

Revised Water Engineering Design Standards

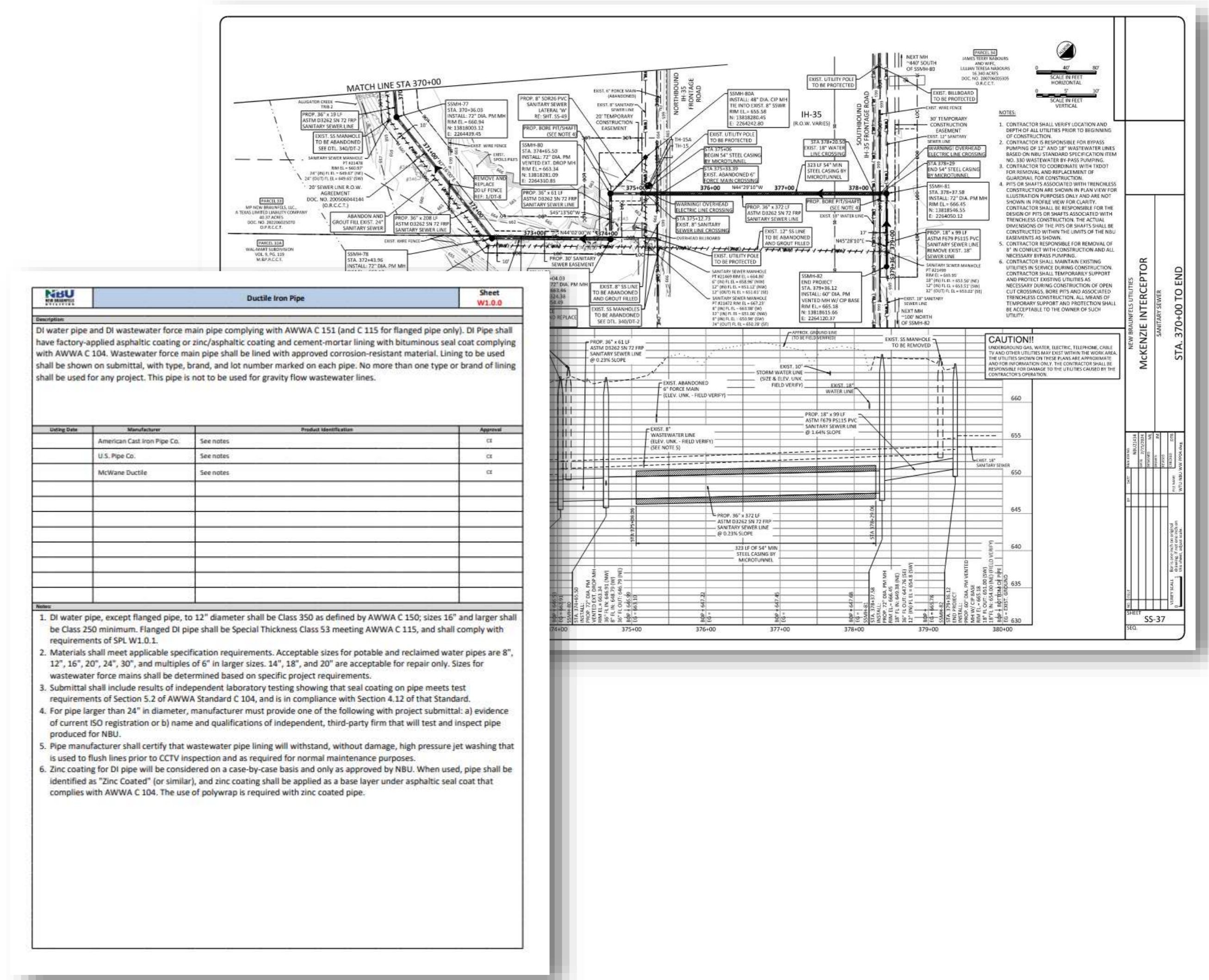
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• April 25, 2024



Water Engineering Design Standards

- Purpose
- What are Design Standards?
- How have they changed
- What it means to NBU and the community



