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|---------------------|----------------|------------------|--------------|-----------|
| FAU. RFL. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | 03-P4045-01-BT | COOK | 080 | 025 |
| STA. | TO STA. | | | |
| FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT | | |

CONTRACT NO. 83811

TrafficGuard® Single Post
30" tall with 4" clearance height
in down position

Reflective Labels

The Original Multi-function Bollard

TS 6" x 3 x 3/8"
Heavy Duty Steel Tube

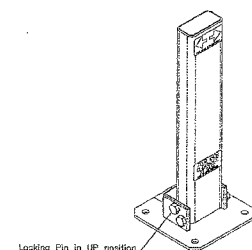
Single Lock Pin Shown
(Optional Double Lock Pin Available)

1/2" Steel Side Plates

Locks in
down position

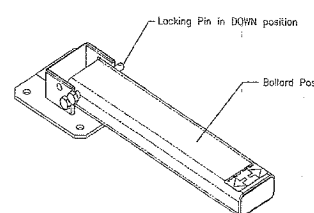
3/8" Steel Base Plate

High Visibility Safety Yellow Color
Dupont Imron Finish (Standard)



Locking Pin in UP position

Anchorage system provided by customer see Bollard Anchor System (BAS) drawing

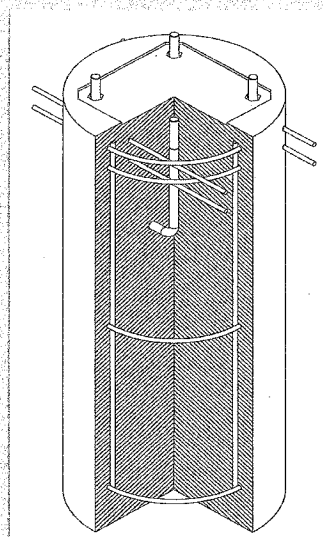


Locking Pin in DOWN position

Bollard Post

Custom Colors Available to fit
Your application
Call 877-727-7347

TYPICAL FOUNDATION PLAN

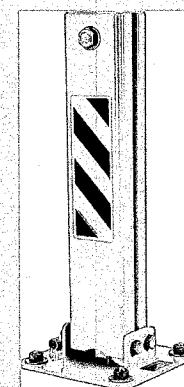


- 18" Concrete Pier at 42" Below Grade
- Install rebar system as detailed
- Four 3/4" x 12" galvanized "J" bolts

TrafficGuard® "Screw Lock" shown with optional reflective end marker labels

Optional Reflective "End Marker" Labels

High Shear Security Lock Pins Available



TRAFFICGUARD® GENERAL SPECIFICATIONS

The TrafficGuard® hinged bollard is a product that will secure your area from unwanted vehicle traffic, while allowing authorized vehicles to pass at will.

TRAFFICGUARD® IS AVAILABLE IN THE FOLLOWING OPTIONS:

- 1) Single-Post Bollard—4" Clearance Height; 30" or 48" Post Height
- 2) Single-Post Bollard—5" Clearance Height; 30" Post Height
- 3) Double-Post Bollard—3" Clearance Height; 30" Post Height
- 4) Double-Post Bollard With "Screw Lock"—4" Clearance Height, 30" Post Height
- 5) Round-Post Bollard—Screw in with flush mount, 34.5" Post Height

SINGLE-POST: Shall be fabricated of ASTM-A36 TS 6"x4"x3/8" steel tube with an end plate welded to the top with bottom corners beveled, edges eased and to contain 2- 1 13/16" holes for 3/4" pins located to allow lowering to specified clearance and locking in down position.

DOUBLE-POST: Shall be fabricated of ASTM-A36 TS 6"x2"x1/4" steel tube with an end plate welded to the top with bottom corners beveled, edges eased and to contain 1- 1 13/16" holes for 3/4" pins located to allow lowering to specified clearance and locking in down position.

ROUND-POST: Shall be fabricated of 2.5" schedule 40 pipe with welded-in-place flange, post cap and 1" threaded bottom. Galvanized 24" threaded ground sleeve and "screw in" cap.

BASE: Shall be fabricated of ASTM - A36 steel. The base plate shall be 12"x12"x3/8" with beveled corners. The verticals shall be a 1/2" steel plate welded to the base plate. Decal plate shall be 1/2" and welded to the backside of the vertical support.

ARROW AND WARNING DECALS: Vendor shall provide two (2) reflective arrow labels and three (3) clearance-warning labels to be installed at time of installation.

PAINTING SPECIFICATIONS: Prepare all uncoated ASTM - A36 by removing scale and weld slag by chipping, wire brushing, and then sandblast to SSPC 6. Prime all surfaces with one coat of Gray CORLAR Epoxy Primer 934S with a dry thickness of 1.0 mils. Paint one finish of DuPont Yellow IMRON 5000 3.5 VOC Color #NO882HNW in a cross-coat fashion. DuPont Imron® is a top-of-the-line automotive finish.

HINGE PINS: 3/4" -1.0x8" Hex Head Bolt 18"-8" stainless steel with 13/32 hole for lock. Furnished with 3/4" -1.0" 18"-8" stainless steel nut.

ANCHOR BOLTS: If included shall be 3/4"x12" ASTM - A36 L Hook Anchor Bolt with Hex Head Nut and type A Flat Washer. All hardware galvanized.

DESIGN CRITERIA: The Hinged Bollard is designed to release at static load (or equivalent impact load) of approximately 1,700 pounds applied at 27 inches above grade. The Hinged Bollard System will release in one of the following modes:

1. The Pin will shear and the Bollard will rotate to grade.
2. The Expansion Anchors will pull out and the Bollard Base will rotate.
3. The earth (dependent on strength) will yield and the foundation will tip in rotation.

If installation conforms to the specifications and these drawings, TrafficGuard® Direct expects the failure to occur in the sequence shown with the pin shear as the governing failure. Design shall be by a licensed engineer in the state of Illinois.

INSURANCE: Vendor shall provide commercial general liability policy "occurrence" insurance in the minimum amount of \$1,000,000.00.

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| ROBINSON ENGINEERING, LTD. CONSULTING REGISTERED PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS 17000 SOUTH PARK AVENUE SOUTH HOLLAND, ILLINOIS 60473 (708) 331-6700 FAX (708) 391-3826 © COPYRIGHT 2005 ILLINOIS DESIGN FIRM REGISTRATION NO. 184001128 | | REVISIONS No. Date Remarks | |
| PROJECT DETAILS PENNSY GREENWAY BIKE PATH LANSING, ILLINOIS | | | |
| Drawn by: LTL | Date: 7/22/05 | | |
| Checked by: JP | Scale: N/A | | |
| Sheet 025 of 080 | Project No. 03-365.02 | | |