

**SEWER AND WATER SPECIFICATIONS
ADDENDUM JANURARY 2020**

All sewer and water construction shall be in accordance with Standard Specifications for Sewer and Water Construction in Wisconsin, Sixth Edition, December 22, 2003, and any addenda, which are included by reference as part of this contract and are on file in the office of the City Engineer.

ADDENDA TO STANDARD SPECIFICATIONS

The following exceptions, additions, and deletions to the Standard Specifications for Sewer and Water Construction in Wisconsin, Sixth Edition, December 22, 2003, and any addenda are to govern the work and take precedence over the Standard Specifications.

PART I. GENERAL CONDITIONS

- 1.1.19 ENGINEER.
Shall be altered to read:
The Director of Public Works/City Engineer or an Engineer of the City of West Allis, including such assistants as are authorized to represent him, or the consulting Engineer acting through his authorized agents, who represents the City of West Allis during the construction activities.
- 1.1.42 WORKING DAY.
Add the following:
Any "no work" days for disinfection and testing water mains or due to curing concrete pavement shall be considered as working days.
- 1.1.42a WORKING HOURS.
Daylight hours between 7:00 a.m. and 6:00 p.m.
- 1.2.2a NOTICE TO WORK ON SATURDAYS OR SUNDAYS OR HOLIDAYS.
If the Contractor or Subcontractors deems it necessary to work on Saturdays, Sundays or Holidays, they shall notify the Engineer twenty-four hours in advance to obtain permission and inspection for such work. If said work is approved and the Contractor does not work or does work which, in the opinion of the Engineer did not require inspection, the Contractor will be charged a \$500.00 inspection and supervision fee.

- 1.2.11 PRECONSTRUCTION CONFERENCE.
A preconstruction conference will be required before the start of any project. The Contractor must be present or his authorized representative and his Construction Superintendent or Field Representative.
- 1.3.22 EXCESSIVE NOISE AND VIBRATION.
The Contractor shall not produce noise in excess of 86 dba at or across a real property boundary without prior written approval from the Engineer and the City Health Commissioner. The Contractor shall not operate any device which produces vibration in excess of the vibration limitations set forth in City of West Allis ordinances.
- 1.5.4 COOPERATION WITH OTHER CONTRACTORS.
Shall be altered to read:
The Contractor shall work in harmony with other Contractors, or with utilities or Owner's forces engaged in collateral work. No extra payments will be made for progress interruption, remobilization, traffic control, etc., resulting from cooperation delays. In case of dispute, the decision of the Engineer shall be final and binding upon the parties affected.
- 1.6.3 BASIS OF PAYMENT OR CREDIT FOR ALTERED WORK.
(d) *Add the following:*
(Hourly wages calculated from basic hourly plus contributions plus sixty (60) percent maximum insurance increase).
- 1.7.3a TRAFFIC CONTROL.
Add the following:
All signs and barricades shall conform with Part 6, Temporary Traffic Control Section of the Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways. Proposed signing and barricading must be approved by the Engineer.

Unless otherwise specified, the cost of traffic control shall be included in the prices for other items bid.
- 1.8.4 LIABILITY AND INSURANCE.
(c) *Add the following:*
NOTE: The required limits of liabilities may be obtained with primary liability policies or in combination with an umbrella excess third party liability policy. The City of West Allis must be named as an additional insured as its interest may appear on the Contractor's comprehensive general liability and property damage insurance which insures the City up to the limits stated in 1.8.4(b).

1.8.5

CONTRACT BONDS.

Replace with:

After opening of bids, but before signing of Contract, the bidder to whom award is made shall have executed, through a Surety company authorized to do business in the state of Wisconsin and acceptable as Surety to City, bonds in the form included in the Contract documents for the faithful performance of the Contract and payment for all work and labor performed and materials furnished to complete the work. The bonds shall be for the full amount of the Contract and shall be adjusted to incorporate all extras, credits and change orders through final payment.

Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the Surety to affix thereto a certified and current copy of his Power of Attorney indicating the monetary limit of such power. Bidder shall pay the cost of the bonds.

1.10.5

CONTRACTOR TO BE CHARGED FOR INSPECTION AFTER TIME ALLOWED FOR COMPLETION HAS EXPIRED.

Replace with:

All inspection costs are included in Section 1.10.4 "FAILURE TO COMPLETE WORK ON TIME."

PART II. CONSTRUCTION - GENERAL

2.1.1

INTERFERENCE OF UNDERGROUND STRUCTURES.

Add the following:

No additional compensation will be allowed the Contractor where the original line and/or grade of the proposed sewer or water main can be altered by the Engineer without causing a substantial change in the amount of work. The judgment of the Engineer shall be final.

2.1.3(a)

ROOT CUTTING.

ROOTS SHALL BE SAWED ON ONLY ONE SIDE OF A TREE.

The root system shall not be sawed deeper than eighteen (18) inches below the proposed elevation of the new top of curb and not more than two (2) inches from the back of the proposed curb.

Caution shall be used during root sawing operations, so as not to cause unnecessary damage to the tree or its root system.

All debris from the root sawing operation shall be used to fill root sawing trenches before the end of the workday.

Root foundations for all trees must remain adequate to withstand heavy windstorms.

All exposed and severed tree roots shall be immediately covered with mulch and watered to prevent drying until such time that the concrete work is complete, the form removed and the area between the tree and concrete work backfilled with approved topsoil. The time duration for completion of the backfilling operations shall not exceed five (5) days from the time the concrete was placed.

2.2.6 SAWING AND BREAKING PAVEMENT.

The first sentence shall read:

All concrete or asphalt pavements, or concrete bases, shall be sawed to full depth prior to being shattered.

Add the following:

The cost of sawing, breaking and removing pavement, concrete curb and gutter, sidewalks and driveways, shall be included in other items bid unless otherwise specified.

2.2.11(b) SURPLUS EXCAVATED MATERIAL.

The last sentence shall read:

The cost of delivering such surplus material to any point within a driving distance of five miles from the site of the work shall be included in the unit price bid for the work.

2.2.12(a) DRAINAGE OF EXCAVATION.

Add the following:

During sanitary sewer relay work, all sewage flowing from the nearest upstream manhole shall be pumped to a downstream sanitary sewer manhole with approved methods.

2.6.1 EXCAVATED MATERIAL FOR BACKFILL.

Shall be altered to read:

Trenches may not be backfilled with material excavated from an open trench which conforms to the requirements of Section 8.43.5 unless specified in the contract documents or approved by the Engineer.

2.6.2 GRANULAR BACKFILL.

Shall be replaced with:

All trenches shall be filled with graded aggregate which conforms to the requirements of Section 8.43.7, unless otherwise specified. 1-1/2 inch graded crushed concrete backfill which conforms to the requirements of Section 8.43.7 is an acceptable alternative and may be specified on the contract Plans or Special Provisions.

2.6.3 GRANULAR BACKFILL CREDITS.
The last sentence shall be altered to read:
The cubic yardage of such backfill shall be determined using the outside diameter of the pipe plus twenty-four (24) inches at the top of the pipe and the outside diameter of the pipe plus forty-eight (48) inches at the surface. Granular backfill shall be considered to be 1.80 tons per cubic yard.

