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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in Specifier Notes and in the specification text Article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies polyethylene sleeves to cover and protect steel pipe bollards as manufactured by Innoplast. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 34 71 13
VEHICLE BARRIERS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies polyethylene sleeves to cover and protect steel pipe bollards.
- B. Related Requirements:

Specifier Note: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Subparagraph below. Do not include Division 00 documents or Division 01 sections since it is assumed that all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered part of the Contract.

- 1. Section 05 50 00 - Metal Fabrications: Steel pipe bollards.
- 2. Section [_____].

1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays. Comply with Section [01 31 00 - Project Management and Coordination].

Specifier Note: Add additional text to specify unusual or detailed coordination requirements affecting the work results of this Section.

- 1. [_____].
- B. Sequencing: Sequence work of this section in accordance with Section [01 12 16 - Work Sequence] [and manufacturer's written recommendations for sequencing construction operations].

Specifier Note: Specify additional text as required to describe the particular sequence of events required to coordinate work that must be done in sequence with, or at the same time as, work in another section.

- 1. [_____].
- C. Scheduling: Schedule work of this Section in accordance with Section [01 32 13 - Scheduling of Work].

Specifier Note: Specify additional text to include requirements for coordinating work that requires unusual scheduling with work of other sections.



1. [_____].

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.03 ACTION SUBMITTALS

- A. General: Submit listed submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures].
- B. Product Data: Submit specified products as follows:
 1. Manufacturer=s product data.
 2. Manufacturer=s installation instructions.
 3. Catalog pages illustrating products to be incorporated into project.
 4. Material Safety Data Sheets (MSDS).
- C. Shop Drawings: Indicate information on shop drawings as follows:

Specifier Note: Revise below to conform to project requirements.

1. Plans indicating bollards to be covered, bollard size, bollard sleeve size, colors of covers and tapes provided, and locations of logos and safety warnings.
2. Full size drawings of logos and/or safety warnings indicated on the drawings.

Specifier Note: Samples are full-size actual products intended to illustrate the products to be incorporated into the project. Sample submittals are commonly necessary for such characteristics as colors, textures, and other appearance issues.

- D. Samples: Submit as follows:
 1. 4 inches x 4 inches (102 x 102 mm) samples of cover material, with tape, illustrating colors selected.

Specifier Note: Retain below if logos or safety warnings are indicated.

2. Full size samples of logos and safety warnings indicated on the drawings.

1.04 QUALITY ASSURANCE

- A. Qualifications:
 1. Manufacturer:
 - a. [5] years experience manufacturing components similar to or exceeding requirements of project.
 - b. Having sufficient capacity to produce and deliver required materials without causing delay in work.

1.05 DELIVERY, STORAGE & HANDLING

- A. Delivery and Acceptance Requirements:
 1. Deliver material in accordance with Section [01 61 00 - Common Product Requirements] and in accordance with manufacturer's written instructions.
 2. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.
- B. Storage and Handling Requirements:
 1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
- C. Packaging Waste Management:

Specifier Note: The disposal of packaging waste into landfill sites demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for USGBC's LEED⁷ construction project certification.

Specifier Note: Include the following Subparagraphs to specify information that will provide direction to the Contractor for the disposal of construction waste materials using environmentally responsible methodology other than landfill resources.

1. Separate waste materials for [reuse] [and] [recycling] in accordance with Section [01 74 19 - Construction Waste Management and Disposal].

Specifier Note: USGBC's LEED⁷ certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials. Manufacturer may reclaim packaging and delivery materials for recycling.

2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
3. Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] packaging material [in appropriate onsite bins] for recycling.
4. Fold metal and plastic banding, flatten and place in designated area for recycling.

Specifier Note: Add additional Subparagraphs to include pallets, crates, padding and other packing materials that are typically associated with the specified products.

5. Remove:
 - a. Pallets from site [and return to supplier or manufacturer].
 - b. [_____].

Specifier Note: Coordinate Article below with Contract Conditions and with Section 01 78 36 - Warranties.

1.06 WARRANTY

- A. Warranty: Refer to Contract Conditions and Section [01 78 36 - Warranties] for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under other Contract Documents.
 1. Warranty Term: 5 years commencing on date of substantial completion.

