RESOLUTION No. 23/24-16
CITY OF DAYTON, OREGON

A Resolution Adopting Public Works Design Standards Update No. 15

WHEREAS, on October 6, 2006, the Dayton City Council adopted Resolution No. 06/07-11, A Resolution Adopting City of Dayton Public Works Design Standards (hereafter called "Standards"), and amended on February 5, 2007, by Resolution No. 06/07-27, A Resolution Adopting Public Works Design Standards Update No. 1; and on January 7, 2008, by Resolution No. 07/08-17, A Resolution Adopting Public Works Design Standards Update #2; and Resolution No. 07/08-31, A Resolution Adopting Public Works Design Standards Update #3; and Resolution No. 09/10-31, A Resolution Adopting Public Works Design Standards Update #4; and Resolution No. 12/13-35, A Resolution Adopting Public Works Design Standards Update #5; and Resolution No. 13/14-5, A Resolution Adopting Public Works Design Standards Update #6; and Resolution No. 15/16-10 A Resolution Adopting Public Works Design Standards Update #7; and Resolution No. 17/18-9 A Resolution Adopting Public Work Design Standards Update #8; and Resolution No. 19/20-2 A Resolution Adopting Public Work Design Standards Update #9; and Resolution No. 19/20-19 A Resolution Adopting Public Work Design Standards Update #10; and Resolution No. 20/21-12 A Resolution Adopting Public Work Design Standards Update #11; and Resolution No. 21/22-29 A Resolution Adopting Public Work Design Standards Update #12; and Resolution No. 22/23-04 A Resolution Adopting Public Work Design Standards Update #13; and on June 5, 2023, by Resolution No. 22/23-13; and

WHEREAS, the Standards are subject to change as both the City's needs change and the industry standards change, or if errors are discovered in the document; and

WHEREAS, certain information in the Standards needs to be updated or changed.

The City of Dayton resolves as follows:

1) **THAT** Update No. 15 to the City of Dayton Public Works Design Standards, (attached hereto as Exhibit A and by this reference incorporated herein) is hereby adopted; and

2) **THAT** this resolution shall become effective immediately upon adoption.

ADOPTED this 3rd day of June 2024.

In Favor: Frank, Mackin, Maguire, and Sandoval-Perez
Opposed:
Absent:
Abstained:

Annette Frank
Annette Frank, Mayor

6/11/2024
Date of Signing

ATTESTED BY:

Rocio Vargas
Rocio Vargas, City Recorder

6/13/2024
Date of Enactment

Attachment - Exhibit A

Exhibit A

Clarification Language Since 4/18/2024 Version

with the easement.
(C) include provisions that the easement cannot be extinguished without explicit written authorization from the City, and
(D) include language that the easement will not be extinguished by the doctrine of merger *(unless the properties are consolidated into a single legal lot of record)* similar to the wording included in City easements. PWDS Appendix D.
(E) include a legal description and exhibit map defining and showing the easement boundaries and the associated properties, as summarized above.

f. **Recorded copies of all required easements, dedications and/or agreements *(both public & private)* shall be submitted to the City Engineer and the Public Works Director prior to start of construction, with the exception noted under PWDS 1.9.i.3 for subdivisions or partitions where all public utilities will be constructed prior to the recording of a final plat. All recording costs shall be borne by the Developer.

g. When requested by Public Works or the City Engineer, a digital drawing shall be submitted containing the final alignment & boundaries of all new easements associated with the development. The easement limit/boundary drawing shall be in Autocad format, and shall include lot lines, right-of-way lines and easement lines each on separate layers.

1.13 PUBLIC WORKS VARIANCES TO DESIGN STANDARDS

a. Request for Public Works Variance from PWDS Requirements~~to Specifications/Standards~~

1) Public Works variances to specifications or PWDS requirements~~standards~~ may be requested as outlined below.

2) In considering Public Works variance requests, the City, at its sole discretion, will seek input from individuals and/or agencies which may have information that would be relevant to the decision making process.

3) It is to be noted that if the requested variance involves public safety, the City will rule in favor of safety.

4) It is the responsibility of the design engineer to submit a written request for any proposed deviations or variances from City standards or PWDS requirements.

~~4)~~a) Failure by the City to detect a deviation from *(or the need for a required variance of)* the PWDS requirements during drawing review or approval does not constitute ~~an~~ default approval of said variance, unless the variance was requested in writing as outlined below and approved by the City.

b. Public Works Variance Process

1) Submittal

a) Requests for Public Works variance shall be submitted in writing to the City Engineer. This written request shall state the desired Public Works variance, the reason for the request and a comparison between the specification/standard and the variance as far as performance, etc.

b) Any variance of these Standards should be documented and referenced to a nationally accepted specification/standard. The use thereof shall not compromise public safety or the intent of the City's Standards *(as determined by the Public Works Director and City Engineer)*.

2) City's Review

a) The Public Works variance request shall be reviewed by the City Engineer who shall make one of the following decisions:

(1) Approve as is,
(2) Approve with changes, or
(3) Deny with an explanation.

b) Approval of a request shall not constitute a precedent.

c) For Public Works variances which will result in increased maintenance or increased future costs by the developer *(or the future property owners)*, the variance request must be concurred with in writing by the developer/property owner prior to final approval by the City.

3) Appeal

a) Applicant may appeal the City Engineer's decision to the City Manager. Applicant may appeal the City Manager's decision to the City Council.

c. Criteria for Variance from PWDS Requirements~~of Specification Standards~~

1) The City Engineer may grant a Public Works variance to the adopted specifications or PWDS requirements ~~Standards~~ when ALL~~all~~ of the following conditions are met:

a) Topography, right-of-way or other geographic conditions impose an unreasonable economic hardship on the applicant *(as determined by the Public Works Director)* and an equivalent alternative is proposed which can accomplish the same intent. Variances to self-imposed hardships shall not be allowed. The variance requested shall be the minimum variance which alleviates the hardship.

b) Flow channel height shall typically be to the crowns of the storm pipes, but in no case shall channel depth be less than 2/3 the pipe diameter. Benches beside flow channels shall be sloped from the manhole wall toward the channel to prevent accumulation of solids.

c) Beaver slide channels shall be shaped to allow the insertion of a 6-inch diameter by 3-foot long TV camera into the downstream sewer.

d) Concrete for storm manhole channeling shall conform to the same requirements as for sanitary sewer manholes.

~~4~~5) Rim Elevation

a) The rims of all manholes located within paved or other hard surfaced areas *(or where paved pads are required around manholes per City standard details)* shall be set to finished grade. Manholes outside of these areas shall be set above finish grade as shown on the City standard details.

b) Concrete riser rings shall be used to bring casting to grade. The height from the top of the cone or flattop section to the rim shall not exceed 18 inches.

d. **Mainline Storm Cleanouts**

1) Mainline storm cleanouts will not be approved as substitutes for manholes or terminal catch basins. Cleanouts shall only be allowed at the upper end of main storm lines less than 150 feet long which will be extended on the same grade and alignment during the next construction phase of a multiphase development *(ie. future phase of a multiphase project approved for development under the same land use approval as the phase with the proposed cleanout)*, and which do not have any storm drain service laterals.

2) All mainline cleanouts meeting the criteria above will be considered on a case-by-case basis and approved by the City Engineer and the Public Works Director *(at their sole discretion)*.

~~2~~3) In all cases, plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole shall be submitted prior to approval of cleanouts.

3.18 WORK ON or CONNECTION TO EXISTING STORM DRAIN MAINLINES

a. General

1) Connections of new storm drain service laterals to existing storm mainlines shall be made watertight. Connection shall be made where possible to existing tees or wyes previously installed and capped. In all cases, the

In general, as much cover as possible shall be provided. If less than 3 foot of cover is provided, the sewer shall be protected by a reinforced concrete slab centered over the sewer main *(set 6" minimum above the pipe, 6" minimum thickness w/#4 bars at 12" O.C E.W, and extending a minimum of 3 feet beyond the width of the trench)*..

2) Perpendicular Crossings. Sewers crossing streams or drainage channels shall be designed to cross the stream as nearly perpendicular to the stream channel as possible and shall be free from change of grade at the crossing.

3) Sewers located along streams shall be located outside of the stream bed and sufficiently separated from the stream to allow for future possible stream channel widening *(separation required is at the discretion of the Public Works Director)*.

4) All manhole covers below the 100 year flood elevation OR ~~or~~ less than 2 feet above the 100 year flood elevation shall be provided with leakproof manhole inflow protector lid inserts as specified *(Manpan or equal)*.

5) Pipe material at crossings shall be Class 50 ductile iron with an 18 foot length of pipe centered on the stream or drainage channel centerline. The ductile iron pipe shall extend to a point where a 1H:1V slope from the top of the bank and sloping away from the channel centerline intersects the top of the pipe.

6) Installation of sewers in a steel casing pipe will be required when the above cover requirements cannot be met, with PVC sewer pipe installed through the casing per City details. Each deviation from the above requirements will be reviewed on a case-by-case basis.

4.16 MANHOLES AND MAINLINE CLEANOUTS

a. General

1) Sewer service laterals shall not be connected into manholes unless approved in writing by the City Engineer and the Public Works Director on a case-by-case basis. Where sewer service lateral connections to manholes are allowed, the crown of the sewer service lateral pipe shall be installed at or above the crown of the manhole outlet pipe, or as required to provide a minimum of 0.35' fall across a 48-inch manhole, whichever is greater.

b. Mainline Sewer Cleanouts

1) Mainline cleanouts will not be approved as substitutes for manholes. Cleanouts shall only be allowed at the upper end of ~~lateral or~~ mainline sewers less than 150 feet long which will be extended on the same grade and alignment during the next construction phase of a multiphase development *(ie.*

future phase of a multiphase project approved for development under the same land use approval as the phase with the proposed cleanout), and which does not have any sewer service laterals.

2) All mainline cleanouts meeting the criteria above will be considered on a case-by-case basis and approved by the City Engineer and the Public Works Director *(at their sole discretion)*.

~~2)~~3) In all cases, plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole shall be submitted prior to approval of cleanouts.

c. **Manhole Size**

1) For pipe 21-inches in diameter and smaller, the minimum diameter of manholes shall be 48 inches.

2) For pipe larger than 21-inches to 27-inches in diameter, the minimum diameter of manholes shall be 60 inches.

3) For pipe larger than 27-inches in diameter, the minimum diameter of manholes shall be 72 inches unless otherwise approved by the City Engineer.

4) Larger manholes may be required for multiple pipe connections, multiple pipe connections or acute angle pipe connections *(as directed by the Public Works Director or the City Engineer)*.

5) Manholes sizes for drop structures or metering manholes will be reviewed on a case-by-case basis.

d. **Manhole Location**:

1) Manholes shall be placed at the following locations:

a) Upper end of all mainline ~~lateral~~ sewers, except as provided above.

b) Every change in grade or alignment of a sewer.

c) Every change in size of a sewer.

d) Each intersection or junction of sewers, excluding sewer service laterals 6-inches or less in diameter.

e) Adjacent to the center radius point of a cul-de-sac.

f) In front of the last property or lot being served by terminal sewers *(which cannot be extended in the future)*, with the manhole to be located a minimum of 10 feet past the common lot line of the last adjoining parcel served *(ie. provided that future sewer mainline extension is not possible, since extension of sewer mains across the entire property frontage is otherwise required)*.

b) Duplexes, Condos, etc. Separate sewer service laterals shall be installed to serve each side of duplex lots.

Separate sewer service laterals shall be installed to serve each unit of condominiums.~~, or~~

seperated for clarity

Separate sewer service laterals shall be installed to serve each unit of developments with separate detached dwelling units *(except where otherwise approved by the Public Works Director for RV & MH parks, separate detached accessory dwelling units on single family lots which can connect to the primary structure sewer service, etc.)*.

c) Additional sanitary sewer laterals must be stubbed into the property lines sufficient to serve all residential parcels *(including those which can be further partitioned in the future)* where such service or future partition would require that new streets be cut to install such services, or where the service line must cross intervening property to provide such future service.

6) Curb/Gutter Marking. Where sanitary sewer laterals connect to sewer mainlines in the street, the top of curb and the gutter pan shall be stamped at the point of the service crossing as required by the City standard details and standard notes.

7) Perpendicular Sewer Service Laterals. Unless otherwise approved in writing by the City Engineer and the Public Works Director on a case-by-case basis, sewer service laterals shall be installed from the mainline to the property line perpendicular to the street centerline.

a) Permanent installation of sewer service laterals parallel with the right-of-way is generally prohibited, except where extenuating circumstances exist which meet the variance criteria.

8) Backwater Valve. For reference only, OPSC 710.1 requires that a private backwater check valve be installed on the private building sewer when a drainage fixture is installed on a floor level that is lower than the top of the nearest upstream manhole or cleanout structure. In all cases, this backwater valve shall be installed on the private side of the property line cleanout *(backwater valve is typically installed between the cleanout just outside the building and the building wall)*.

While this backwater valve is a private item covered under the OPSC *(ie. not under Public Works jurisdiction for inspection or maintenance)*, property owners and homebuilders may wish to consider using a backwater valve designed to allow inspection, cleaning and maintenance to be performed from the surface *(such as the Clean Check by Rectorseal)*. Failure to install a backwater valve per OPSC requirements will not result in any liability by the

all accessories meeting City standards, including the following.

a) Details showing and callouts listing all applicable manufacturer information for the selected system, including make, model, size of pump and tank, cut sheets as applicable.

Per OPSC 710.9, any sewage pump system serving any "public use" shall have duplex alternating pumps *(also for uses including but not limited to commercial, industrial, multifamily, or public access buildings)*.

b) Anchor block or ballast sizing & buoyancy calculations *(typically assuming groundwater to the surface)*.

c) Callouts and/or drawings specifying control panels & features proposed for installation, including an accessible visible and audible alarm activated in the event of pump failure *(overload, mechanical failure or high water condition)* as required under OPSC 710.9, etc.

5) Septic & Holding Tanks Prohibited. Pumping from septic tanks or other similar holding tanks is expressly prohibited.

6) Recorded Agreement Required. An operation & maintenance agreement acceptable to the City shall be recorded against the property.

4.19 PRIVATE SANITARY SEWER COLLECTION SYSTEMS

a. Each legal lot of record shall be provided with a separate sewer service lateral connected to the public sewer main, unless otherwise approved by the City on a case-by case basis.

1) Any proposed combined private sewer serving more than one legal lot shall be approved by the Public Works Director and the City Engineer on a case-by-case basis, based on findings that separate sewer service laterals are not feasible or possible give the specific and unique conditions at the site, and that extension of a public sewer main through the property to serve additional upstream properties in the future is not necessary or possible. Approval of any such common sewer main or common sewer service shall not serve as a precedent for any future approvals.

