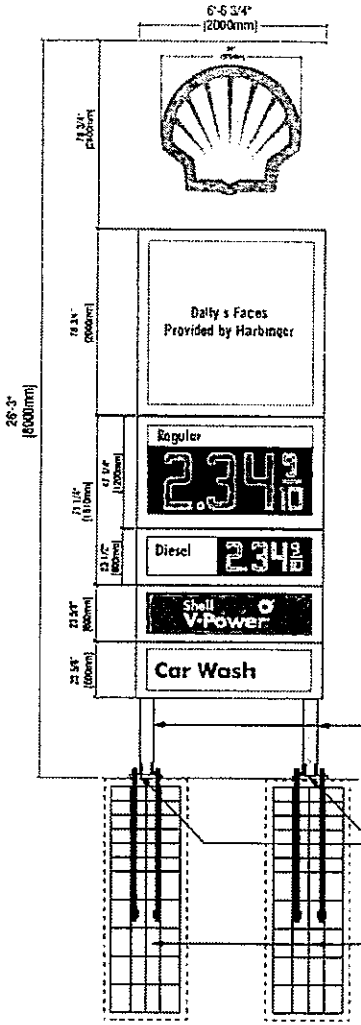

8" X 8" X 3/8", .349" WALL,
HSS 46 KSI STEEL TUBE COLUMN

18" X 18" X 1 1/2" STEEL BASE PLATE
WELD COLUMN TO TOP OF BASE PLATE
& 4 - 1/2" X 4" X 4" STEEL GUSSETS
w/ 3/8" FILLET WELD ALL AROUND
4 - 1 1/4" ANCHOR BOLTS
w/ HEAVY HEX NUT @ BOTTOM,
60" EMBEDMENT IN FOUNDATION
ANCHORS SPACED 13" OC EACH WAY

3'-0" DIA. X 8'-8" DEEP DRILLED SHAFT
CONCRETE CAISSON FOUNDATION
w/ 8 #6 VERTICAL REBAR SPACED EVENLY
ON 28" DIA. & #4 CLOSED STIRRUPS @ 6" OC
IN TOP 36" & 12" OC BELOW