2.6.14 CONSOLIDATION OF BACKFILL.
Shall be altered to read:
Backfill shall be consolidated by flooding unless otherwise specified in the contract documents.

- (a) *Last sentence shall read:*
The City shall supply the water for consolidation of backfill at no cost to the Contractor. The Contractor shall obtain a meter and apply for a Water Use Permit from the West Allis Water Department (6302 W. McGeoch Ave. - Ph. 302-8830) for each City project. The permit shall be obtained at least twenty-four (24) hours in advance of any water use. The Water Department shall designate the hydrants to be used for water supply. The Contractor, as part of the permit requirement, shall make the meter available to Water Department staff and document the amount of water used and shall report this information to the Water Department as requested.

2.7.3 REPLACEMENT OF PAVEMENTS.
(c) Additional requirements for replacement of pavements are shown on Plan File No. V-112 and V-113.

2.7.4 REPLACEMENT OF LAWNS.
Shall be amended to read:
The Contractor shall restore the damaged area with Type "A" lawn replacement instead of Type "C" unless otherwise directed by the Engineer or specified in the contract documents.

TYPE "A" LAWN REPLACEMENT

Add the following sodding specifications:

- (a) Description of Work. The work shall consist of the furnishing and laying of live sod on the shoulders, slopes, ditches or other locations as designated, and the construction of sod ditch checks or similar appurtenances as shown on the plans, in the contract, or as ordered and laid out in the field by the Engineer in accordance with the specifications.

(b) Materials. The sod shall consist of a dense, well-rooted growth of permanent and desirable grasses, indigenous to the general locality where it is to be used, and shall be free from weeds or undesirable grasses. At the time the sod is cut, the grass shall be approx. 2" long and raked free from debris. The sod shall be cut into strips with a minimum size of 18" x 72". The thickness of the sod shall be at least 3/4" so that the sod can be handled without undue tearing or breaking. The Contractor shall take steps to insure that the sod is in a well-moistened condition prior to installation.

(c) Construction Methods.

(1) Preparation of Earth Bed. The area to be sodded shall have been previously constructed to the required cross-section, contour and the tops and bottoms of the slopes shall be rounded to a minimum four-foot radius. The areas to be sodded shall be free from stones, roots, vegetative material or other foreign material.

The initial topsoil placement shall be 3" in cross section and thoroughly compacted so as to prevent settlement once the sod has been laid. After compaction, the top 3/4" of topsoil shall be loosened so as to consolidate the root growth of the sod with the topsoil.

Sod shall be laid so that the joints caused by abutting ends of the strips are not continuous. Each sod strip shall be laid so as to abut snugly against the strip previously laid.

As the sod is being laid it shall be rolled. Or, the sod shall be firmly but lightly tamped with a suitable wooden or metal tamper as approved by the Engineer.

At points where water will flow over a sodded area or at the limits of the sodded area, the upper edges shall be turned into the soil below the adjacent area and a layer of earth placed over the juncture.

(2) Staking and Cleanup. On all slopes steeper than one foot vertical to four feet horizontal the sod shall be staked or pegged. Stakes shall preferably be placed near the top edge of the sod strip and shall be driven plumb through the sod to be flush with the sod. All sod placed in ditches shall be staked regardless of the slope. After staking, the sod surface shall be cleared of loose sod or excess debris.

- (3) Watering. After staking and cleanup, the sod shall be thoroughly moistened with water. All sodded areas shall be kept thoroughly moist by watering daily, when rainfall is deficient, for a period of twenty-one (21) days.

The City shall supply the water for sod watering at no cost to the Contractor. The Contractor shall obtain a permit and meter fitting from the West Allis Water Department and use only on the designated hydrants.

TYPE "C" LAWN REPLACEMENT

Add the following seeding and mulching specifications:

1. SEEDING

- (a) Description of Work. This work shall consist of preparing seed beds, furnishing, sowing, and watering the required seed on shoulders, slopes, appurtenances and other areas as shown on the plans or designated in the contract, or as ordered to be seeded by the Engineer.

The City shall supply the water for seed watering at no cost to the Contractor. The Contractor shall obtain a permit and meter fitting from the West Allis Water Department and use only on the designated hydrants.

- (b) General Requirement. All seed shall conform to the requirements of the Wisconsin Statutes and of the Wisconsin Administrative Code Chapter Agriculture 20, regarding noxious weed seed content and labeling. Seed shall not be used on the work later than one year after the test date which appears on the label.
- (c) Storage. Any seed delivered prior to use shall be stored in such a manner that it will be protected from damage by heat, moisture, rodents or other causes. Any previously accepted seed that has become damaged shall be disregarded and replaced by the Contractor.
- (d) Composition. The seed mixture required, unless otherwise noted, shall be of the Wisconsin Department of Transportation seed mix #4.

The following percentages apply to the #4 mix:

Kentucky Blue Grass 60%
Creeping Red Fescue 30%
Perennial Rye Grass 10%

(e) Construction Methods. Seeding, when performed in conjunction with mulching, may be done at any time during the growing season when soil conditions are suitable. Seeding shall be done with the selected seed mixture sown at the specified rate.

(1) Preparation of Seed Bed. Grading, shouldering and topsoiling, when part of the work under contract, shall be completed before seeding. The 3" layer topsoil shall be thoroughly compacted so as to prevent settlement in the newly seeded area.

The area to be seeded shall be worked with discs, harrows or other appropriate equipment, until a reasonably even and loose seed bed is obtained immediately in advance of the seeding.

(2) Sowing. Unless other specified, seeds may be sown at the option of the Contractor by either Method A or B.

METHOD A

The selected seed mixture shall be sown by means of equipment adapted to the purpose, or it may be scattered uniformly over the areas to be seeded, and lightly raked or dragged to cover the seed with approximately one-fourth inch of soil. After seeding, the areas shall be lightly rolled or compacted by means of suitable equipment, preferably of the cultipacker type when such equipment can be operated, or by means of light hand tampers.

Scattering seed by hand shall be done only with satisfactory hand seeders and only at such times when the air is sufficiently quiet to prevent seeds from blowing away.

METHOD B

Upon the prepared seed bed, the seed shall be sown or spread by means of a stream or spray of water under pressure operated from an approved type of machine designed for that purpose. The selected seed mixture and water shall

be placed into a tank, provided within the machine, in sufficient quantities that when the contents of the tank are sprayed on a given area the seed will be uniformly spread at the required rate of application. During the process, the contents of the tank shall be kept stirred or agitated to provide uniform distribution of the seed.

- (3) Seeding Rates. The seeding rate, unless otherwise noted, shall be 3 lbs./1000 square feet.

2. MULCHING

(a) Description. This work shall consist of furnishing, placing and anchoring a mulch cover, usually in connection with seeding, on surfaces of such portions of the roadway as provided by the plans, in the contract, or as designated in the field by the Engineer.

(b) Materials. Mulching material shall consist of any straw or hay in an air-dry condition or wood excelsior fiber, wood chips or other suitable material of a similar nature, which is free of noxious weed seeds and objectionable foreign matter.