PART 2 PRODUCTS

Specifier Note: Retain Article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal," "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 BOLLARD COVERS

- A. Manufacturer: Innoplast.
 1. Contact: 10120 Gottschalk Pkwy., Chagrin Falls, OH 44023-5456; Phone: 800-516-9287, 440-543-8660; Fax: 440-543-8661; Email: innosales@innoplast.com; website: www.innoplast.com.

Specifier Note: Substitution procedures must be either in the Contract Conditions or in Section 01 25 00 - Substitution Procedures. Do not include substitution procedures here.

2. Single Source Responsibility: Provide components and materials specified in this section from a single manufacturer.
3. Substitution Limitations:
 - a. Substitutions: [In accordance with [Contract Conditions] Section [01 25 00 - Substitution Procedures]] [No substitutions permitted].
- B. Description: Protective bollard covers made of high density or low density polyethylene (HDPE or LDPE) as indicated by model number.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Contract Conditions and Section 01 41 00 - Regulatory

Requirements. Repetitive statements should be avoided.

1. Regulatory Requirements:
 - a. In accordance with Section [01 41 00 - Regulatory Requirements].
 - b. [_____].
2. Sustainability Characteristics:
 - a. [_____].
3. Compatibility:
 - a. Ensure components and materials are compatible with specified accessories and adjacent materials.

Specifier Note: Select size(s) below to conform to project requirements. If more than one size is retained, coordinate with the drawings.

C. Sizes:

1. 4" BollardGard Bumper Post Sleeve:

Specifier Note: Post sleeve model numbers indicate sleeve lengths. Refer to manufacturer's product information and retain post sleeve model to suit project requirements.

- a. Model: [BC452] [BC460] [BC464] [BC472].

Specifier Note: Post sleeves can be field cut or factory cut to specified length from closest stock size. Maximum available length is 72 inches (1829 mm). Allow 2 inches - 4 inches beyond bollard length if sleeve will be field cut.

- 1) Length: [_____] [As indicated on the drawings].
- 2) Thickness: 0.125 inches (3.2 mm) HDPE.
- 3) Inside Diameter: 4.700 inches (119 mm).

Specifier Note: Select standard post sleeve color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 4) Color: [Black] [Blue] [Bright Green] [Brown] [Federal Yellow] [Gray] [Green] [Light Gray] [Orange] [Red] [Tan] [White] [Yellow] [_____] [as indicated on drawings].

Specifier Note: Post sleeve covers can be customized with safety graphics or corporate logos. Retain and edit paragraph below to specify stock handicap wheelchair graphic or custom graphics (including logos) as needed to meet project requirements. Delete paragraph if graphics are not required.

- 5) Graphics: [Stock handicap] [and] [_____] [as indicated on drawings].

Specifier Note: Retain or delete paragraph below to suit project requirements.

- b. Reflective Tape: 3M #5100R.

Specifier Note: Reflective tape is provided standard in a width of 0.75 inch (19.1 mm). Retain standard width or insert custom width below.

- 1) Width: 0.75 inch (19.1 mm) [_____] [As indicated on the drawings].

Specifier Note: If specifying reflective tape in other than manufacturer's standard double striping, indicate below.

- 2) Striping: [Double] [_____] [as indicated on drawings].

Specifier Note: Select standard reflective tape color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 3) Color: [Black] [Blue] [Green] [Orange] [Red] [White] [Yellow] [_____] [As indicated on drawings].
2. 7" BollardGard Bumper Post Sleeve:

Specifier Note: Post sleeve model numbers indicate sleeve lengths. Refer to manufacturer's product information and retain post sleeve model to suit project requirements.

- a. Model: [BC752] [BC760] [BC772].

Specifier Note: Post sleeves can be field cut or factory cut to specified length from closest stock size. Maximum available length is 72 inches (1829 mm). Allow 2 inches - 4 inches beyond bollard length if sleeve will be field cut.

- 1) Length: [_____] [As indicated on the drawings].
- 2) Thickness: 0.125 inches (3.2 mm) HDPE.
- 3) Inside Diameter: 7.100 inches (180 mm).

Specifier Note: Select standard post sleeve color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 4) Color: [Black] [Blue] [Bright Green] [Brown] [Federal Yellow] [Gray] [Green] [Light Gray] [Orange] [Red] [Tan] [White] [Yellow] [_____] [as indicated on drawings].

