1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be mounted. See Fig. 1 and Fig. 5.

PROCEDURE FOR EMBEDDED INSTALLATION, WITHOUT LIGHT:
2. Embed bollard tube in a concrete footing that meets local frost conditions. Be sure to allow for proper drainage. See Fig. 2 and Fig. 3.
3. Clean concrete from bollard tube before it sets. Allow concrete to cure.

PROCEDURE FOR INSTALLATION WITH LED LIGHT:
1. Complete steps 1-6 for surface mount installation or steps 1-3 for removable 12 in embedded.
2. Unpack the fixture. Refer to light manufacturer’s instructions packed with fixture.
3. WITH POWER Fixture wires to supply wires using approved local electrical code standard connectors.
4. Drill holes according to manufacturer’s instructions.
5. Feed fixture wire into bollard. Using two 8-32 x 1/2” button head cap screws, attach LED light assembly to retainer bracket. Tighten securely.

PROCEDURE FOR SURFACE MOUNT INSTALLATION, WITHOUT LIGHT:
2. Place bollard in the desired position and mark hole locations. See Fig. 6.
3. Move bollard to allow access for drilling holes.
4. Drill holes at marked locations according to anchor manufacturer’s specification.
5. Clear holes of debris.
6. Complete the anchor installation according to the anchor manufacturer’s instructions.

FINAL INSTALLATION STEP:
1. Assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

PROCEDURE FOR SOLAR LIGHT INSTALLATION:
1. See page 3.

Tools Required
- 3/16” hex key (for non-solar bollard without sleeve)
- 1/4” hex key (for non-solar bollard with sleeve)
- Surface mount bollard: The surface mount bollard has a 3/8” thick mounting plate that can accept 4 anchors up to 1/2” dia. thread size. If stud anchors are used, select an anchor length that allows the stud to extend 1” above the mounting surface. Non-corrosive anchoring hardware recommended.
- rebar for footing, if required
- drain tubing to engineered fill, if required

CAUTION! Fixtures and wiring must be installed in accordance with local codes and ordinances. Do not install lighted bollards within 10 feet of a pool, spa, or fountain.

NOTES:
- Locate bollard where solar light receives a minimum of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.
- Landscape Forms is not responsible for site preparation, footings, or electrical wiring.
- The solar light should not be activated until the bollard is ready to be installed in a location where it will receive required exposure to sunlight.
- Failure to allow for proper drainage may void the standard Landscape Forms warranty.

ASSEMBLE WITH CARE! Pangard II® Polyester Powdercoat is a strong, long-lasting finish. To protect this finish during assembly, place unwrapped powdercoated parts on packaging foam or other non-marring surface. Do not place or slide powdercoated parts on concrete or other hard or textured surface – this will damage the finish causing rust to occur. Use touch-up paint on any gouges in the finish caused by assembly tools.
**Fig. 1 - Embedded Bollard Assembly**

- **Top Casting**
- **O-Ring**
- **Optional Plastic Sleeve**
- **Cover Ring**
- **Screw**
- **Embedded Bollard Tube**
- **Concrete footing**

**Fig. 2 - Footing Detail for Embedded Bollard with No Light or Solar Light**

- **Height Above Grade**: 27 - 1/2”
- **Depth of Footing**:
  - Min 24” or as frost conditions require
- **Concrete**
- **Rebar Through Ø1” Hole**
- **Engineered Fill to Allow for Drainage**

**Fig. 3 - Alt Footing for Embedded Bollard with Internal Concrete for Minimum Security**

- **Height Above Grade**: 24” Min or Frost Line
- **24” Min or Frost Line**
- **18” [457mm]**
- **Diameter Ø24 [610mm]**
- **Drain to Engineered Fill (Provided by Others)**
- **Concrete Footing**

**Fig. 4 - Alternate Footing Detail for Embedded Bollard with Low Voltage Light**

- **Height Above Grade**: 27-1/2” for 6” Bollard, 27” for 12” Bollard
- **Depth of Footing**:
  - Min 24” or as frost conditions require
- **Concrete Footing**
- **Diameter Ø24 [610mm]**
- **Drain to Engineered Fill (Provided by Others)**
- **Connectors**
- **Conduit and Drain Tube Must Be Unobstructed**
- **Bollard Ships with Bracket Mounted, Shown for Led Mounting Clarity Only**
- **Supply Wires**
- **(2) #8-32 x 1/2” Screws**
- **LED Fixture Bracket**
- **LED Fixture**

**Date**: April 2, 2019
PROCEDURE FOR SOLAR LIGHT INSTALLATION:

1. Remove top retaining screws, top casting with solar light, optional plastic sleeve, and cover ring from bollard to be mounted. Solar light and battery bracket remain attached to top casting with wing nuts.

NOTE: Solar bollards are shipped with a pin-in-hex key for security screws. Do NOT connect the battery wire until Step 4.

2. Complete surface mount installation steps 1-6 or embedded installation steps 1-3.

3. Assemble cover ring and optional sleeve.

4. Set battery on shelf of bracket and secure with Velcro strap.

5. Open silicone dielectric compound packet and squeeze a generous amount into each wire terminal before connecting to battery.

6. Connect red battery wire to red (positive) battery terminal, see Fig. 7. Connect black battery wire to black (negative) terminal. Use the silicone dielectric compound to encapsulate the exposed portion of the battery terminals.

7. Assemble top casting with solar light and battery to the bollard tube. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

FIG. 5 - SURFACE MOUNT BOLLARD ASSEMBLY

DEPTH OF FOOTING: MIN 24" OR AS FROST CONDITIONS REQUIRE

FIG. 6 - SURFACE MOUNT BOLLARD WITH LED LOW VOLTAGE LIGHT DETAIL

FIG. 7 - BATTERY CONNECTION
WARNING! TO AVOID INJURY TO PERSONS HANDLING BOLLARD, USE TWO PEOPLE TO TEAM LIFT AND CARRY BOLLARD. Weight of bollard is 75lbs.

PROCEDURE FOR EMBEDDING THE REMOVABLE BOLLARD SOCKET:
1. Excavate for socket footing and install drain, see Fig. 8. Depth of socket is 18 inches. Depth of footing is minimum 24 inches or as frost conditions require.
2. Before pouring concrete, make sure the factory-installed tape covers the outside of the hole near the upper end of the socket. Make sure lower end of socket is sealed to prevent concrete from entering. PVC cap make be cut to fit drain connection.

PROCEDURE FOR INSTALLING REMOVABLE BOLLARD:
1. Remove socket cover plate and separate halves. (Hint: use a flat blade screwdriver to pry up edge opposite cover plate pin.)
2. Store socket cover plate below cross bar inside socket.
3. Use key to open bollard latch (key horizontal). Remove key.
4. Position bollard near socket and align three slots in bollard with bars in socket.
5. Ease bollard into socket. Twist until bars fit into slots.

CAUTION! Dropping bollard into socket may damage bollard or socket.

6. Adjusting screws may be used to adjust fit between bollard and socket. Be sure locknuts are tight.
7. Use key to close latch (key will be vertical). Remove key.
8. Pull up on bollard to ensure latch is engaged.

PROCEDURE FOR REMOVING REMOVABLE BOLLARD:
1. Use key to open latch (key will be horizontal). Remove key.
2. Carefully lift bollard out of socket and store on non-marring surface.
3. Retrieve socket cover plate halves from bottom of socket.
4. Place cover plate half with pin into socket, see Fig. 8. Place second half into socket.