Bituminous material, if used, shall be an emulsified asphalt meeting the requirements for Type SS-1 of the Specifications for Emulsified Asphalt AASHTO Designation = M140. Any other material must be approved by the Engineer.

(c) Construction Methods. Unless otherwise directed, the mulch shall be placed on a given area within three days after the seeding has been completed. Mulching operations shall not be performed during periods of excessively high winds which would preclude the proper placing of the mulch. The placed mulch shall be loose or open enough to allow some sunlight to penetrate and air to slowly circulate, but thick enough to shade the ground, conserve soil moisture and prevent erosion.

The Contractor shall repair any damaged mulch until the time of final acceptance of the work.

2.8.1

EROSION CONTROL - GENERAL CRITERIA.

Local Ordinances shall refer to:

Erosion Control Requirements for all Contracts
City of West Allis
Engineering Department
Pages 7.1 to 7.29

- 2.9.9 **PAY MEASUREMENT FOR WATER SERVICES.**
Edit the following:
...to the end of the pipe laid, shall be ...to the end of the curb stop. I.E. Pay measurement for water services shall extend from the center of the water main to the curb stop.
Add the following:
The copper service pipe used on the house side of the curb stop for reconnection to the existing private service line is incidental to the Water Service Installation, unless otherwise stated in the contract documents.
- 2.9.12 **PAY MEASUREMENT FOR MANHOLES (EXCLUDING TEE MANHOLES)**
Add the following:
The cost of rebuilding or replacing the structures shall also include any incidental pipe required to reconnect existing or future sewer lines, laterals, or drains unless otherwise noted. Reconnection pipe shall be of the same diameter and material as the existing pipe or as approved by the Engineer.
- 2.9.14 **PAY MEASUREMENT FOR CATCH BASINS AND STORM WATER INLETS.**
Replace with the following:
Catch basins and storm water inlets shall be paid for per unit constructed. This shall be a lump sum bid which includes the setting of all castings.

The cost of rebuilding or replacing the structures shall also include any incidental pipe required to reconnect existing or future sewer lines, laterals, or drains unless otherwise noted. Reconnection pipe shall be of the same diameter and material as the existing pipe or as approved by the Engineer.
- 2.9.20 **PAY MEASUREMENT, LAWN SPRINKLERS.**
Pay measurement for sprinkler services shall extend from the center line of the water main to the service box. This measurement shall be made horizontally. Sprinkler services shall be paid for at the unit price bid per lineal foot, unless a lump sum bid is requested in the proposal, and shall include the cost of the water tap, permits and furnishing and setting all necessary materials, unless otherwise stated in the contract documents.

PART III. CONSTRUCTION - STORM AND SANITARY SEWERS

- 3.1.1 **WIDTH OF TRENCH.**
Add the following:
Unless specifically noted on the plans, the maximum trench width shall be the normal trench width as defined in 3.1.1 (a). The term "unlimited trench conditions" where shown on the sewer plans signifies that the pipe section

used has adequate strength for an unlimited width, but in no way gives permission for the Contractor to exceed the normal width.

3.2.6 PIPE SEWER BEDDING SECTIONS.

(c), (d) & (e) *Add the following:*

Concrete cradle, cap, or envelope sections shall be Class D ready-mix concrete with 4 - #6 dia. steel rods 4" centered from each corner continuous throughout the entire section. In the event one days pour is terminated at the face of the bell end of the pipe, enough steel shall be exposed to insure, at minimum, a 1' splice with the next section.

3.2.10 TYPE OF JOINT TO BE USED ON PIPE SEWERS.

(b) For Storm Sewer:

1. Concrete Pipe

Delete the following:

- a. Cement mortar

3.2.24 ABANDONED SEWER, DRAINS, AND SEWER STRUCTURES.

Add the following:

...3 feet below the proposed or established grade or existing street grade, whichever is lower. However, at some point along the wall of the structure, the Contractor shall remove the masonry completely to the bottom to avoid trapping water in the abandoned portion of the structure.

3.5.3 TYPES OF MANHOLES

(a) Sanitary Manholes.

Add the following:

Internal Manhole Frame Seal

Internal manhole seals shall be installed in all sanitary sewer manholes to provide a watertight, interior flexible seal between the manhole frame and the manhole cone section.

All internal manhole seals and extensions shall be supplied by the City, unless specifically noted on the plans or in the Special Provisions. Internal manhole seals shall be installed after final pavement or surface restoration is complete. All manhole frames must be tuck-pointed to the chimney section using approved masonry and mortar prior to seal installation.

Internal chimney seals and extensions shall be installed in strict accordance with the manufacturer's specifications and recommendations, including use of butyl caulk on the lower portion of the seal when installed in brick manholes. The installation of the chimney seal and extension shall include the preparation of the wall surfaces in the chimney area and the cleaning or grinding of the frame as required by the manufacturer's specifications and recommendations.

Irregularities and surface imperfections in the chimney section of the manhole shall be repaired using a quick setting, high strength, non-shrinking, polymer modified mortar.

A water test shall be performed on all internal manhole seals. After any extensions and the lower compression bank of the seal is installed, the area between the seal and the manhole structure is to be filled with water. If a leak is found, the bands shall be adjusted until the seal is leak free. No water leakage shall be permitted. After testing, the water shall be removed and installation of the seal completed.

3.5.4

GENERAL REQUIREMENTS.

- (d) Walls, Corbel and Chimney.

Add the following:

The maximum chimney height shall not exceed 14" in sanitary manholes and 16" in storm manholes and catch basins.

- (e) Castings.

Replace with the following:

Castings, manhole frames and covers shall be furnished and installed by the contractor. The Contractor shall supply the following for:

Sanitary Manholes: Neenah Type R-1661-2001 (Frame) with Neenah Type R-1661-0010 (Heavy Duty Solid Gasketed Lid) or approved equal. Note: the lids are a special order item. If a shallow frame is needed use Neenah Type R-1661-2003 or approved equal.

Storm Manholes: Neenah Type R-1661-2001 (Frame) with Neenah Type R-1660-0003 (8 hole cover lid) or approved equal. If manhole is acting as inlet, in area such as parking lot or grass, use Cover- Neenah Type R-2467-0001 or approved equal. If a shallow frame is needed use Neenah Type R-1661-2003 or approved equal.

Catch Basins: Neenah Type R-3222-LA- Combination Inlet, with curb box or approved equal. Specifically, frame- Neenah Type R-3222-0004, Grate- R-3222-0015, and curb box- R-3222-0016 with environmental notice, or approved equal. If no curb box is needed use Neenah Type R-3222-2014 Frame or approved equal.

Alley Catch Basins: Neenah Type R-3517 Frame and Grate or approved equal. Note: these are special order items.

All existing castings shall remain the property of the City and shall be returned by the Contractor to the City Yard located at 6300 W. McGeoch Ave. The Contractor will be charged for castings not accounted for.

3.6.1

CATCH BASINS.

(a) *Replace with:*

Road-Type Catch basins shall be as shown on Figure V-117, which is included in the addenda to the specifications, unless noted otherwise. Alley type catch basins shall be constructed as shown on Figure V-116, which is included in the addenda to the specifications. Holes for connecting pipe shall be cut-in on site, unless specified on the Plans or in the Special Provisions.