Specifier Note: Post sleeve covers can be customized with safety graphics or corporate logos. Retain and edit paragraph below to specify stock handicap wheelchair graphic or custom graphics (including logos) as needed to meet project requirements. Delete paragraph if graphics are not required.

- 5) Graphics: [Stock handicap] [and] [_____] [as indicated on drawings].

Specifier Note: Retain or delete paragraph below to suit project requirements.

- b. Reflective Tape: 3M #5100R.

Specifier Note: Reflective tape is provided standard in a width of 0.75 inch (19.1 mm). Retain standard width or insert custom width below.

- 1) Width: 0.75 inch (19.1 mm) [_____] [As indicated on the drawings].

Specifier Note: If specifying reflective tape in other than manufacturer's standard double striping, indicate below.

- 2) Striping: [Double] [_____] [as indicated on drawings].

Specifier Note: Select standard reflective tape color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 3) Color: [Black] [Blue] [Green] [Orange] [Red] [White] [Yellow] [_____] [As indicated on drawings].
3. 8" BollardGard Bumper Post Sleeve:
- a. Model: BC872.

Specifier Note: Post sleeves can be field cut or factory cut to specified length from closest stock size. Maximum available length is 72 inches (1829 mm). Allow 2 inches - 4 inches beyond bollard length if sleeve will be field cut.

- 1) Length: [_____] [As indicated on the drawings].
- 2) Thickness: 0.125 inches (3.2 mm) HDPE.
- 3) Inside Diameter: 9.125 inches (232 mm).

Specifier Note: Select standard post sleeve color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 4) Color: [Black] [Blue] [Brown] [Federal Yellow] [Gray] [Green] [Light Gray] [Orange] [Red] [Tan] [White] [Yellow] [_____] [as indicated on drawings].

Specifier Note: Post sleeve covers can be customized with safety graphics or corporate logos. Retain and edit paragraph below to specify stock handicap wheelchair graphic or custom graphics (including logos) as needed to meet project requirements. Delete paragraph if graphics are not required.

- 5) Graphics: [Stock handicap] [and] [_____] [as indicated on drawings].

Specifier Note: Retain or delete paragraph below to suit project requirements.

- b. Reflective Tape: 3M #5100R.

Specifier Note: Reflective tape is provided standard in a width of 0.75 inch (19.1 mm). Retain standard width or insert custom width below.

- 1) Width: 0.75 inch (19.1 mm) [_____] [As indicated on the drawings].

Specifier Note: If specifying reflective tape in other than manufacturer's standard double striping, indicate below.

- 2) Striping: [Double] [_____] [as indicated on drawings].

Specifier Note: Select standard reflective tape color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 3) Color: [Black] [Blue] [Green] [Orange] [Red] [White] [Yellow] [_____] [As indicated on drawings].

4. 11" BollardGard Bumper Post Sleeve:

- a. Model: BC1160.

Specifier Note: Post sleeves can be field cut or factory cut to specified length from closest stock size. Maximum available length is 60 inches (1524 m). Allow 2 inches - 4 inches beyond bollard length if sleeve will be field cut.

- 1) Length: [_____] [As indicated on the drawings].
- 2) Thickness: 0.188 inches (4.8 mm) LDPE.
- 3) Inside Diameter: 11.100 inches (282 mm).

Specifier Note: Select standard post sleeve color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 4) Color: [Black] [Blue] [Brown] [Federal Yellow] [Gray] [Green] [Light Gray] [Orange] [Red] [Tan] [White] [Yellow] [_____] [as indicated on drawings].

Specifier Note: Post sleeve covers can be customized with safety graphics or corporate logos. Retain and edit paragraph below to specify stock handicap wheelchair graphic or custom graphics (including logos) as needed to meet project requirements. Delete paragraph if graphics are not required.

- 5) Graphics: [Stock handicap] [and] [_____] [as indicated on drawings].

Specifier Note: Retain or delete paragraph below to suit project requirements.

- b. Reflective Tape: 3M #5100R.

Specifier Note: Reflective tape is provided standard in a width of 0.75 inch (19.1 mm). Retain standard width or insert custom width below.

- 1) Width: 0.75 inch (19.1 mm) [_____] [As indicated on the drawings].

