Reliance Foundry Co Ltd

#207-6450 148 St

Surrey, BC V3S 7G7

Phone: 604-547-0460

Phone: 1-877-789-3245

Fax: 604-590-8875

Email: info@reliance-foundry.com

Website: www.reliance-foundry.com

Reliance Foundry is an award-winning supplier of high quality stock and custom-designed site furnishings

for architectural, traffic management, and industrial applications. Reliance Foundry brings over 90 years of expertise to the design and manufacturing of our products.

Reliance Foundry bollards add architectural accents to your perimeter security, landscaping, traffic control, and streetscape projects. Use bollards as design features for new and existing buildings, for access control measures, traffic guidance, and as decorative covers over steel security posts. This section includes surface mount metal bollards.

Specification Coordination: Edit this guide specification to meet project requirements. Coordinate with other specification sections as required. If using more than one bollard type, use the same designation in both drawings and specifications. Display hidden text to see or print notes to specifier.

Drawing Coordination: Show locations, sizes, layout, and spacing of each type of bollard or bollard cover required. Show footing and security post details, if required. Soft metric conversion is provided for all measurements.

**SECTION 32 39 13.21**

**SURFACE MOUNT METAL BOLLARDS**

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Surface mount metal bollards.

Accessories

[\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_]

Edit following to coordinate with other specification sections in project.

* + - * 1. Related Requirements:

[Division 03 Sections: [Concrete] [Mortar] fill for security posts.]

[Division 08 Sections: Padlocks.]

[\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_]

Edit below to include only reference standards used in project.

* + - 1. REFERENCE STANDARDS
				1. ASTM A36 – Standard Specification for Carbon Structural Steel.
				2. ASTM A312 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
				3. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
				4. ASTM A536 – Standard Specification for Ductile Iron Castings.
				5. ASTM B26 – Standard Specification for Aluminum-Alloy Sand Castings.
			2. SUBMITTALS
				1. Comply with Section [01 33 00 – Submittal Procedures.] [\_\_\_\_\_\_\_\_\_.]
				2. Product Data: Provide for each type of bollard, component, finish, and accessory specified.
				3. Color Samples: [Submit manufacturer’s standard colors for selection.] [Submit sample of color specified.]
				4. Setting Drawings: Show embedded items and cutouts required for work specified in other Sections.
				5. Maintenance Data: Submit manufacturer’s field touch-up, cleaning, and maintenance instructions.
				6. Warranty Documentation: Submit sample of manufacturer’s warranty.
			3. QUALITY ASSURANCE
				1. Comply with Section [01 43 00 – Quality Assurance.] [\_\_\_\_\_\_\_\_\_.]
			4. DELIVERY, STORAGE AND HANDLING
				1. Comply with Section [01 66 00 – Product Storage and Handling Requirements.] [\_\_\_\_\_\_\_\_\_.]
				2. Protect bollards and accessories during delivery, storage, and handling.
			5. WARRANTY
				1. Comply with Section [01 78 36 – Warranties.] [\_\_\_\_\_\_\_\_\_.]
				2. Provide manufacturer’s standard warranty against defects in materials and workmanship.

Warranty Period: Five years from date of invoice, except as otherwise indicated.

Coatings: Two years, against peeling, cracking, or significant color change.

Solar-Powered Lighting System: Three years.

1. PRODUCTS
	* + 1. MANUFACTURERS
				1. Manufacturer: Reliance Foundry Co. Ltd.

Phone: 604-547-0460 or 1-877-789-3245

Fax: 604-590-8875

Website: <http://www.reliance-foundry.com/bollard>

Email: info@reliance-foundry.com

* + - * 1. Substitutions: [Comply with provisions of [Section 01 25 00 "Substitution Procedures"] [\_\_\_\_\_\_\_\_\_] for substitution procedures.] [Not allowed.]
			1. SURFACE MOUNT METAL BOLLARDS

Surface mount is also available for select solar powered light bollards and flexible polyurethane bollards

See <http://www.reliance-foundry.com/bollard/flexible-bendable> and <http://www.reliance-foundry.com/bollard/solar-lighting> to view models.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7180**.

Height: 24 inches (61 cm).

Diameter: 4 inches (10 cm) body; 4 inches (10 cm) base.