2) If a private common sewer is approved *(including a private sewer serving a MHP or other development with separate detached dwelling units on a common property)*, a Private ~~Common Shared~~ Sewer Maintenance Agreement acceptable to the Public Works shall be recorded against each legal lot served by the private common sewer, and a copy of the recorded agreement returned to the City prior to finalization of the approval and commencement of construction.

b. Private collection system sewers shall be designed in conformance with main line standards specified herein when plumbing code grade requirements of Oregon

requirements at crossing. See below for separation requirement from waterlines.

~~2)~~3) Water/Sewer Horizontal Separation. Water mainlines or water service lines shall generally be separated from sanitary sewer mainlines or sanitary sewer service lines by a minimum of 10 feet unless otherwise approved in writing by the Public Works Director and the City Engineer. In no case shall the separation be less than 5 feet or as required by OAR 333-061 based on the actual vertical separation provided.

~~3)~~4) Sanitary Sewer Main Crossings

a) Where a water mainline crosses below or within 18-inches vertical separation above a sanitary sewer main or sewer service lateral, one full length of waterline pipe shall be centered at point of the sewer crossing.

c. **Waterline Location in Right-of-Ways**

1) Unless otherwise approved by the City Engineer and Public Works Director, water mainlines shall generally be located in the street right-of-way along general alignments shown in the City standard details.

Public water mainlines shall be offset a minimum of 6 feet from any adjacent property line or right-of-way line.

2) The distance between the mainline and the curb shall vary as little as possible. On curved streets, mains may be laid on a curve concentric with the street centerline with deflections no greater than the manufacturer's specifications, or mains may be laid in straight lines along the tangent between selected angle points to avoid conflicts with other utilities. The angle point and tangent section shall not be closer than 5 feet from the right-of-way line, nor more than 3 feet in front of the curb face.

d. **Waterline Location in Easements, Easement Widths, Maintenance Access Requirements**

1) Unless otherwise specified or authorized by the City, minimum easements widths for water mainlines *(as well as water service lines to meters or water meters located on private property)* shall be fifteen (15) feet for normal depth lines *(centered on the waterline)*.

a) Water mainlines with inside diameters ~~larger than~~ 12-inches or larger will require wider easements *(20' minimum)*.

b) Wider easements may be required for waterlines with cover depths greater than 5 feet, on steep hillsides or where maintenance access concerns exist *(see d.6 below)*, as determined by the City Engineer and/or Public Works Director.

In general, as much cover as possible shall be provided. If less than 3 foot of cover is provided, the sewer shall be protected by a reinforced concrete slab centered over the sewer main *(set 6" minimum above the pipe, 6" minimum thickness w/#4 bars at 12" O.C E.W, and extending a minimum of 3 feet beyond the width of the trench)*..

2) Perpendicular Crossings. Sewers crossing streams or drainage channels shall be designed to cross the stream as nearly perpendicular to the stream channel as possible and shall be free from change of grade at the crossing.

3) Sewers located along streams shall be located outside of the stream bed and sufficiently separated from the stream to allow for future possible stream channel widening *(separation required is at the discretion of the Public Works Director)*.

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4) All manhole covers below the 100 year flood elevation OR ~~or~~ less than 2 feet above the 100 year flood elevation shall be provided with leakproof manhole inflow protector lid inserts as specified *(Manpan or equal)*.

5) Pipe material at crossings shall be Class 50 ductile iron with an 18 foot length of pipe centered on the stream or drainage channel centerline. The ductile iron pipe shall extend to a point where a 1H:1V slope from the top of the bank and sloping away from the channel centerline intersects the top of the pipe.

6) Installation of sewers in a steel casing pipe will be required when the above cover requirements cannot be met, with PVC sewer pipe installed through the casing per City details. Each deviation from the above requirements will be reviewed on a case-by-case basis.

4.16 MANHOLES AND MAINLINE CLEANOUTS

a. General

1) Sewer service laterals shall not be connected into manholes unless approved in writing by the City Engineer and the Public Works Director on a case-by-case basis. Where sewer service lateral connections to manholes are allowed, the crown of the sewer service lateral pipe shall be installed at or above the crown of the manhole outlet pipe, or as required to provide a minimum of 0.35' fall across a 48-inch manhole, whichever is greater.

b. Mainline Sewer Cleanouts

1) Mainline cleanouts will not be approved as substitutes for manholes. Cleanouts shall only be allowed at the upper end of ~~lateral or~~ mainline sewers less than 150 feet long which will be extended on the same grade and alignment during the next construction phase of a multiphase development *(ie.*

plumbing code) requirements shall be installed on existing sanitary sewer service laterals which are approved for continuing use *(ie. those which do not already have cleanouts)*.

3) Plug Abandoned Sewer Laterals Watertight at Mainline Connection. If existing sewer service laterals are abandoned or not used *(or if the developer determines that it is not cost effective to perform the required testing)*, the sewer service lateral shall be sealed ~~plugged~~ watertight at the mainline in a manner acceptable to Public Works Director *(if there is evidence of leakage at the existing tee connection at the mainline, the existing connection shall be sealed with a repair band or other approved method to seal the mainline tap watertight)*.

a) All such abandoned & sealed ~~plugged~~ sewer service lateral connections shall be inspected by Public Works prior to backfilling~~being covered~~, and may be TV inspected during the winter following the end of the first year of service to verify that the plug, cap or repair remains watertight. Any excavation, repairs or surface restoration required to correct leaking abandoned and sealed~~plugged~~ sewer service laterals will be the responsibility of the party which had ~~performing~~ the original work performed.

~~3)~~b) Building Demolition. When existing building(s) are demolished or removed from a property, the applicant shall either **(A)** disconnect and plug the existing sewer lateral watertight at the mainline connection *(as summarized below)*, or **(B)** *(if the applicant proposes to leave the existing sewer lateral in place for future reuse)* demonstrate that the existing sewer lateral is leak free and complies with all requirements herein *(subject also to installation of a property line cleanout per City standards, if an approved cleanout does not already exist)*, and has a watertight gasketed cap behind the property line cleanout per City standards & Detail 416.

e. Grease Removal.

1) Provisions acceptable to Public Works shall be made for grease removal for any installations with commercial or similar kitchens, or other applications as required by Public Works.

2) Unless otherwise approved by Public Works, a minimum two compartment exterior gravity grease interceptor vault *(1000 gallon minimum)* shall be provided, particularly in any application where hot water or steam cleaning of commercial type kitchens is utilized. Larger sizes shall be provided as required by 2017 Oregon Plumbing Specialty Code (OPSC) table 1014.3.6 *(gravity grease interceptor sizing)*.

Public Works Director, subject to the installation of a premise isolation backflow device meeting City and state standards, located between the water meter and the booster pump.

~~2)~~3) Easement Requirement. An easement shall be recorded for any water service line which encroaches on or crosses any legal lot other than one being served.

~~3)~~4) Separate City Water Meters for Specific Uses.

a) Meter for Each Legal Lot. Each legal lot of record shall be provided with at least one separate water service line connected to the public or approved private water main. Combined water service lines will be permitted only when the property cannot legally be further divided. An example of this is a residential lot with a house and detached garage or shop with plumbing fixtures.

b) Duplex & Triplex. Separate water services and separate meters shall be installed to serve each side of duplex lots, and each unit of triplex residential buildings unless otherwise approved by Public Works Director.

c) Condominiums, Detached Single Family Dwellings & Detached ADUs. Separate water services and separate meters shall be installed to serve each unit of condominiums *(or existing buildings proposed to be condominiumized)* or to serve each unit of developments with separate detached dwelling units ~~or single family lots with separate detached accessory dwelling units~~ *(except where otherwise approved by City for RV parks – DMC 8.2.16.5)* or single family lots with separate detached accessory dwelling units- ADUs.

Moved for clarity

d) Apartments. Four (4) or more attached units on a single legal lot of record will be considered as a multi-family apartment and served from a City common water meter, unless otherwise approved by the Public Works Director.

e) Separate Commercial Buildings. Unless otherwise approved by the Public Works Director on a case-by-case basis, each building in a multi-building commercial development on a common property shall be provided with a separate water meter. Separate commercial or industrial uses located in a single common building *(under a common ownership)* may have a single or multiple water meters.

f) Mixed Use Commercial/Residential. Mixed use commercial / residential buildings may be served from a common water meter, is specifically approved by the Public Works Director.

g) Sub-Meters to be Private. Any submeters installed on the private side of a City water meter for water bill allocation shall be private and

GENERAL NOTES:

1. Contractor shall procure and conform to all construction permits required by the City of Dayton and Yamhill County, and conform to all conditions and requirements of said permits. Issuance of a City Public Works street/site/utility construction permit does not relieve the contractor from obtaining any and all reviews and permits required under building, plumbing or electrical codes that any portions of the work may be subject to *(including a site plumbing permit if required)*, or from any requirements under permits which may be required for the project by other agencies with jurisdiction.

2. Contractor shall procure a right-of-entry permit from ODOT State Highway Division for all work within the State right-of-way and conform to all conditions of the permit.

3. Contractor shall procure a right-of-entry permit from affected railroads for all work within the railroad right-of-way and conform to all conditions of the permit.

4. A copy of final approved construction drawings and any required permits shall be kept on-site at all times, for review by inspectors upon request.

5. Contractor shall provide all bonds and insurance required by public and/or private agencies having jurisdiction.

~~5.~~6. Any permit or authorization to proceed with construction issued by the City is considered to be a "written contract" for purposes of triggering "additional insured" coverage of the City and City Engineer under the Contractor's required insurance policy(s) *(including insurance certificates provided by subcontractors)*, and for bonding purposes.

~~6.~~7. All grading, rocking, paving, utility *(water, sewer, storm, etc.)* and related work shall conform to drawing requirements, Oregon Standard Specifications for Construction - OSSC (ODOT/APWA), 2024~~1~~ edition and applicable ODOT/APWA details, or local jurisdiction specifications, standards & details, whichever is more stringent.

~~7.~~8. All materials and workmanship for facilities in street right-of-way or easements shall conform to approving agencies' construction specifications wherein each has jurisdiction, including but not limited to the City, County, Oregon Health Authority – Drinking Water Services (OHA-DWS) and the Oregon Department of Environmental Quality (DEQ).

~~8.~~9. Unless otherwise approved by the Public Works Director, construction of all public facilities shall be done between 7:00 a.m. and 6:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. Saturday.

~~9.~~10. The Contractor shall perform all work necessary to complete the project in accordance with the approved construction drawings including such incidentals as may be necessary to meet applicable agency requirements and provide a completed project.

~~10.~~11. Contractor to notify City, County, ODOT and all utility companies a minimum of 48 ~~business~~

hours *(2 business days)* prior to start of construction, and comply with all other notice and marking requirements of agencies with jurisdiction over the work, including requirements of OAR 952 *(Oregon Utility Notification Center)* as applicable *(excavation work shall not commence until at least the third business day after providing such notice)*~~ORS 757.541 to 757.571~~.

~~11.~~12. Weekly Construction Schedule. By close of business each week, the Contractor shall submit a weekly work schedule for the following week to the City, summarizing the class of work and areas where work will occur during the following week, and any anticipated inspection requirements.

~~12.~~13. Any inspection by the City, County or other agencies shall not, in any way, relieve the Contractor from any obligation to perform the work in strict compliance with the applicable codes and agency requirements.

~~13.~~14. All traffic control plans & measures shall be approved by the agency with jurisdiction and in place prior to any construction activity. Contractor shall erect and maintain barricades, warning signs, traffic cones *(and all other traffic control devices required)* per City, County and ODOT requirements in accordance with the current MUTCD *(including Oregon amendments)*. Access to driveways and buildings shall be maintained at all times for residential, business, fire and emergency vehicles.

15. Unless specifically approved in writing by Public Works prior to start of construction, full street closures or detours are prohibited, and excavation work is to be staged to maintain one-way traffic during construction, and to restore two way traffic during non-construction hours. Any proposed detours must be approved in writing by the City, Fire Department, police, and transit authority if applicable prior to any full street closure or detour *(Contractor shall also obtain ODOT or County approval where applicable).*

~~14.~~16. Unless authorized in writing by the City prior to the start of the work, no work within any existing public roadway shall disrupt traffic flow for more than 14 consecutive days *(timeframe applies independently and separately to each block or intersection where traffic control work is required)*.

~~15.~~17. **Record Drawings**. The Contractor shall maintain one complete set of approved drawings on the construction site at all times whereon will be recorded any approved deviations in construction from the approved drawings, as well as the station locations and depths of all existing utilities encountered *(whether or not existing utilities are shown on the construction drawings)*. These field record drawings shall be kept up to date at all times and shall be available for inspection by the City upon request. Information on the field record drawings shall include reference measurements and materials type.

~~16.~~18. Upon completion of construction of public facilities, Contractor shall submit a clean set of field record drawings containing all as-built information to the Design Engineer for use in the preparation of As-Built drawings which must be submitted to the City prior to the first final walkthrough inspection.

EXISTING UTILITIES & FACILITIES:

~~30.~~32. Utility Locate Requirements. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-00~~01~~10 through OAR 952-001-01000~~90~~. You may obtain copies of the rules by calling the center. *(Note: the telephone number for the Oregon Utility Notification Center is 503-232-1987 or 811).* These requirements include, but are not limited to, responsibility for pre-marking by excavator, responsibility for notice to Oregon Utility Notification Center by excavator, responsibility of contractor to wait the specified time before starting excavation, responsibility of excavator to maintain marks during the excavation period to ensure that the original marks remain effective for the life of the project or the locate ticket life *(ticket life as defined under OAR 952-001-0010)*, whichever is the shorter period.

33. Potholing Requirements. Contractor shall field verify location and depth of all existing utilities where new utilities or facilities cross or are closely parallel to the existing utilities *(or which are otherwise in close proximity to new utilities)*. All existing utilities which are either (A) marked in the field or (B) which are shown on the drawings, shall be potholed using hand tools or other non-invasive methods prior to excavating or boring to determine the exact location and depth of the existing utility *(see OAR 952-001-0090 for State required potholing limits & depths)*. Persistent failure *(as determined by the City)* to follow these City & State rules regarding exposing & determining the exact location and depth of existing utilities shall be grounds for suspension or cancellation of the permit, or termination of the contract *(at the sole discretion of the City)*.

~~31.~~34. The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The engineer or utility companies do not guarantee the accuracy or the completeness of such records. Contractor shall field verify sizes and locations of all existing utilities prior to construction.

~~32.~~35. Existing Survey Monument Location & Marking. The Contractor or developer shall retain a surveyor to research, locate and mark all existing property and street monuments within or adjacent to the work areas prior to construction. Any survey monuments that will be disturbed during construction of the project shall be referenced *(prior to construction)* and replaced *(following construction)* by a Registered Land Surveyor at the Contractor's expense. The monuments shall be replaced within a maximum of 90 days, and the County Surveyor shall be notified in writing and/or a survey document recorded as required by ORS 209 140, ORS 209.150 and/or ORS 209.155 as applicable.

