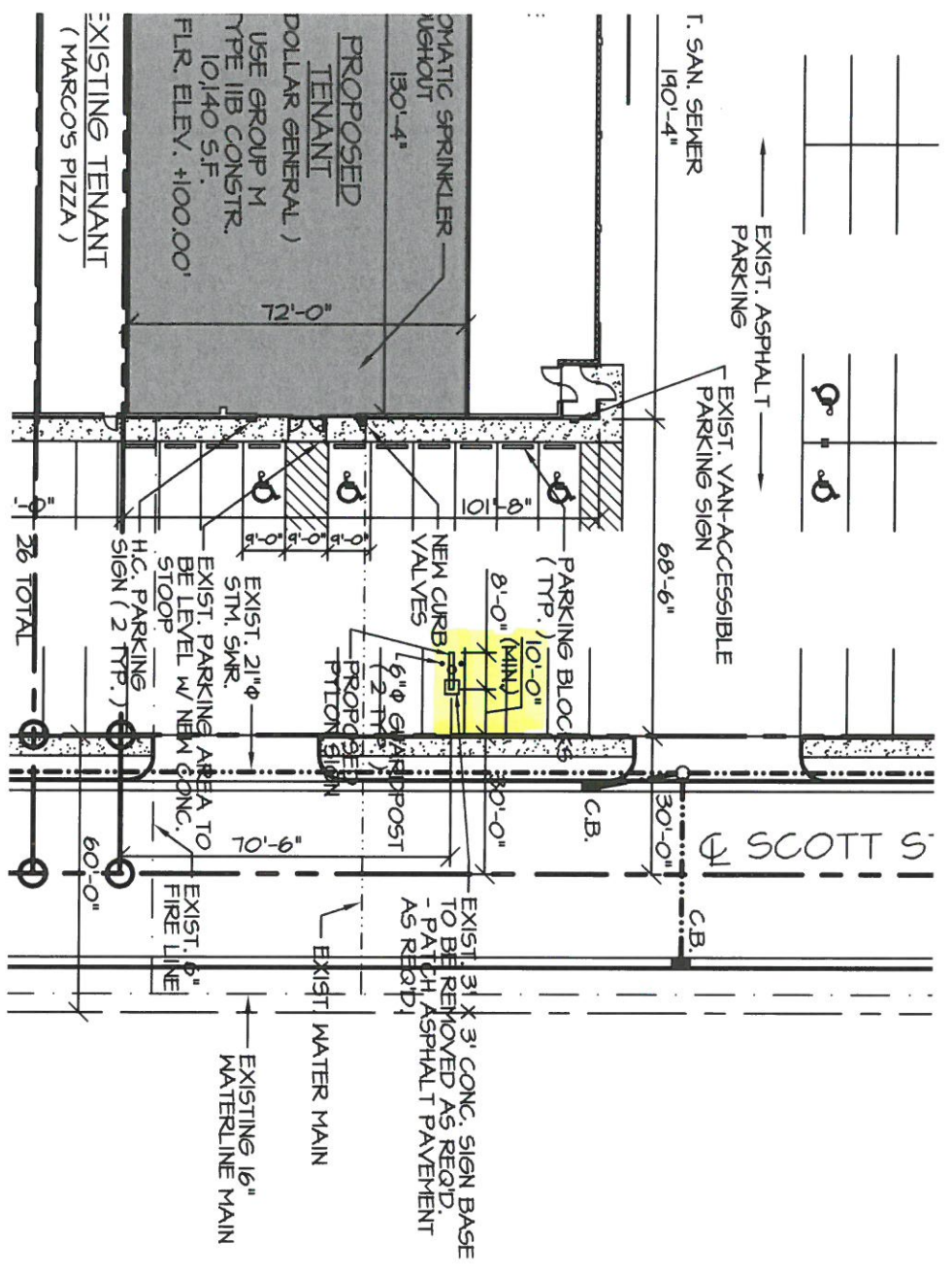
\$35.00 BASE UP TO 50 S.F. OF SIGN, PLUS \$0.20 PER ADDITIONAL S.F., NOT TO EXCEED \$150.00

\$5.00 FLAT FEE FOR TEMPORARY SIGNS, TEMPORARY SPECIAL EVENT SIGNS, AND PORTABLE SIGNS OTHER THAN THOSE EXEMPT FROM FEE.(SEE BELOW)

NO FEE REQUIRED FOR TEMPORARY AND EASILY REMOVABLE 1ST AMENDMENT SIGNS, OR SIGNS RELATED TO RELIGIOUS OR CHARITABLE CAUSES OR EVENTS.