(h) Grades of Setting Catch Basin Frames.

The last sentence shall read:

A chimney shall be constructed on the top of the corbel section or deck except that the chimney on a curb-type basin shall be kept 4 inches low behind the existing or proposed curb line to receive the curb box.

(i) Castings.

Replace with Section 3.5.4(e) as shown in this addenda.

3.7.1

GENERAL.

Add the following:

The low-pressure air test shall be used for all new sanitary main sewers. Low-pressure air tests shall not be performed on relayed sanitary sewer mains.

PART IV. CONSTRUCTION - WATER MAIN

4.1.1

MATERIAL FURNISHED.

Add the following:

The Contractor shall furnish all pipe which shall be ductile iron pipe with rubber gasket joints as specified in Section 8.18.0 thickness Class 53 and encased in polyethylene wrap as specified in Section 4.4.4. unless specifically noted on the plans or contract documents. The Contractor shall furnish all special fittings such as tees, crossover plugs, sleeves, offsets, reducers, bends, etc. They shall be equipped with either hub ends for, mechanical joints, or rubber gasket joints. All fittings shall have a pressure rating of 250 PSI and conform to Section 8.22.0.

4.3.3

BEDDING.

Replace the first sentence with:

All water main pipe and fittings shall be double polyethylene wrapped and laid with crushed limestone bedding and cover conforming to Section 8.43.6.

4.15.0

HYDROSTATIC TESTS.

Add the following:

a. Pressure and leakage testing shall be in accordance with the latest

edition of A.W.W.A. Standard C600.

- b. Pressure testing of the installed pipe shall be completed by the Contractor under City's supervision.
- c. Following examination of exposed parts of the system ("wet-hand" test); the test pressure will be increased to 150 psi read at the point of lowest elevation on the main for duration of one hour. There should be no noticeable pressure drop in the test section.
- d. If it is found unnecessary to add water during the duration of the pressure test, the Engineer may waive the leakage test.
- e. If leakage test is not waived, test shall be in accordance with Chapter 4.15.3 of "Standard Specification for Sewer & Water Construction in Wisconsin" latest edition.

4.16.0

DISINFECTION OF WATER MAINS.

Add the following:

- a. All new, cleaned or repaired water mains shall be disinfected in accordance with A.W.W.A. Standard C651 and Wisconsin Administrative Code NR 811.07 (3).
- b. The new water main can remain disconnected from the existing main until disinfection and final bacteriological tests have been completed. The water required for hydrostatic testing, disinfection, and flushing would be supplied through a temporary connection controlled by a control valve at a hydrant that is separated from the existing water system.
- c. If approved by the City, the new water main can be connected to the existing main during construction for disinfection purposes. Contractor will submit to the City, backflow protection procedure to keep contaminated water from entering the existing main.
- d. Methods of Chlorination
 - i. Tablet - Hypochlorite tablets can be used during construction in accordance with Chapter 4.3.12 of "Standard Specification for Sewer & Water Construction in Wisconsin" latest edition.
 - ii. Continuous feed - This method consists of placing calcium

hypochlorite granules in the main during construction, completely filling the main to remove all air pockets, flushing the completed main to remove particulates, and filling the main with potable water. Chlorine concentration should be tested at regular intervals downstream of where the water is added to verify the minimum free chlorine residual does not drop below 25 mg/l.

- iii. Slug - The procedure is similar to the continuous-feed method except the dose of chlorine fed at a constant rate increases the concentration to 100mg/L. The chlorinated water slowly flows through the pipe for at least 3 hours, exposing all interior surfaces to the high concentration. Valves and hydrants should be treated with this water also. During the 3 hour period, the water should have a residual of 50 mg/L free chlorine or more.

e. Bacteriological Test

- iv. After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken 24 hours apart, shall be collected from the main. A set is made up from groups of samples collected every 1,200 feet of new main, groups of samples taken at each branch, and a group of samples taken at the end of the line.
- v. All samples shall be collected in sterile bottles treated with sodium thiosulfate as required by the Standard Methods for the Examination of Water and Wastewater. A suggested combination blowoff and sampling tap is useful for mains up to 8 inches in diameter. A corporation cock may be installed on the main with a copper-tube gooseneck assembly. No hose or hydrant shall be used to collect samples.
- vi. All samples shall be tested for bacteriological quality in accordance with Standard Methods for the Examination of Water and Wastewater, and shall be void of coliform organisms.
- vii. If trench water or excessive quantities of dirt and debris have entered the new main during construction, bacteriological samples may be taken at marked intervals of 200 feet. Any water left in the main for 16 hours or more must be tested for bacterial contamination.

PART V. CONSTRUCTION - BUILDING SERVICES

5.1.5

FEES.

The Contractor shall procure the necessary plumbing inspection permits prior to start of construction. The permit fees are waived on City contracts.

5.3.2

CUT-IN CONNECTIONS.

Add the following:

- (d) Where PVC building storm sewer is connected to a concrete main sewer, the following type of connection shall be used: After the main sewer has been cored, an approved rubber fitting shall be installed flush with the inside of the main sewer and held in place with an internal snap ring assembly. The building sewer shall be installed in the open end of the fitting and secured with a stainless steel strap. Any other type of connection must be approved by the Engineer prior to bidding.

5.3.10

TYPE OF PIPE TO BE USED.

Replace with the following:

Sanitary building sewers shall be SDR 35 PVC. Storm building sewers shall be concrete or PVC. However, any storm building sewer which will have less than 3 1/2 feet of cover either at the time of construction or in the future (as established by proposed street grades), shall be concrete sewer pipe. PVC sewer pipe may be used in this situation if it is encased in a concrete envelope. PVC pipe shall be connected to the concrete sewer main with approved adapters.

5.3.11

TYPE OF JOINT TO BE USED ON PIPE.

Add the following:

The joints for building storm sewers shall be constructed with rubber type gaskets conforming to the requirements of Section 8.41.2 and 8.41.4. The use of cement mortar joints will not be permitted.

5.5.8

CONNECTION TO WATER MAIN.

Add the following:

- (a) General.

The Contractor shall supply the corporation, curb stop with curb box and the adaptor to connect to the existing service on site. Corporations shall be Ford FB600 Series, McDonald 74701B Series or Mueller B25000 Series. Corporations may be either flared or compression fitting. Curb Stops shall be Minneapolis type, full port, ball valve, and copper tube size compression fitting. Acceptable models are Mueller B-25155, Ford B44, or A.Y. McDonald 76100. Curb stop boxes shall

be “Minneapolis Pattern” manufactured by A.Y. McDonald, model #5614 or #5615, or approved equal.

5.5.20

INSULATION.

Replace with the following:

Building water services and hydrant branches shall be insulated in accordance with Section 4.17.0 wherever the depth of cover is less than five (5) feet, or passing within two (2) feet of an underground structure which may experience freezing temperatures.

Insulation shall be supplied by the City of West Allis Water Department. The cost of installation by the Contractor shall be included in other items bid.