Ductile Iron Pipe				Sheet
				W1.0.0
Description:				
DI water pipe and DI wastewater force main pipe complying with AWWA C 151 (and C 115 for flanged pipe only). DI pipe shall have factory-applied asphaltic coating or zinc/asphaltic coating and cement-mortar lining with bituminous seal coat complying with AWWA C 104. Wastewater force main pipe shall be lined with approved corrosion-resistant material. Lining to be used shall be shown on submittal, with type, brand, and lot number marked on each pipe. No more than one type or brand of lining shall be used for any project. This pipe is not to be used for gravity flow wastewater lines.				
Listing Data:				
Listing Date	Manufacturer	Product Identification	Approval	
	American Cast Iron Pipe Co.	See notes	CE	
	U.S. Pipe Co.	See notes	CE	
	McWane Ductile	See notes	CE	
Notes:				
1. DI water pipe, except flanged pipe, to 12" diameter shall be Class 350 as defined by AWWA C 150; sizes 16" and larger shall be Class 250 minimum. Flanged DI pipe shall be Special Thickness Class S3 meeting AWWA C 115, and shall comply with requirements of SPL W1.0.1.				
2. Materials shall meet applicable specification requirements. Acceptable sizes for potable and reclaimed water pipes are 8", 12", 16", 20", 24", 30", and multiples of 6" in larger sizes. 14", 18", and 20" are acceptable for repair only. Sizes for wastewater force mains shall be determined based on specific project requirements.				
3. Submittal shall include results of independent laboratory testing showing that seal coating on pipe meets test requirements of Section 5.2 of AWWA Standard C 104, and is in compliance with Section 4.12 of that Standard.				
4. For pipe larger than 24" in diameter, manufacturer must provide one of the following with project submittal: a) evidence of current ISO registration or b) name and qualifications of independent, third-party firm that will test and inspect pipe produced for NBU.				
5. Pipe manufacturer shall certify that wastewater pipe lining will withstand, without damage, high pressure jet washing that is used to flush lines prior to CCTV inspection and as required for normal maintenance purposes.				
6. Zinc coating for DI pipe will be considered on a case-by-case basis and only as approved by NBU. When used, pipe shall be identified as "Zinc Coated" (or similar), and zinc coating shall be applied as a base layer under asphaltic seal coat that complies with AWWA C 104. The use of polywrap is required with zinc coated pipe.				

Water Engineering Design Standards

- **Water/Wastewater Design Criteria**
 - Construction Plan Requirements
 - Construction Inspection, Acceptance, and Warranty
 - Design Requirements for Water/Wastewater Systems
- **Lift Station Design Criteria**
- **Standard Specifications**
- **Standard Details**
- **Standard Product List**
- **Standard Construction Notes**