16-825090

SIGN PLANS EXAMINER
REVIEWED FOR
CODE COMPLIANCE

PLAN REVIEW AND ISSUANCE OF PERMIT
DOES NOT RELIEVE OR WAIVE ANY FACTOR OF

1) SIGN INSTALLER AND MANUFACTURER RESPONSIBILITIES: By using this engineering the owner, manufacturer, and installer accept responsibility to:
   a) Design sign cabinet, board, and face according to sign code, building code, and UL.
   b) Verify site conditions match stated wind speed, risk, exposure, topo, and soil factors.
2) ENGINEER'S SCOPE OF WORK: Design sign support column and foundation to meet structural requirements of building code based on stated (not verified) site factors.
   a) Wind controls structural design. This design only MWFRS; not C&C.
   b) Size and shape based on sign manufacturer's drawing, attached.
3) Wind Design Data
   a) Design Wind Speed, Vult = 130 mph
   b) Risk Category = II, (MRI = 700 yr)
   c) Wind Exposure = C, field verify
   d) Internal Pressure Coefficient, GCpi = N/A, (Does not affect column load)
   e) Component and Cladding Wind Pressure = n/a
4) Wind loads by ASCE 7-10, Ch. 29, Fig. 29.4-1, Solid Freestanding Walls and Signs.
   a) Sign Height = 26 ft, Kz = .98; Kd = 0.85.
   b) Aspect Ratio, B/s = 6.5'/23' = .29; Clearance Ratio, s/h = 23'/26.25' = .88, Cf = 1.70
   c) Gust-Effect Factor, G = .85, (Rigid structure)
   d) Wind Directionality Factor, Kd = .85. (Solid/open freestanding or attached signs)
   e) Topographic Factor = 1.0, on flat level grade for 1500 ft, field verify
   f) Velocity Pressure = qh = 0.00256 * Kz * Kzt * Kd * V² = .00256 * .98 * .85 * 130^2 = 36.8 psf
   g) Factored Wind Pressure = P = qh * G * Cf = qh * .85 * 1.70 = 52.1 psf
   h) Wind Force on Sign = F = P * A = P * 155 ft2 = 8053 lb
   i) Moment at Grade = F * h = F * 14.4' = 116,212 kip-ft
5) Sign manufacturer/installer's design, detailing, fabrication, and erection shall conform to the following specifications: Building Code, ASTM specifications, ACI-318 for reinforced concrete, American Welding Society Code for Welding in Building Construction, AISC Specification for Design, Fabrication, and Erection of Structural Steel for Buildings.
6) Materials of construction: (Unless otherwise noted.)
   a) Structural steel shall be A-36, Fy = 36 ksi.
   b) Structural steel tubing shall be A-500, Grade B, Fy = 46 ksi.
   c) Structural aluminum tubing shall be 6053, 6061-T6, or equivalent, Fy = 20 ksi min.
   d) Structural piping shall be A-53, Grade B, Type E or S, Fy = 35 ksi.
   e) Anchor bolts shall be A-307 with heavy hex at bottom, not "L" bolts. UNO
   f) Connection bolts shall be A-325, snug tight
   g) Rebar shall be Grade 60 for #6 or larger, Grade 40 for #5 or smaller
   h) Concrete shall be 3000 psi.
7) Welding.
   a) Design and fabrication according to AWS D1.1.
   b) AWS certification required for all structural welders
   c) E70XX electrodes for SMAW processes.
   d) F7X-EXXX electrodes for SAW processes
8) Soil must be verified by sign installer. Bearing capacity 1500 psf and aides 150 psf per ft depth. If there is a question about bearing capacity a soil test must be performed
9) Sign Column Bending.
   a) 8"x8"x3/8", .349" wall, HSS 46 ksi steel tube column, S = 24.9 in3
      (Required S = M / Fb / sf = 116,212 kip.ft * 7 hr in column * .6 allowable / 46 ksi / 6 = 21.2 in3)
   b) 18"x18"x1 1/2" steel base plate. Weld column to top of base plate and 4 - 1/2"x4"x4" steel gussets with 3/8" fillet weld all around. 4 - 1 1/4" anchor bolts with heavy hex nut at bottom, 60" embedment in foundation. Anchors spaced 13" OC each way
10) Foundation Overturning. Mx = 46,809 kip.ft Vx = 5,382 kip
   a) Drilled Shaft Foundation, 2014FBC, 1807.3.2.1. No lateral constraint at grade
      3'-0" Dia. x 8'-8" deep drilled shaft concrete caisson foundation with 8 #6 vertical rebar spaced evenly on 28" dia and #4 closed stirrups at 6" OC in top 36" and 12" OC below

CERTIFICATION: To best of my knowledge, I certify this analysis meets structural requirements of

5th Edition Florida Building Code (2014)

LIMITATION: Valid for only one sign, at specified location. In case of conflict, structural requirements, scope of work, and installer, mfg, owner responsibilities control.

THIS SEAL FOR STRUCTURAL ONLY

MARK DISOSWAY, PE
FL 53015
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Friday, March 3, 2017

Harbinger Sign

Daily's #1021

SITE LOCATION:
3244 University Blvd.
Jacksonville, FL 32216

Mark Disosway P.E.
163 SW Midtown Place, Suite 103
Lake City, Florida 32025
Phone: (386) 754 - 5419
Fax: (386) 269 - 4871
Email:
disoswaydesign@gmail.com

DRAWN BY:	CHECKED BY:
David Disosway	Mark Disosway P.E.

JOB NUMBER: **170248**

DRAWING NUMBER **S-1**

OF 1 SHEET

Exhibit 3
Page 1 of 1