

SECTION 32 39 13

BOLLARDS

PART 1 – GENERAL

1.1 PURPOSE

- A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

- A. **There is a combination of both removable and fixed bollards on campus. Their aesthetics is dependent on their function and location. Verify with UTA for which bollard type for project specific application.**

1.3 SCOPE

- A. Fixed and removable bollards.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Protect bollards and accessories during delivery, storage and handling.

1.5 SUBMITTALS

- A. See Division 01 for submittal procedures.
- B. Product Data: Provide for each type of bollard, component, finish and accessory specified.
- C. Color Samples: Submit sample of color specified.
- D. Setting Drawings: Show embedded items and cutouts required for work specified in other Sections.
- E. Maintenance Data: Submit manufacturer's field touch-up, cleaning, and maintenance instructions.
- F. Warranty Documentation: Submit sample of manufacturer's warranty.

1.6 WARRANTY

- A. Provide manufacturer's standard warranty against defects in materials and craftsmanship.
- B. Warranty Period: Five years from date of invoice, except as otherwise indicated.
 - 1. Coatings: Two years, against peeling, cracking or significant color change.

PART 2 – PRODUCTS

2.1 REMOVABLE BOLLARDS (**RB-1**)

- A. Height: 24 inch.
- B. Diameter: 4-1/2 inch.
- C. Design: Cylindrical with segmented rings and rounded top.
- D. Material:
 - 1. Aluminum: ASTM B26.
 - 2. Ductile Cast Iron: ASTM A536.
- E. Color Coating:
 - 1. Type: Polyester powder coat over epoxy primer.
 - 2. Color: Dark Bronze.
- F. Installation:
 - 1. Removable, new concrete, anchor.

2.2 FIXED BOLLARDS (**FB-1**)

- A. Height: 24 inch.
- B. Diameter: 4-1/2 inch.
- C. Design: Cylindrical with segmented rings and rounded top.
- D. Material:
 - 1. Aluminum: ASTM B26.

GUIDE SPECIFICATIONS FOR DESIGN AND CONSTRUCTION DOCUMENTS

- 2. Ductile Cast Iron: ASTM A536.
 - E. Color Coating:
 - 1. Type: Polyester powder coat over epoxy primer.
 - 2. Color: Dark Bronze.
 - F. Installation:
 - 1. Fixed, flange and bolted down.
- 2.3 **FIXED BOLLARDS (FB-2)**
- A. Height: 48 inch.
 - B. Diameter: 4-1/2 inch.
 - C. Design: Cylindrical with segmented rings and rounded top.
 - D. Material:
 - 1. Aluminum: ASTM B26.
 - 2. Ductile Cast Iron: ASTM A536.
 - E. Color Coating:
 - 1. Type: Polyester powder coat over epoxy primer.
 - 2. Color: Dark Bronze.
 - F. Installation:
 - 1. Fixed, new concrete, embedded.
 - 2. Embedment Depth: 18 inch.
- 2.4 **FIXED BOLLARDS (FB-3)**
- A. Height: 30 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Cylindrical with rounded top.
 - D. Material:
 - 1. Steel: Schedule 40.
 - E. Color Coating:
 - 1. Type: Polyester powder coat over epoxy primer.
 - 2. Color: Safety Yellow.
 - F. Installation:
 - 1. Fixed, new concrete, embedded.
 - 2. Embedment Depth: 18 inch.
- 2.5 **FIXED BOLLARDS (FB-4)**
- A. Height: 48 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Cylindrical with rounded top.
 - D. Material:
 - 2. Steel: Schedule 40.
 - E. Color Coating:
 - 3. Type: Polyester powder coat over epoxy primer.
 - 4. Color: Safety Yellow.
 - F. Installation:
 - 2. Fixed, new concrete, embedded.
 - 3. Embedment Depth: 18 inch.
- 2.6 **REMOVABLE BOLLARDS (RB-2)**
- A. Height: 32 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Cylindrical with flat top.
 - D. Material:
 - 1. Steel: Schedule 40.
 - E. Finish:
 - 1. Galvanized.
 - F. Installation:
 - 1. Removable, new concrete and sleeve embedment.