New Braunfels Utilities Specifications

120.3 Materials

A. Standard Bedding Materials

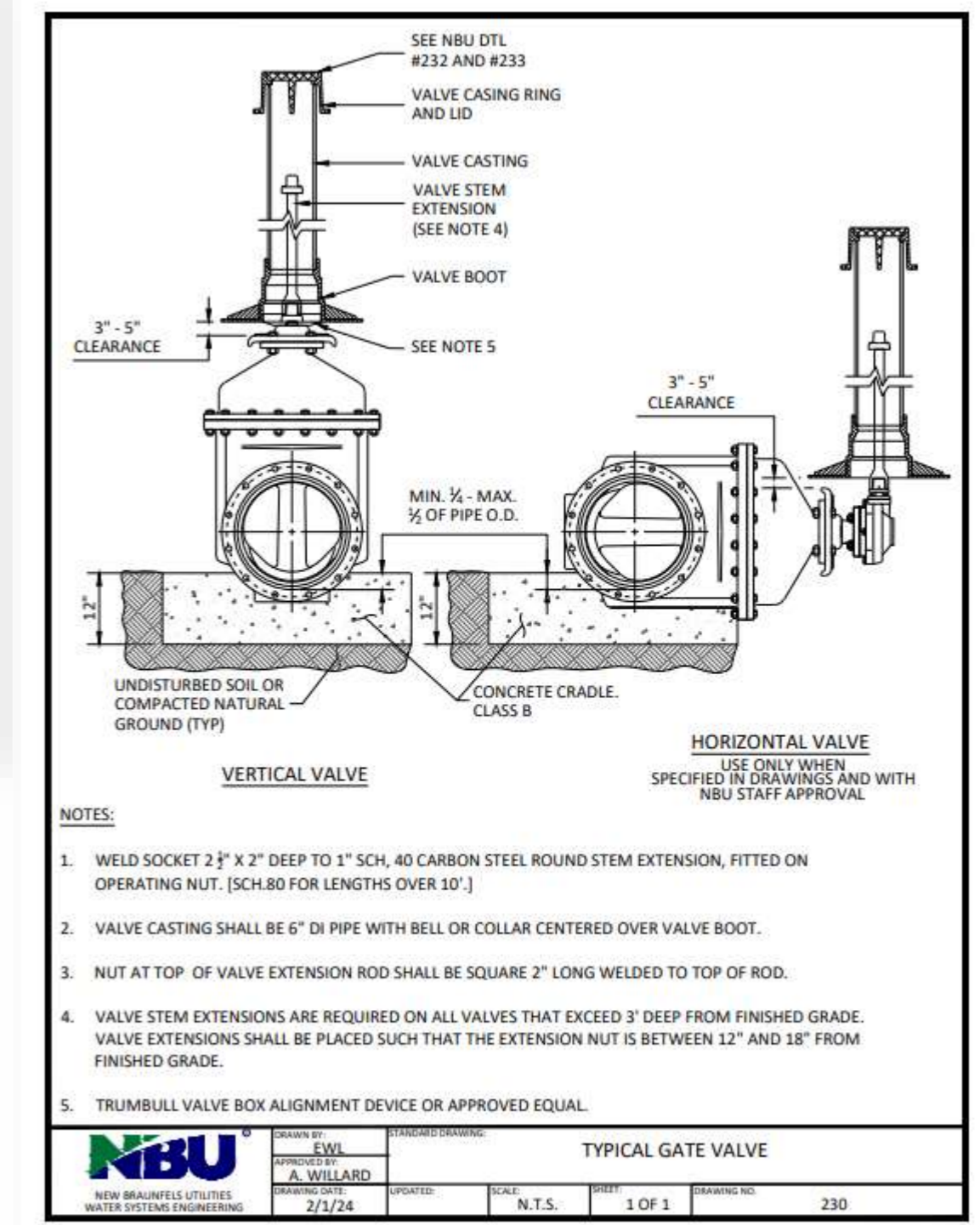
USE / PIPE MATERIAL	Cement Stabilized Backfill	Natural or M'rd Sand	Stone Screenings	Pea Gravel	Course Aggregate
WATER					
Service Tubing 1" to 2"		X	X	X	
WATER and WASTEWATER (PVC)					
Up to 15 Inch ID		X	X		
Larger Than 15 Inch ID			X	X	
WATER and FORCEMAINS (DUCTILE IRON)					
Up to 15 Inch ID			X	X	X
Larger Than 15 Inch ID				X	X
WASTEWATER (FRP)					
Larger Than 30 Inch ID			X		

- General requirements and limitations governing bedding selection.
 - Crushed gravel or crushed stone shall not be used with polyethylene tubing or polyethylene film wrap.
 - Pea Gravel or bedding stone shall be used in blasted trenches.
- Requirements to prevent particle migration.

Bedding material shall be compatible with the materials in the trench bottom, walls and backfill so that particle migration from, into or through the bedding is minimized. The Engineer may require one or more of the following measures to minimize particle migration: use of impervious cut-off collars; selected bedding materials, such as pea gravel or bedding stone mixed with sand; filter fabric envelopment of the bedding; cement stabilized backfill; or other approved materials or methods. Measures to minimize particle migration will be shown on the Drawings or designated by the Engineer, and, unless provisions for payment are provided in the contract documents, the cost of these measures shall be agreed by change order. The following limitations shall apply.

 - Sand, alone, shall not be used in watercourses, in trenches where groundwater is present, or in trenches with grades greater than 5 percent.
 - Pea gravel or bedding stone, alone, shall not be used in the street right-of-way within 5 feet of subgrade elevation in trenches that are 3 feet or wider.
 - Each gravel or bedding stone, alone, shall not be used where the trench bottom, sides, or backfill is composed of non-cementitious, silty or sandy soils having plasticity indices less than 20, as determined by the Engineer.