APPLICANT'S SIGNATURE

Jan, 13, 2009
DATE



Site plan, sign location detail

12255 West 187th Street
Mokena, Illinois 60448
(708) 479-8385

File : NatLum93.mcd

Site : Dollar General
1100 North Scott
Napoleon, Ohio

Sign Type : 21'-6" OAH direct bury single pole for 4'-0" x 8'-0 1/2" ID sign and two (2) future 3'-0" x 8'-0 1/2" single face signs mounted back-to-back on the pole 6" below the ID sign on a caisson footing.
Drawing No. 0812053 rev. A

Design wind load based on the Ohio Building Code 2007 (2006 IBC) using Exposure C and 90 mph winds.

Design Wind Speed : (mph.) $V := 90.0$

Importance Factor : $I := 1.00$ Based on Category II, Non-Hurricane Prone Regions with $V = 85-100$ mph.

Velocity Pressure Coefficient at the Height of less than 25' : $K_z := 0.94$

Topographic Factor : $K_{zt} := 1.00$ Based on 6.5.7.2

Wind Directionality Factor : $K_d := 0.95$ Based on Table 6-4

Velocity Pressure : (PSF) $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I$ $q_z = 18.517$

Force Coefficient : $C_f := 1.80$ Taken from Table 6-20

Gust Effect Factor : $G := 0.85$ Taken from 6.5.8.1 for Rigid Structures

Design Pressure : (PSF) $F := q_z \cdot C_f \cdot G$ $F = 28.331$ Use : $WL := 28.5$

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

Tube : ASTM A-500 Gr. B $F_y = 46.0$ ksi. ; $F_b = 30.36$ ksi. ; $F_v = 18.40$ ksi.

Beams and Plate : ASTM A-36 $F_y = 36.0$ ksi. ; $F_b = 23.76$ ksi.

Mounting Bolts : ASTM A-307 $F_u = 60.0$ ksi. ; $F_t = 20.00$ ksi. ; $F_v = 10.00$ ksi.

(Threads included in shear plane.)

Reference : American Concrete Institute, Code 318.04

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

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

Summation of Stresses at EL. 17.5' : (Base of ID sign.)

Shear : (lbs.) $Shr_{EL175} := (4.0 \cdot 8.04 \cdot WL)$ $Shr_{EL175} = 916.56$

Moment : (ft.lbs.) $Mt_{EL175} := Shr_{EL175} \cdot \left(\frac{4.0}{2}\right)$ $Mt_{EL175} = 1833.12$

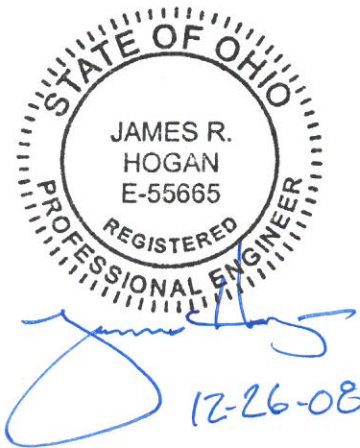
Design of Pole Structure at EL. 17.5' : (Inside ID sign.)

Section Modulus of Beam : (in.³) $S3 \times 7.5$ lbs./ft. - $BeamSM := 1.95$
(x-x axis)

Bending Stress : (psi.) $f_b := \frac{Mt_{EL175} \cdot 12}{BeamSM}$ $f_b = 11280.738$

Area of Beam : (in.²) $S3 \times 7.5$ lbs./ft. - $BeamArea := 1.95$

Shear Stress : (psi.) $f_v := \frac{Shr_{EL175}}{BeamArea}$ $f_v = 470.031$



Unity Check - Combined : $UC_{Comb} := \frac{f_b}{23760} + \frac{f_v}{14400}$ $UC_{Comb} = 0.507 < 1.00$ OK

Design of ID Sign Mounting Bolts at EL. 17.5' :

Mounting Bolt Diameter : (in.) $MntBltdia := 0.625$

Number of Mounting Bolts in Tension : $NoTen := 2$

Front to Back Distance Between Mounting Bolts : (in.) $LvrArm := 5.5$

Tension Load per Mounting Bolt : (lbs.) $TenMntBl := \frac{MtEL175 \cdot 12}{NoTen \cdot LvrArm}$ $TenMntBl = 1999.77$

Stress Area : (in.²) $MntBlArea := \frac{\pi \cdot MntBlDia^2}{4}$ $MntBlArea = 0.307$
 (Based on nominal diameter per AISC 4-3)

Allowable Tension : (lbs.) $AllwTen := 20000 \cdot MntBlArea$ $AllwTen = 6136$

Unity Check - Mounting Bolt Tension : $UCMntTen := \frac{TenMntBl}{AllwTen}$ $UCMntTen = 0.326 < 1.00$ OK