- 2.7 REMOVABLE BOLLARDS (**RB-3**)
- A. Height: 36 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Cylindrical with dome top.
 - D. Material:
 - 1. Stainless steel: ASTM A312.
 - E. Finish:
 - 1. Satin No. 6, buffed.
 - F. Installation:
 - 1. Removable, new concrete and sleeve embedment with lid.
 - 2. Embedment Depth: 12 inch.
- 2.8 FIXED BOLLARDS (**FB-5**)
- A. Height: 36 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Cylindrical with dome top.
 - D. Material:
 - 1. Stainless steel: A312.
 - E. Finish:
 - 1. Satin No. 6, buffed.
 - F. Installation:
 - 1. Fixed, new concrete and embedded.
 - 2. Embedment Depth: 12 inch.
- 2.9 FIXED BOLLARDS (**FB-6**)
- A. Height: 36 inch.
 - B. Diameter: 6-1/2 inch.
 - C. Design: Tapered and fluted with round finials and ball top.
 - D. Material:
 - 1. Aluminum: ASTM B26.
 - 2. Ductile Cast Iron: ASTM B536.
 - E. Color Coating:
 - 1. Type: Polyester powder coat over epoxy primer.
 - 2. Color: Dark Bronze.
 - F. Installation:
 - 1. Fixed, new concrete, anchor.

PART 3 – EXECUTION

- 3.1 EXAMINATION
- A. Examine paving or other substrates for compliance with manufacturer's requirements for placement and location of embedded items, condition of substrate, and other conditions affecting installation of bollards.
 - B. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.2 INSTALLATION
- A. General: Comply with manufacturer's installation instructions and setting drawings.
 - B. Do not install damaged, cracked, chipped, deformed or marred bollards. Field touch-up minor imperfections in accordance with manufacturer's instructions. Replace bollards that cannot be field repaired.
 - C. Place extinguishers in cabinets.
- 3.3 CLEANING & PROTECTION
- A. Protect bollards against damage.
 - B. Immediately prior to Substantial Completion, clean bollards in accordance with manufacturer's instructions to remove dust, dirt, adhesives, and other foreign materials.
 - C. Touch up damaged finishes according to manufacturer's instructions.

GUIDE SPECIFICATIONS FOR DESIGN AND CONSTRUCTION DOCUMENTS

3.4 CLOSEOUT ACTIVITIES

- A. Provide executed warranty.

PART 4 – APPENDIX

4.1 PRODUCT DATA / CUT SHEETS

- A. **(RB-1)**: Picture
- B. **(RB-2)**: Picture
- C. **(RB-3)**: Picture and Shop Drawing; CalPipe Industries #SSP04XXX
- D. **(FB-1)**: Picture
- E. **(FB-2)**: Picture
- F. **(FB-3)**: Picture
- G. **(FB-4)**: Picture
- H. **(FB-5)**: Picture and Shop Drawing; CalPipe Industries #SSF04XXX
- I. **(FB-6)**: Picture and Product Data; Reliance Foundry #R-7539

END OF SECTION

RB-1 (Removable Bollard)

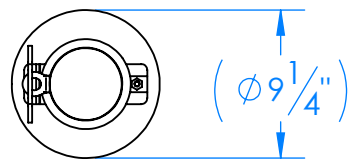


RB-2 (Removable Bollard)



RB-3 (Removable Bollard)



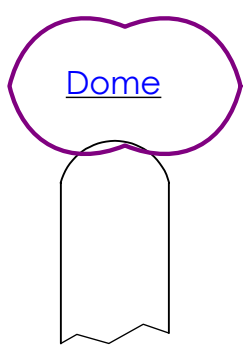


Plan - View

($\phi 9\frac{1}{4}$ ")

Arch. Verify

Quantity:
19

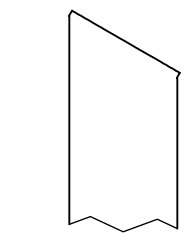


Dome



Knight

Viking



Arch. Verify

NOTE:

- 1.) PADLOCK TO SECURE BOLLARD SHALL BE PROVIDED BY OTHERS.
- 2.) FOOTING SHOWN IS A RECOMMENDED FOOTING, ENGINEERED BY OTHERS.
- 3.) EMBEDMENT SLEEVE IS SHOWN FOR REFERENCE ONLY. EMBEDMENT SLEEVE WILL BE ENTERED AS A SEPERATE LINE ITEM. EMBEDMENT SLEEVE IS FABRICATED FROM STAINLESS STEEL.