~~33. Contractor shall field verify location and depth of all existing utilities where new facilities cross or are closely parallel to the existing facilities. All utility crossings marked or shown on the drawings shall be potholed using hand tools or other non-invasive methods prior to excavating or boring.~~

~~34.~~36. Contractor shall be responsible for exposing potential utility and other conflicts far enough ahead of construction to determine necessary grade, alignment or depth modifications without delaying the work or requiring otherwise unnecessary materials, fittings or structures. If grade,

~~87.~~91. Contraction joints shall be installed directly over any pipes that cross under the sidewalk, to control cracking. In general, cracks in new curbs or sidewalks *(at locations other than contraction joints)* are not acceptable, and cracked panels shall be removed & replaced unless otherwise approved by Public Works Director.

~~88.~~92. Contractor shall conduct a flood test of all new or replacement pedestrian ramps after concrete is cured to demonstrate that the ramp does not hold water. After water is poured into the ramp area, the inspector shall check the ramp 15 minutes later to determine if water is ponding in the ramp or gutter area. If water is ponding in the ramp or gutter area and the pond is more than 1-foot in length or ¼-inch in depth, the Contractor shall be required to make repairs in an approved manner at his/her sole expense.

~~89.~~93. Where trench excavation or other work requires removal of *(or causes damage to)* PCC curbs and/or sidewalks, the curbs and/or sidewalks shall be sawcut and removed at a tooled joint unless otherwise authorized in writing by the City. Any sawcut lines shown on the drawings are schematic and not intended to show the exact alignment of such cuts.

~~90.~~94. Unless otherwise approved in writing by Public Works Director, areas along curbs and public sidewalks shall be backfilled with approved topsoil, as well as being seeded and mulched *(or hydroseeded)*.

PIPED UTILITIES:

~~91.~~95. Contractor shall coordinate and pay all costs associated with connecting to existing water, sanitary sewer and storm sewer facilities.

96. To the maximum extent practical, Contractor shall have all fittings, valves, pipe spools, etc. pre-assembled and ready for installation prior to shutdown of existing pipelines.

97. Witnessing & Inspection of Connections at Existing Mainlines Required. Contractor shall arrange to have any and all connections *(including both tapping work and cutting in work)* to existing City utilities *(water, sewer or storm)* witnessed by City Public Works staff during installation, and inspected by Public Works staff prior to backfilling. Failure to coordinate for such inspection will result in a requirement that the connection be exposed for inspection, at no additional cost to the City.

~~92.~~98. Unless otherwise noted, materials and workmanship for water, sanitary sewer and storm sewer shall conform to OSSC (ODOT/APWA) Specifications, most recent~~2021~~ edition.

~~93.~~99. The Contractor shall have appropriate equipment on site to produce a firm, smooth, undisturbed subgrade at the trench bottom, true to grade. The bottom of the trench excavation shall be smooth, free of loose materials or tooth grooves for the entire width of the trench prior to placing the granular bedding material.

~~94.~~100. **Pipe Bedding and Trench Backfill**. All pipes shall be bedded with minimum 6-inches of

the drawings. Plastic shall be placed around all fittings & pipe prior to placement of concrete. All concrete shall conform to the requirements of OSSC (ODOT/APWA) 00440, Commercial Grade Concrete, 3300 psi min @ 28 days, max 5" slump, 4.5% air (±1.5%). Concrete mix design shall be submitted to the City for review and approval prior to use. If hand mixed sack-crete type concrete is proposed by the Contractor and approved by the Public Works Director on a case-by-case basis *(for each location proposed)*, it shall be a 4000 psi minimum crack-resistant mix *(Quikrete 1006 or equal QPL listed mix must be approved by the City prior to use)*, mixed with the minimum amount of water necessary for workability *(5" slump or stiffer)*. In no case will dry sack-crete mix *(either in bags or as loose mix)* be considered as an acceptable substitute for an approved mixed concrete.

~~119.~~125. It shall be the Contractor's responsibility to coordinate with the City for visual inspection and verification of all thrust restraint and thrust blocking *(including but not limited to size, configuration, plastic placement, etc.)* prior to placing concrete. covering or backfilling. Failure to coordinate for such inspection will result in a requirement that the thrust restraint or thrust block be exposed for inspection, at no additional cost to the City.

~~120.~~126. Where approved by the City prior to construction, temporary thrust restraint may be used at mainline connections where it is not possible *(prior to pressurization of the connection and placing the waterline in service)* to install permanent concrete thrust blocks, straddle blocks or other permanent thrust restraint as required or shown/noted on the drawings. Trenches at the temporary thrust restraint location shall be left open and not backfilled *(but plated as necessary or required)* until the permanent thrust restraint is installed and approved by the City. Unless otherwise approved in writing by the City, permanent thrust restraint shall be installed by the end of the next working day after installation of the temporary thrust restraint, but in no case later than the third calendar day following installation of the temporary thrust restraint.

~~121.~~127. Unless otherwise approved by the City *(or otherwise shown on standard details for larger meters)*, water service pipe on the public side of the meter shall be CenCore blue HDPE tubing *(CTS, SDR 9, 200 psi)* conforming to AWWA C901 (ASTM D2239 & D2737) with 2-3/8"long style compression inserts *(AY McDonald 6133T CTS insert stiffener or equal)* and Q style compression fittings.

~~122.~~128. Unless otherwise noted, water service pipe on the private side of the meter shall be Schedule 40 PVC or as approved by the OPSC.

~~123.~~129. **Primer Required**. For all PVC pipe with all solvent cement joints, use of purple primer *(IPS Weld-On P70 Industrial Grade or equal)* is mandatory *(see also OPSC 605.12.2)*~~,~~. For 1½" or larger PVC, use ~~with~~ gray medium body PVC cement *(IPS Weld-On 711 Industrial Grade or equal)*. For 1" & smaller PVC, use Christy's Red Hot Blue Glue, IPS 721 or approved equal.

~~124.~~130. Domestic, irrigation and fire backflow prevention devices and vaults shall conform to requirements of public and/or private agencies having jurisdiction. It is the responsibility of the premise owner and/or water user to provide a thermal expansion tank or other means approved

shall be sealed with a repair band or other approved method to seal the mainline tap watertight). All such abandoned and sealed sewer service laterals shall be inspected by Public Works prior to backfilling ~~being covered~~, and shall be TV inspected during the following winter to verify that the plug, cap or repair remains watertight. Any repairs necessary will be required to be completed at the expense of the Contractor.

~~164.~~175. Sewer service from upstream and affected properties shall be maintained during construction unless prior written City approval is granted. Bypass pumping or other methods used to maintain sewer flows shall be the Contractor's design, subject to approval by the City. The bypass system shall be capable of conveying flows when the sewers are flowing full. Normal unrestricted flows shall be restored at the end of each work day. Bypass systems left in place or operated outside normal working hours shall be monitored continuously by the Contractor personnel unless alternate arrangements proposed by the Contractor are acceptable to the City *(ie. high level & pump fail alarm callouts, etc.)*. The Contractor shall provide for City review all submittal information required to demonstrate *(to the satisfaction of the City)* compliance with these requirements. Contractor shall be responsible for all costs related to cleanup, damages and fines resulting from any sewerage spill or overflow associated with any methods used to convey sewage flows during construction.

~~165.~~176. Thrust restraint shall be provided on all pressure pipelines meeting the same standards and requirements as for water mainlines.

- **Storm Drain**

~~166.~~177. Storm drain pipe materials shall conform to the construction drawings and City requirements, based on cover depth. Contractor shall use uniform pipe material on each pipe run between structures unless otherwise directed or approved. Jointed HDPE pipe shall not be used for slopes exceeding ten percent (10%).

~~167.~~178. Storm drainage laterals for single family residential properties shall be a minimum of 4-inches in diameter *(6-inch minimum for all multi-family, industrial, commercial or public type laterals)*, and shall include toning wire and warning tape per City standard details.

~~168.~~179. Catch basins and junction boxes shall be set square with buildings or with the edge of the parking lot or street wherein they lie. Storm drain inlet structures and paving shall be adjusted so water flows into the structure without ponding water.

~~169.~~180. Unless otherwise approved by the City Engineer, all storm drain connections shall be by manufactured tee or wye fittings.

~~170.~~181. Unless otherwise shown on the drawings, all storm pipe inlets & outfalls shall be beveled flush to match the slope wherein they lie.

~~171.~~182. Sweep *(deflect)* storm drain pipe into catch basins and manholes as required. Maximum joint deflection shall not exceed 5 degrees or manufacturers recommendations, whichever is less.

e) Failure by the Contractor to:

(1) notify the Public Works prior to work which must be inspected by Public Works staff *(including keeping the work open until such inspections are completed)*, or

(2) have any and all connections to existing City utilities witnessed by Public Works staff while the connections *(taps or cut-in connections)* are made, and also inspected by the Public Works staff after all pipework is complete and prior to backfilling, or

(3) ~~Contractor~~ notify the City prior to performing testing which is required to be witnessed by City staff, or

(4) ~~failure by the Contractor to~~ provide copies of all test reports to the City in a timely manner, or

(5) follow all local and State rules regarding locating, potholing and exposing existing utilities marked in the field or shown on the drawings which cross or closely parallel new facilities *(or which are otherwise in close proximity to new facilities)* or

~~e)~~(6) comply with any other directives from Public Works staff or the City Engineer which are issued to ensure compliance with City standards.

2) Upon verbally notifying the Contractor of suspension of a Public Works construction permit as provided above, the Public Works Director shall cause to be issued a written "stop work order~~,~~" which will be sent to all parties via email, following which one copy of which shall be sent by regular mail to the permittee at the address shown on the Public Works permit application, one copy of which shall be sent by regular mail to the permittee's engineer overseeing the work, if known, and one copy of which shall be personally delivered to the person in charge of any work in progress.

3) It shall be unlawful for any person to cause, suffer, or permit any work to be done for which a Public Works permit is required by these standards after ~~when~~ a "stop work order" has been verbally issued as provided by this section.

~~3)~~a) The City will not accept any work performed after verbal notification of the "stop work order" to the person in charge of work in progress at the project site, or after ~~subsequent~~ delivery of the written stop work order by email or by regular mail, whichever occurs first.

4) An applicant whose Public Works permit has been suspended may appeal such action to the City Manager through the City's established appeal process. Notwithstanding the provisions for appeal to the City Manager, the filing of an appeal shall not stay the effect of a "stop work order" issued under this

5.16 VALVES

a. Valve Sizes

1) In general, valves shall be the same size as the mains in which they are installed. Reducers for reconnection into existing water mains less than 8-inches in diameter *(or existing mains smaller than the new mainline)* shall be placed between the new valve and the existing line *(ie. the new valves shall be the same size as the larger mainline)*.

2) Unless otherwise approved or required by the City Engineer, valves shall conform to the following table.

Required Valves by Size and Operating Conditions		
Valve Size	Static Pressure	Valve Style
10-inch and smaller	< 120 psi	Gate Valve
8-inch & 10-inch	≥ 120 psi	Butterfly Valve
12-inch & larger	All pressures	Butterfly Valve

3) Valve types and materials shall conform to the requirements of these ~~Design Standards~~PWDS and the Standard Construction Specifications.

b. Valve Location

1) Distribution system valves shall be located at the tee or cross fitting as nearly as possible, and set in locations where operation of all valves associated with said tee or cross will affect traffic on only one side of any street.

2) There shall be a sufficient number of valves so located that not more than four (4) and preferable three (3) valves must be operated to effect any one particular shutdown. The spacing of valves shall be such that the length of any one shutdown in high value areas shall not exceed 500 feet nor 800 feet in other areas.

3) Number of Valves Required at Tees or Crosses. A water mainline tee-intersection shall be valved on all three branches and a water mainline cross-intersection shall be valved on all four branches, configured as required by the City Engineer and Public Works Director *(this requirement does not apply to fire hydrant tees or service connection tees)*.

4) Valves at Crossings. Hazardous crossings *(ie. creek, railroad, freeway crossings, etc.)* shall be valved on each side of the crossing, and the waterline

pipe shall be installed in a casing unless otherwise approved by the Public Works Director and the City Engineer on a case-by-case basis.

5) Distribution Branches on Transmission Mains. Unless otherwise required by the Public Works Director and the City Engineer, dDistribution branches on transmission mains shall be spaced not more than 800 feet apart where practical and all branches not being connected shall be valved and plugged.

6) Transmission water mains shall have valves at spacings as required by the City Engineer.

c. Mainline Tapping Tee & Valve

1) A tapping tee & valve to make connection to an existing, in-service line is only allowed in cases where the City determines that water service cannot be interrupted to cut in a tee or cross, and where the additional in-line valve is not needed for system isolation as outlined above.

d. Water Valve Operation

1) City forces shall operate all valves, including fire hydrants, on existing public water mains, on the public side of water meters, or at the connection of fire service lines to public water mains.

5.17 FIRE HYDRANTS

a. Hydrant Coverage

1) Preferred coverage shall result in maximum hydrant spacing of 500 feet in residential areas, 300 feet in high-value districts including industrial subdivisions and no further than 250 feet from the furthest point of any dwelling, business, garage or building *(in addition to specific hydrant location requirements below)*.

Hydrant stubs with mainline valves will be required as a minimum in undeveloped areas, at locations as required by Public Works or the City Engineer.

b. Hydrant Location & Availability

1) No fire hydrant shall be installed on a main of less than 8-inch diameter unless it is in a looped system of 6-inch mains. The hydrant lead shall be a minimum of 6-inches in diameter.

2) Hydrants shall be placed in locations approved by the City Engineer and the Fire Code Official, based on required distance from buildings *(and/or required distance from any existing or proposed FDCs)*.

3) ~~In general, h~~**Hydrants shall be located at corner of each public & private**

street intersection where possible, and adjacent to entrance driveways for public, commercial or industrial type developments *(unless otherwise approved in writing by the City Engineer and the Fire Code Official)*.

Hydrants located at points other than intersections shall be located at the extension of property lines where feasible *(offset as required ~~only~~ to avoid conflict with survey monuments per ORS 92.044.7)*.

4) Unless otherwise approved by the City, hydrants shall be placed between the sidewalk and the property line.

5) No hydrant shall be installed within five (5) feet of an existing utility pole or guy wire nor shall a utility or guy wire be placed within five (5) feet of an existing hydrant.

