Mobile Pipe
LINING AND COATING

Project Profile

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County of Maui Utilizes Performance Specification for Wailuku Force Main to Ensure Design Life of Ductile Iron Fittings

The County of Maui has installed a new 24-inch inch Fusible PVC® pipe force main to transport wastewater from the Wailuku pump station nearly 5,000 feet to the Kahului Wastewater Reclamation Facility. The project will replace a 21-inch force main that was previously installed in the late 1970's. Since 1977, the area served by the Wailuku Pump Station has experienced substantial growth. Since this pipeline is the only pipeline that will transport wastewater over that distance, any break or malfunction in this line would be catastrophic to the surrounding cities. Material selection, including the Fusible PVC® pipe and the linings & coatings for ductile iron fittings, were critical to ensure that the County of Maui enjoyed the expected design life of the project.

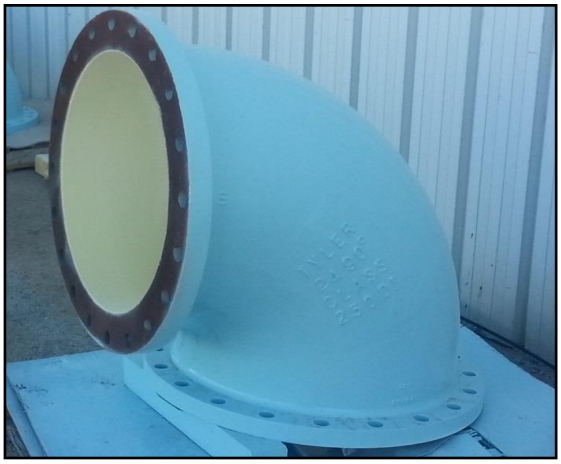
Pipeline Details and Project Summary

Project:	Wailuku Force Main
Location:	Maui, HI
Length:	5,000 LF Fusible PVC® pipe
Pipe Size:	24-inch
Fittings	Over 70 (10"-24") Polyurethane Lined and Coated Ductile Iron
Owner:	County of Maui

"When we looked at the equivalency testing that Mobile Pipe and Underground Solutions submitted - the data gave us comfort knowing there were other options for our application"

Dan Shupack, County of Maui

Lined and coated fittings along with Fusible PVC® pipe offer an excellent corrosion control strategy. In 2011, project engineers were approached to allow "as equal" products for the originally specified Protecto 401™ ceramic epoxy lining on the ductile iron fittings. Given the importance of the project, choice of more durable lining/coating systems were offered to enhance abrasion resistance, durability and hardness. The County of Maui allowed two high performance additions; another epoxy (Tnemec Series 431 ceramic epoxy) and a polyurethane (LifeLast Durashield™ 210 polyurethane) as acceptable coatings.



24" Ductile Iron 90° fitting lined with 40 mils of LifeLast Durashield™ 210 and coated with Sherwin Williams zinc/epoxy/urethane system for UV exposure.

24" bend ready for shipment. Note - polyurethane is not coated on the face of the flange.

Once the material specification was amended, the County of Maui added performance and workmanship criteria in the specification that could help prevent job-site rejections.

1. Good quality practices involve surface preparation standards to ensure the surface profile is properly prepared for the lining and coatings.

2. SSPC PA-2 dry film thickness testing is a minimum quality step that should be performed by all applicators for AWWA lined and coated ductile iron fittings.

3. In addition to surface preparation, testing for pinholes and holidays assures the end user a quality product when it ships from the coating facility.

4. Holidays during shipping and installation are inevitable; holding the contractor liable for fixing pinholes and holidays in the field is an important step to meeting expected design life.

5. Finally, the County of Maui reserved the right to reject any lined or coated fittings that did not meet the above criteria.

2.06 PIPE COATING

Finish coat for exposed pipe & fittings shall be as specified in Section 09900. Buried pipe and fittings shall be coated with Tnemec Permashield 431, Lifelast Durashield 210, or coal tar epoxy.

2.07 PIPE LINING

A. Pipe Lining/Coating for Ductile Iron Pipe QA/QC

1. Surface Preparation: Abrasive Blast Cleaning per NAPF 500-03-04 shall be performed on all Ductile Iron Pipe and Fittings prior to lining/coating.

2. Dry Film Thickness (DFT): Linings/Coatings on all Ductile Iron pipe and fittings shall have a minimum DFT of 40 mils and shall be tested per NACE SSPC PA-2 Film Thickness Rating.

3. Testing for Pinholes: All Lining/coatings shall be tested for pinholes using high voltage discontinuity testing per ASTM 5162.

4. It is the Contractor's responsibility to make minor field repairs to any coatings that are damaged during installation.

5. Owner reserves the right to accept or reject any lined/coated pipe or fittings that does not meet the requirements listed above.

B. Interior surfaces of ductile iron pipe and fittings shall be lined with Protecto 401 Ceramic Epoxy, Tnemec Permashield 431, or Lifelast Durashield 210, per manufacturer's recommendations.

WAILUKU/KAHULUI FORCE MAIN REPLACEMENT — Ductile Iron Pipe Job No. WW09-25

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Finally, choosing a quality applicator with proper certifications is the key in obtaining a product that meets or exceeds specifications. Good workmanship quality certifications include SSPC QP3 and ISO 9001 backed by NACE certified operators and inspectors.

This job included polyurethane lined and coated fittings as an alternate to Protecto 401™ ceramic epoxy lining.

The fittings were strapped to padded pallets and protected at choke points to minimize damage during shipment. All fittings leave Mobile Pipe 100% holiday free.