5.6.3(b)

RELOCATION OF CURB STOPS AND SERVICE BOXES.

Add the following:

The existing curb stop shall be removed and replaced with copper piping of the same size as the existing water service piping, but no smaller than three-quarter (3/4) inch.

5.6.3(d)

RECONNECTION OF WATER SERVICE.

Add the following:

When reconnecting to existing lead services, a No-Contact Lead Pak compression coupling shall be used to prevent direct contact of the lead plumbing line with other metallic water system components. An approved product is by The Ford Meter Box Company.

All copper tubing for water service must be re-rounded with re-rounding tool after cutting pipe.

PART VIII. MATERIAL SPECIFICATIONS

8.10.3

DIMENSION.

Table 19 - PVC Pipe Dimensions

Add the following:

Minimum wall thickness as shown in Table 19 shall be for ASTM D 3034 SDR 35 and ASTM F 679 12454C only.

8.22.2a

FITTINGS FOR WATER MAIN.

The use of Smith-Blair, split sleeve or similar sleeves shall not be allowed. The Contractor will be required to use the approved monolithic ductile iron sleeve with mechanical joints. When connecting to an older existing main, the use of an oversized sleeve may be required. The use of any other type of sleeve shall be approved by the Engineer before use.

8.26.1

FIRE HYDRANT REQUIREMENTS.

Add the following:

The Contractor shall supply the hydrant, 6" valve and valve box on site. Hydrants shall be Kennedy Guardian, Mueller Centurian A-423, Clow Medallion or approved equal.

All Hydrants 1997 or newer shall remain the property of The City of West Allis. The water department will pick these hydrants up.

Hydrants shall have the following construction requirements:

- Cast or ductile iron discharge pipe.
- Breakaway flange conforming to AWWA C502-94 Section 3.1.
- Main valve opening of 5¼" diameter minimum.
- Main valve composed of molded rubber with durometer hardness factor of 90 +/- 5.
- Operating nut shall be a one-piece bronze casting, pentagonal in shape, 1¾" from point to flat, 1-11/16" at top, 1" high.
- A weather shield shall protect the clearance area between the top casting and the operating nut.
- 2 - 2½" x NST fire hose nozzles.
- 1 - 4½" x NST pumper nozzle.
- Cast iron nozzle cap with rubber gasket, attached chains at a point lower than the centerline of the nozzle. Nut shall conform to AWWA C502-94 Section 3.2.97.
- Counterclockwise opening operation.
- Automatic drain valve operated by main valve rod. Includes brass port, seat and lower valve.
- Oversize mechanical joint inlet designed to be installed on Class D pit cast pipe, Class 250 cast iron pipe, or Class 55 ductile iron pipe using one of 2 gaskets furnished. Gaskets to be color-coded for cast and ductile iron pipe.
- Internal ferric metal surfaces of hydrant and lower valve stem from boot or shoe to ground line shall be coated with epoxy at a minimum thickness of 4 mils.
- Hydrant nozzle capable of 360° rotation with respect to standpipe.
- Minimum 18" from center of lowest nozzle to ground.
- Permanent marking stating manufacturer, main valve size, year of manufacture.
- Bronze upper valve plate and seat. Seat shall thread into a bronze drain ring or shoe bushing. Zinc content of bronze not to exceed 16%. Threads on drain ring and seat ring to have water soluble, environmentally safe lubricant applied at factory.
- Bottom of pipe to grade to be 6½' as defined by Section 3.2.5 of

AWWA C502-94. Torque requirement shall comply with the same section.

- Fasteners between the shoe and standpipe and any standpipe flange shall be low-zinc bronze or 300 series 18-8 stainless steel. Fasteners on the mechanical joint boot shall be corten steel.
- All exterior recesses or pocket that can hold water, above or below ground, shall be sealed with approved material.
- Top section shall be painted with one coat of primer and two coats of either Safety Red (19) or Pennsburg 9050 Setter Red Hydrant-Hide paint.

8.27.1

GATE AND RESILIENT WEDGE VALVE REQUIREMENTS.

Add the following:

Valves shall be Kennedy 157, Mueller C-2360, Clow F6111 or approved equal.

Valves shall have the following construction requirements:

- Elastomer seat with a bubble tight seal at a full differential of 200 PSIG tested from both directions. Each valve shall also be tested in the open position at 400 PSIG resulting in a full shell test. There shall be no leakage at any of the valves joints or connections.
- Bronze stem and nut, open right.
- 2" square operating nut, to be painted bright and shiny red.
- Fasteners connecting valve bonnet to body shall be 18-8 stainless steel.
- All mechanical joint accessory fasteners shall be corten steel.
- Internal parts shall be accessible without removing the main body from the pressure line.
- "O" ring seals above and below thrust collar.
- All cast iron internal surfaces shall be coated with corrosion resistant coating, which shall be "holiday free".
- Pipe way of valve shall have an inside diameter to accept ductile iron, sand-cast iron and pit cast iron pipe. Both sides will be so shaped, i.e. "cut-in" style.

8.28.1

BUTTERFLY VALVE REQUIREMENTS.

Add the following:

Butterfly Valves shall be Mueller B-3211, M & H 450 and Pratt Groundhog or approved equal.

Butterfly valves shall have the following construction requirements:

- Red operating nut, open right.
- Stainless steel valve body bolts.
- Mechanical joint - both ends.
- Gland bolts to be included, glands and gaskets for both ductile and cast

iron pipe.

Installation of Butterfly valves shall be placed north of the main or east of the main.

8.29.1 CAST IRON VALVE BOX REQUIREMENTS.

Add the following:

Gate valve boxes shall be 6860 screw type, manufactured by Tyler.

Butterfly valve boxes shall be 6850 screw type, manufactured by Tyler.

8.29.3 GATE VALVE ADAPTORS.

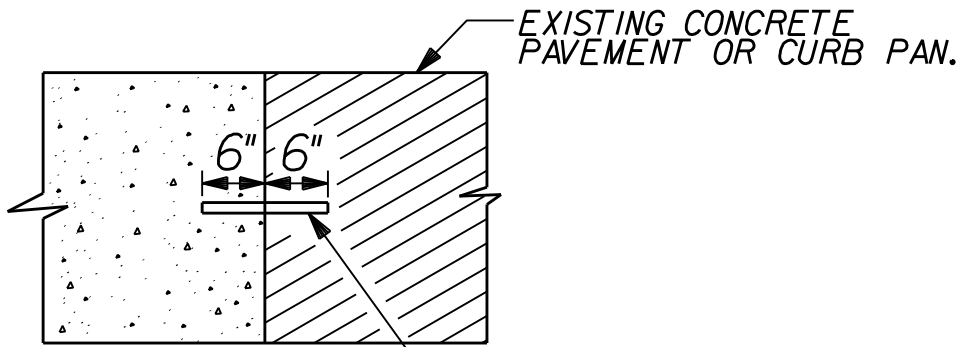
Add the following:

The approved gate valve adaptor is “6 Base Multi-Fit Adaptor”, manufactured by Adaptor, Inc. or an approved equal. The approved butterfly valve adaptor is “Butterfly Valve Adaptor”, manufactured by Adaptor, Inc. or an approved equal.