6) Existing or new hydrant availability for a particular property will be determined by the City and Fire Code Official based on both distance and accessibility *(see also OFC C103.1 & C104)*.

a) Existing hydrants on City streets are generally considered as available to properties on both sides of the street.

b) Hydrants along or adjacent to State Highways. For purposes of new development, hydrants on the opposite side of an ODOT highway right-of-way are generally NOT considered to be available, unless specific prior written approval is granted by ODOT *(ie. since the Fire Department may need to lay hose across the highway and restrict traffic during emergencies)*.

c) Hydrants adjacent to Railroads. Hydrants on the opposite side of railroad tracks are NOT considered to be available.

d) Hydrants on or across adjacent properties are not considered available unless fire apparatus access roads *(fire lanes)* extend between properties, and easements are recorded to prevent obstruction of such roads (OFC C104.1).

c. Hydrant Valves

1) Each fire hydrant shall have a hydrant valve and valve box at the mainline hydrant tee which will permit removal and repair of the hydrant without shutting down the water main supplying the hydrant.

2) Hydrant valves shall be resilient wedge gate valves.

3) The hydrant valve shall be connected directly to the mainline tee using a flange joint.

4) Far Side Hydrants. If the length of the hydrant lead is greater than 30 feet, an additional gate valve shall be provided within 3 feet of the hydrant, but under no circumstances shall the valve be attached to the hydrant.

d. Hydrant Leads.

1) All hydrant leads shall be Class 52 ductile iron, 6" minimum diameter, with retainer glands at both ends.

2) Unless specifically approved in writing by Public Works Director for long hydrant leads, all hydrant leads shall consist of a single piece of pipe without joints. Any joints allowed on hydrant leads shall be provided with fully restrained gaskets *(Field-Lok or equa~~livalent~~)*.

3) **Water s~~S~~ervice taps or fire line service taps on hydrant leads are prohibited**.

Where approved by the City Engineer and Public Works Director on a case-by-case basis, installation of a public waterline across a street in order to accommodate the required separate connections of a far side fire hydrant and a far side service connection *(water service or fire service)* to a common public waterline may be allowed. The cross street waterline pipe shall be 8-inch minimum diameter, or one pipe size larger than the combined service line & hydrant lead sizes, whichever is greater.

Where this configuration is allowed, the public waterline across the street shall remain full size up to the isolation valve marking the boundary between the waterline and the fire hydrant lead and the service line connections.

e. Hydrant Bury & Exposure

1) Hydrant bury shall be sufficient to provide a minimum of 36-inches of cover over the hydrant lead. In no case shall the bury be less than the depth of the waterline from which the hydrant is served.

2) The hydrant shall be set such that the base of bottom flange bolts are a minimum of 2-inches and a maximum of 6-inches above finish grade following all landscaping and surface restoration.

f. Hydrant Orientation.

1) The Contractor shall coordinate and orient the hydrant steamer/pumper port as directed and approved in writing by the local Fire District/Fire Dept.

2) Hydrants installed in advance of such coordination and written direction shall be adjusted and reoriented without additional cost to the City.

d. Cover Sheet

1) The first sheet *(Cover Sheet)* of all drawing sets shall include the following as a minimum:

a) **All drawing sets *(review, revision or final)* shall have the submittal or revision date clearly listed on the cover sheet. The date shall be changed to match when resubmittals are provided.

~~a)~~b) **Project name.

~~b)~~c) **Design Engineers name, address, telephone and fax number, and email address & website.

~~c)~~d) **Developer's name, address and telephone number, and email address.

~~d)~~e) **Vicinity Maps showing the location of the project in respect to the nearest major street intersection and a minimum of 500 feet around the site.

~~e)~~f) **Legend including all symbols and line types used on the construction drawings. Where there is insufficient room on the cover sheet, the legend can be included on a subsequent sheet.

~~f)~~g) **Sheet index located near lower right corner.

h) Infrastructure Summary Table. Include a summary table listing the number of lineal feet of new public streets and public mainline utilities to be constructed. Identify the length of new streets and/or utilities under County or ODOT jurisdiction separately from those under City jurisdiction. Do not include existing streets or utilities that are being replaced as part of the project with the same length, or private streets or utilities. Do not include length of sewer or storm service laterals.

~~g)~~i) Water Meter Sizing Summary Table. List the number, size and type *(domestic, irrigation, etc.)* of all water meters proposed.

On this or another sheet, provide a summary of the water meter sizing documentation *(for other than single family residential or dedicated irrigation meters)* as required under PWDS 5.20.a.5.a *(ie. summary of water fixture unit totals served by each water meter)*.

~~h)~~j) Land Use Docket Number. **The City Planning Department file or docket number shall be listed for projects which required land use approval.

~~i)~~k) **City Notes. Reference to the drawing sheets containing the General City construction notes and testing table matching format and content of

and fire lanes.

4) It shall be the Developer's responsibility to provide an engineer to perform periodic inspection and/or construction observation services for improvements which are designed and permitted under these PWDS, at the developer's expense.

5) These inspection and construction observation requirements are not applicable to individual sidewalk, driveway or service lateral permits for single residences. If the project scale is such that the retention of an independent engineer-of-record is not warranted, the Developer may request that the City provide these services.

If the City agrees to provide these services *(at the City's sole discretion)*, the Developer shall be responsible to reimburse the City for any costs incurred for these inspection and/or construction observation services.

b. City Activities

1) Services provided by the City shall include:

a) Liaison between the engineer-of-record and the City;

b) Monitoring of work progress and performance testing as deemed desirable;

c) The performance of administrative and coordination activities as required to support the processing and completion of the project;

d) The issuance of stop work orders upon notifying the engineer-of-record and/or the Contractor of the City's intention to do so.

e) Operate all valves, including fire hydrants, on existing waterlines.

2) In addition, ~~the City~~Public Works shall be notified a minimum of 48 ~~business~~ hours *(2 business days)* prior to the following tests and inspections so that a ~~City~~ Public Works representative may be present to witness connections~~the inspections~~ or tests and perform required inspections. Witnessed work, inspections and t~~T~~esting shall be started and completed during normal City business hours.

a) Streets *(public streets, private streets/fire lanes, common driveways)*

(1) Curb inspection;
(2) Subgrade testing and/or proof-rolls;
(3) Base rock testing and~~&~~ proof-rolls;
(4) AC pavement placement and testing;
~~(4)~~(5) Sidewalk, pedestrian ramp or driveway approach form inspections.

b) Sanitary Sewers

(1) Witnessing of sewer connections to existing mainlines *(including taps)*, and inspection of connection & service lateral pipe prior to backfilling *(coupons from mainline taps shall be labeled and given to Public Works staff)*.

~~(1)~~(2) Mandrel testing of sewer mainlines;

~~(2)~~(3) Air testing of sewer mainlines and sewer service laterals;

~~(3)~~(4) Vacuum testing of sewer manholes *(after paving or final surface restoration)*;

~~(4)~~(5) Video inspection of sewer mainlines *(after completion of manhole channeling)*;

c) Storm Drains

(1) Witnessing of storm connections to existing mainlines *(including taps)*, and inspection of connection & service lateral pipe prior to backfilling *(coupons from mainline taps shall be labeled and given to Public Works staff)*.

~~(1)~~(2) Mandrel testing of storm drain mainlines;

~~(2)~~(3) Video inspection of storm drain mainlines*(after completion of manhole channeling)*;

d) Water Distribution System

(1) Witnessing of water connections to existing mainlines *(including taps)*, and inspection of connection & service pipe prior to backfilling *(coupons from mainline taps shall be labeled and given to Public Works staff)*.

~~(1)~~(2) Pressure tests of water mainlines, including service lines to meters or backflow devices, hydrants leads, fire service lines, etc.;

~~(2)~~(3) Disinfection of water mainlines, all service lines, hydrants, etc. *(see App. B notes for procedures)*.

~~(3)~~(4) Bacteriological Testing *(see App. B notes for procedures)*.

c. Developer's Engineer-of-Record's Activities

1) The engineer-of-record must be registered to practice engineering in the State of Oregon. Material testing which is not performed by the engineer-of-record must be accomplished by a recognized testing firm or another registered engineer.

2) ***The engineer–of-record must personally perform all activities marked by an (*) and must supervise all individuals performing other delegated activities.**

3) The following minimum activities are required of the developer's engineer-of-record:

a) *Execute a form accepting responsibility and verifying that he/she has

g. **Manholes**

1) General

a) Precast concrete pipe manhole sections, transition sections, eccentric cones, flat slab tops, and adjusting rings shall conform to the requirements of ASTM C-478 except as modified herein. Reinforcing in transition sections shall be equal to the requirements of that specified for wall sections of the larger diameter.

b) Unless otherwise approved in writing on a case-by-case basis, the wall thickness of barrel riser sections shall conform with minimums under ASTM C-478 as follows.

(1) 5" wall for 48" diameter MH
(2) 6" wall for 60" diameter MH
(3) 7" wall for 72" diameter MH
(4) 8" wall for 84" diameter MH
(5) 9" wall for 96" diameter MH
(6) 11" wall for 120" diameter MH
~~a)~~(7) 12" wall for 144" diameter MH

~~b)~~c) Unless otherwise approved, all joints between manhole sections shall be keylock or O-ring type conforming to ASTM C-443.

~~c)~~d) Precast base sections shall be of monolithic construction and shall be manufactured such that the base riser section is integral with the base slab for 72" diameter and smaller.

e) ~~The bottom of the precast base section shall be a minimum of six (6) inches thick, and contain a minimum of 0.32 sq. inches of reinforcing steel each way in the top of the slab.~~Unless otherwise approved in writing on a case-by-case basis, the base slab thickness shall conform with minimums under ASTM C-478 as follows.

(1) 6" base for 48" diameter MH
(2) 8" base for 60" & 72" diameter MH
(3) 12" base for 84" through 144" diameter MH

~~d)~~f) Sanitary sewer manhole bases shall be provided with core-drilled openings and flexible manhole-to-pipe connectors for the connection of pipes & stubouts.

2) Manhole Steps

a) Sanitary sewer manholes shall be equipped with permanent factory installed steps to provide a continuous ladder of 12-inch center-to-center rung spacing. Steps shall not be required for manholes 4 feet or less in depth *(rim to invert)*.

pipe shall be installed in a casing unless otherwise approved by the Public Works Director and the City Engineer on a case-by-case basis.

5) Distribution Branches on Transmission Mains. Unless otherwise required by the Public Works Director and the City Engineer, ~~d~~Distribution branches on transmission mains shall be spaced not more than 800 feet apart where practical and all branches not being connected shall be valved and plugged.

6) Transmission water mains shall have valves at spacings as required by the City Engineer.

c. Mainline Tapping Tee & Valve

1) A tapping tee & valve to make connection to an existing, in-service line is only allowed in cases where the City determines that water service cannot be interrupted to cut in a tee or cross, and where the additional in-line valve is not needed for system isolation as outlined above.

d. Water Valve Operation

1) City forces shall operate all valves, including fire hydrants, on existing public water mains, on the public side of water meters, or at the connection of fire service lines to public water mains.

5.17 FIRE HYDRANTS

a. Hydrant Coverage

1) Preferred coverage shall result in maximum hydrant spacing of 500 feet in residential areas, 300 feet in high-value districts including industrial subdivisions and no further than 250 feet from the furthest point of any dwelling, business, garage or building *(in addition to specific hydrant location requirements below)*.

Hydrant stubs with mainline valves will be required as a minimum in undeveloped areas, at locations as required by Public Works or the City Engineer.

b. Hydrant Location & Availability

1) No fire hydrant shall be installed on a main of less than 8-inch diameter unless it is in a looped system of 6-inch mains. The hydrant lead shall be a minimum of 6-inches in diameter.

2) Hydrants shall be placed in locations approved by the City Engineer and the Fire Code Official, based on required distance from buildings *(and/or required distance from any existing or proposed FDCs)*.

3) ~~In general, h~~**Hydrants shall be located at corner of each public & private**

street intersection where possible, and adjacent to entrance driveways for public, commercial or industrial type developments *(unless otherwise approved in writing by the City Engineer and the Fire Code Official).*

Hydrants located at points other than intersections shall be located at the extension of property lines where feasible *(offset as required ~~only~~ to avoid conflict with survey monuments per ORS 92.044.7).*

4) Unless otherwise approved by the City, hydrants shall be placed between the sidewalk and the property line.

5) No hydrant shall be installed within five (5) feet of an existing utility pole or guy wire nor shall a utility or guy wire be placed within five (5) feet of an existing hydrant.

6) Existing or new hydrant availability for a particular property will be determined by the City and Fire Code Official based on both distance and accessibility *(see also OFC C103.1 & C104).*

a) Existing hydrants on City streets are generally considered as available to properties on both sides of the street.

b) Hydrants along or adjacent to State Highways. For purposes of new development, hydrants on the opposite side of an ODOT highway right-of-way are generally NOT considered to be available, unless specific prior written approval is granted by ODOT *(ie. since the Fire Department may need to lay hose across the highway and restrict traffic during emergencies).*

c) Hydrants adjacent to Railroads. Hydrants on the opposite side of railroad tracks are NOT considered to be available.

d) Hydrants on or across adjacent properties are not considered available unless fire apparatus access roads *(fire lanes)* extend between properties, and easements are recorded to prevent obstruction of such roads (OFC C104.1).

c. Hydrant Valves

1) Each fire hydrant shall have a hydrant valve and valve box at the mainline hydrant tee which will permit removal and repair of the hydrant without shutting down the water main supplying the hydrant.

2) Hydrant valves shall be resilient wedge gate valves.

3) The hydrant valve shall be connected directly to the mainline tee using a flange joint.

storm lines which will be extended in the future, plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole or catch basin shall be included *(without mainline grade breaks between structures)*.

4) Sanitary Sewer *(profile view)*

a) Profile of existing and proposed ground surface along centerline of pipe, with rim and pipe inverts at each manhole.

b) Manholes and other appurtenances shall be numbered *(or lettered)* with a designation unique to the project and stationed to match the corresponding plan view.

c) Size, slope, pipe material and class, length of sewer and class of backfill between consecutive manholes.

d) Crossings. All existing or proposed public and franchise or private utilities crossing the profile and any existing utilities which potentially are in conflict with construction of the improvements.

e) Profile Extension. Where mainline sewer cleanouts are approved (see PWDS 4.16.b.1), plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole shall be included *(without mainline grade breaks between manholes)*.