SPECIFICATION:

Bollard Material: 4" Pipe (4-1/2" OD)

- SSP04040 Sch 40
- SSP04080 Sch 80

Stainless Steel Grade:

- T304 (Std.)
- T316

Arch. Verify

Bollard Cap Style:

- Flat (Std.)
- Dome
- Viking
- Knight

Options:

- Handle Qty. _____ Height: _____
- Chain Eye Qty. _____ Height: _____

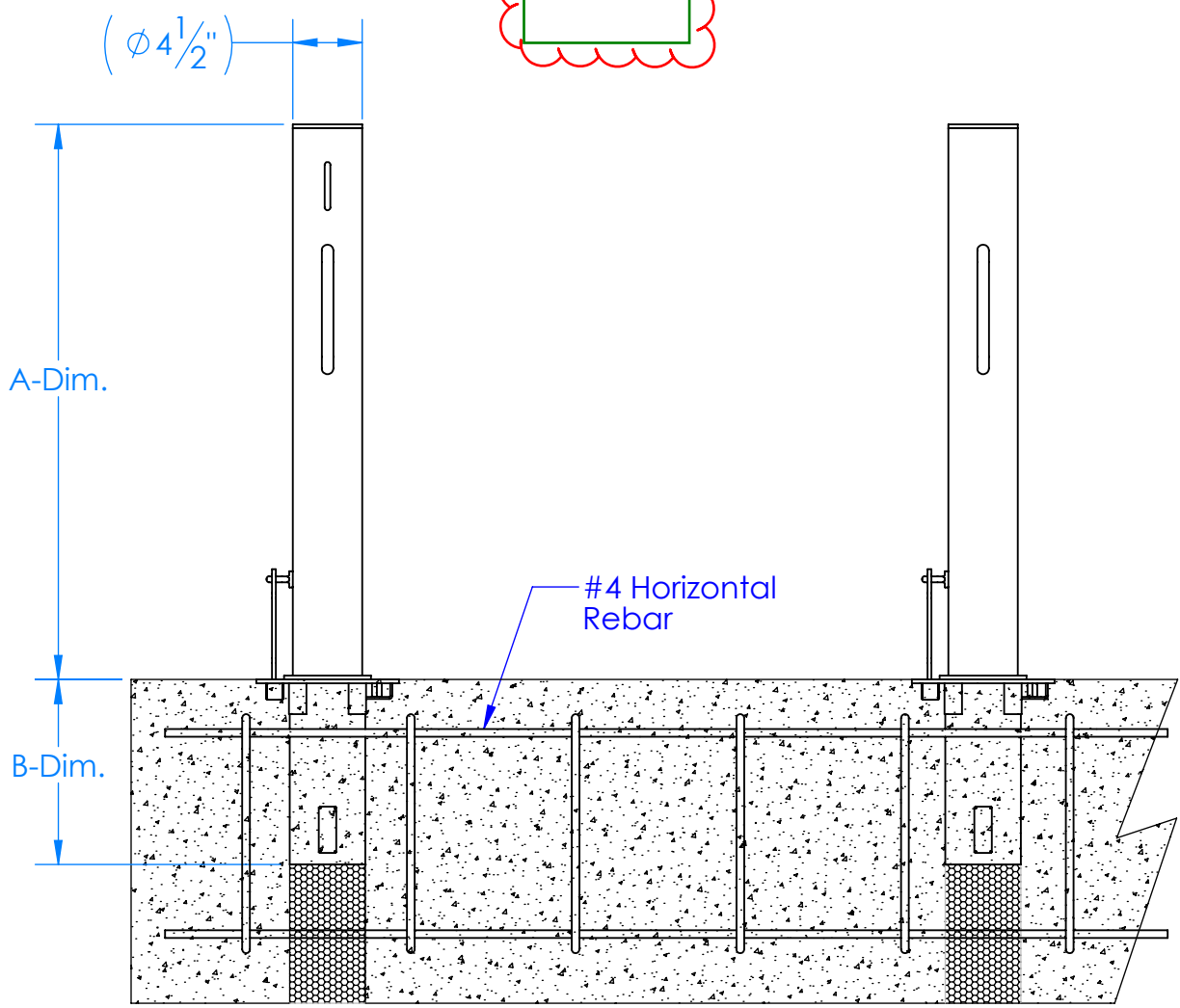
Surface Finish:

- #4 Brushed (Std.)
- Powder Coar RAL# _____
- Other: _____

Please Specify the Following Dimensions:

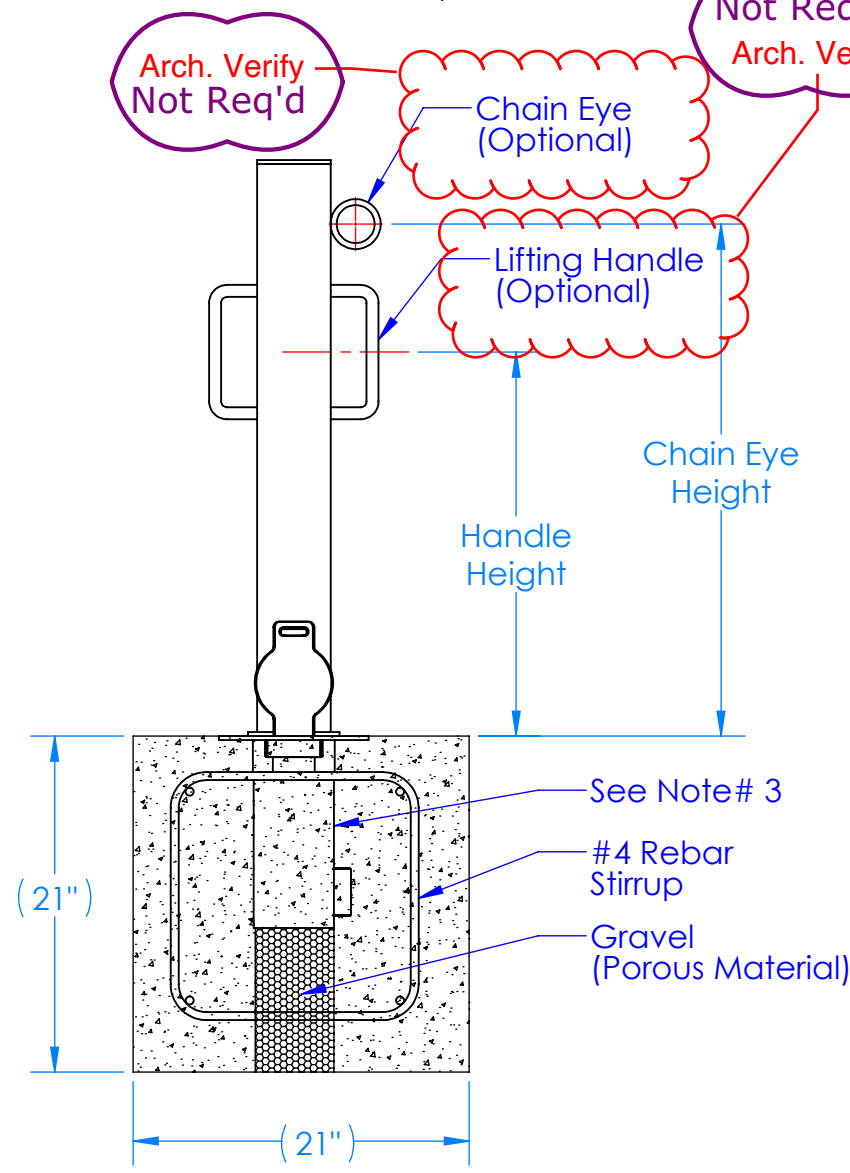
A-Dim. 36" (Std. 36")