Number of Mounting Bolts in Shear : $NoShr := 4$

Shear Load per Mounting Bolt : (lbs.) $ShrMntBl := \frac{ShrEL175}{NoShr}$ $ShrMntBl = 229.14$

Allowable Shear : (lbs.) $AllwShr := 10000 \cdot MntBlArea$ $AllwShr = 3068$

Unity Check - Mounting Bolt Shear : $UCMntShr := \frac{ShrMntBl}{AllwShr}$ $UCMntShr = 0.075 < 1.00$ OK

Unity Check - Combined : $UC_{Comb} := UCMntTen + UCMntShr$ $UC_{Comb} = 0.401 < 1.00$

Design of ID Sign Mounting Plate at EL. 17.5' :

Plate Thickness : (in.) $PltThk := 0.50$ Plate Width : (in.) $PLWdth := 15.0$

Side to Side Distance Between Mounting Bolts : (in.) $Bltspr := 12.0$

Plate Specimen : (in.) $PLS := \frac{Bltspr - 6.5}{2}$ $PLS = 2.75$
 (taken from gussets.)

Minimum Thickness Required : (in.) $ReqdThk := \sqrt{\frac{TenMntBl \cdot NoTen \cdot PLS \cdot 6}{(PLWdth \cdot 23760)}}$ $ReqdThk = 0.43$

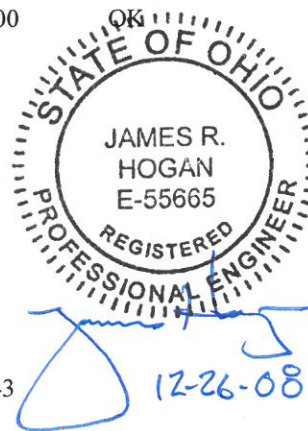
Unity Check : $UCPltThk := \frac{ReqdThk}{PltThk}$ $UCPltThk = 0.861 < 1.00$ OK
 Mounting Plate Thickness

Design of Pole Top Plate at EL. 17.5' :

Plate Thickness : (in.) $PltThk := 0.50$ Plate Width : (in.) $PLWdth := 15.0$

Plate Specimen : (in.) $PLS := \frac{Bltspr - 8.0}{2}$ $PLS = 2$

Minimum Thickness Required : (in.) $ReqdThk := \sqrt{\frac{TenMntBl \cdot NoTen \cdot PLS \cdot 6}{(PLWdth \cdot 23760)}}$ $ReqdThk = 0.367$



Unity Check : Pole Top Plate Thickness $UC_{PolePltThk} := \frac{ReqdThk}{PltThk}$ $UC_{PolePltThk} = 0.734 < 1.00$ OK

Summation of Stresses at Grade :

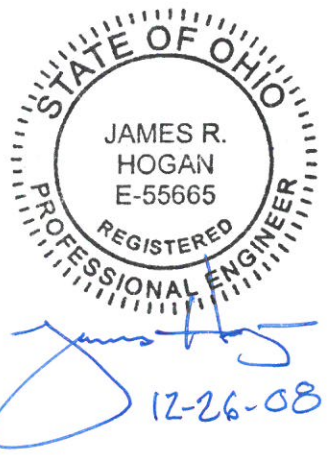
ID Sign : $IDSgn := (4.0 \cdot 8.04 \cdot WL) \cdot \left[\left(\frac{4.0}{2} \right) + 17.5 \right]$ $IDSgn = 17872.92$ ft.lbs.
 Upper Exposed Pole : $UprExpPole := \left[0.5 \cdot \left(\frac{8}{12} \right) \cdot WL \right] \cdot \left[\left(\frac{0.5}{2} \right) + 17.0 \right]$ $UprExpPole = 163.875$ ft.lbs.
 Future Signs : $FutureSgns := (3.0 \cdot 8.04 \cdot WL) \cdot \left[\left(\frac{3.0}{2} \right) + 14.0 \right]$ $FutureSgns = 10655.01$ ft.lbs.
 Lower Exposed Pole : $LwrExpPole := \left[14.0 \cdot \left(\frac{8}{12} \right) \cdot WL \right] \cdot \left(\frac{14.0}{2} \right)$ $LwrExpPole = 1862$ ft.lbs.
 Moment : (ft.lbs.) $MtGrd := IDSgn + UprExpPole + FutureSgns + LwrExpPole$ $MtGrd = 30553.805$
 Shear : (lbs.) $ShrGrd := ShrEL175 + (3.0 \cdot 8.04 \cdot WL) + \left[14.5 \cdot \left(\frac{8}{12} \right) \cdot WL \right]$ $ShrGrd = 1879.48$

Design of Pole Structure at Grade :

