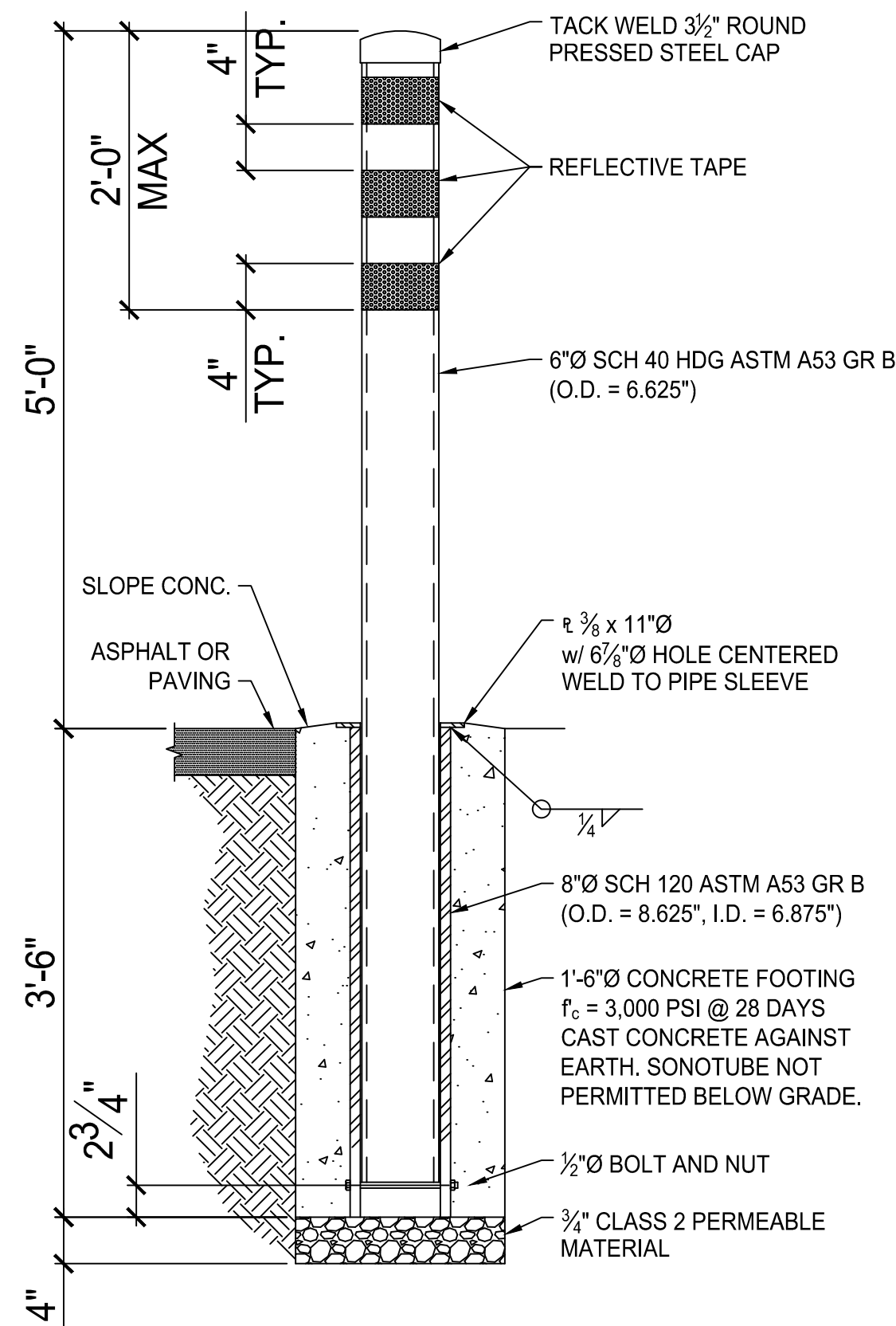


D1 **FIXED BOLLARD**
C-502 C-101 SCALE: NONE



D4 **REMOVABLE BOLLARD**
C-502 C-101 SCALE: NONE

BOLLARD NOTES

1. ASCE 7 VEHICLE BARRIER DESIGN CRITERIA:
6,000 LBS APPLIED HORIZONTALLY IN ANY DIRECTION AT 2'-3" ABOVE GRADE.
2. VEHICLE IMPACT PROTECTION SHALL COMPLY WITH THE FOLLOWING:
- SECTION 312 OF THE INTERNATIONAL FIRE CODE (IFC), AND
- NFPA 55: COMPRESSED GASSES AND CRYOGENIC FLUIDS CODE
3. PROVIDE BOLLARDS WHERE EQUIPMENT IS SUBJECT TO ACCIDENTAL LOW-SPEED VEHICLE CONTACT SUCH AS IN PARKING LOTS, ALLEYS, OR EQUIPMENT SERVICE PATHS. WHERE EQUIPMENT IS NEAR ROADWAYS, PROVIDE SUITABLE ROADSIDE BARRIER TO MEET SITE CONDITIONS IN ACCORDANCE WITH THE AASHTO "ROADSIDE DESIGN GUIDE."
4. PROVIDE TYPE 1 GUARD POSTS TO PROTECT THE FOLLOWING PER SECTION 4.11.1.1 OF NFPA 55-20:

A. STORAGE TANKS AND CONNECTED PIPING, VALVES, AND FITTINGS
B. STORAGE AREAS CONTAINING TANKS OR PORTABLE CONTAINERS EXCEPT WHERE THE EXPOSING VEHICLES ARE LIMITED TO POWERED INDUSTRIAL TRUCKS USED FOR TRANSPORTING THE HAZARDOUS MATERIALS
C. COMPRESSED GAS USE AREAS
5. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATING BOLLARD FOOTING. CONSULT CIVIL OR STRUCTURAL ENGINEER IF UNDERGROUND UTILITIES ARE WITHIN 18 INCHES OF BOLLARD FOOTING.