120 Accepted 2/1/24 Page 2 Utility Trenching and Backfill



Water/Wastewater Design Criteria Updates

- **Updated Criteria:**

- System capacity sections updated to match Master Plans
- W/WW criteria revised per staff feedback and consultant recommendations
- Abandonment of facilities revised to match NBU standard practice
- Miscellaneous clarifications of common design inquiries

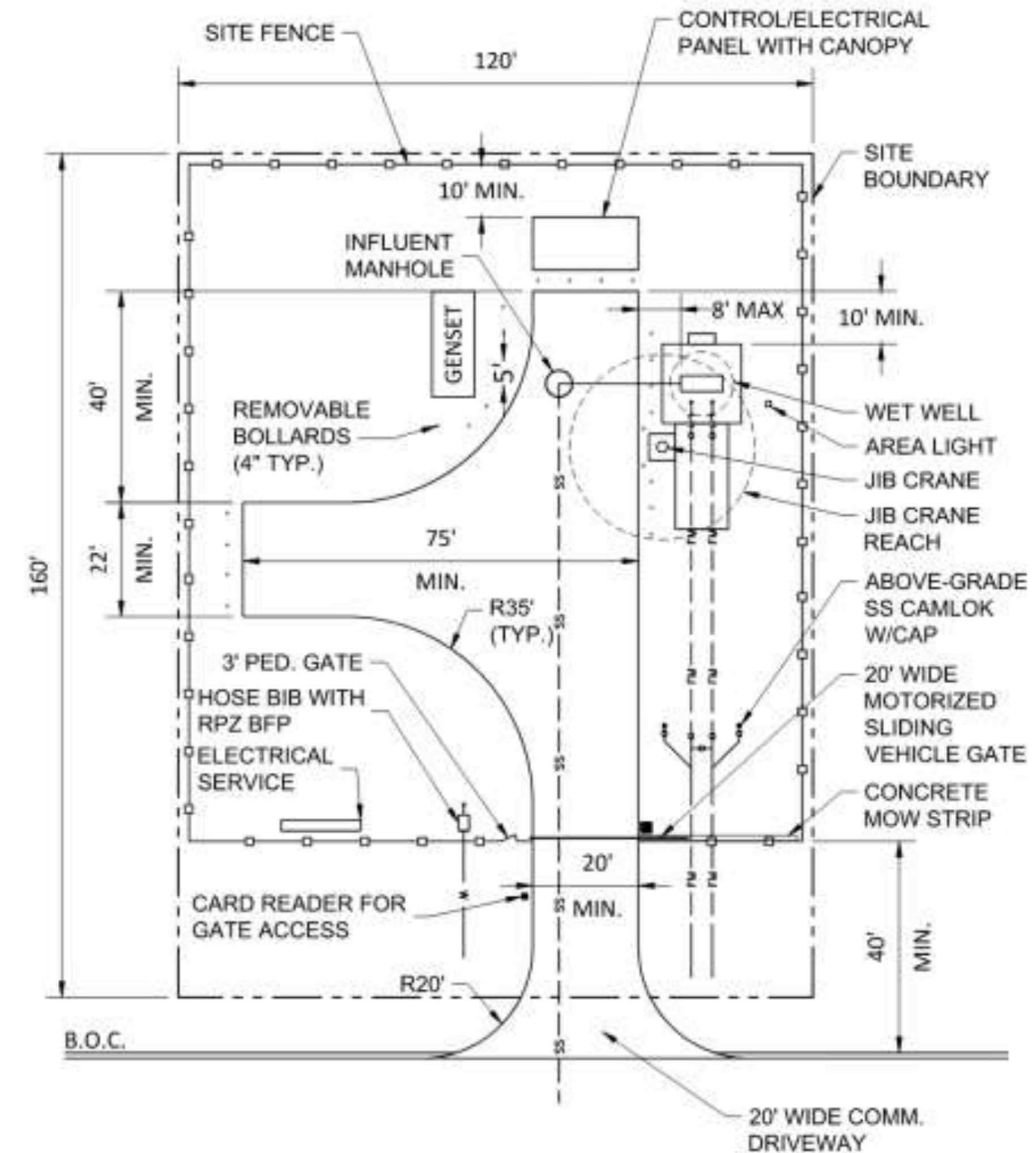
- **New Criteria:**

- Easements: Identified width, slope, and access
- Polymer concrete manholes



Lift Station Design Criteria

- Need for standard identified by issues at existing lift stations
- Enhanced requirements:
 - Dual force mains for resiliency/reliability
 - Fiber communications for SCADA and security
 - Site access: turnarounds and paved access roads
 - Odor control, aeration, & bypass considerations
 - Security: Cameras, solid perimeter fencing, and gates



Standards and Specifications Updates

- **Standard Specifications Revisions:**

- Updated 20+ year old existing NBU specifications to address inconsistencies noted during project construction and to match current industry standards