8.38.4 COLORED BRICK.

Replace with the following:

Only "Red or Pink" brick and block manufactured in accordance with the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, Subsection 519.2.2, Concrete Brick and Block Masonry Units, may be used.



SECTION A-A

PAVEMENT TIES

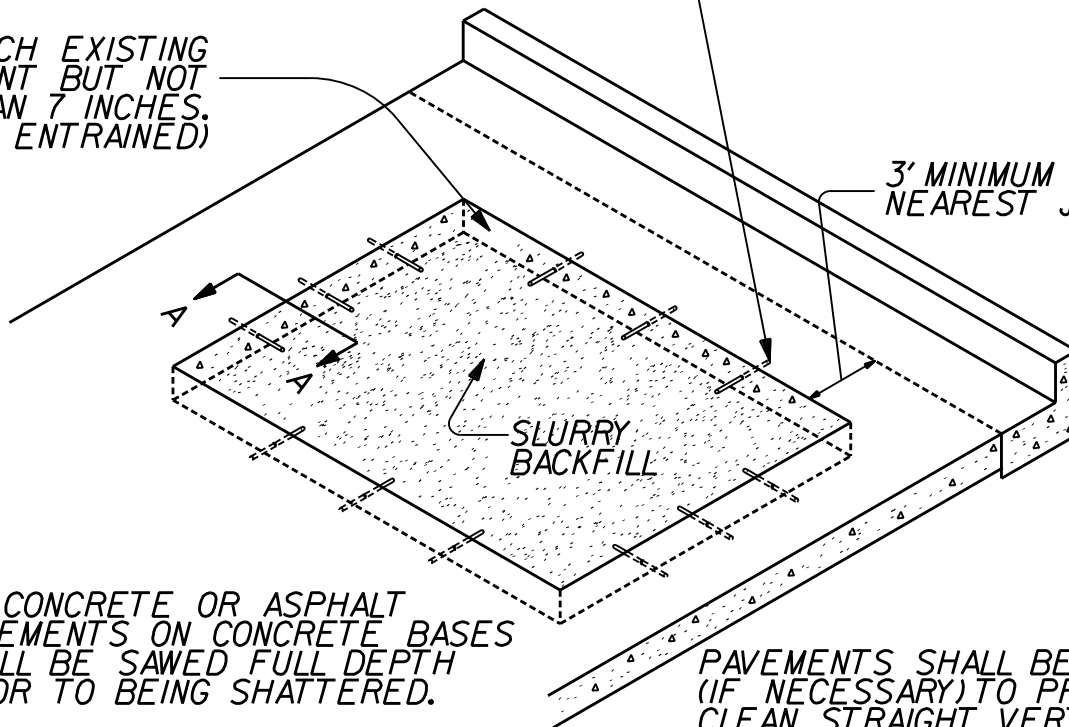
EXISTING CONCRETE PAVEMENT OR CURB PAN.

THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT IN THE CENTER OF THE EXISTING CONCRETE PAV'T

12" NO. 6 EPOXY COATED DEFORMED BARS AT 36" C.-C. MINIMUM 4 PER EXCAVATION

MATCH EXISTING PAVEMENT BUT NOT LESS THAN 7 INCHES. (7-BAG AIR ENTRAINED)

3' MINIMUM TO NEAREST JOINT



SLURRY BACKFILL

ALL CONCRETE OR ASPHALT PAVEMENTS ON CONCRETE BASES SHALL BE SAWED FULL DEPTH PRIOR TO BEING SHATTERED.

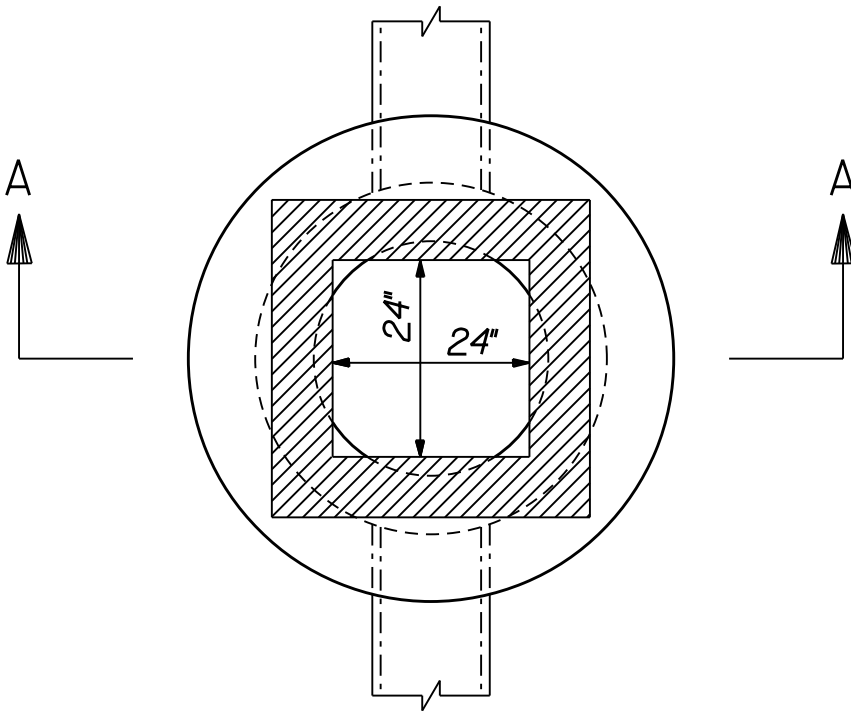
PAVEMENTS SHALL BE RE-SAWED (IF NECESSARY) TO PROVIDE A CLEAN STRAIGHT VERTICAL EDGE TO REPLACEMENT.

<i>PROCEDURE</i>	<i>CONCRETE PAVEMENT</i>	<i>CONCRETE BASE & ASPHALT RESURFACE</i>	<i>ASPHALT PAVEMENT</i>
	<i>TYPE "B" PAVEMENT REPLACEMENT</i>	<i>TYPE "A" PAVEMENT REPLACEMENT</i>	<i>TYPE "C" PAVEMENT REPLACEMENT</i>
<i>SAWING</i>	<i>FULL DEPTH (USE EXISTING JOINTS IF CLOSER THAN 3 FT.</i>	<i>FULL DEPTH</i>	<i>FULL DEPTH</i>
<i>BREAKING</i>	<i>DROP WEIGHT OR PNEUMATIC</i>	<i>DROP WEIGHT OR PNEUMATIC</i>	<i>BACKHOE OR APPROPRIATE</i>
<i>BACKFILL</i>	<i>SLURRY OR FLUSHED GRAVEL IF ALLOWABLE</i>	<i>SLURRY OR FLUSHED GRAVEL IF ALLOWABLE</i>	<i>SLURRY OR FLUSHED GRAVEL IF ALLOWABLE</i>
<i>TIE BARS</i>	<i>3'0" MAXIMUM SPACING</i>	<i>NOT REQ'D IF CONC. BASE HAS ROUGH EDGE OR IS IN POOR CONDITION</i>	<i>NOT REQUIRED</i>
<i>PAVEMENT REPLACEMENT</i>	<i>7" MINIMUM THICKNESS CLASS "A" CONCRETE (7-BAG, AIR ENTRAINED; *2 STONE) UNLESS OTHERWISE SPECIFIED</i>	<i>7" MINIMUM THICKNESS CLASS "A" CONCRETE (7-BAG, AIR ENTRAINED; *2 STONE) * 1 1/2" ASPHALT BINDER, 1 1/2" ASPHALT TOP LAID PER WIS.D.O.T. SPECIFICATIONS</i>	<i>6" CRUSHED STONE BASE 3" BINDER 1 1/2" TOP LAID PER WIS.D.O.T. SPECS.</i>
<i>JOINT SEAL</i>	<i>ALL JOINTS (EXCEPT ON NEW ROADWAY CONSTRUCTION)</i>	<i>BUTT JOINT W/ 4" WIDE APPLICATOR (EXCEPT ON NEW ROADWAY CONSTRUCTION)</i>	