Section Modulus of Tube : (in.³) TS 8" x 8" x 1/4" wall - $TubeSM := 18.8$
 Bending Stress : (psi.) $f_b := \frac{MtGrd \cdot 12}{TubeSM}$ $f_b = 19502.429$
 Area of Tube : (in.²) TS 8" x 8" x 1/4" wall - $TubeArea := 7.59$
 Shear Stress : (psi.) $f_v := \frac{ShrGrd}{TubeArea}$ $f_v = 247.626$
 Unity Check - Combined : $UC_{Comb} := \frac{f_b}{30360} + \frac{f_v}{18400}$ $UC_{Comb} = 0.656 < 1.00$ OK

Design of Caisson Footing :

Moment : (ft.lbs.) $Ma := MtGrd$ $Ma = 30553.805$
 Shear : (lbs.) $Va := ShrGrd$ $Va = 1879.48$
 Applied Lateral Force : (lbs.) $P := Va$ $P = 1879.48$
 Allowable Lateral Soil Pressure : (lbs./ft.² per ft.) $LP := 250$
 Diameter of Caisson : (ft.) $b1 := 3.0$
 Distance in Feet From Ground Surface to Point of Application of "P" $h := \frac{Ma}{Va}$ $h = 16.257$
 Depth of Embedment in Earth in Feet But Not Over 12 Feet for Purpose of Computing Lateral Pressure $d1 := 7.0$
 Allowable Lateral Soil Bearing Pressure Pursuant to the 2006 International Building Code Section 1805.7 and Table 1804.2. $S1 := d1 \cdot \frac{(LP \cdot 1.33)}{3}$ $S1 = 775.833$



$$A := 2.34 \cdot \frac{P}{S1 \cdot b1}$$

$$A = 1.89$$

$$d2 := \left(\frac{A}{2}\right) \cdot \left[1 + \sqrt{1 + 4.36 \cdot \frac{h}{A}}\right]$$

$$d2 = 6.808 \leq d1 = 7$$

OK

Check Tensile Stress in Footing :

Overturing Moment About Heel Point : (ft.lbs.) $M_h := M_a + (V_a \cdot d1)$
Treat as a cantilever at bottom.

$$M_h = 43710.165$$

Compressive Strength of Concrete : (psi.)

$$f_c := 3000$$

Yield Strength of Rebar : (psi.)

$$f_y := 60000$$

Section Modulus of Footing : (in.³)

$$S_w := \frac{\pi \cdot (b1 \cdot 12)^3}{32}$$

$$S_w = 4580.442$$

Tensile Stress in Concrete : (psi.)

$$f_t := \left[\frac{(M_h \cdot 12)}{S_w}\right]$$

$$f_t = 114.513$$

Allowable Concrete Stress : (psi.)

$$\phi F_t := 0.65 \cdot (5 \cdot \sqrt{f_c})$$

$$\phi F_t = 178.01 > f_t = 114.513$$

REBAR NOT REQUIRED FOR STRESS

Check for Temperature and Shrinkage Steel in Caisson :Moment for USD Design : $M_u := 1.7 \cdot M_h$

$$M_u = 74307.28$$

$$d := [(b1 \cdot 12) \cdot .80] - 4$$

$$d = 24.8$$

To Plot for " ju " :

$$\text{coeff} := \frac{M_u \cdot 12}{f_c \cdot b1 \cdot 12 \cdot d^2}$$

$$\text{coeff} = 0.013$$

$$j_u := 0.73$$

Use yield strength of direct burial tube to check.

Yield Strength of Tube : (psi.)

$$f_y := 46000$$

Required Area : (in.²)

$$A_s := \frac{M_u \cdot 12}{j_u \cdot f_y \cdot d \cdot 0.90}$$

$$A_s = 1.19$$

Reinforcement Requirement :

$$A_s = 1.19 < \text{TubeArea} = 7.59$$

No rebar required with the direct bury tube.

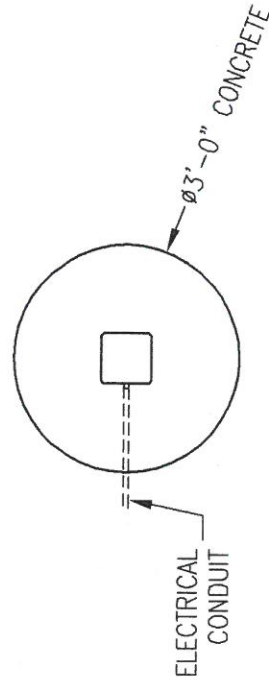
Quantity of Concrete : (yds.³)