Weight: 14 lbs. (6.4 kg).

Design: Cylinder with rounded top.

Material: Stainless steel, ASTM A312, Grade TP 304.

Country of Origin: Vietnam.

Clear Coat: Water-resistant and anti-graffiti.

Installation: Fixed, 2-bolt threaded mount.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7181**.

Height: 32 inches (81.3 cm).

Diameter: 4 inches (10 cm) body; 4 inches (10 cm) base.

Weight: 17 lbs (7.7 kg).

Design: Cylinder with rounded top.

Material: Stainless steel, ASTM A312, Grade TP 304.

Country of Origin: Vietnam.

Clear Coat: Water-resistant and anti-graffiti.

Installation: Fixed, 2-bolt threaded mount.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7182**.

Height: 24 inches (61 cm).

Diameter: 4 inches (10 cm) body; 4 inches (10 cm) base.

Weight: 12 lbs (5.4 kg).

Design: Cylinder with rounded top.

Material: Stainless steel AISI 316.

Country of Origin: China.

Clear Coat: Water-resistant and anti-graffiti.

Installation: drop-in anchor with bolt-down mounting collar

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7183**.

Height: Height: 32 inches (81.3 cm).

Diameter: 4 inches (10 cm) body; 4 inches (10 cm) base.

Weight: 15 lbs (6.8 kg).

Design: Cylinder with rounded top.

Material: Stainless steel AISI 316.

Country of Origin: China.

Clear Coat: Water-resistant and anti-graffiti.

Installation: drop-in anchor with bolt-down mounting collar

* + - * 1.  Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7236**.

Height: 36 inches (91 cm)

Diameter: 4-1/2 inches (11.4 cm) body; 8 inches (20.3 cm) base.

Weight: 40 lbs. (18 kg).

Design: Cylinder with rounded top and square base flange.

Material: Steel, ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation: Fixed, flanged surface mount.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7242**.

Height: 42 inches (106.5 cm).

Diameter: 4-1/2 inches (11.4 cm) body; 8 inches (20.3 cm) base

Weight: 45 lbs. (20.4 kg).

Design: Cylinder with rounded top and square base flange.

Material: Steel, ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.]

[Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation: Fixed, flanged surface mount.

* + - * 1. Bollard [Designer’s Designation]:

Retain -AL for aluminum. Delete if not required.

Model: Reliance Foundry; **R-7530 [-AL]**.

Height: 39 inches (99 cm)

Diameter: 5-1/4 inches (13.3 cm) body; 10 inches (25.4 cm) base

Design: Cylindrical and fluted, with tapered bottom and ball top.

Retain aluminum or cast iron to coordinate with model number.

Material:

Aluminum: ASTM B26; 20 percent recycled-material content.

Weight: 24 lbs. (11 kg)

Ductile Cast Iron: ASTM A536, Grade 65-45-12; 30 percent recycled-material content.

Weight: 61 lbs. (27.7 kg)

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Fixed, flanged surface mount.

Security post cover, new post.

Security post cover, existing post, insert.

Security post cover, existing post, adhesive.

Security post cover, existing post, concrete anchor.

Removable, new concrete, anchor

Removable, existing concrete, insert.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-7743-FL**

Height: 44 inches (111.8 cm)

Diameter: 11-3/4 inches (29.8 cm) body; 17 inches (43 cm) base

Weight: 170 lbs. (77 kg)

Design: Cylindrical with segmented rings and rounded top

Material: Steel body with ductile iron cap

Country of Origin: China

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Installation:

Fixed, new concrete, anchor.

Fixed, existing concrete, insert.

Fixed, existing concrete, adhesive.

Fixed, new concrete, concrete form.

Bolt-down, flanged

Security post cover, new post.

Security post cover, existing post, insert.

Security post cover, existing post, adhesive

* + - * 1. Bollard [Designer’s Designation]:

See R-7905, R-7903, and R-7903 RSA for complementary bike parking bollards http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-7901**.

Height: 36 inches (91.4 cm)

Diameter: 4-1/3 inches (11 cm) body; 4-1/3 inches (11 cm) base

Weight: 38 lbs. (17.2 kg)

Design: Cylindrical with segmented rings and rounded top.

