

WATER SPECIFICATIONS

Introduction

The City of Huntington reserves the right to accept and/or reject any or all of the product/material that is connected to the City of Huntington Water Infrastructure. The following specifications are a guide to what is approved in the City of Huntington. The City of Huntington Engineering Department/Water Department reserves the right to accept “equals” to any or all product/material spelled out within these specifications. These specifications are to be updated periodically by the Public Board of Works and Safety.

Before Construction

1. The contractor shall meet with the City of Huntington Engineering office at least forty-eight (48) hours in advance of starting construction to review the following items:
 - a. Process a Water Permit
 - b. Provide a bond and certificate of insurance (if applicable)
 - c. Discuss construction schedule, traffic maintenance, etc.
 - d. Discuss the method of filling, flushing, and chlorination of water lines.
 - e. Discuss Pressure testing procedures and policies.
2. Material and workmanship shall comply with requirements of the City of Huntington.
3. All permits, including street and road cut permits, necessary for the construction of a water main shall be secured and paid for by the contractor or owners representative and a copy furnished to the City of Huntington Engineering Department before construction starts.
4. Contractor shall notify the City of Huntington Engineering Department at least forty-eight (48) hours in advance of starting construction to make arrangements for inspection and shut down of existing water main(s), where required.

Specifications

5. All water mains up to 12” shall be pressure class 350 and conform to AWWA C150. All water mains 16” and up shall be pressure class 250 and conform to AWWA C150.
6. All fittings shall conform to AWWA C110 and shall be rated for the pressure class of the particular pipe being installed.
7. All Joints shall conform to AWWA C111 and shall include rubber gasket(s) with rods (where applicable).
8. All valves shall be of the “Gate” style in accordance with AWWA C509. All Gate Valves shall open in the left (counter-clockwise) direction. Gate Valves shall be resilient-seat wedge style and have a two (2) inch operating nut with a suitable valve box per water specification 9. Gate valves shall be either Mueller A-2370-20 or Clow F6100 or approved equal by the City of Huntington Engineering Department.
9. All Valve Boxes shall be per Tyler 564. All valve boxes need to be centered and plumb over valve, as well as flush with the finished grade. The word “WATER” shall be cast in the lid.

10. Pipe restraints are to be installed as needed and shall conform to the Megalug Series 1100 as manufactured by Ebba Iron, Inc. These said restraints shall conform to AWWA C111 and AWWA C153, and shall have a minimum pressure rating of 350 psi. Field lock restraining gaskets are to be utilized as needed.
11. Cut-in sleeves or couplings shall be rated at a working pressure of 350 psi. The sleeve shall be suitable for pit cast or centrifugally cast pipe, with the appropriate size gasket for pipe(s) diameter(s). These sleeves shall also be compatible with set screw style restraint devices.
12. Fire hydrants shall conform to AWWA C502 and shall be Mueller A423 or Waterous. The hydrants shall be complete with all necessary fittings and accessories. The hydrant valve opening shall be 5-1/4". All hydrants shall have two (2) two and one half inch (2-1/2") fire hose connection and one (1) four and one half inch (4-1/2") pump connection. Threads shall be National Standard Thread.
 - a. All fire hydrants shall be installed so that the finished grade is no more than two inches below the traffic break flange and at no point shall be higher than the break flange bottom. All fire hydrants shall be installed so that the 4 ½ inch connection is facing the street.
 - b. Each fire hydrant shall be installed with a service valve to facilitate maintenance of the hydrant.
13. Service lines shall be installed by the contractor after pressure testing and disinfecting of water main. Meter pits shall be pre-fabricated, with the yoke bar and corporation stops, and shall be manufactured by T-Z products Noblesville, Indiana. All "new construction" service lines shall be installed with one continuous pipe from the water main to the corporation stop within the meter pit. Acceptable materials for service lines are Type K soft copper or poly pipe rated 200 psi.
NOTEAll service lines constructed out of poly pipe shall have one electrically continuous Type THWN #10 solid tracer wire. This wire shall be installed along the pipe, fastened to the pipe at twenty (20) foot intervals and terminated in the meter pit.
 - a. Water Meters shall be placed at the right of way line. Avoid placement of water meters in driveways, sidewalks, paved areas, ditches, drainage swales, or BMP's.
14. Water meters shall be purchased from the City with a permit being obtained within the City of Huntington Engineering Office.
15. In accordance with 327 IAC 8-3.2-17, the cover for ALL water lines shall be a minimum of 60 inches.
16. Where a sanitary sewer is in conflict with the water line, install one full length of water main centered over the sanitary sewer, the vertical clearance between pipes to be a minimum of 18 inches. Separation requirements per Ten (10) State Standards.
17. Where water lines are used under pavement or within 5 feet either direction, special backfill shall be used. Special Backfill shall be #53 or #73 aggregate. Backfill shall be placed in no more than 6" lifts and shall be compacted to a 95% Standard Proctor per ASTM D-698.