$$CY := \left(\frac{\pi \cdot b1^2 \cdot d1}{4 \cdot 27}\right)$$

$$CY = 1.833$$

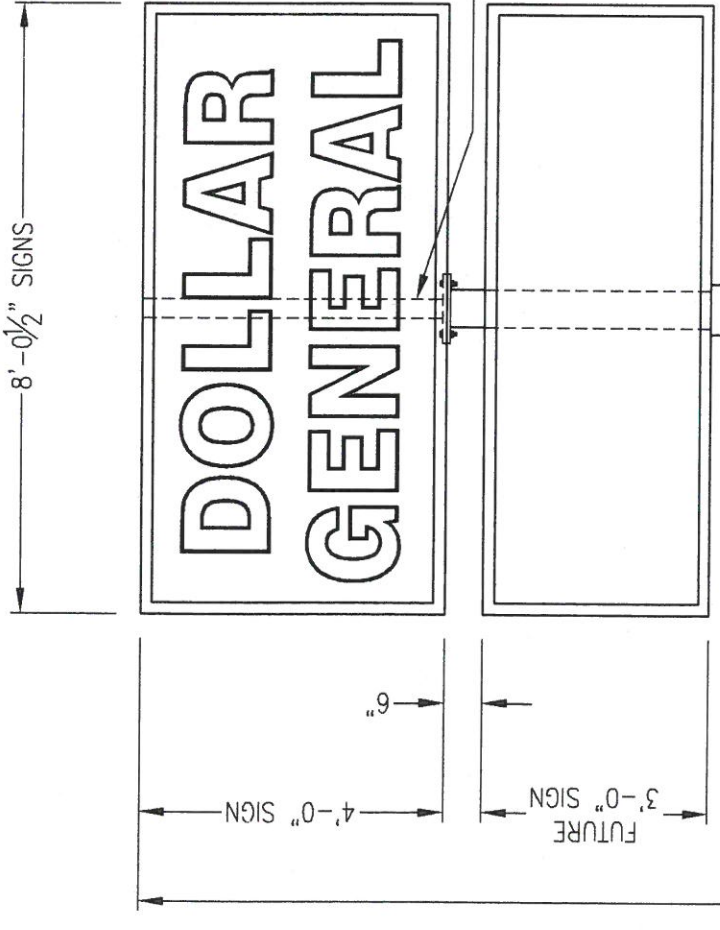
Note: Keep bottom of tube 6" from bottom of footing to create concrete cover for water exclusion.