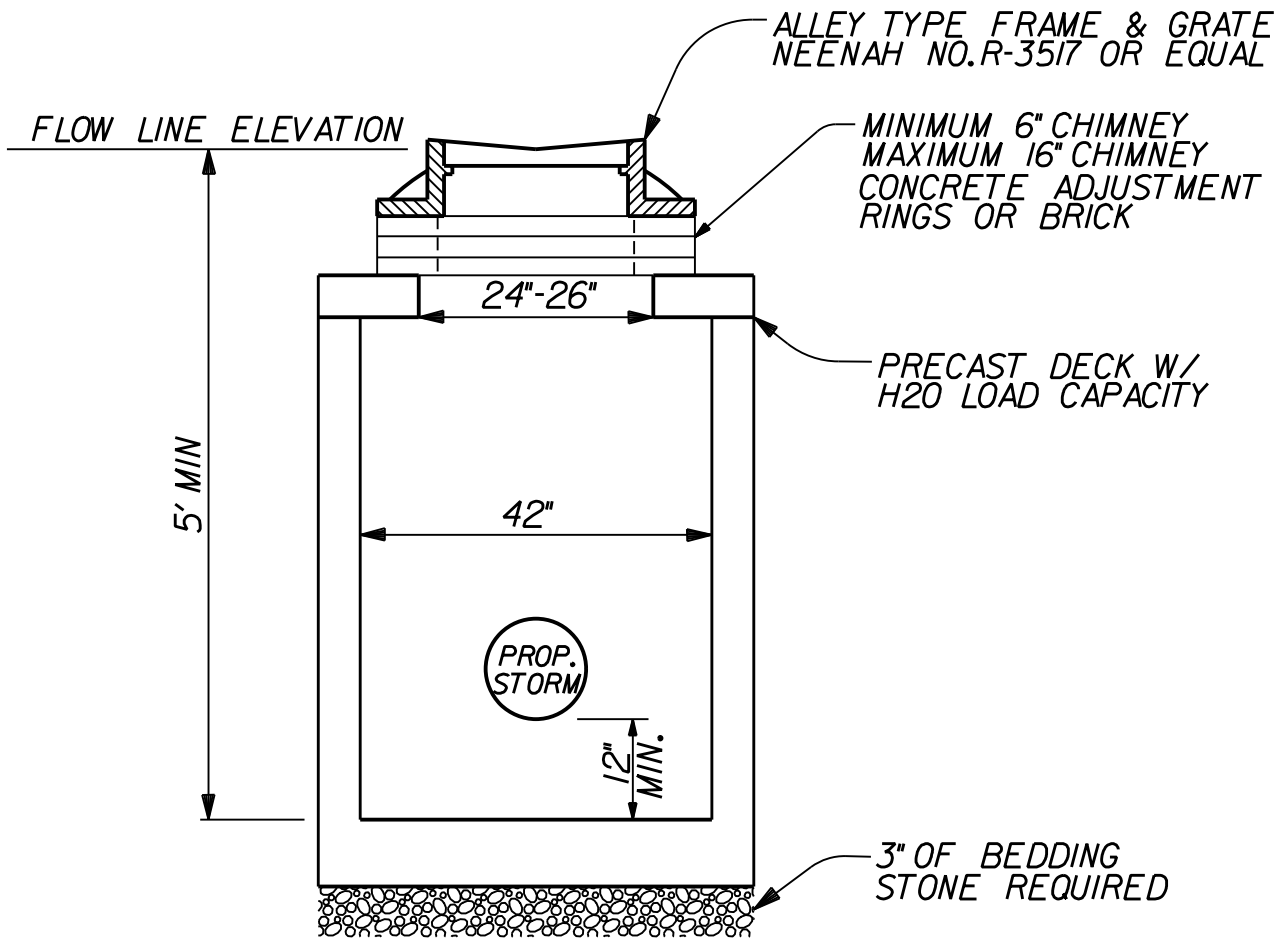
CITY OF WEST ALLIS

PAVEMENT REPLACEMENT SPECIFICATIONS

FIGURE V-113



PLAN VIEW

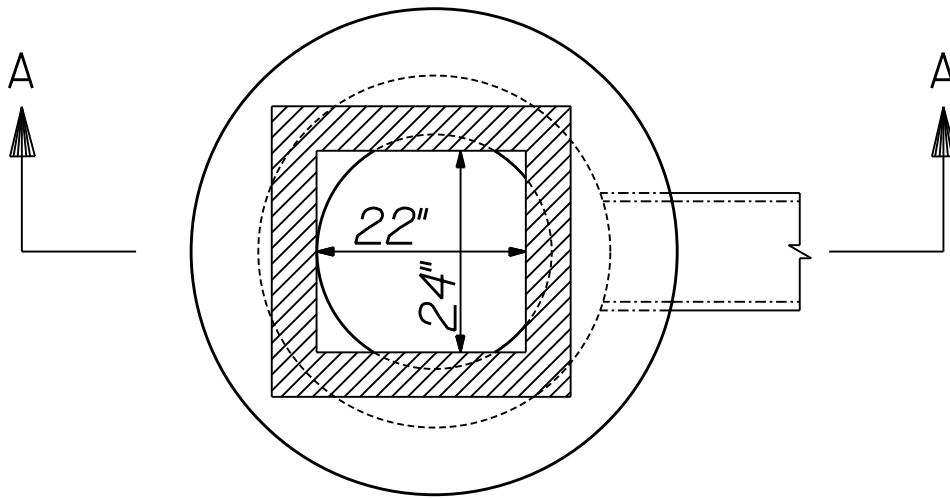


SECTION A-A

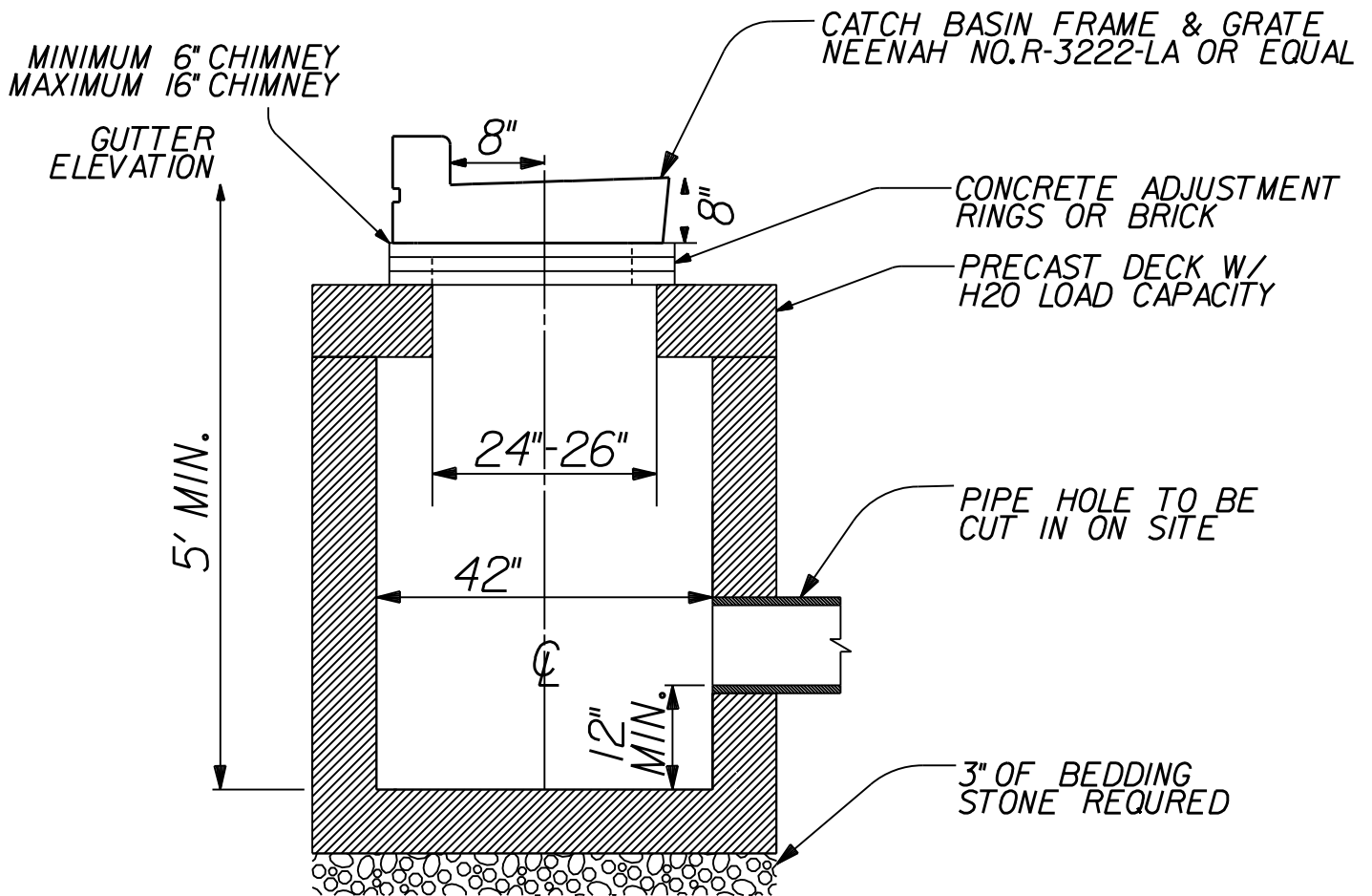
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REVISED JAN.2016
CITY OF WEST ALLIS

ALLEY TYPE CATCH BASIN
FIGURE V-116



PLAN VIEW



SECTION A-A

REVISED JAN.2016
CITY OF WEST ALLIS

ROAD TYPE CATCH BASIN
FIGURE V-II7

SCHEDULE OF FIXED PRICES
SEWER AND WATER CONSTRUCTION

Install or Relay Building Storm Sewers	\$ 45.00/l.f.
Relay or Reconnecting Existing Building Sanitary Sewers.....	50.00/l.f.
Disconnect Water Service at Main (inc. backfill)	350.00/ea.
Water Service Alteration	300.00/ea.
Excavation & Locating Water Curb Box or	
Water Main Valve (inc. backfill)	200.00/ea.
Water Curb Stop Relocation (inc. backfill)	350.00/ea.
Inserting Pipe with Wye Branch in Existing Sanitary Sewer	300.00/ea.
Rock or Buried Concrete Excavation and Disposal.....	150.00/c.y.
Removal of Existing Concrete Envelope or Cradle	
(not shown on plans).....	150.00/c.y.
Misc. Lateral Excavation & Backfill	200.00/ea.
#2 Crushed Stone (for unstable trench bottom, in place)	
(1 cu. yd. shall be considered to weigh 2,500 lbs.)	
(up to 10' f/l)	10.00/ton
(over 10').....	15.00/ton
Concrete Envelopes, Cradles and Caps:	
Envelopes: 4" min. thickness 6" dia. pipe.....	4.60/l.f.
4" min. thickness 8" dia. pipe.....	5.65/l.f.