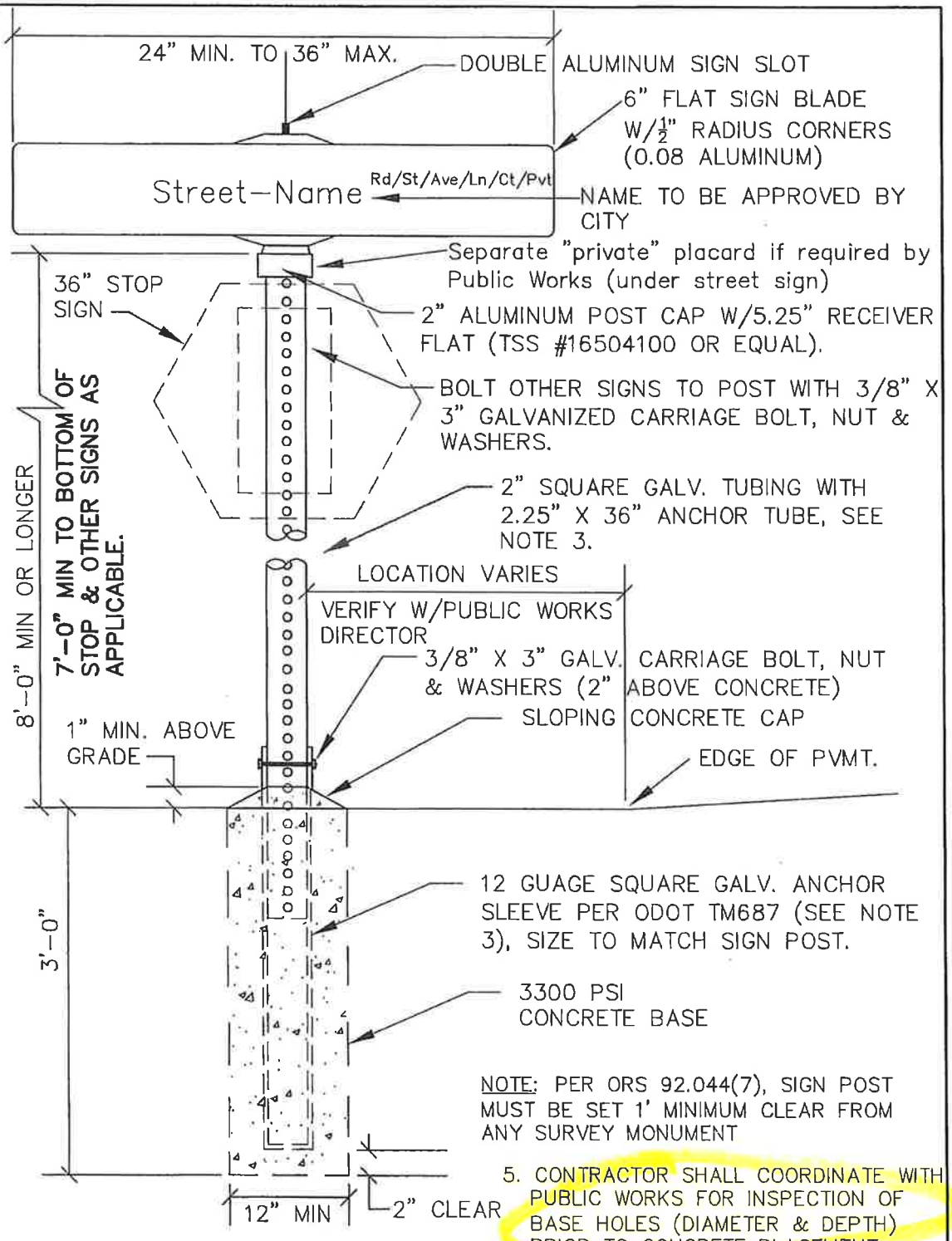
5) Water Distribution *(profile view)*

a) Profiles. Waterline profiles shall be provided for all waterlines within existing right-of-ways, or waterlines along alignments paralleled *(within 15 feet)* or crossed by existing public utilities.

Waterline profiles will not be required for new waterlines *(less than 12-inches diameter)* within new right-of-ways unless required *(in the judgement of the Public Works Director or City Engineer)* to illustrate existing utility crossings, or to illustrate and to illustrate and/~~or~~ prevent conflicts with proposed utilities *(all waterlines 12-inch or larger in diameter shall be profiled)*.

b) Profile of existing and proposed ground surface along centerline of pipe, as well as existing and proposed pavement surface of adjacent streets *(where applicable)*.

c) Show the location of valves, fittings, fire hydrants and other appurtenances, with all valves and fire hydrants numbered and stationed to match the corresponding plan view.



SIGN TEXT STANDARDS: PROVIDE SIGN TEXT AS FOLLOWS:
- 4" HIGH CHARACTERS FOR UPPER CASE,
- 3" HIGH CHARACTERS FOR LOWER CASE,
- 3" HIGH 1ST LETTER FOR TITLE (Rd/St/Ave/Ln/Ct/Blvd/Pvt etc).

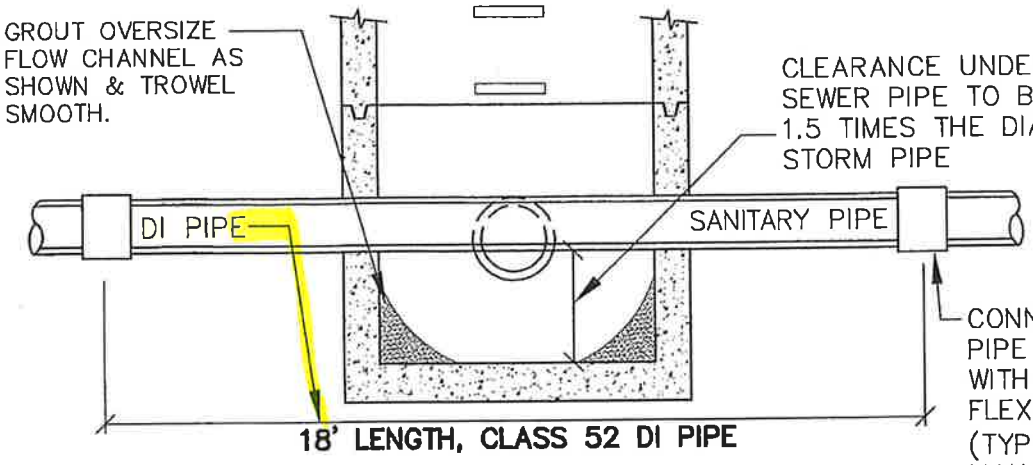
NOTE: PER ORS 92.044(7), SIGN POST MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

5. CONTRACTOR SHALL COORDINATE WITH PUBLIC WORKS FOR INSPECTION OF BASE HOLES (DIAMETER & DEPTH) PRIOR TO CONCRETE PLACEMENT.

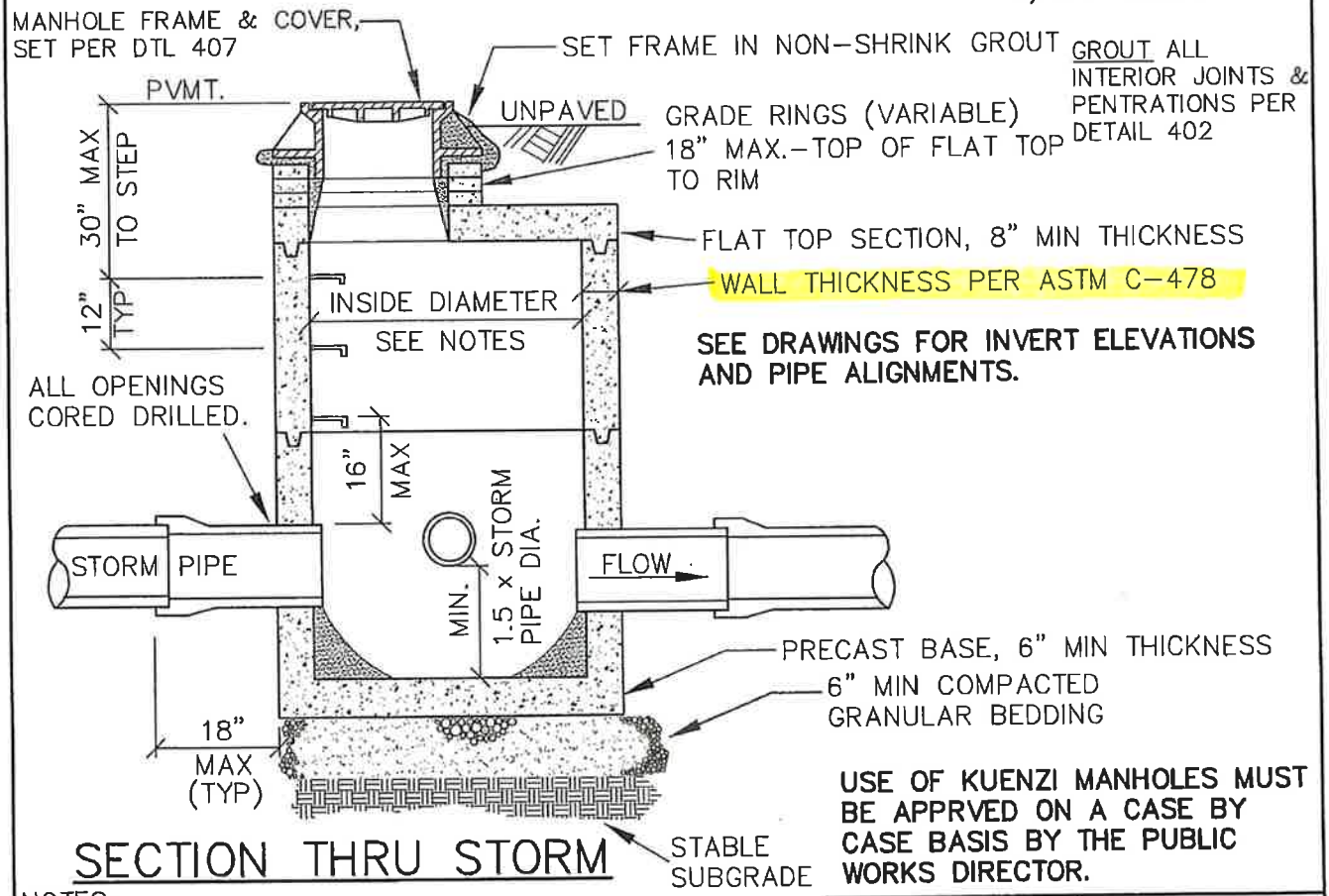
NOTES:

1. ALL RECONSTRUCTED & NEWLY PLATTED STREETS TO BE SIGNED IN ACCORDANCE WITH ODOT STANDARDS.
2. SIGN PANEL TO BE ALUMINUM PER OSSC 02910, AND ALL SIGNS SHALL CONFORM TO OREGON MUTCD.
3. SIGN POSTS & SLEEVES TO BE PERFORATED WITH 7/16" DIAMETER HOLES, HOLES TAPED AS REQUIRED DURING CONCRETE PLACEMENT.
4. PROVIDE STOP BARS AT ALL STOP SIGNS (12' TYP LENGTH EACH VEHICLE LANE), BEHIND PEDESTRIAN CROSSING (COORDINATE WITH AGENCY HAVING JURISDICTION FOR LOCATION & TYPE OF MARKING).

LAST REVISION DATE: MAR 2024	
SIGN POST WITH TELESPAR BASE & ANCHOR (REQUIRED IN ODOT R.O.W) (NTS)	
DAYTON, OR	DETAIL NO. 232



SECTION THRU SANITARY SEWER



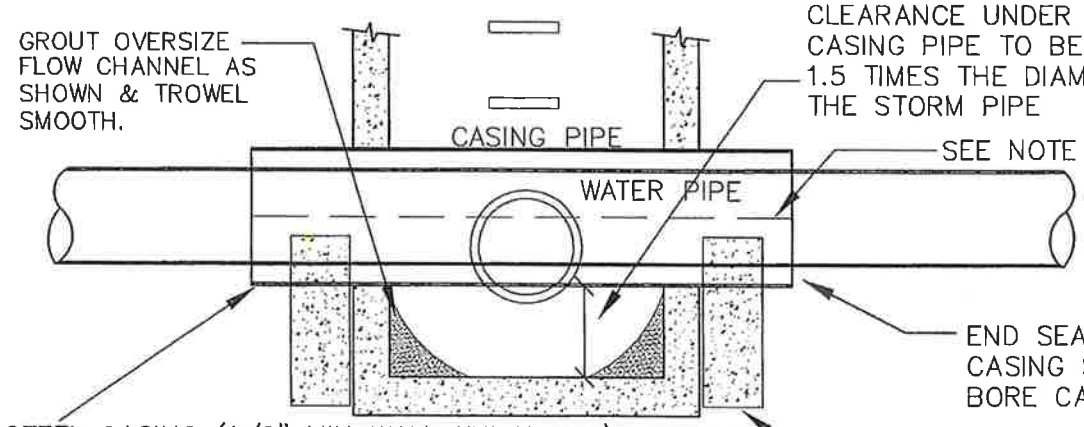
SECTION THRU STORM

USE OF KUENZI MANHOLES MUST BE APPRVED ON A CASE BY CASE BASIS BY THE PUBLIC WORKS DIRECTOR.