12-26-08

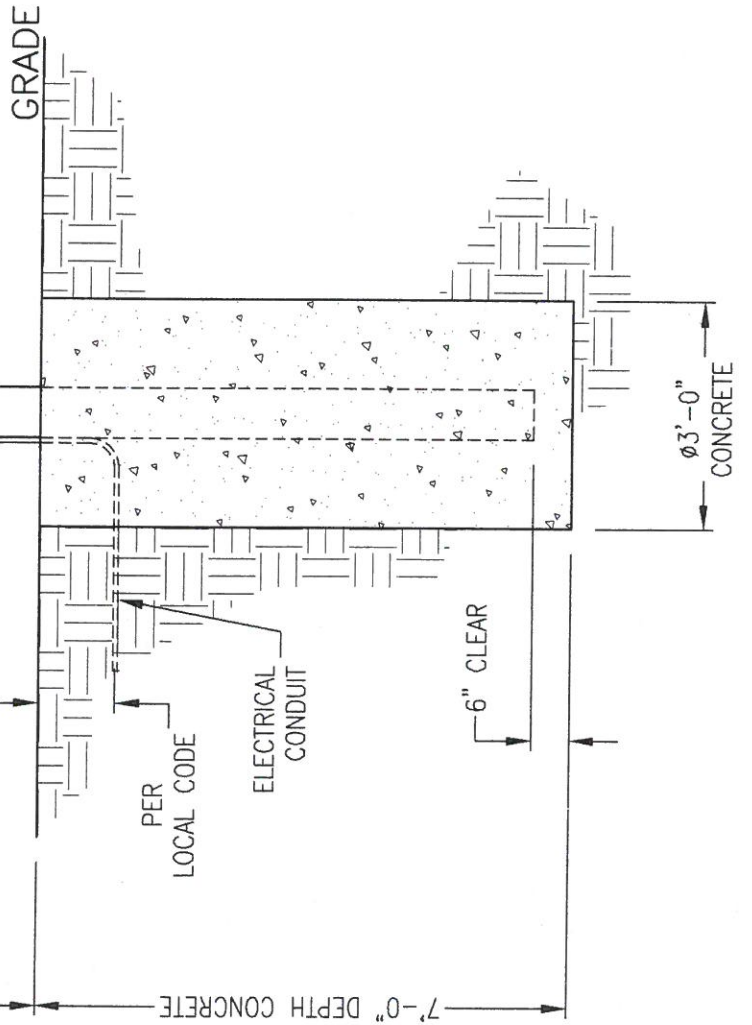


PLAN VIEW

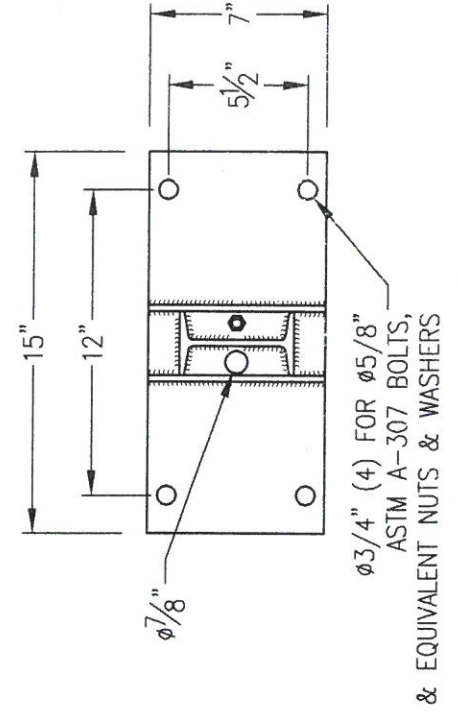
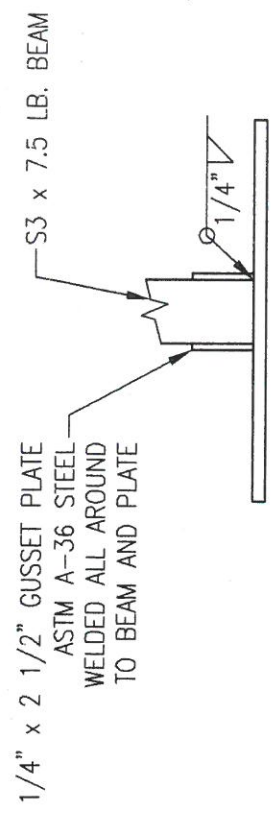
QTY. CONCRETE: 1.9 CU. YDS.



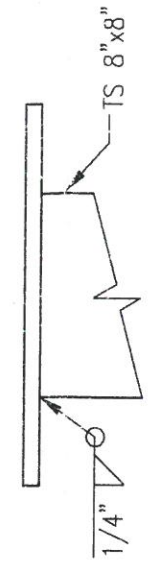
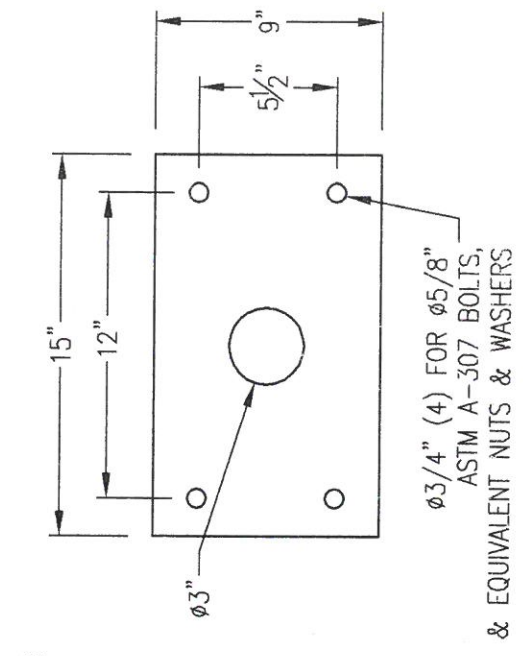
21'-6" O. A. H.



ELEVATION VIEW



SIGN MOUNTING PLATE DETAIL
1/2" ASTM A-36 STEEL



POLE TOP PLATE DETAIL
5/8" ASTM A-36 STEEL

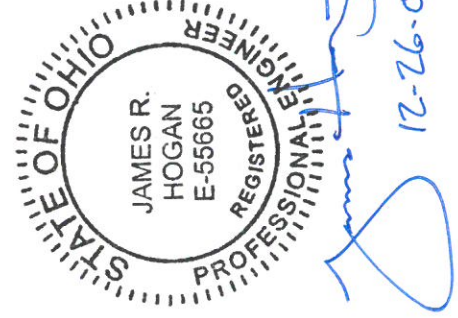
TS 8" x 8" x 1/4" ASTM A-500 Gr. B
EMBEDDED IN FOOTING TO WITHIN
6" OF BOTTOM TO CREATE
CONCRETE COVER UNDER POLE

FOUNDATION DESIGN NOTES:

1. Concrete shall have a minimum compressive strength of 3000 PSI at 28 days.
2. Caisson footing designed using a soil bearing force of 200 PSF per foot Lateral.
If this soil condition does not exist, it is the Erector's responsibility to have a new base designed for the existing soil conditions by a Licensed Structural Engineer.