Specifier Note: If specifying reflective tape in other than manufacturer's standard double striping, indicate below.

- 2) Striping: [Double] [_____] [as indicated on drawings].

Specifier Note: Select standard reflective tape color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 3) Color: [Black] [Blue] [Green] [Orange] [Red] [White] [Yellow] [_____] [As indicated on drawings].
- 5. 13" BollardGard Bumper Post Sleeve:
 - a. Model: BC1360.

Specifier Note: Post sleeves can be field cut or factory cut to specified length from closest stock size. Maximum available length is 60 inches (1524 m). Allow 2 inches - 4 inches beyond bollard length if sleeve will be field cut.

- 1) Length: [_____] [As indicated on the drawings].
- 2) Thickness: 0.200 inches (5.08 mm) LDPE.
- 3) Inside Diameter: 13.167 inches (334 mm).

Specifier Note: Select standard post sleeve color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 4) Color: [Yellow] [Black] [_____] [as indicated on drawings].

Specifier Note: Post sleeve covers can be customized with safety graphics or corporate logos. Retain and edit paragraph below to specify stock handicap wheelchair graphic or custom graphics (including logos) as needed to meet project requirements. Delete paragraph if graphics are not required.

- 5) Graphics: [Stock handicap] [and] [_____] [as indicated on drawings].

Specifier Note: Retain or delete paragraph below to suit project requirements.

- b. Reflective Tape: 3M #5100R.

Specifier Note: Reflective tape is provided standard in a width of 0.75 inch (19.1 mm). Retain standard width or insert custom width below.

- 1) Width: 0.75 inch (19.1 mm) [_____] [As indicated on the drawings].

Specifier Note: If specifying reflective tape in other than manufacturer's standard double striping, indicate below.

- 2) Striping: [Double] [_____] [as indicated on drawings].

Specifier Note: Select standard reflective tape color(s) or insert custom color(s) below. If more than one color is specified, coordinate with the drawings.

- 3) Color: [Black] [Blue] [Green] [Orange] [Red] [White] [Yellow] [_____] [As indicated on drawings].

2.02 OPTIONS, ACCESSORIES

- A. Gripper Tabs: Manufacturer's standard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer's instructions prior to bollard cover installation.
 - 1. Inform [Owner] [Architect] [Consultant] of unacceptable conditions immediately upon discovery.
 - 2. Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval from [Owner] [Architect] [Consultant]].

3. [_____].

3.02 PREPARATION

- A. Verify that covers have been cut to the proper length.
- B. Install gripper tabs as recommended by the manufacturer.

Specifier Note: Specify actions required to prepare the surface, area or site for incorporation of the section=s primary products. Describe requirements for exposure or removal of existing assemblies, components, products or materials.

3.03 INSTALLATION

- A. Install covers in accordance with manufacturer=s instructions.
- B. Coordinate installation of products in accordance with Section [01 73 19 - Installation].
- C. Coordinate bollard cover work with work of other trades for proper time and sequence to avoid construction delays.
- D. Accurately fit, align, securely fasten and install free from distortion or defects.

3.04 CLEANING

- A. Perform cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] and Section [01 74 13 - Progress Cleaning].
- B. Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section [01 74 23 - Final Cleaning].

Specifier Note: Specify special measures needed to minimize waste, collect recyclable waste and dispose of or recycle field-generated construction waste created during demolition, construction or final cleaning.

- C. Waste Management:
 - 1. Coordinate recycling of waste materials with Section [01 74 19 - Construction Waste Management and Disposal].
 - 2. Collect recyclable waste and dispose of or recycle field generated construction waste created during demolition, construction or final cleaning.
 - 3. Remove recycling containers and bins from site.
 - 4. [_____].

Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Protection of surrounding areas and surfaces during application or installation is included under PART 3, Preparation. Include only statements unique to this Section.

Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

3.05 PROTECTION

- A. Protect installed product from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction].
- B. [_____].

Specifier Note: Specify attachments such as schedules, tables, illustrations or forms in this location if they are not incorporated directly within the specification text.

3.06 ATTACHMENTS

Specifier Note: Schedules are sometimes placed in the specifications rather than on the drawings. Include schedules that indicate item/element/product/equipment, location and other coordinating data.

- A. Schedules:
 - 1. [_____].

END OF SECTION