

City of Goodyear
**Approved Materials List
for Wastewater Collections**

Materials Testing and Inclusion Procedures

Manufacturers who would like materials considered for the approved materials list shall:

1. Comply with all the design criteria set forth for the approved materials.
2. Supply, at the manufacturer's expense, the materials to be tested. (Quantity to be determined by the City of Goodyear Public Works Department)

Once the materials have been received, the Public Works Department will visually inspect materials for defects and compliance with all City standards. The Public Works Department will install all materials in the distribution system or other test sites as determined to be in the best interest of the City. Materials will be tested and evaluated for a minimum of one year, commencing on the date of installation. Evaluations will include but are not limited to:

1. Ease of installation.
2. Availability of parts and local service.
3. Operational issues.
4. Quality of manufactured materials.
5. Number of moving parts.

If the materials supplied, at any time in the one year testing period fail, the testing will be concluded immediately. If the materials successfully complete the testing period, Public Works will recommend the product be included in the City of Goodyear Approved Materials List.

The Approved Materials List will be updated annually at the first of each year. New Manufactures and Models that have been approved by the City for inclusion on the list will be added at that time.

A maximum number of manufacturers will be approved for each category. Once a category has been satisfied, manufacturers successfully completing the test requirements will be added to a Pending Approved Materials list. Pending materials will be listed sequentially according to successful completion of testing. Materials presently on the Approved Materials List may be omitted from the list due to:

- 1. a change in local service/availability.*
- 2. a change in product design.*
- 3. bankruptcy.*
- 4. consistent product failure.*
- 5. any reasons deemed appropriate by the Public Works Staff.*

If an approved material is taken off the list for any of the above reasons, the first pending material will be added to the list.

LIFT STATIONS

Wet Wells

Wet Wells shall be have a protective coating that shall withstand hydrogen sulfide bacterially corrosive environments down to pH 2. All coatings shall be refered to manhole coating approved material products.

Pumps (1 Manufacturers)

<u>Manufacture</u>	<u>Model</u>
FLYGT	Submersible Sump Pumps

General Requirements

Pump components shall be gray cast iron ASTM A-48, Class 35B.

Pump motor shall be a NEMA B-design

Pump shall be equipped with a 3 to 120 HP, submersible electric motor connected for operation on 480 volts, 1 to 3 phase, 60 hertz, 3 wire service, with 50 feet submersible cable.

Power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval.

All exposed nuts or bolts shall be AISI type 431 stainless steel construction.

All metal surface coming into contact with the pumpages, other then stainless steel or brass shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined fitted with Nitrite or Viton rubber O-rings.

Generators (2 Manufacturers)

Manufacture	Model
Cummins	Diesel
Gen Tech	Natural Gas

General Requirements

The equipment supplied and installed shall meet the requirements of the National Electric Code and all applicable local codes and regulations.

The engine/generator, controls, transfer switch, disconnect shall be complete and wired by the generator manufacture and locally authorized dealer to ensure one-source responsibility for warranty, parts, and service through factory-trained service personnel.

Submittal shall include specification sheets showing all standards and optional accessories to be supplied, schematic wiring diagrams, dimensional drawings, and interconnection diagrams.

The standby generator set shall be rated as standby power (defined as continuous operation for the duration of any power outage). Kilowatt ratings for three-phase voltages are based on a 0.8 power factor, single-phase voltages are based on a 1.0 power factor. Ratings are established on 150 feet altitude and 110 Fahrenheit. Vibration isolators shall be provided between the engine-generator and the steel sub base, fuel tank or directly to mounting pad. In all applications in sewage lift stations the generator shall perform and starting both sewage pump motors at the same time.

Air/Vacuum Release Valves (1 Manufacturer)

Manufacture	Model
ARI	No. D-020 - Combination air valve "SAAR"

SANITARY SEWER

Sanitary Sewer Fittings

NOTES:

1. Ductile iron special castings or fittings shall be all mechanical joint. The special castings or fittings shall be manufactured in strict accordance with Specifications ANSI A21.10 Fittings 3" to 12" shall be class 250; 14" and larger may be class 150.
2. All bends, tees, plugs, wyes, or other approved fittings constructed from the same material as the pipe in which they are installed. Shall used only standard, approved fittings.
3. Two way cleanouts shall be install within 25 feet of wet well.

