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01	April 28, 2026	Initial release

Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
111-73861	73861	1	04/28/2026
111-79552	79552	1	04/28/2026
111-79551	79551	1	04/28/2026

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1. Introduction

This is a general specification that covers the minimum requirements for the HDPE Corrugated Pipe to be used in the transmission system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general characteristics of this item.

2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this product to LUMA on previous orders will not have to furnish samples at bid opening. The product will be received at LUMA's general warehouse (017) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

3. Literature

- 3.1. Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature must include, but is not limited to, details of material, drawings, documented testing, and instructions for use and installation. **The literature must be an official document from and certified by the manufacturer.** Failure to submit documents on time and duly certified by the manufacturer will cause bidder disqualification.
- 3.2. If required by LUMA, final drawings and documentation shall be submitted by the vendor before the manufacturing and shipping process for approval.

4. Compatible with

For compatible manufacturer and model see Table 1. These models are examples of the product

described in this document and do not represent a preference. LUMA will evaluate equally any model not listed here during any acquisition event.

5. Markings

- 5.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.
- 5.2. Individual package(s) shall be clearly marked with manufacturer name and item information (part number, serial number, quantity, etc.).
- 5.3. Packaging labels and tags shall be waterproof.

6. Packaging

- 6.1. All products shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.
- 6.2. A list of all parts included in the container and/or package must be provided at delivery time so the receiving personnel can verify that everything requested is present, avoiding any delay in the receiving process.

7. Number Per Package (Logistics)

- 7.1. Standard package: One (1) unit per package (One unit equals 20' pipe) or as requested by LUMA.

8. Acceptance Criteria

- 8.1. Test required: certified by external qualified laboratories.
- 8.2. Product shall be manufactured in accordance with the latest issue below (section 8.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.
- 8.3. Latest applicable codes, standards, and other regulations:
 - a. ASTM F2306: is a standard specification for 12 to 60-inch (300 to 1500 mm) annular corrugated profile-wall polyethylene pipe and fittings, primarily used for non-pressure gravity-flow storm sewers

and subsurface drainage. It ensures quality in material, dimensions, pipe stiffness, and joint integrity.

- b. AASHTO M294: is the standard specification for corrugated high-density polyethylene (HDPE) pipe, ranging from 12 to 60 inches (300 to 1500 mm) in diameter, used for surface and subsurface drainage. It defines requirements for material, pipe stiffness, perforations, and environmental crack resistance, usually utilizing dual-wall construction.
- c. ASTM D3350: classifies materials based on properties like density, melt index, tensile strength, and slow crack growth resistance. It uses a cell classification system for PE compounds used in extrusion and molding, commonly for HDPE.

9. Description

- 9.1. The High-Density Polyethylene (HDPE) corrugated pipe is to be used for the retention of land fill in transmission line pole applications.
- 9.2. The pipe shall feature a Type S dual-wall construction consisting of a corrugated outer wall with reinforced double-arch corrugations and a smooth interior wall.
- 9.3. The pipe shall be manufactured from high-density polyethylene (HDPE) in accordance with the material requirements of ASTM D3350, utilizing 2–4% carbon black for UV protection.
- 9.4. HDPE resin minimum cell classification shall be 435400C or higher (e.g., 435420C/E). This code specifies key properties like density, tensile strength, and slow crack growth resistance (see table below).

Property	Code	Meaning
Density	4	0.947–0.955 g/cm ³ (HDPE)
Melt Index	3	MI 0.15–0.40 g/10 min
Flexural Modulus	5	110,000–160,000 psi
Tensile Strength	4	≥ 2,900 psi
ESCR / Crack Resistance	2	Intermediate
Hydrostatic Design Stress	0	Non-pressure application
UV / Carbon Black	C/E	2–4% carbon black for UV protection

9.5. Pipe dimensions:

- a. 111-73861: 30 in. (Nominal ID), 20 ft. (Length)
- b. 111-79552: 36 in. (Nominal ID), 20 ft. (Length)
- c. 111-79551: 42 in. (Nominal ID), 20 ft. (Length)

9.6. Minimum wall thickness:

- a. 111-73861: 0.10 in. (2.5 mm)
- b. 111-79552: 0.12 in. (3.0 mm)
- c. 111-79551: 0.13 in. (3.2 mm)

9.7. Minimum pipe stiffness @ 5% deflection:

- a. 111-73861: 29 psi (200 kPa)
- b. 111-79552: 22 psi (155 kPa)
- c. 111-79551: 21 psi (145 kPa)

10. Inspection

10.1. Upon inspection of incoming products, the purchaser reserves the right to refuse their shipments and to determine the acceptability or rejection of the product received. The supplier shall be liable for all costs incurred for a product that is rejected.

10.2. The acceptance of any product shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such products were found later to be defective or out of compliance.

11. Proposal Information

11.1. Submitted proposals must include:

- a. Technical information, drawings, and tests.
- b. Table of Compliance completed by the bidder with reference (see Appendix 1).

12. Table 1: Warehouse and Asset Suite Identification Number

Item	Warehouse Catalog #	Asset Suite #	Nominal ID (Internal Diameter)	Compatible Manufacturer & Model
HDPE Corrugated Pipe (30" x 20')	111-73861	73861	30"	TDR Ultra HDPE Corrugated Pipe 30" x 20'
HDPE Corrugated Pipe (36" x 20')	111-79552	79552	36"	TDR Ultra HDPE Corrugated Pipe 36" x 20'
HDPE Corrugated Pipe (42" x 20')	111-79551	79551	42"	TDR Ultra HDPE Corrugated Pipe 42" x 20'

- End of Specification -

Appendix

Appendix 1: Table of Compliance

Criteria	Description		Pass/Fail (P / F)	Comments
Industry Standards	Complies with ASTM F2306, AASHTO M294 & ASTM D3350			
Material	High-Density Polyethylene (HDPE)			
Features	2–4% carbon black for UV protection			
	HDPE resin minimum cell classification shall be 435400C or higher			
	Type S dual-wall construction comprising a corrugated outer wall with reinforced double-arch corrugations and a smooth interior wall			
Pipe Dimensions	111-73861	30 in. (Nominal ID), 20 ft. (Length)		
	111-79552	36 in. (Nominal ID), 20 ft. (Length)		
	111-79551	42 in. (Nominal ID), 20 ft. (Length)		
Min. Wall Thickness	111-73861	0.10 in. (2.5 mm)		
	111-79552	0.12 in. (3.0 mm)		
	111-79551	0.13 in. (3.2 mm)		
Min. Pipe Stiffness @ 5% deflection	111-73861	29 psi (200 kPa)		
	111-79552	22 psi (155 kPa)		
	111-79551	21 psi (145 kPa)		
Conclusion	Complies with Specification (Doc. No. 4750.50.355)			

NOTE: This table is only a checklist for reference. The compliance must be with the complete document. Filling out the table with “PASS” won’t be accepted as a compliance without the technical information required to certify it.












4750.50.355 HDPE Corrugated Pipe


Final Audit Report

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