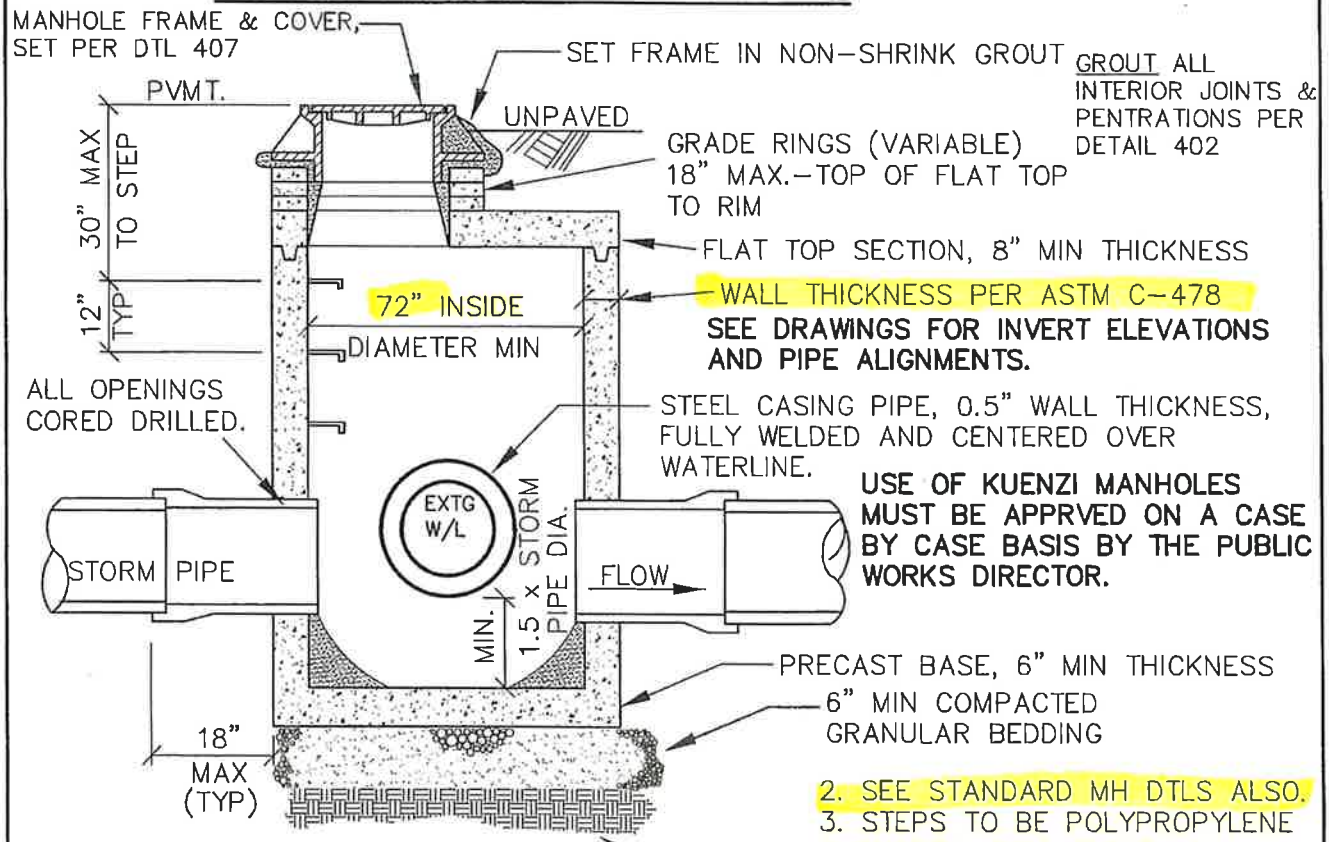
NOTES:

1. UNLESS OTHERWISE SHOWN ON DRAWINGS, USE 48" MANHOLE FOR SANITARY SEWER UP TO 12" DIA. & STORM DRAIN UP TO 18" DIAMETER (LARGER DIAMETER MANHOLE OTHERWISE, PER DWGS).
2. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. WATERTIGHT O-RING OR MASTIC KEYLOCK JOINTS REQUIRED. SEE STANDARD MH DTLS ALSO.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

LAST REVISION DATE: APR 2024	
KUENZI MANHOLE (SEWER PIPE CROSSING) (NTS)	
DAYTON, OR	DETAIL NO. 330



SECTION THRU WATERLINE



SECTION THRU STORM

1. SHOP CUT 30" CASING PIPE IN HALF (LENGTHWISE, ACROSS RADIUS) AND SHOP GRIND BEVELED EDGES FOR FULL PENETRATION WELDS. BLOCK BOTTOM HALF OF CASING PIPE IN PLACE UNDER EXISTING WATERLINE & POUR CONCRETE SUPPORTS. INSTALL CASING SPACERS (DETAIL 308) TO SUPPORT WATERLINE & WELD HALVES OF CASING TOGETHER. USE WATER IN BOTTOM OF CASING DURING WELDING AS REQUIRED TO AVOID OVER-HEATING CASING SPACER SUPPORT LEGS.

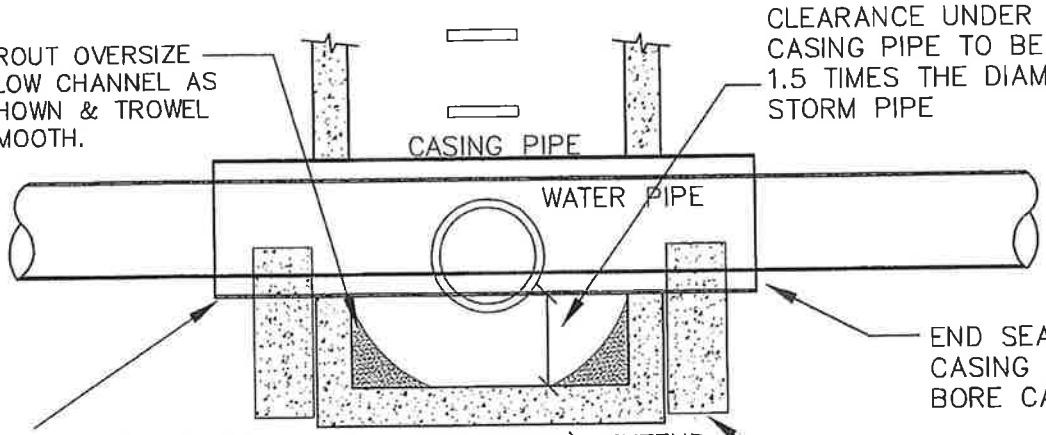
2. SEE STANDARD MH DTLS ALSO.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

LAST REVISION DATE:	JO #
APR 2024	STANDARD

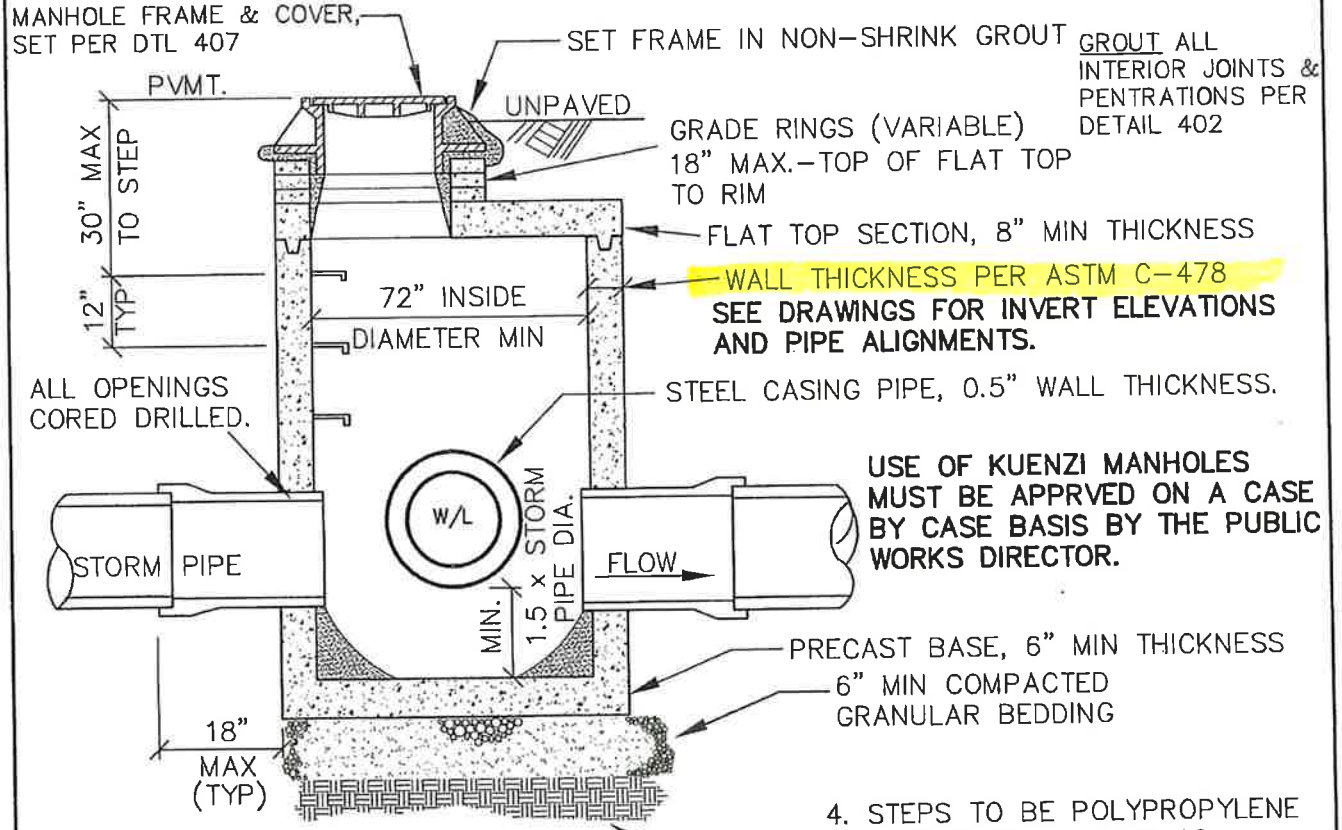
KUENZI MANHOLE W / WATERLINE CASING (EXISTING WATERLINE)

(NTS)

DAYTON, OR	DETAIL NO. 331



SECTION THRU WATERLINE

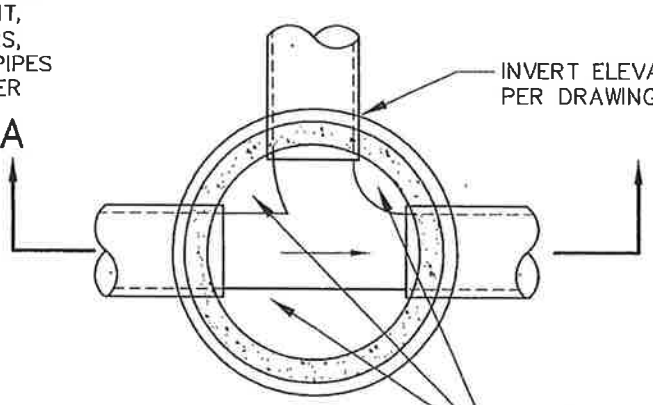


SECTION THRU STORM

1. BLOCK CASING PIPE IN PLACE & POUR CONCRETE SUPPORTS. INSTALL CASING SPACERS TO SUPPORT WATERLINE THROUGH CASING (DETAIL 5080). INSTALL END SEALS.
2. SEE PLAN VIEWS FOR WATERLINE & STORM SIZE & CONFIGURATION. USE 72" MANHOLE UNLESS OTHERWISE SHOWN ON DRAWINGS.
3. SEE STANDARD MH DETAILS ALSO.
4. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

LAST REVISION DATE: APR 2024	JO # STANDARD
KUENZI MANHOLE W / WATERLINE CASING (NEW WATERLINE) (NTS)	
DAYTON, OR	DETAIL NO. 332

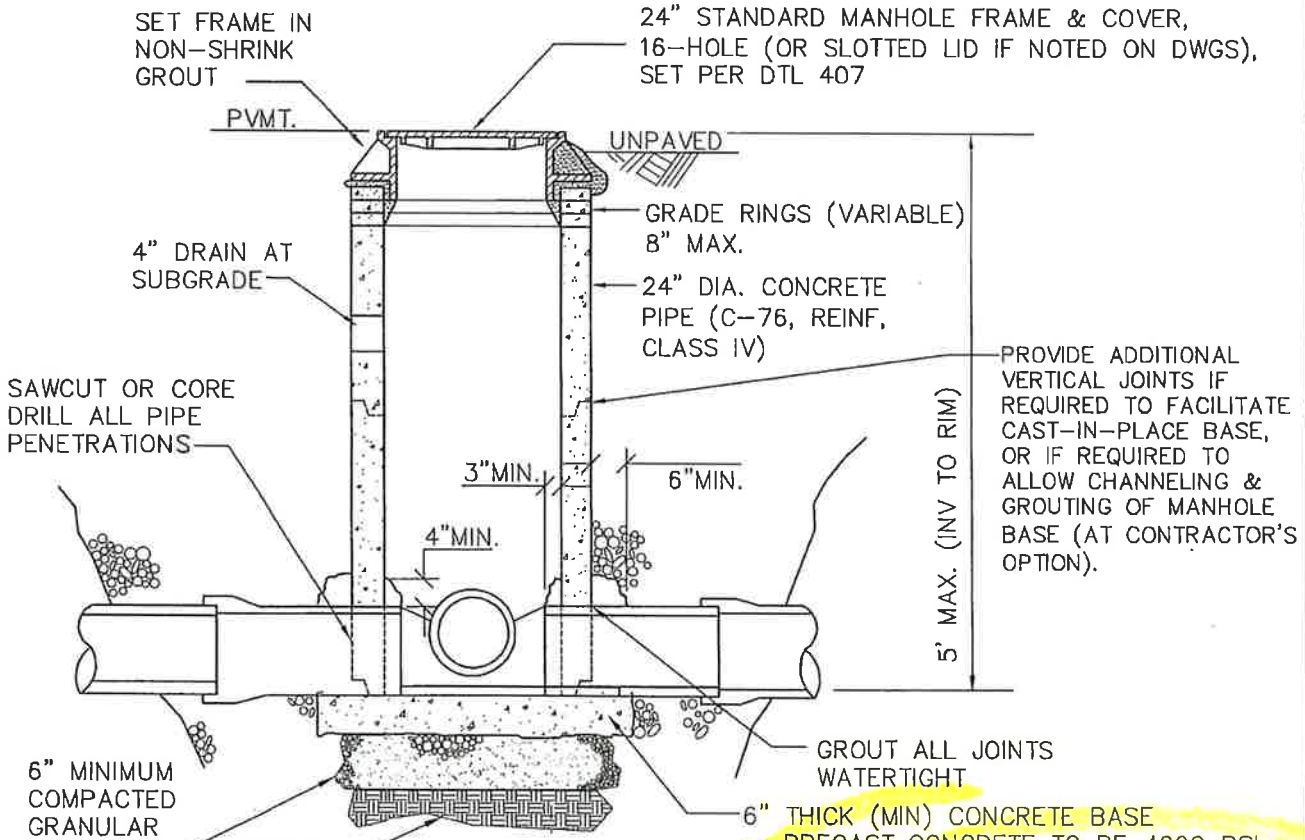
TYP DROP THRU MH:
0.1' MIN STRAIGHT,
0.2' MIN CORNERS,
SMALLER INLET PIPES
TO MATCH LARGER
OUTLET CROWN



NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

CHANNEL & GROUT BASE TO MAKE STRUCTURE SELF-CLEANING (SLOPE SHELVES TOWARD CHANNEL).