Material: Steel: ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

Removable, new concrete, embedded receiver with chains, std.

Removable, new concrete, embedded receiver with chains, premium.

Fold down, powder coated.

Fold down, galvanized.

* + - * 1. Bollard [Designer’s Designation]:

See R-7906, R-7904, and R-7904-RSA for complementary bike parking bollards http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-7902**.

Height: 36 inches (91.4 cm)

Diameter: 4-3/8 inches (11.1 cm) body; 7-1/2 inches (19.1 cm) base

Weight: 29 lbs. (13.2 kg)

Design: Cylindrical with rounded top.

Material: Steel: ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

Removable, new concrete, embedded receiver with chains, std.

Removable, new concrete, embedded receiver with chains, premium.

Fold down, powder coated.

Fold down, galvanized.

* + - * 1. Bollard [Designer’s Designation]:

See R-7906, R-7904, and R-7904-RSA for complementary bike parking bollards http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-7972**.

Height: 36 inches (91.4 cm)

Diameter: 4-5/16 inches (11 cm) body; 4-5/16 inches (11 cm) base

Weight: 32 lbs. (14.5 kg)

Design: Cylindrical with rounded top.

Material: Steel: ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

Removable, new concrete, embedded receiver with chains, std.

Removable, new concrete, embedded receiver with chains, premium.

Fold down, powder coated.

Fold down, galvanized.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-8430**.

Height: 24-1/2 inches (62.2 cm)

Diameter: 2-1/2 inches (6.3 cm) body; 5 inches (12.7 cm) base

Weight: 12 lbs. (5.4 kg)

Design: Cylindrical with built-in mounting hardware and internal locking mechanism.

Material: Steel: ASTM A36; 25 percent recycled-material content.

Country of Origin: China.

Powder Coating: [Safety yellow.]

Installation: Collapsible, hinged surface mount.

* + - * 1. Bollard [Designer’s Designation]:

Model: Reliance Foundry; **R-8460-FL-30**.

Height: 29-3/8 inches (74.61 cm)

Diameter: 4-1/2 inches (11.43 cm) body; 7-½ inches (19.05 cm) flanged base

Weight: 20 lbs. (9.07 kg)

Design: Cylindrical with flanged base and reflective stripe.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Finish: Satin Surface Finish Buffed No. 6

Installation: Surface mounted.

* + - * 1. Bollard [Designer’s Designation]:

See R-8903 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8901**.

Height: 36 inches (91.4 cm)

Diameter: 4-1/3 inches (11 cm) body; 4-1/3 inches (11 cm) base

Weight: 36 lbs. (16.3 kg)

Design: Cylindrical with segmented rings and rounded top.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

Removable, new concrete, embedded receiver with chains, std.

Removable, new concrete, embedded receiver with chains, premium.

Fold down, powder coated.

Fold down, galvanized.

* + - * 1. Bollard [Designer’s Designation]:

See R-8904 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8902**.

Height: 36 inches (91.4 cm)

Diameter: 4-1/3 inches (11 cm) body; 4-1/3 inches (11 cm) base

Weight: 34 lbs. (15.4 kg)

Design: Cylindrical with rounded top.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

Removable, new concrete, embedded receiver with chains, std.

Removable, new concrete, embedded receiver with chains, premium.

Fold down, powder coated.

Fold down, galvanized.

* + - * 1. Bollard [Designer’s Designation]:

See R-8903 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8911**.

Height: 36 inches (91.4 cm)

Diameter: 6-1/2 inches (16.5 cm) body; 6-1/2 inches (16.5 cm) base

Weight: 58 lbs. (26.3 kg)

Design: Cylindrical with segmented rings and rounded top.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

* + - * 1. Bollard [Designer’s Designation]:

See R-8904 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8912**.

Height: 36 inches (91.4 cm)

Diameter: 6-1/2 inches (16.5 cm) body; 6-1/2 inches (16.5 cm) base

Weight: 52 lbs. (23.6 kg)

Design: Cylindrical with rounded top.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss.] [Dark green.] [Statuary bronze.] [Bengal silver.] [Anodized silver.] [Safety yellow.]

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

* + - * 1. Bollard [Designer’s Designation]:

See R-8904 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8914**.