DESIGN WIND LOAD:

Based on the Colorado Construction Safety Code (2003 IBC) using Exposure C and 90 mph winds.



SITE:
Dollar General
1100 North Scott
Napoleon, Ohio

| | | | |
|---|-----------|-------------------------|------------------------|
| REV | DATE | DESCRIPTION | APPROVED |
| A | 26 Dec 08 | RELEASED FOR PERMITTING | J. HOGAN |
| Robert-James & Associates, Inc. 12255 West 187th Street, Mokena Illinois 60448-9737 phone: 708-479-8385 fax: 708-479-8395 email: rja37@comcast.net | | | |
| TITLE 21'-6" OAH DIRECT BURY SINGLE POLE PYLON FOR ID & ANCILLARY SIGNS | | | |
| DRAWN BY | D. MUNNIS | DATE 26 Dec 08 | SCALE NONE |
| CHECKED BY | J. HOGAN | DATE 26 Dec 08 | DRAWING NUMBER 0812053 |
| | | | SHEET 1 OF 1 |
| | | | REV. A |

APPROVED

By Brandon Brimm at 1:23 pm, Jan 12, 2009

| LIST OF DRAWINGS | |
|------------------|--|
| NO. | TITLE |
| A-1 | SITE PLAN |
| A-2 | FLOOR PLAN, DOOR & ROOM FINISH SCHEDULES |
| A-3 | ELEVATIONS & INTERIOR ELEVATIONS |
| A-4 | DETAILS |
| P-1 | PLUMBING PLAN & ISOMETRICS |
| M-1 | H.V.A.C. PLAN |
| E-1 | ELECTRICAL PLAN |
| E-2 | ELECTRICAL PANEL & RISER DIAGRAMS |
| FP-1 | FIRE PROTECTION PLAN |

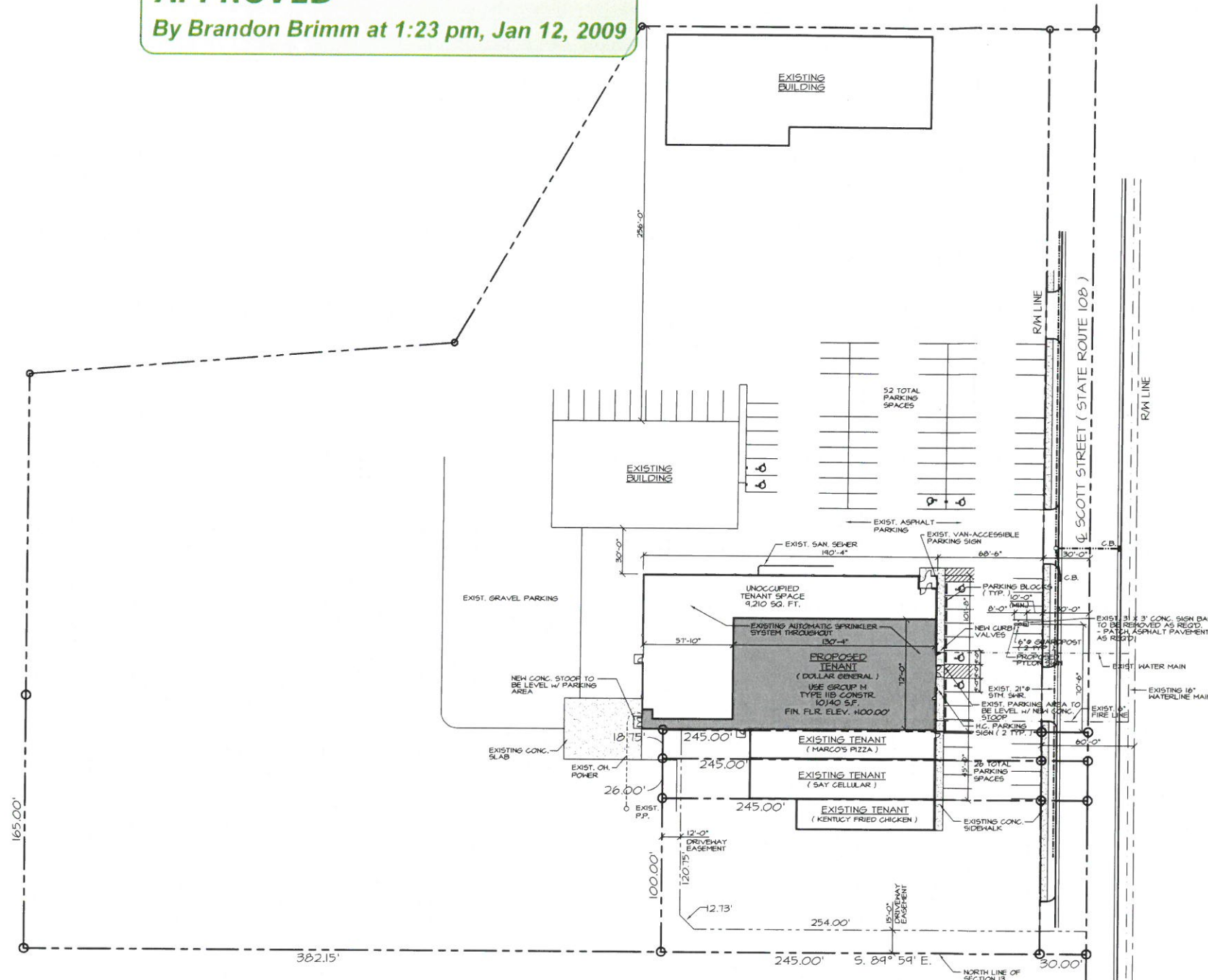
| BUILDING CODE DATA - 2007 O.B.C. | |
|----------------------------------|---------------------------------------|
| USE GROUP | - B, M, A-2 (NON SEPERATED MIXED USE) |
| FIRE GRADING | - 2 HOUR (B, M, A-2) |
| CONSTRUCTION TYPE | - II B |
| OCCUPANCY LOAD | - 280 (NEW TENANT SPACE) |
| FLOOR LIVE LOADS: | |
| UNIFORMLY DISTRIBUTED (psf) | - 200 PSF. (CONC. SLAB) |
| CONCENTRATED (lbs) | - N/A |
| IMPACT | - N/A |
| REDUCTION | - N/A |
| ROOF LIVE LOAD (psf) | - 25 PSF. |