- **New Standard Specifications:**

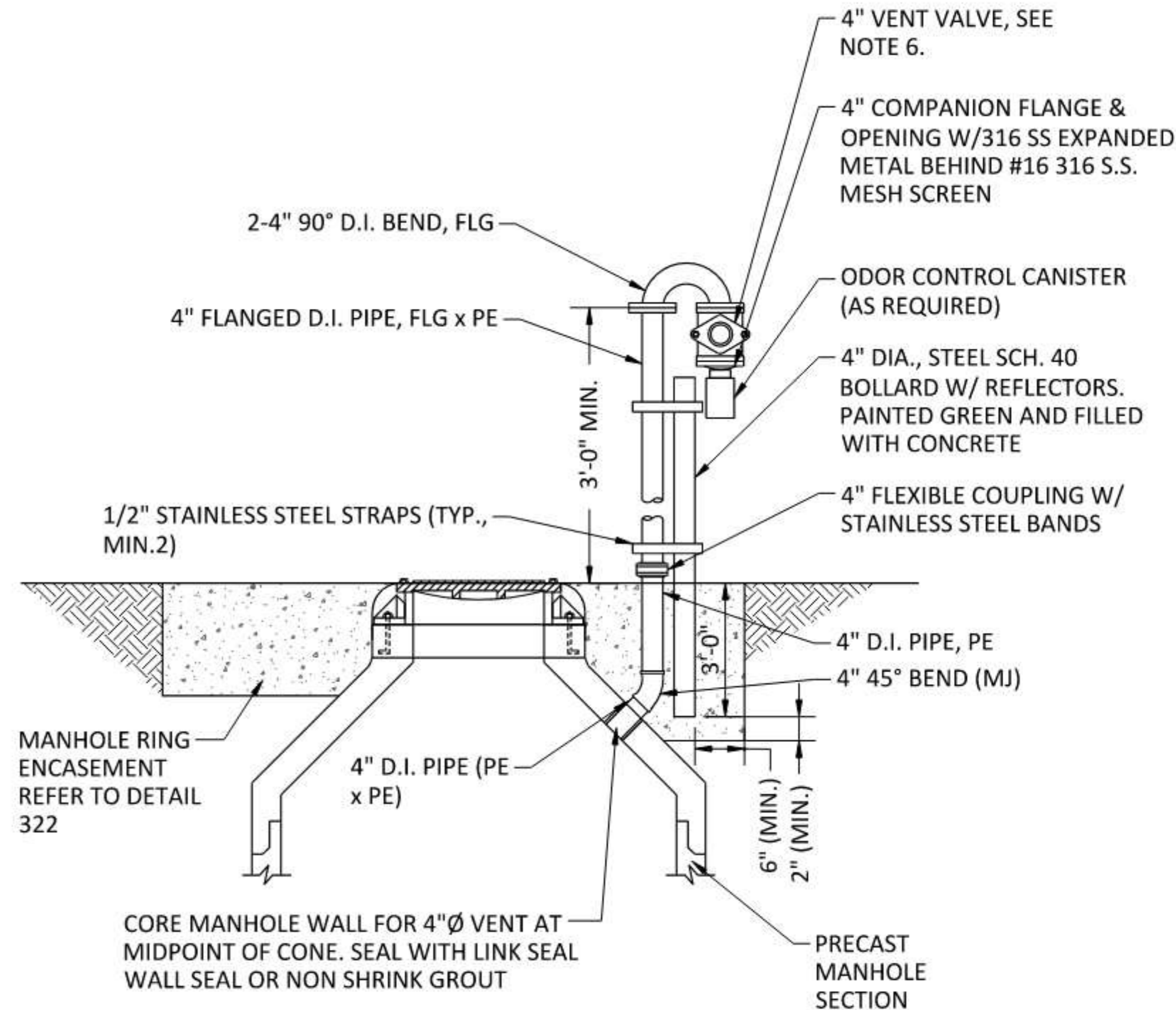
- Added specifications for pumps, storage tanks, coatings, fiberglass gravity sewer pipe, polymer concrete manholes, vaults, vault hatches, and cathodic protection

- **Standard Detail Updates:**

- Addressed operational issues per NBU staff feedback
- Added and updated details to match new specifications

- **New Standard Products List:**

- Updated draft Standards Products List for use by engineers and contractors to streamline submittals process and consistency for O&M