B-Dim. 12" (Std. 12" Embedment Depth)



Elevation View - Foundation

#4 Horizontal Rebar



End View - Foundation

Chain Eye Height

Handle Height

See Note # 3

#4 Rebar Stirrup

Gravel (Porous Material)

Arch. Verify Not Req'd

Chain Eye (Optional)

Lifting Handle (Optional)

Not Req'd Arch. Verify

Company: _____

Project Name: _____

Signee's Name Written Clearly: _____ Date: _____

Authorized Signature: _____



19440 S. DOMINGUEZ HILLS DR.
RANCHO DOMIGUEZ, CA. 90220,USA

www.CalPipeBollards.com
562.803.4388 Direct
310.885.1899 Fax

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UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/4
ANGULAR: MACH ±1 BEND ±1
TWO PLACE DECIMAL THREE ±0.010
PLACE DECIMAL ±.005

| | | |
|------------------|-----------------------|--------|
| SIZE B | DRAWN BY: JMG | REV: |
| | DRAWN DATE: 4/25/2016 | SHEET: |

SSP04XXX
4" Stainless Steel Padlocking Removable Bollard

FB-1 (Fixed Bollard)



FB-2 (Fixed Bollard)



FB-3 (Fixed Bollard)



FB-4 (Fixed Bollard)

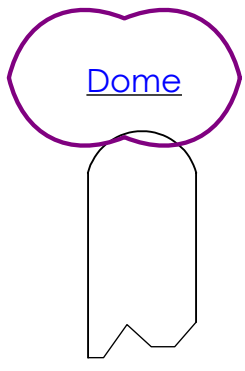


FB-5 (Fixed Bollard)

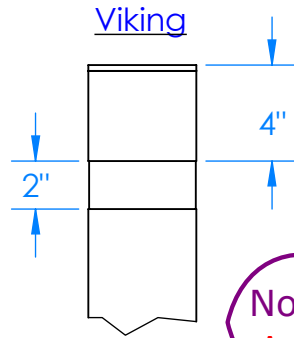
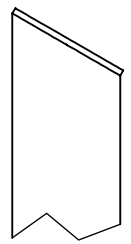


Quantity:
19

Arch. Verify
GC confirm. We believe there are only 4 non-removable.

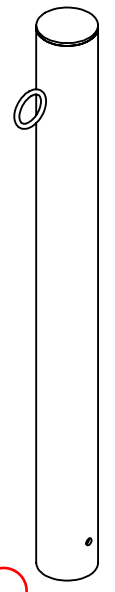


Cap Style
Knight



Not Req'd
Arch. Verify

Chain Eye
(Optional)



SPECIFICATION:

Bollard Material: 4" Pipe (4-1/2" OD)

- SSF04040 Sch 40
- SSF04080 Sch 80

Stainless Steel Grade:

- T304 (Std.)
- T316

Arch. Verify

Bollard Cap Style:

- Flat (Standard)
- Viking
- Dome
- Knight

Options:

Chain Eye Qty. _____ Height: _____

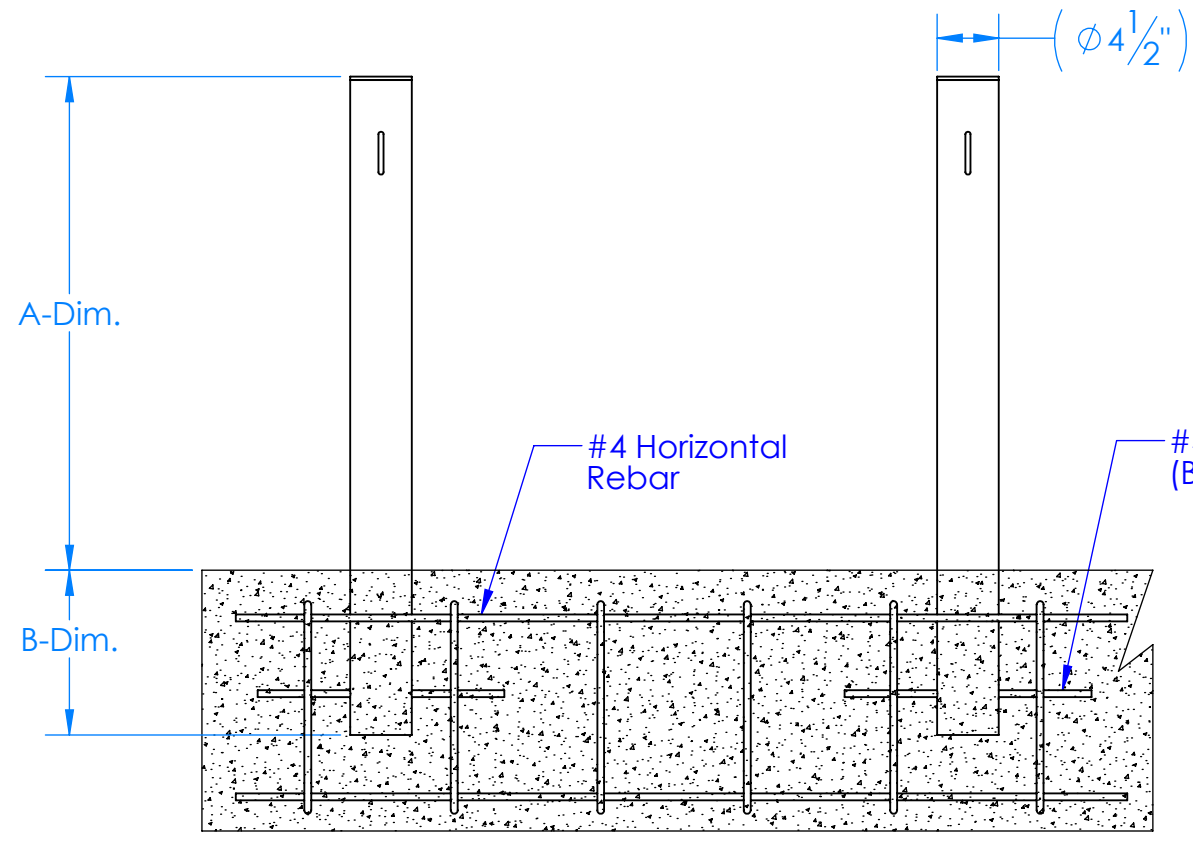
Surface Finish:

- #4 Brushed Finish
- RAL# _____
- Other: _____

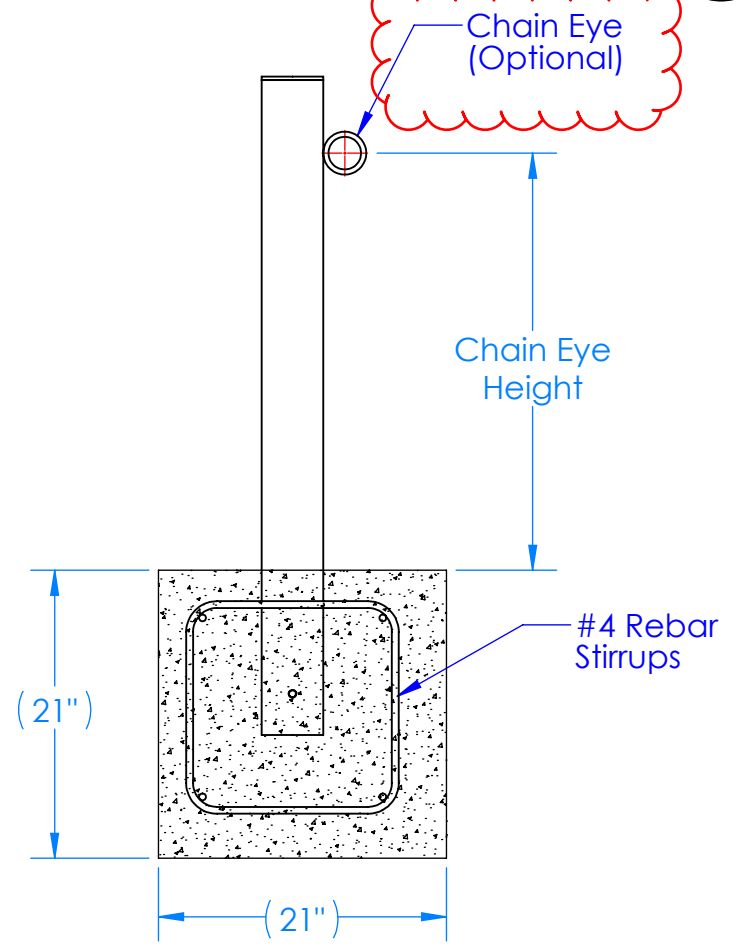
Please Specify the Following Dimensions:

A-Dim. 36" (Std. 36")

B-Dim. 12" (Std. 12" Embedment Depth)



Elevation View



Side Elevation View

Company: _____

Project Name: _____

Signee's Name Written Clearly: _____ Date: _____

Authorized Signature: _____

| | | |
|-------------------|-----------------------------|----------------------|
| SIZE B | DRAWN BY: JMG | REV: |
| | DRAWN DATE: 11/13/15 | SHEET: 1 OF 1 |



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RANCHO DOMIGUEZ, CA. 90220,USA

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UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/4
ANGULAR: MACH ± 1 BEND ± 1
TWO PLACE DECIMAL THREE ± 0.10
PLACE DECIMAL ± 0.05

SSF04XXX
4" S.S. FIXED BOLLARD

FB-6 (Fixed Bollard)



Bollard R-7539

General Description:

The R-7539 Decorative Bollard features a classic design, suitable for traditional and contemporary environments. R-7539 bollards are made from a versatile ductile iron, featuring decorative fluting and spherical top castings. Bollard surfaces are protected by a durable powder coating, available in 6 standard colors, to prevent wear and corrosion. Use as fixed, stand-alone bollards or cover impact-resistant security posts. Removable mountings are available.

Specifications:

Height: 35 3/4"
 Base Diameter: 10 1/4"
 Weight: 75 lbs (Bollard Only)
 Material: Ductile Iron
 Max. Interior Security Post Size:
 4 1/2" x 25" (Diameter x Height)

Finish Options:

⊙ Polyester Powdercoated

See Reliance Foundry's standard color options at:
www.reliance-foundry.com/bollard/colors-bollards

Installation Options:

- Fixed - Anchor Casting in New Concrete (see sheet 2 of 12)
- Fixed - Concrete Insert Anchor in Existing Concrete (see sheet 3 of 12)
- Fixed - Adhesive Anchor in Existing Concrete (see sheet 4 of 12)
- Fixed - Anchor Casting with Concrete Form (see sheet 5 of 12)
- Post Cover - New Post in New Concrete (see sheet 6 of 12)
- Post Cover - New Post in Existing Concrete (see sheet 7 of 12)
- Post Cover - Existing Post with Adhesive Anchor (see sheet 8 of 12)
- Post Cover - Existing Post with Concrete Anchor (see sheet 9 of 12)
- Removable - Anchor Casting in New Concrete (see sheet 10 of 12)
- Removable - Concrete Insert Anchor in Existing Concrete (see sheet 11 of 12)
- Removable - Premium Retractable in New Concrete (see sheet 12 of 12)

For more information on bollard post installation, please visit:
www.reliance-foundry.com/bollard/installation-bollards

Care and Maintenance:

Reliance's line of bollards are finished with a long-lasting powder-coating. Proper care and maintenance are required. Regularly-performed inspections and routine cleaning will ensure that a bollard retains its aesthetic appeal and does not become damaged by the elements.