SCOPE OF PROJECT:
 THE BUILDING ALTERATION AREA WILL BE USED AS A RETAIL STORE (MERCANTILE, M). THE EXISTING UNOCCUPIED TENANT SPACES WILL BE USED AS LEASE SPACE FOR BUSINESS (B), MERCANTILE (M), OR ASSEMBLY (A-2). EXISTING BUILDING WAS PREVIOUSLY USED AS A PHARMACY & RETAIL STORE.

HANDICAP PARKING NOTE:
 PROVIDE HANDICAP PARKING SIGN MOUNTED ON A FIXED OR MOVABLE POST OR OTHERWISE AFFIXED IN A VERTICAL POSITION SO THAT THE SIGN IS CLEARLY VISIBLE TO THE DRIVER OF A VEHICLE WHEN PARKED IN SUCH A LOCATION. A NOTICE SHALL BE AFFIXED TO THE ABOVE-GRADE SIGN OR POSTED ADJACENT TO IT STATING THE AMOUNT OF THE FINE ESTABLISHED BY SECTION 4511.99 OF THE OHIO REVISED CODE FOR THE OFFENSE OF PARKING A VEHICLE IN AN ACCESSIBLE PARKING SPACE IF IT IS NOT LEGALLY ENTITLED TO DO SO. THE FINE SHALL BE NOT LESS THAN TWO HUNDRED FIFTY (\$250.00) NOR MORE THAN FIVE HUNDRED DOLLARS (\$500.00).

RETAIL PLAZA SQUARE FOOTAGE

| | |
|--|--------------------------------------|
| 79.0% OPEN PERIMETER | 9500 S.F. PER TABLE 503 |
| TYPE II B CONSTR. | 5130 S.F. PERIMETER INCREASE |
| AUTOMATIC SPRINKLER SYSTEM THROUGHOUT | 28500 S.F. SPRINKLER SYSTEM INCREASE |
| EXISTING BUILDING AREA - 19,350 S.F. (ACTUAL AREA) | 43130 S.F. (ALLOWABLE AREA) |
| EXISTING BUILDING HEIGHT - 18 FT. | ALLOWABLE HGT. - 55 FT. |



SITE PLAN
 SCALE: 1" = 40'



| REVISIONS | BY |
|------------------|------|
| PERMITS 04-24-08 | D.G. |
| REV'D. 10-21-08 | D.G. |
| SIGN 01-12-09 | D.G. |

SITE PLAN

DAVID L. GERINGER P.E.
 Consulting Engineer
 107 Ditto St. Archbold, Ohio 43502

PROPOSED BUILDING ALTERATIONS FOR
DOLLAR GENERAL
 1400 N. SCOTT ST., SUITE 400 NAPOLEON, OHIO

| | |
|-----------|----------|
| Date | 08-19-08 |
| Scale | AS NOTED |
| Drawn | D.L.G. |
| Job | 200827 |
| Sheet No. | |

A-1