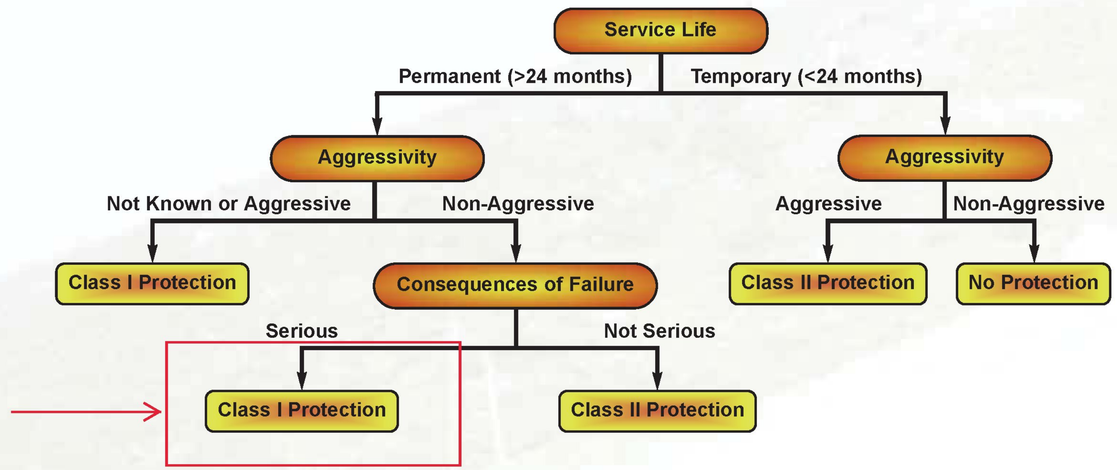
# Corrosion Protection

The level of corrosion protection for an earth anchor is primarily dependent on the service life of the anchor, the aggressivity of the environment, installation methods and consequences of failure. An anchor with a service life greater than 24 months is generally considered permanent. Permanent anchors should always have some type of corrosion protection incorporated into their design.

Ground aggressivity is generally influenced by the following:

1. Electrical resistivity of the soil (Soil is aggressive if resistance is less than 2000 ohm-cm.)
2. pH value of the soil (Soil is aggressive if less than 5.5)
3. Chemical characteristics of the ground water, rock, or soil (salt water, slag fill, industrial waste, organic fill etc.)
4. Moisture
5. Presence of oxygen
6. Stray electrical currents

Governing Specifications for each anchor application may specify different protection schemes and these specifications should always be followed in designing the appropriate corrosion protection level. The following “Decision Tree” published in the PTI Recommendations for Prestressed Rock and Soil Anchors, assists designers in following a logical approach to corrosion protection selection:




## Grout Bonded Rock or Soil Anchors

The standard permanent grout bonded rock or soil anchor consists of an epoxy coated or galvanized anchor rod, grouted in an oversized drill hole. Centralizers should be used to assure good grout cover (approximately 25 mm) around the bar. Additional corrosion protection may be desired if the rock or soil is considered to be aggressive, consequences of failure are high or anchoring into material where good grout cover is difficult to achieve. Williams Multiple Corrosion Protection (MCP) systems offer increasing barriers against corrosion attack. Williams MCP systems allow the anchor bar to be engulfed in a pre-grouted poly-corrugated tube. Protective end caps may also be used to seal the nut and washer from the environment when the outer end of the anchorage will not be encased in concrete.

## Grout Bonded Multi-Strand Anchors

Williams also offers permanent and temporary multi-strand ground anchors. Williams strand anchors are offered with a corrosion inhibiting compound under an extruded high density polyethylene/polyproplyne in the anchor unbonded length. The permanent anchors are protected with corrugated high density polyethylene/polyproplyne (HDPE/PP) over the entire length of the anchor excluding the stressing tail. The corrugated (HDPE/PP) offers one level of corrosion protection while the field grouting operation inside the corrugated (HDPE/PP) offers an additional level of protection. Temporary anchors are not manufactured with the corrugated (HDPE/PP) over the anchor bond and unbonded lengths. Upon request, the 0.6” diameter, 270 KSI, 7 wire strand is offered epoxy coated or galvanized.