See Reliance Foundry's maintenance guide at:
www.reliance-foundry.com/bollard/maintenance-bollards

RELIANCE FOUNDRY
 SINCE 1925

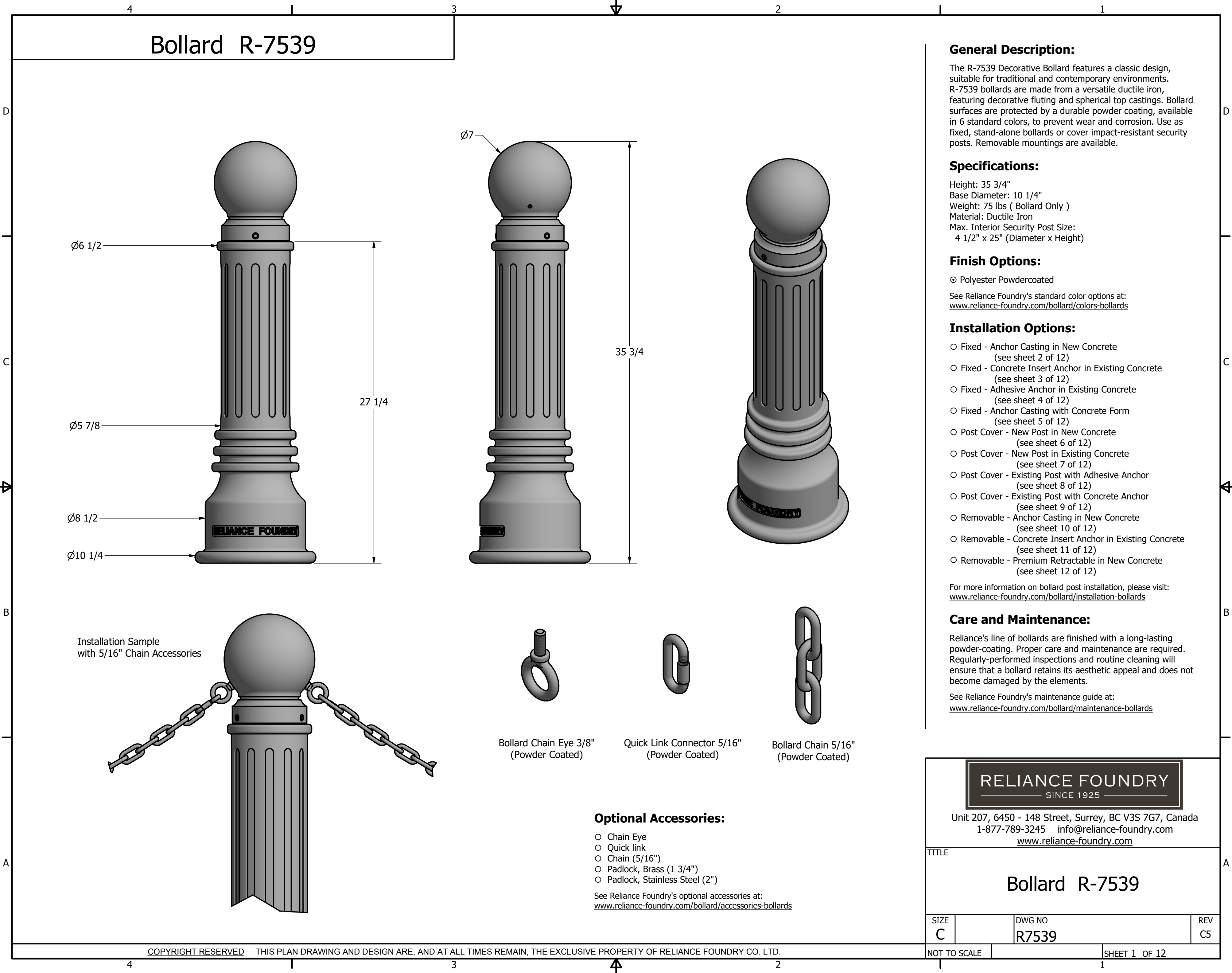
Unit 207, 6450 - 148 Street, Surrey, BC V3S 7G7, Canada
 1-877-789-3245 info@reliance-foundry.com
www.reliance-foundry.com

TITLE

Bollard R-7539

| | | |
|------|--------|-----|
| SIZE | DWG NO | REV |
| C | R7539 | C5 |

NOT TO SCALE SHEET 1 OF 12



Optional Accessories:

- Chain Eye
- Quick link
- Chain (5/16")
- Padlock, Brass (1 3/4")
- Padlock, Stainless Steel (2")

See Reliance Foundry's optional accessories at:
www.reliance-foundry.com/bollard/accessories-bollards