PLAN

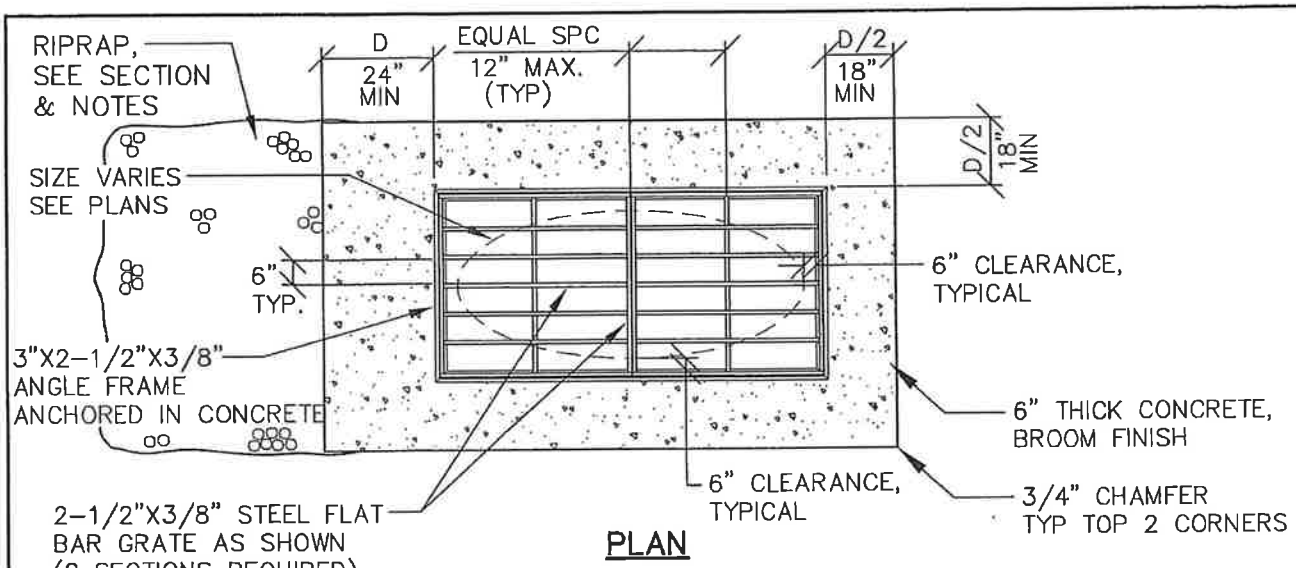


SECTION A-A

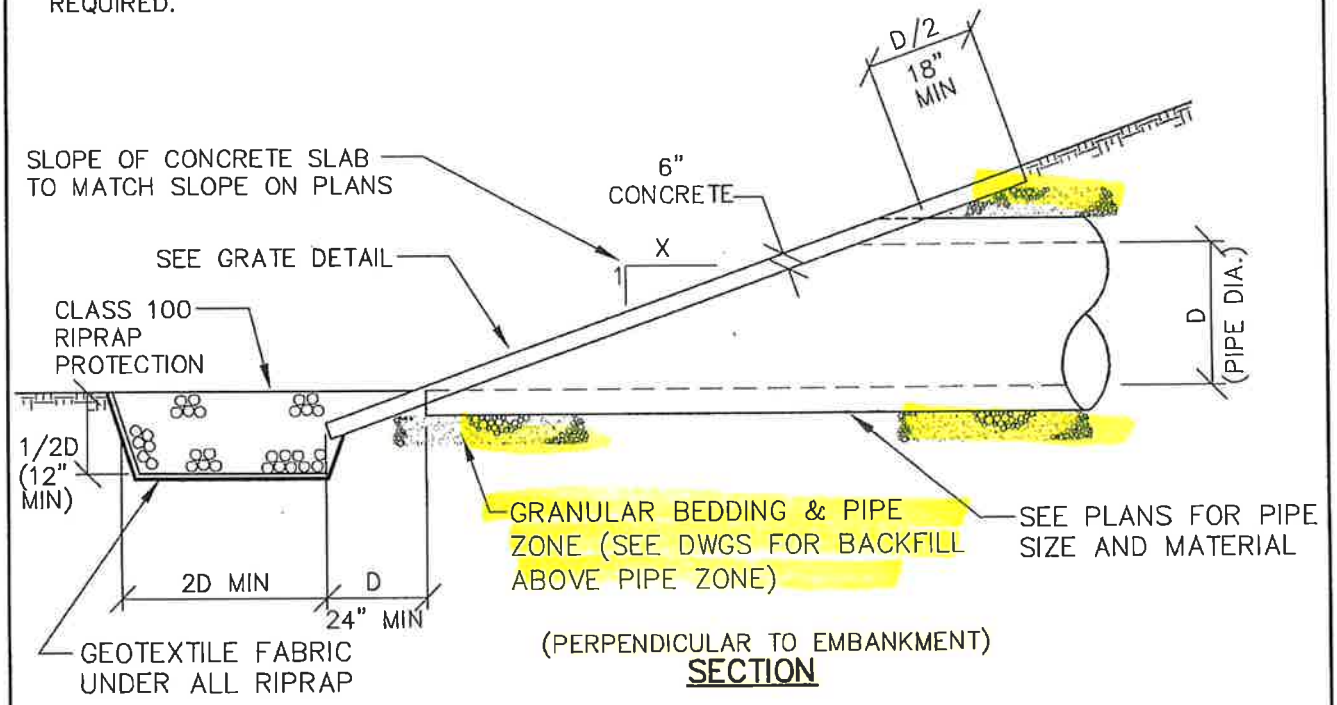
NOTE:

1. MAXIMUM PIPE NUMBER & DIAMETERS AS FOLLOWS:
   12" DIAMETER OR LESS - 4 MAXIMUM.
   15" DIAMETER - 2 MAXIMUM.
   OTHER PRECAST CONFIGURATIONS TYPICALLY REQUIRE STANDARD 48" MIN MANHOLE DIAMETER.
2. CONSTRUCT CAST-IN-PLACE CONCRETE BASE IF REQUIRED IN ORDER TO ACCOMMODATE SPECIFIED # & SIZE OR ORIENTATION OF PIPES CONNECTED TO MH.

LAST REVISION DATE: APR 2024	
24" DIA. STORM MANHOLE, PRECAST BASE OR CAST-IN-PLACE BASE (NTS)	
DAYTON, OR	DETAIL NO. 350



PLAN



(PERPENDICULAR TO EMBANKMENT)

SECTION

NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. FRAME & GRATE SHALL BE ASTM A36 STEEL, HOT DIP GALVANIZED AFTER FABRICATION.
3. ALL CONCRETE TO BE 3300 PSI AT 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
4. GRATED CONFIGURATION SHOWN IS TYPICALLY USED WHERE OUTFALL PIPE DISCHARGES THROUGH EMBANKMENT PERPENDICULAR TO THE DRAINAGE CHANNEL, AND WHERE REQUIRED TO ACCOMMODATE BANK MOWING EQUIP.
5. USE NON-GRATED CONFIGURATION WHERE APPROVED BY PUBLIC WORKS DIRECTOR.
6. ARMORING OF FAR CHANNEL BANK (TO BANK TOP) IS REQUIRED UNLESS NO EROSION POTENTIAL EXISTS (AS DETERMINED BY CITY). ARMOR BOTTOM & BANK 10 FEET MINIMUM IN EACH DIRECTION FROM OUTFALL CENTERLINE, UNLESS FURTHER SHOWN ON DWGS.
7. FILL ALL VOIDS IN RIP-RAP WITH 3/4"-0 GRANULAR BASEROCK.

LAST REVISION DATE: APR 2024	
CONCRETE PIPE END CAP WITH GRATE (NTS)	
DAYTON, OR	DETAIL NO. 362

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

A **TYP DROP THRU MH:** 0.1' MIN STRAIGHT, 0.2' MIN CORNERS, SMALLER INLET PIPES TO MATCH LARGER OUTLET CROWN

INVERT ELEVATIONS PER DRAWINGS

A

STEPS. VERIFY LOCATION TO AVOID CONFLICTS WITH INSIDE OR OUTSIDE DROPS

VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SLOPE SHELVES 1:12 TO DRAIN

MANHOLE FRAME & COVER, SET PER DTL 407

MANPAN MH LID INSERT AS REQ'D (SEE DTL 407)

PLAN

SET FRAME IN NON-SHRINK GROUT

PAVED SURFACE

UNPAVED

30" MAX

8" MIN

12" TYP

GRADE RINGS (VARIABLE) 18" MAX.-TOP OF CONE TO RIM

SLOPE OF PRECAST ECCENTRIC CONE SHALL FACE DOWN GRADE. LOCATE STEPS ON UPSTREAM SIDE OF MANHOLE.

MASTIC WRAP AS NOTED

WALL THICKNESS PER ASTM C-478

48" INSIDE DIA. MIN

ALL OPENINGS CORED DRILLED.

CHANNEL DEPTH= 2/3 PIPE DIA. MIN.

16" MAX

FLOW

18" MAX

PRECAST BASE THICKNESS PER ASTM C-478

6" MIN COMPACTED GRANULAR BEDDING

STABLE SUBGRADE

SECTION A-A

FLAT TOP MH'S SHALL BE USED FOR ALL MH'S LESS THAN 6' RIM TO INVERT, OR WITH TOP OF PIPE CONNECTIONS WITHIN 5 FEET OF RIM ELEV

ALL PIPE PENETRATIONS ON SANITARY SEWER MANHOLES TO HAVE RUBBER BOOTS.

ROUTE TONING WIRE UP OUTSIDE OF MH AS SHOWN (TYP ALL PIPES).

O-RING or BUTYL RESIN MASTIC AS SPEC'D

OFFSET JOINT

BUTYL RESIN MASTIC

ALL INSIDE JOINTS & WALL PENETRATIONS TO BE GROUTED FOLLOWING MH ASSEMBLY (TYP).

KEYLOCK JOINT

ALL SS MHs. CLEAN & INSTALL 9" WIDE EXTERNAL MASTIC WRAP AT ALL JOINTS & PICKHOLES (TRELLEBORG OR BESTWRAP), SECURE IN PLACE W/ 3 LAYERS OF PLASTIC PALLET WRAP. CONTACT PUBLIC WORKS FOR INSPECTION BEFORE BACKFILLING.

MANHOLE BARREL JOINT OPTIONS & SEALING

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: APR 2024

STANDARD MANHOLE FOR 21" PIPE AND SMALLER (SEWER & STORM)

(NTS)

DAYTON, OR

DETAIL NO. 401

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

A **TYP DROP THRU MH:** 0.1' MIN STRAIGHT, 0.2' MIN CORNERS, SMALLER INLET PIPES TO MATCH LARGER OUTLET CROWN

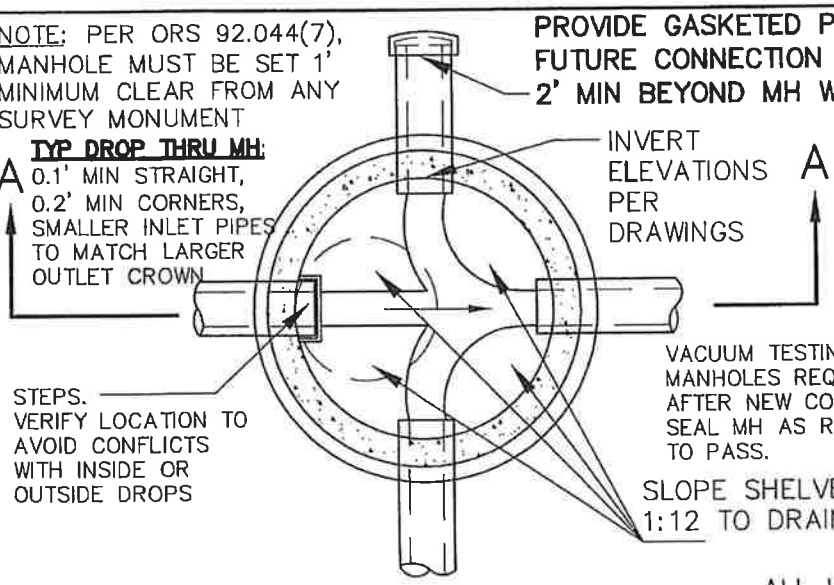
INVERT ELEVATIONS PER DRAWINGS

A

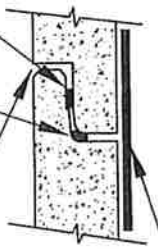
STEPS. VERIFY LOCATION TO AVOID CONFLICTS WITH INSIDE OR OUTSIDE DROPS

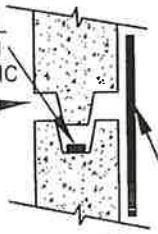
VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SLOPE SHELVES 1:12 TO DRAIN



PLAN





ALL INSIDE JOINTS & WALL PENETRATIONS TO BE GROUTED FOLLOWING MH ASSEMBLY (TYP).

ALL SS MHs. CLEAN & INSTALL 9" WIDE EXTERNAL MASTIC WRAP AT ALL JOINTS & PICKHOLES (TRELLEBORG OR BESTWRAP), SECURE IN PLACE W/ 3 LAYERS OF PLASTIC PALLET WRAP. CONTACT PUBLIC WORKS FOR INSPECTION BEFORE BACKFILLING.

MANHOLE BARREL JOINT OPTIONS & SEALING

MANHOLE FRAME & COVER, SET PER DTL 407

MANPAN MH LID INSERT AS REQ'D (SEE DTL 407)

SET FRAME IN NON-SHRINK GROUT

PAVED SURFACE

UNPAVED

30" MAX

MASTIC WRAP AS NOTED

12" TYP

GRADE RINGS (VARIABLE) 18" MAX.-TOP OF FLAT TOP TO RIM

FLAT TOP SECTION, 8" MIN THICKNESS

48" INSIDE DIA. MIN

WALL THICKNESS PER ASTM C-478

ALL PIPE PENETRATIONS ON SANITARY SEWER MANHOLES TO HAVE RUBBER BOOTS.

ALL OPENINGS CORED DRILLED.

CHANNEL DEPTH= 2/3 PIPE DIA. MIN.

16" MAX

ROUTE TONING WIRE UP OUTSIDE OF MH AS SHOWN (TYP ALL PIPES).

FLOW

18" MAX

PRECAST BASE THICKNESS PER ASTM C-478

6" MIN COMPACTED GRANULAR BEDDING

STABLE SUBGRADE

SECTION A-A

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: APR 2024	
FLAT TOP MANHOLE FOR 21" PIPE AND SMALLER (SEWER & STORM) (NTS)	
DAYTON, OR	DETAIL NO. 402

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

A **TYP DROP THRU MH:** 0.1' MIN STRAIGHT, 0.2' MIN CORNERS, SMALLER INLET PIPES TO MATCH LARGER OUTLET CROWN

PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

(THIS STUB NOT SHOWN BELOW)

STEPS. VERIFY LOCATION TO AVOID CONFLICTS WITH INSIDE OR OUTSIDE DROPS

VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SLOPE SHELVES 1:12 TO DRAIN

PLAN

O-RING or BUTYL RESIN MASTIC AS SPEC'D

OFFSET JOINT

BUTYL RESIN MASTIC

ALL INSIDE JOINTS & WALL PENETRATIONS TO BE GROUTED FOLLOWING MH ASSEMBLY (TYP).