NBU and the Community

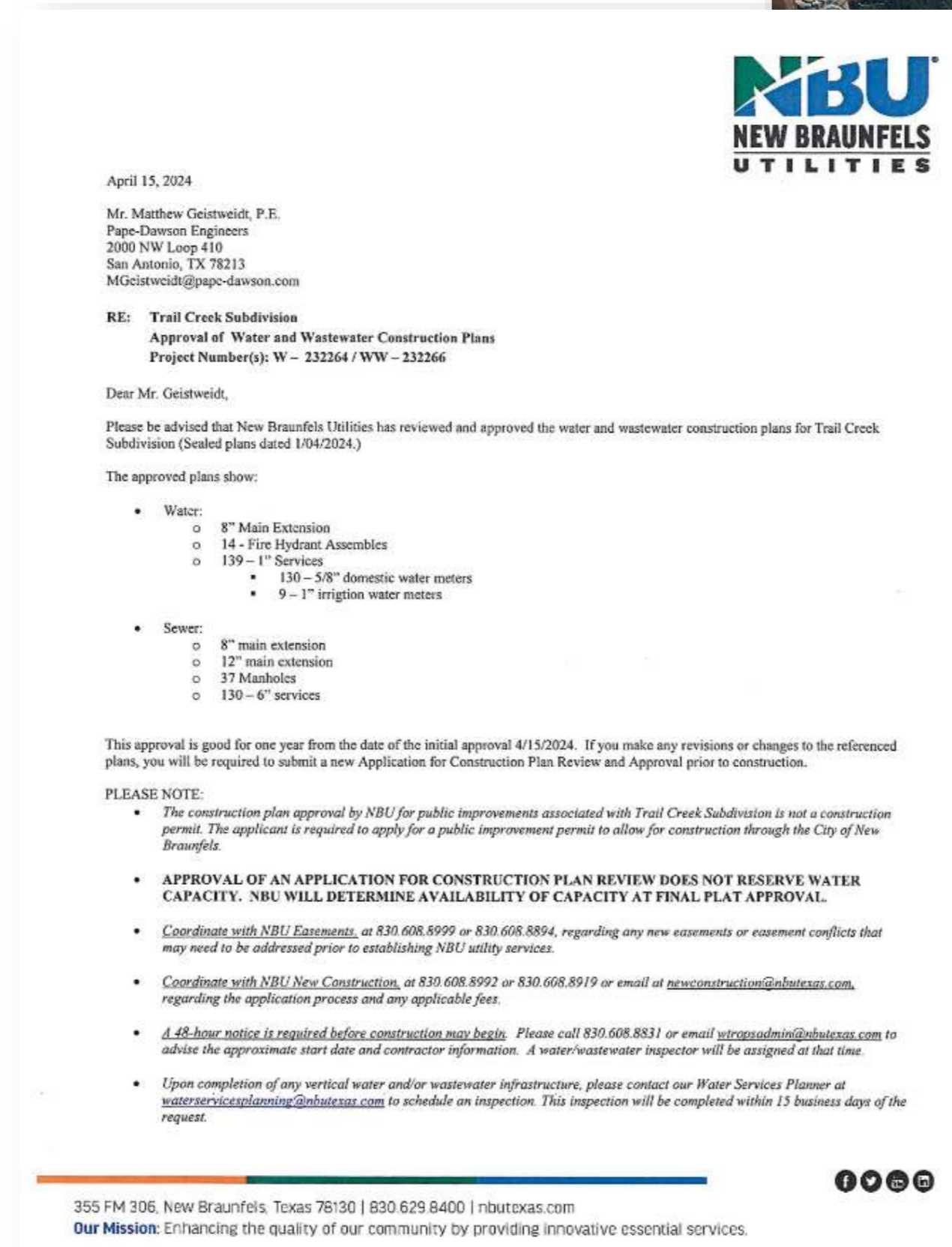
- **NBU**

- Efficient review and inspection
- Standard products
- Less meetings

- **Developers/Community**

- Clear direction
- Less interpretation
- Consistency
- No surprises

- **Outreach and Implementation**



Mission

Strengthening our community by providing resilient essential services



Vision

Be a trusted community partner dedicated to excellence in service



Core Values

Safety, Team, Integrity, Culture, and Stewardship



QUESTIONS?

Mission

Strengthening our community by providing resilient essential services

+

Vision

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