**30000HGDW.DOC**

HighGuard® - Double-wall

Recommended Guideline Specification for a Highland, HighGuard® Underground

Double-wall Type I Construction, U.L.58, Polyurethane -Coated Steel Storage Tank.

The following items are the critical elements that should be included in the Mechanical Specifications for Underground Storage Tanks. If you have a separate section for the installation of storage tanks, utilization of paragraphs three through nine could be incorporated in the installation section.

1. Furnish an underground steel storage tank with the Highland Tank and Manufacturing’s HighGuard® corrosion control system. Tank shall be in conformance with U.L.58 Type I Construction. Tank size is noted on the Drawings, or as indicated in the Specifications.

Furnish a 30,000 gallon underground steel storage tank, 10’6” inside diameter by 46’6” inside length and externally protected with 75 mils thick of Highland Tank’s HighGuard® corrosion control system. The tank is built in accordance with U.L.58 Type I Construction criteria. The tank will have:

 a) \_\_\_\_\_dia. Manhole with nuts and bolts and gasket for lid.

 b) Internal ladder with 2"X 1/4" flat bar sides and 3/4" diameter rungs 12" on center.

 c) \_\_\_\_\_ hold down straps for double-wall tanks with neoprene liner and turnbuckles (2 per strap).

1. \_\_\_\_\_ inches of threaded connections.
2. There shall be: (\_\_) 4" dia., and (\_\_) 2” dia. threaded NPT fittings as located on drawing (or) \_\_\_\_\_ dia. \_\_\_\_\_\_\_
3. 150# flanges Flanges size as follows: \_\_\_\_\_\_\_

 e) Striker plates required under each opening.

 f) Polyurethane Coating System (75 mils DFT head & shell) per HighGuard.

2. The corrosion control system shall be in strict accordance with Highland’s HighGuard® specification shall have a pro-rated, limited 30-year warranty against failure due to exterior corrosion and internal corrosion when used with petroleum products or alcohol. Tank shall bear U.L.58 Type I Construction label. This tank does not require sacrificial anodes and therefore does not require cathodic monitoring.

3. The tank excavation shall be free from material that may cause damage to the tank coating. Care shall be taken during installation that foreign matter is not introduced into excavation or backfill. The bottom of the excavation shall be covered with clean sand or gravel to depth shown on drawings suitably graded and leveled.

Special Note: If tank is to be placed on a concrete pad for anchoring purposes, the tank must not be placed directly on the pad. A layer of fine or pea gravel, sand or #8 crushed stone (#8 coarse aggregate ASTM D-448) at least 6" deep must be spread evenly over the dimensions of the pad to separate the tank from the pad.

If installation area is in a tidal area, the tank "bedding" material should be fine gravel or pea gravel rather than sand.

4. An air test of the primary tank and interstitial space should be done above ground prior to installation. Pressure should not exceed 5 psi while a bubble solution is applied to welded seams. Refer to instructions on side of tank or per PEI RP100-2000.

5. Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank, and areas of coating damage shall be repaired with a compatible coating.

6. Equipment to lift the tank shall be of adequate size to lift and lower the tank without dragging and dropping to ensure no damage to the tank or the coating. Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length (not less than 45 including angle) attached to the lifting lugs provided. A spreader bar should be used where necessary. Under no circumstances use chains or slings around the tank shell.

Special Note: Hold Down Straps--Special care should be exercised when installing hold down straps to ensure that the straps are physically separated from the tank by separating pads made of an inert, insulation dielectric material. The separating pad should be at least 2" wider than the hold down straps width and must be carefully placed anywhere on the tank where hold down straps would come into direct contact with the tank shell.

7. Backfill consisting of sand, #8 crushed stone (#8 crushed aggregate ASTM D-448) or fine gravel, shall be placed along bottom side of tank by shoveling and tamping to ensure the tank is fully and evenly supported around bottom quadrant. The backfill shall be deposited carefully around tank and to a depth over tank to avoid damage to coating.

8. The plugs at unused tank openings shall be removed, a pipe compound shall be added and the plugs shall be reinstalled in the unused openings. Care should be taken not to cross-thread or damage the tank fittings when replacing plugs or installing required tank piping.

9. Tank shall be manufactured by Highland Tank & Manufacturing Company, Stoystown, PA; Manheim, PA; Watervliet, NY; or Greensboro, NC.