KEYLOCK JOINT

MANHOLE BARREL JOINT OPTIONS & SEALING

ALL SS MHs. CLEAN & INSTALL 9" WIDE EXTERNAL MASTIC WRAP AT ALL JOINTS & PICKHOLES (TRELLEBORG OR BESTWRAP), SECURE IN PLACE W/ 3 LAYERS OF PLASTIC PALLET WRAP. CONTACT PUBLIC WORKS FOR INSPECTION BEFORE BACKFILLING.

MANHOLE FRAME & COVER, SET PER DTL 407

MANPAN MH LID INSERT AS REQ'D (SEE DTL 407)

SET FRAME IN NON-SHRINK GROUT

PAVED SURFACE

UNPAVED

30" MAX

MASTIC WRAP AS NOTED

12" TYP

GRADE RINGS (VARIABLE) 18" MAX.-TOP OF FLAT TOP TO RIM

FLAT TOP SECTION, 8" MIN THICKNESS

60" INSIDE DIA. MIN

FOR MANHOLES DEEPER THAN 11 FT. RIM TO INVERT, SEE DETAIL 403A

ALL OPENINGS CORED DRILLED

12" MIN.

WALL THICKNESS PER ASTM C-478

ALL PIPE PENETRATIONS ON SANITARY SEWER MANHOLES TO HAVE RUBBER BOOTS.

18" MAX

CHANNEL DEPTH = 2/3 PIPE DIA. MIN.

ROUTE TONING WIRE UP OUTSIDE OF MH AS SHOWN (TYP ALL PIPES).

PRECAST BASE THICKNESS PER ASTM C-478

6" MIN COMPACTED GRANULAR BEDDING

STABLE SUBGRADE

SECTION A-A

NOTES:

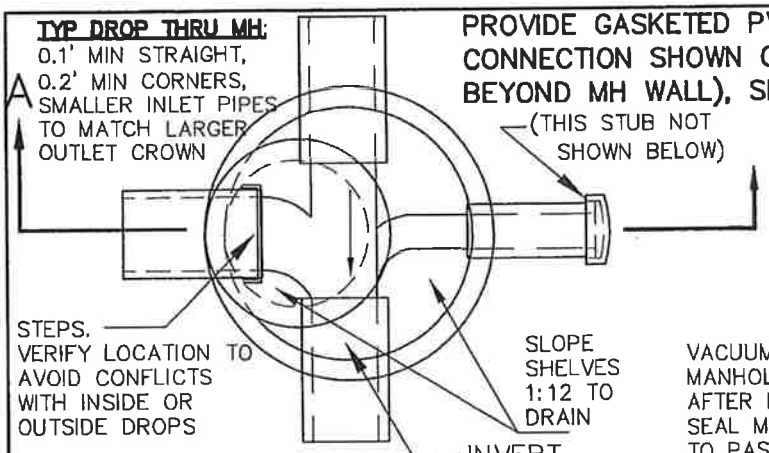
1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: APR 2024	
MANHOLE FOR 24" AND 27" PIPE (SEWER & STORM) (NTS)	
DAYTON, OR	DETAIL NO. 403

TYP DROP THRU MH:
0.1' MIN STRAIGHT,
0.2' MIN CORNERS,
SMALLER INLET PIPES
TO MATCH LARGER
OUTLET CROWN

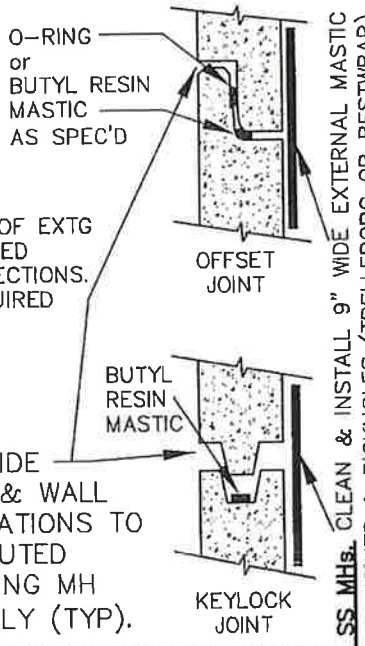
PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

(THIS STUB NOT SHOWN BELOW)



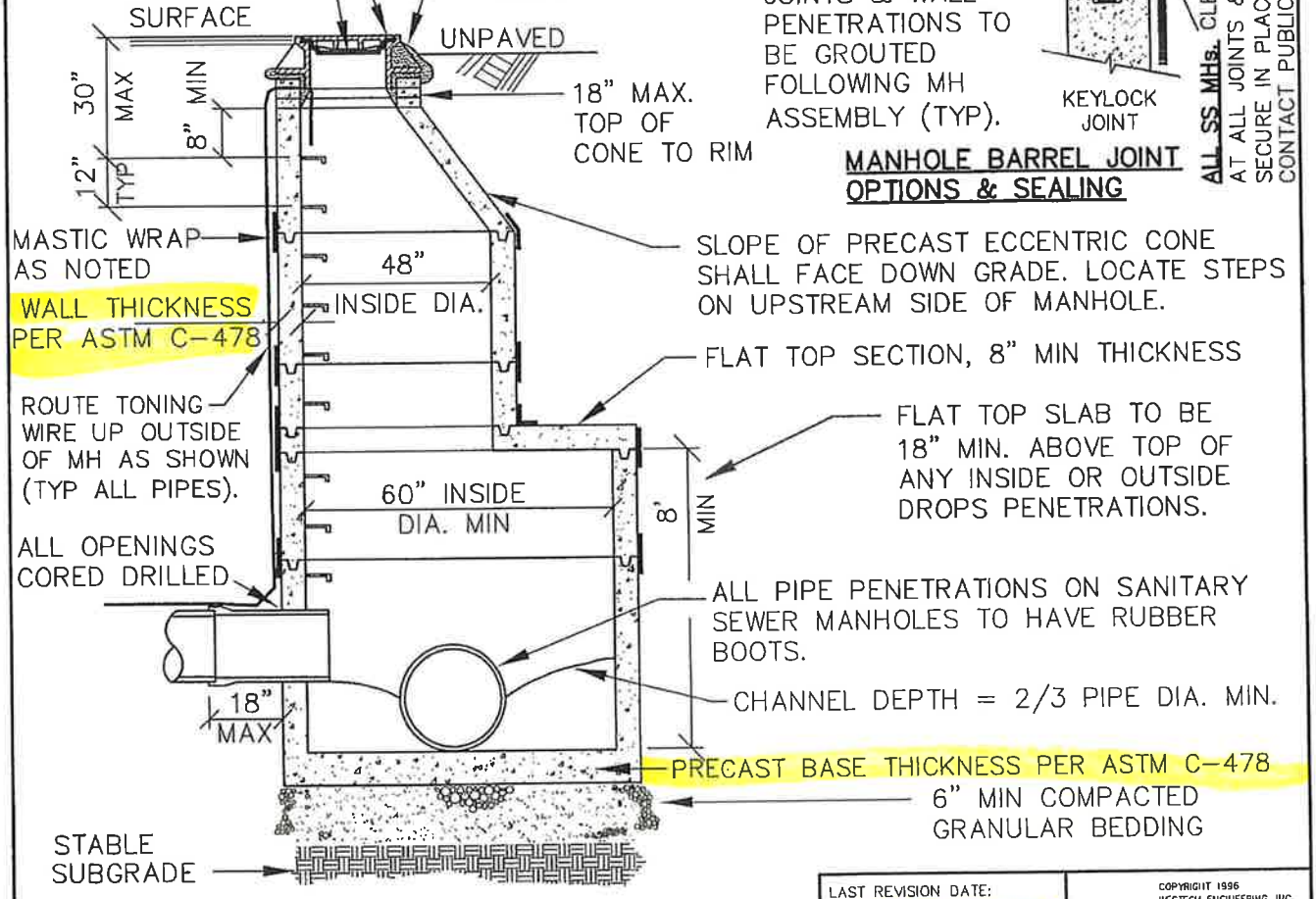
PLAN

VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.



ALL SS MHs. CLEAN & INSTALL 9" WIDE EXTERNAL MASTIC WRAP AT ALL JOINTS & PICKHOLES (TRELLEBORG OR BESTWRAP), SECURE IN PLACE W/ 3 LAYERS OF PLASTIC PALLET WRAP. CONTACT PUBLIC WORKS FOR INSPECTION BEFORE BACKFILLING.

MANHOLE BARREL JOINT OPTIONS & SEALING

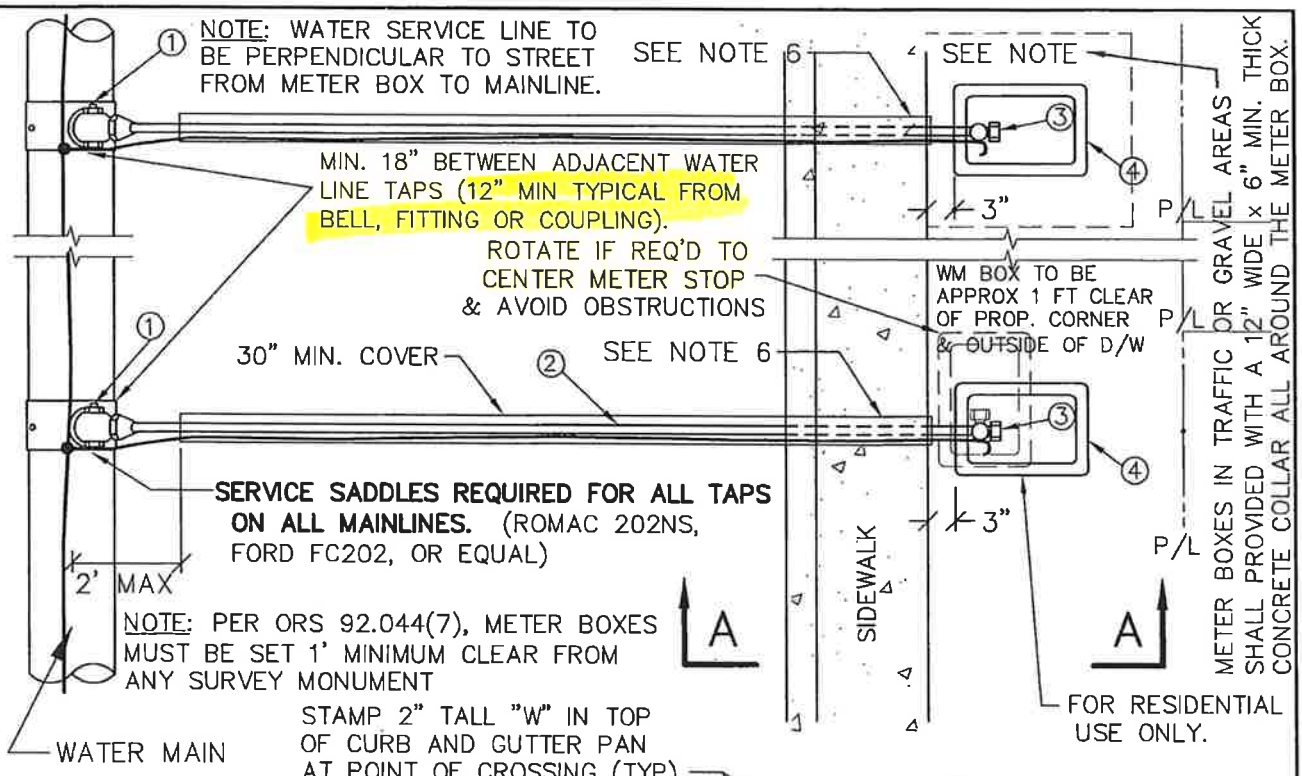


SECTION A-A

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: APR 2024	
DEEP MANHOLE FOR 24" AND 27" PIPE (SEWER & STORM) (NTS)	
DAYTON, OR	DETAIL NO. 403A



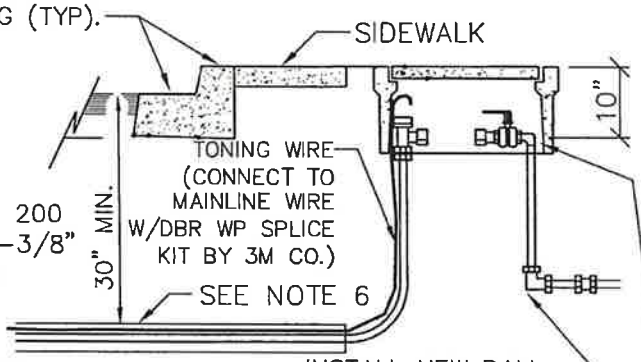
MATERIALS:

① 1" BALL STYLE CORPORATION STOP FORD FB-1100. SET AT 30° ANGLE UP FROM HORIZONTAL.

② 1" CENCORE BLUE HDPE (CTS OD, SDR 9, 200 PSI) CONFORMING TO AWWA C901, USE 2-3/8" LONG INSERTS ON COMPRESSION FITTINGS (McDONALD 6133T). SINGLE RESIDENTIAL SERVICE: 1" TYP

③ 1" BALL STYLE LOCKING ANGLE METER STOP, FORD BA43-444WQ OR EQUAL. PROVIDE ALL METER STOPS WITH 1" x 3/4" METER ADAPTER (FORD A24 OR EQUAL).

④ WATER METER BOX PER PWDS 5.8.h.1 (13"x24" ID, H20, GREY): -DFW1324C4-12-BODY W/ DFW1324C-4-LID. PROVIDE METER BOXES WITHOUT KNOCKOUTS FOR SENSOR HEADS.



SECTION A-A

METER COUPLING (TAIL), BALL VALVE W/HANDLE (NO PADLOCK TABS), COMPRESSION OUTLET & 90° ELBOW. PROVIDE PRIOR TO WATER METER INSTALLATION.

NOTES:

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE PUBLIC WORKS DIRECTOR.
2. ALL PIPE AND BACKFILL ZONES SHALL BE BACKFILLED USING 3/4" MINUS GRANULAR MATERIAL AND COMPACTED TO 92% MAX. DENSITY DETERMINED BY AASHTO T-180.
3. SET FRONT OF METER BOX BEHIND BACK OF SIDEWALK LOCATION AS SHOWN.
4. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER ASSEMBLY.
5. 1½-INCH MIN. PIPE SIZE FOR COMMERCIAL SERVICES.
6. FAR SIDE COMMERCIAL SERVICES SHALL BE INSTALLED IN A 4" MIN DIA SCHED 40 PVC SLEEVE WHICH BEGINS 2' FROM MAIN AND EXTENDS TO BACK OF FAR SIDE SIDEWALK.
7. TRACER WIRE SPLICES SHALL USE USE WATERTIGHT CONNECTION, TYPE DBR DIRECT BURY SPLICE KIT BY 3M COMPANY (OR EQUAL).

LAST REVISION DATE: APR 2024	
TYPICAL 1" WATER SERVICE (HDPE SERVICE LINE) (NTS)	
DAYTON, OR	DETAIL NO. 515