6. PROVIDE 4 FT CLEARANCE AND REMOVABLE BOLLARDS WHERE ACCESS IS REQUIRED FOR SERVICE OR HOT STICK OPERATIONS. SECTIONALIZING SWITCHGEAR TYPICALLY REQUIRES HOT STICK OPERATION SPACES ON TWO SIDES.
7. HOT DIP GALVANIZE ALL STEEL PARTS AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
8. PAINT BOLLARDS WITH TWO COATS OF "SAFETY YELLOW PAINT OVER A SUITABLE PRIMER, SHERMAN WILLIAMS "POLANE" H.S. POLYURETHANE ENAMEL OR BETTER.
9. YELLOW POLYETHYLENE SLEEVES, SUCH AS THE ARMORCAST "GUARDIAN SLEEVE" MAY BE USED INSTEAD OF PAINTING.
10. REFLECTIVE TAPE SHALL BE 4" WHITE HIGH INTENSITY PRISMATIC REFLECTIVE TAPE (ORALITE 5900, ASTM D4956-13 TYPE IV) OR APPROVED EQUAL.
11. SUBCONTRACTOR SHALL SUBMIT DIMENSIONED LAYOUT DRAWING FOR APPROVAL PRIOR TO INSTALLATION.

D6 **BOLLARD NOTES**
C-502 C-101 SCALE: NONE

KEY PLAN

Sheet Title

CIVIL DETAILS

Dwg. No.

PLC2021-0432-0006D

Sht. No.

C-503



THIS IS PRIVATE PROPERTY AND THE 811 PROCESS DOES NOT PROTECT YOU FROM HITTING PRIVATE UTILITIES. PLEASE USE NON-INVASIVE TECHNIQUES SUCH AS GPR AND ELECTROMAGNETIC TRACING TO LOOK FOR UTILITIES PRIOR TO ANY EXCAVATION.