Height: 36 inches (91.4 cm)

Diameter: 6-1/2 inches (16.5 cm) body; 6-1/2 inches (16.5 cm) base

Weight: 58 lbs. (26.3 kg)

Design: Cylindrical with flat top.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: China.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss] [Dark green] [Statuary bronze] [Bengal silver] [Anodized silver] [Safety yellow].

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

Removable, new concrete, removable mount with hinged lid, std.

Removable, new concrete, removable mount with hinged lid, premium.

* + - * 1. Bollard [Designer’s Designation]:

See R-8904 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8915**.

Height: 35-1/2 inches (90.2 cm)

Diameter: 3-5/16 x 3-5/16 inches (8.4 x 8.4 cm) body; 6-1/4 x 6-1/4 inches (15.9 x 15.9 cm) base

Weight: 23 lbs. (10.4 kg)

Design: Square bollard with square base.

Material: Stainless steel, ASTM A312, Grade TP 316.

Country of Origin: Malaysia.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss] [Dark green] [Statuary bronze] [Bengal silver] [Anodized silver] [Safety yellow].

Reflective Stripe: [White][Yellow][Blue][None].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

* + - * 1. Bollard [Designer’s Designation]:

See R-8904 for complementary bike parking bollard http://www.reliance-foundry.com/bollard/bike-parking-bollards

Model: Reliance Foundry; **R-8323-FL**.

Height: 34 inches (86.4 cm)

Diameter: 3-7/8 inches (9.8 cm) body; 6-1/2 x 6-1/2 inches (16.5 x 16.5 cm) base

Weight: 7 lbs. (3.2 kg)

Design: Round flexible bollard with square base.

Material: Polyurethane.

Country of Origin: Spain.

Color coating over stainless is available at additional cost for this bollard. Delete if not required.

Color Coating:

Type: Polyester powder coat over epoxy primer.

Color: [Black textured semi gloss] [Black] [Red] [Green].

Installation:

Fixed, new concrete, embedded.

Fixed, existing concrete, flanged surface mount.

* + - 1. ACCESSORIES

Retain following if specified bollards require security posts.

* + - * 1. Security Post: Steel pipe, ASTM A500, Grade B.

Manufacturer: Reliance Foundry Co. Ltd.

Country of Origin: United States.

Finish: [Red][Grey] primer.

Installation:

Direct embed.

Footing and fill; Concrete or mortar, [3000 psi minimum.]

Retain the following for removable bollards with padlock hasps and for chains with padlocks

* + - * 1. Padlock:

[Brass] [Marine Grade], supplied [supplied by bollard manufacturer] [as specified in Section [\_\_ \_\_ \_\_]]. [Key alike.]

Retain following if chains draped between bollards are required. In Drawings, show locations where chain is required, quick-release and padlock locations, and drape of chain.

* + - * 1. Chain:

5/16-inch galvanized steel chain, Grade 30, with quick-release type connections.] Provide sufficient lengths to provide drape [shown on Drawings.] [acceptable to Architect.]

Chain Eye: 5/16-inch diameter steel.

Quick Links: Powder coated chain links with barrel nut closures.

Finish: Powder coated to match bollard finish. [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.]

1. EXECUTION
	* + 1. EXAMINATION
				1. 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.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. INSTALLATION
				1. General: Comply with manufacturer’s installation instructions and setting drawings.
				2. 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.
			3. CLEANING & PROTECTION

Normal cleaning may be done with clean water and a soft cloth. Detailed cleaning and inspection instructions are available at [www.reliance-foundry.com/bollard/maintenance-bollards](http://www.reliance-foundry.com/bollard/maintenance-bollards).

* + - * 1. Protect bollards against damage.
				2. Immediately prior to Substantial Completion, clean bollards in accordance with manufacturer’s instructions to remove dust, dirt, adhesives, and other foreign materials.
				3. Touch up damaged finishes according to manufacturer’s instructions.
			1. CLOSEOUT ACTIVITIES
				1. Provide executed warranty.

END OF SECTION

Copyright 2018 by Reliance Foundry Co. Ltd.; qualified design and construction professionals may copy for preparation of construction specifications and purchase orders for Reliance Foundry products. Issued April 2018. Subject to change.

Issued July 2016. Subject to change.