Sanitary Sewer Pipes

<u>TYPE</u>	<u>Material</u>
Force Mains	Ductile Iron Pipe
Gravity Mains	SDR 35 PVC (see below for use conditions) SDR 26 PVC (see below for use conditions)

General Requirements

Force Mains

Ductile Iron: Shall conform to the requirements of ANSI A21.51 (AWWA C151), ASTM A536 Grade 60-42-10; thickness, class 52

Push-on Joints: ANSI A21.11, excepts gaskets shall be neoprene or other synthetic rubber. Natural rubber will not be acceptable.

Pipe Lining: Cement mortar with a bituminous seal coat conforming to ANSI A21.5 (AWWA C104). For pipe sizes 6" or larger, interior coating shall withstand hydrogen sulfide bacterially corrosive environments down to PH 2. Lining shall be Protecto 401.

Exterior Coating: Bituminous in accordance with manufacturer's specifications.

Gravity Mains

All PVC pipe shall be made from unplasticized PVC compounds having a cell classification of 12454 or 12364 as defined in ASTM D 1784.

SDR 35 PVC: Shall be use for gravity sewers up to 15 feet deep. Pipe up to 15 inches in diameter shall conform to ASTM Specification D 3034. Pipe with a diameter 18 inches or larger shall conform to ASTM Specification F679. The use of pipe conforming to ASTM F794 and ASTM F1803 will be considered on a case by case basis for pipe sizes 12 inches to 27 inches diameter.

SDR 26 PVC: Shall be use for gravity sewers deeper than 15 feet but less than 30 feet deep. Pipe up to 15 inches shall conform to ASTM Specification D 3034. Pipe with a diameter 18 inches or larger shall have a minimum stiffness of 115 psi and conform to ASTM Specification F679.

Joints: Pac gravity sewer pipe shall incorporate an integral bell joint with a single rubber gasket conforming to ASTM F477. Pipe joint shall meet ASTM D 3212.

NOTES:

1. PVC pressure rated pipe shall be permitted as follows. PVC pipe shall meet AWWA Specification C900 or AWWA Specification C909 or ASTM Specification D2241 SDR26
2. Gravity sewers installed deeper than 30 feet shall only be approved on a case by case basis.

Manholes

NOTES:

1. Manholes shall have a minimum diameter of 5'.
2. Manholes shall be pre-cast concrete, ASTM C-478, unless other material is approved by the City.
3. Manhole joints shall be rubber ring gasketed and have an inside diameter of at least 48 inches.
4. Sanitary manholes shall be designed without steps or holes for steps.
5. The maximum distance allowed between manholes is 400 feet for sewers 15" diameter or less, and 500 feet for larger sewers.
6. Manholes with sewer force mains discharging into them and other manholes, that if in the opinion of the City could be adversely affected by corrosive gases shall be coated with approved material products. Coating shall be the full interior length.

Manhole Coating (3 Manufacturers)

<u>Material / Product</u>	<u>Applicator</u>
Sewer Shield 100	JPCI Services
Raven 405	Southwest Environmental Testing
Neo Epoxy NPR 5300	Manhole Coatings LLC

NOTES:

1. City of Goodyear developed the Sanitary Sewer Manhole Rehabilitation Standards and Management Program Approval Procedure for Sanitary Sewer Manhole Coatings. The City of Goodyear requires that manufactures and applicators successfully complete a multi-step process before a product is approved for use in the City of Goodyear sanitary sewer system. Failure to comply with any aspect of the requirements will result in the product being removed from consideration until such time that the requirements have been met:

Step 1 - Prescreening ,

Step 2 - Approval to testing product and applicator in manholes specified by the City for trial period,

Step 3 - Review of products usefulness and applicator workmanship,

Step 4 - Final Approval by City.

Once a product has proven itself through successful completion of the steps above, then it may be added to list of approved products for use in the City of Goodyear sanitary sewer system.

2. All Materials (epoxy) specified by name brand or manufacturers shall be delivered unopened to the job in original containers.
3. The coating work shall be performed after the manhole and sewer lines are installed.
4. Manholes with Sewer force mains discharging into them and other manholes, that if in the opinion of the City could be adversely affected by corrosive gases shall be coated with an approved product. Coating shall be full interior length.