**GREEN MONSTER™ (POTABLE) LINER SYSTEM**

111.1. GENERAL

The work shall include the furnishing and installation of an interior protective coating system including all necessary materials, equipment and tools as required for a complete installation. Coating shall be manufactured by GML Coatings, LLC., or pre-approved equal. The completed system shall provide a waterproof, corrosion resistant liner to prevent any deterioration of concrete surfaces from corrosive gases produced by potable water and to prevent exfiltration. To ensure total unit responsibility, all materials and installation thereof shall be approved and furnished by, and coordinated with, GML Coatings LLC.

111.2. MATERIALS AND EQUIPMENT

2.1. All materials used within the Green Monster™ Potable system shall be highly resistant to the environment of potable water.

2.2. Waterblasting equipment shall be no less than 4000 psi and sandblasting equipment shall deliver enough pressure to remove all deteriorated concrete and coatings in the structure providing a substrate free of loose material.

2.3. GML 30/60 which is high early strength calcium aluminate blend cementitious mortar shall be used to structurally rebuild substrates also providing an esthetically smooth brush finished surface.

2.4. All spray equipment shall be plural component manufactured by Graco and be capable of monitoring pressures and temperatures of the coating ensuring a quality application. Green Monster™ Potable shall only be applied with a minimum output pressure of 2,500 psi.

2.5. All products used in the Green Monster™ Potable system shall be approved and installed by only GML Coatings trained personnel. View product specifications below:

2.6. GML 30 and GML 60 Specifications

**TYPICAL PROPERTIES**

| | | |
|---|---|---|
| COMPRESSIVE STRENGTH, PSI | ASTM C928 | 6500 |
| FREEZE THAW RESISTANCE | ASTM C666 | 1% LOSS |
| SHEAR BOND STRENGTH, PSI | ASTM C882 | 1650 |
| FLEXURAL STRENGTH, PSI | ASTM C348 | 1180 |

2.7. Primer Specifications

**TYPICAL PROPERTIES (1:1 BY VOL.):**

| | | |
|---|---|---|
| TENSIL STRENGTH, PSI | ASTM D638 | 4500 |
| ELONGATION, % | ASTM D638 | 6 |
| COMPRESSIVE STRENGTH, NEAT | ASTM D695 | 3800 |

| | | |
|---|---|---|
| SHRINKAGE | | None |
| BOND STRENGTH, psi | ASTM D4541 | 1200 |
| HARDNESS, SHORE D | ASTM D2240 | 71 |
| COLOR | | Amber |
| VISCOSITY, cps, neat | | 25 |
| FINAL CURE @ 72° F | | 20 min |

2.8. Primer shall have an extremely low viscosity allowing it to penetrate deep into the pours of the brushed concrete for permanent bonding.

2.9. Shall only be spray-applied and fully cure in 20 minutes or less without experiencing any shrinkage.

2.10. Concrete substrate shall be heated and surface temperature decreasing during the application of Green Monster™ Primer.

2.11. Green Monster™ Potable shall display excellent chemical resistance, thermal stability, and maintain flexible characteristics preventing cracking which may allow sewer gases to attack the substrate.

## TYPICAL PHYSICAL PROPERTIES :

| | | |
|---|---|---|
| TENSILE STRENGTH, PSI | ASTM D412 | 4500 |
| ELONGATION, % | ASTM D412 | 460 |
| 100% MODULUS | ASTM D412 | 1460 |
| TEAR STRENGTH, PLI | ASTM D624 | 570 |
| HARDNESS, SHORE A | ASTM D2240 | 98 |
| HARDNESS, SHORE D | ASTM D2240 | 52 |
| FLEXIBILITY, 1/8" MANDREL | ASTM D1737 | PASS |
| FLASH POINT, ºF | PENSKY-MARTIN | >200 |
| TABER ABRASION, MG LOSS | ASTM D4060 | 17.0 |
| CS 17 WHEELS | 1KG, 1000 REVS | |
| A-SIDE HOSE TEMPERATURE | ºF | 140-160 |
| B-SIDE HOSE TEMPERATURE | ºF | 140-160 |
| BLOCK TEMPERATURE | ºF | 160 |

## ADHESION RESULTS: **ASTM D-4541 Patti Tester**

| | | |
|---|---|---|
| Concrete | Green Monster Primer -EPOXY Glue Failure | 600 PSI |
| Carbon Steel (direct) | | 900 PSI |

## TYPICAL PROCESSING PROPERTIES:

| | | |
|---|---|---|
| GEL TIME | SECONDS | 20 |
| TACK FREE TIME | SECONDS | 45 |
| VOLUME RATIO | V:V | 1:1 |

2.12. Concrete restoration shall be between .25 and .5 inches whichever is required to return the deteriorated substrate to the original thickness. In the case of minor deterioration and spalding, a Green Monster™ Potable system approved cementitious concrete shall be used as a resurfacer. After, the proper concrete restoration has been achieved; Green Monster™

Potable shall be applied at 100 mils. Product shall be Green Monster™ (Potable) by GML Coatings, LLC. or pre-approved equal.

111.3. SURFACE PREPARATION

3.1. Preparation will begin by sandblasting the entire substrate preparing the surface so that it is structurally intact, clean of all corrosion, and provided with a minimum of a 5 mil profile.
3.2. After sandblasting is completed, the surface area will be waterblasted at 4000 psi ridding the substrate of all dust, sand, and loose debris.
3.3. All solids and water are to be removed from the work site along with other debris.
3.4. Active infiltration will be injection grouted.
3.5. A cementitious calcium aluminate concrete blend (GML 30/60) will be applied to the entire substrate to be coated, in most cases the entire surface will be structurally built up .25 to .5 inches thick providing a smooth brushed finish. Thicker applications may apply where there is more deterioration of the existing structure.
3.6. Work area is to be completely dried using in-direct heat lowering the moisture content of the substrate.
3.7. Green Monster™ Primer is to be applied to the dry and cooling substrate providing maximum adhesion and sealing the porous concrete.
3.8. Green Monster™ Potable shall be spray applied at a 100 mil thickness.

111.4. MATERIAL INSTALLATION

4.1. The limits of the corrosion protection system shall be all exposed concrete surfaces including walls, pipe penetrations, pillars, etc., unless otherwise approved by Engineer.
4.2. Application of the Green Monster™ Potable System shall be in strict accordance with the manufacturer's recommendations.
4.3. All material installed must be holiday tested for pinholes. Either a GML Coatings representative shall approve the test or an onsite inspector employed by the owner.

111.5. INSPECTION AND REPAIRS

5.1. Final concrete structure corrosion protection system shall be completely free of pinholes or voids. Entire exposed concrete surface shall be protected with corrosion protection system. Liner preparation and thickness shall meet what is stated above. All defects identified during inspection such as pinholes, thin film milage, etc. shall be repaired with same material and to same thickness as required of original installation.