18. All pipe shall be laid in Class “B” bedding unless approved equal by City of Huntington Engineering Department. The values of “d”, depth of bedding material, below the bell of the pipe shall be as follows:

“D” (inside Diameter of pipe, in.)	“d” (depth of bedding material) Minimum Requirements
27” and smaller	3”
30” to 60”	4”
66” and larger	6”

19. As a condition of new or continued water service, approved backflow prevention assemblies shall be installed, tested, and properly maintained in all customer facilities per the City of Huntington Code of Ordinances Chapter 50 Section 6. Part D. "An approved backflow assembly" means a backflow prevention assembly model approved by the Indiana Department of Environmental Management and the City Water Department. The Water Superintendent shall maintain a list of approved backflow prevention assemblies. The assembly shall be matched to the degrees of hazard and to the approved installation application.

Testing

20. All new water main and pipe fittings shall be disinfected with a residual of 25 parts per million of free chlorine in all sections of the pipeline for a period of 24 hours. At the end of this 24-hour period a residual of ten parts per million of free chlorine shall be maintained in all sections of the pipeline. If the residual of ten parts per million free chlorine is maintained then the pipeline shall be flushed so that the chlorine residual is less than one part per million in all parts of the pipeline. If the residual of ten parts per million of free chlorine is not so maintained then the entire pipeline shall be disinfected to a beginning free chlorine residual of 25 parts per million for a period of another 24 hours.
21. Following the disinfection of a new water main a sample of water shall be collected and shall be analyzed for the presence of total coliform. If the presence of coliform is detected; the water main shall be disinfected. Only after a new water main has been properly disinfected by the contractor and no presence of coliform is detected shall that water main be pressurized for potable use.
- a. Flushing of heavily chlorinated water is prohibited and shall be disposed of in a way not to damage the environment. Reducing agents shall be used to neutralize, thoroughly, the chlorine residual remaining in the water.
22. Pressure tests shall be done on all new water main installed. Tests pressures shall be 1.5 times working pressure or 100 psi, whichever is greater, but shall not exceed pipe or thrust-restraint design pressures at any point. Test shall be in accordance with all AWWA standards, however, where a main is being used strictly for fire protection the NFPA (National Fire Protection Agency) codes and regulations prevail.
- a. The hydrostatic test shall be a 2-hour duration
 - b. Test pressure shall not vary by more ±5 (five) psi
 - c. No test sections shall exceed 5 (five) miles in length without prior approval from Engineer.
 - d. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{SD\sqrt{P}}{133,200}$$

Where:

L= allowable leakage, in gallons per hour

S= Length of pipe tested, in feet

D= nominal diameter of the pipe, in inches

P= Average test pressure during leakage test, in pounds per square inch

ALLOWABLE LEAKAGE PER 1000 FT. OF PIPELINE

Nominal Pipe Diameter - in.

Avg. Test Pressure psi	3	4	6	8	10	12	14	16	18	20	24	30
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25

After Construction

23. The contractor shall maintain and make available to the inspector on the jobsite one complete plan set. After each portion of the work is installed, the contractor shall record all deviations from the original design shown in the drawings either by additional sketches or red ink thereon. Upon completion of the job, the Applicant or Contractor shall deliver this record set and digital set to the City of Huntington Engineering Department.

24. All water service laterals shall be measured from the nearest property pin and shall be designated on a City of Huntington Water Tap form as which that form needs to be provided to the city in conjunction with the Record Drawings

25. For water infrastructure being turned over to the City the Owner/Representative must request, in writing, to the Board of Public Works and Safety that he/she requests the City of Huntington Water Department to accept the installed water infrastructure that was put in to the City of Huntington Water Specifications.