4" min. thickness 10" dia. pipe.....	6.60/l.f.
4" min. thickness 12" dia. pipe.....	8.30/l.f.
4" min. thickness 15" dia. pipe.....	10.10/l.f.
Cradles & Caps: 4" min. thickness 6" dia. pipe.....	2.30/l.f.
4" min. thickness 8" dia. pipe.....	2.80/l.f.
4" min. thickness 10" dia. pipe.....	3.35/l.f.
4" min. thickness 12" dia. pipe.....	4.15/l.f.
4" min. thickness 15" dia. pipe.....	5.10/l.f.
Sheathing and Bracing Left in place	1,000.00/1000 BM
Gravel Backfill Credit	5.00/c.y.
Lawn Replacement: Type A – Sodding	10.00/s.y.
Type B - Field Sod	8.00/s.y.
Type C - Seed & Mulch	6.00/s.y.
Concrete Sawing (up to 50')	4.00/l.f.
Concrete Sawing (over 50')	3.00/add.l.f.
Pavement Removal.....	10.00/s.y.
Walk and Drive Removal	1.00/s.f.
Curb Removal (up to 40')	8.00/l.f.
Curb Removal (over 40')	5.50/add.l.f.
Pavement Replacement: Type A.....	45.00/s.y.
Type B.....	40.00/s.y.
Type C.....	30.00/s.y.
Type D.....	100.00/ton
Type E.....	20.00/ton
Temporary Resurface (premix)	60.00/ton
Sidewalk (5" concrete)	5.00/s.f.
Sidewalk (7" concrete)	6.00/s.f.
Concrete Curb & Gutter	35.00/l.f.
Tree Clearing	10.00/in. dia.
Tree Grubbing	10.00/in. dia.
Calcium Chloride (spread)	30.00/80 lb.
Pavement Tie Bars	8.00/ea.
Silt Fence.....	5.00/l.f.
Hay Bales	10.00/bale
Inlet Protection Barriers	50.00/unit
Slurry Backfill vs. Gravel.....	35.00/c.y.
Manhole Steps (in place).....	50.00/each
Internal Manhole Frame Seal Removal or Installation.....	150.00/unit