City of Brookings

WORKSHOP Agenda

CITY COUNCIL

Monday April 3, 2017, 4:00pm

City Hall Council Chambers, 898 Elk Drive, Brookings, OR 97415

A. Call to Order

B. Roll Call

C. Topics

1. Water & Wastewater Request for Qualifications [PWDS, Pg. 2]
    a. Draft RFQ [Pg. 3]
2. Special Event Policy [Parks, Pg. 8]
    a. Draft Policy [Pg. 10]
    b. Risk Management Bulletin [Pg. 19]
3. Update to the Engineering Requirements and Standard Specs (ERSS) for Infrastructure [Bldg. Pg. 22]
    a. Original 2014 ERSS Requirements [Pg. 23]
    b. Revised ERSS Requirements [Pg. 127]
4. Franchise Fees [City Manager, Pg. 211]
    a. Survey Excerpts [Pg. 214]
    b. News Article [Pg. 228]
5. ADA Ramps [PWDS, Pg. 232]

D. Council Member Requests for Workshop Topics

E. Adjournment

All public City meetings are held in accessible locations. Auxiliary aids will be provided upon request with at least 72 hours advance notification. Please contact 469-1102 if you have any questions regarding this notice.

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: 3 April 2017

Originating Dept: PWD

Signature (submitted by)

City Manager Approval

Subject: Water & Wastewater Request For Qualifications

Recommendation: None. For discussion as requested.

Financial Impact: None at this time

Approved by Finance & Human Resources Director: N.A.

Background/Discussion:

The Brookings City Council requested information on privatization of the water and wastewater treatment portions of the Public Works Department.

After several discussions and a presentation by CH2M, the Brookings City Council requested a sample Request For Qualifications (RFQ) for their review.

The attached RFQ was developed from a generic version provided by CH2M. Additional input was sought from a similar company providing similar services. Additional information should be available at the workshop.

It is expected that details will require some refinement before advertising for qualifications.

Policy Considerations: None

Attachment(s):

A. Draft RFQ for water and wastewater treatment at The City of Brookings, Oregon

DRAFT

Request for Qualifications

Full Contract Management, Operations, and Maintenance Program

I. General

The City of Brookings, Oregon (CITY), is seeking Statements of Qualification (SOQ) from firms capable of operating and maintaining its water and wastewater facilities. The scope of work includes full service contract operations and maintenance (O&M) of the following facilities and departments:

- 15.6 - mgd Wastewater Treatment Plant
- 2.6 - mgd Water Treatment Plant

The objective of this full service contract operations project is to effectively and efficiently operate, maintain, and manage the City's water and wastewater systems. The objective is to operate in full compliance with all applicable regulations, statutes, and local ordinances; and maintain the assets to reliably treat water and wastewater while seeking to improve the assets' useful life cycles; and consider innovations to lower the capital and operating costs of any and all aspects of operations.

Full-service contract operations requires the Contractor to employ all O&M staff and pay all chemical and power costs, with the Contractor fully responsible for all aspects of facility management, operation, and maintenance. The scope of work for the contemplated project includes full-service contract O&M of the CITY'S water and wastewater treatment system for an initial period of five (5) years with option to extend the contract for additional five (5) year terms. Contractors should demonstrate experience operating similar facilities.

To be considered for evaluation, written statements must be received by **May 5, 2017, 3:00 pm** local time. SOQ's received after this deadline will not be considered. Five (5) copies of the SOQ shall be mailed or hand delivered to the following address:

Gary Milliman, City Manager
City of Brookings
898 Elk Drive
Brookings, OR 97415

The outside of the envelope must be clearly marked "STATEMENT OF QUALIFICATIONS—CONTRACT OPERATIONS AND MAINTENANCE, Water and Wastewater Treatment, Brookings, OR." No other distribution of SOQs will be allowed by the proposers.

To minimize disruption of staff, facility tours as well as any and all questions, clarifications, or requests shall be requested in writing to the City Recorder, at the City of Brookings, OR.

Contact with elected officials is prohibited and will be cause for disqualification from the selection process. Hiring of local political consultants or lobbyists is strongly discouraged. All questions, clarifications, and requests, together with answers, if any, will be provided to all firms that have indicated an interest or intention to submit statements, but the names of any firms

submitting any questions, clarifications, or requests will not be disclosed until after the deadline for submitting SOQs. The CITY reserves the right to respond or not respond to any questions, clarifications, or requests.

II. General Intent

It is the intent of the CITY to investigate the possibility of contracting the O&M of the CITY'S water and wastewater treatment systems. A selection committee will evaluate submittals and shortlist one firm for further consideration. However, the CITY reserves the right to terminate this process at any time, and no guarantee is expressed or implied that obligates the CITY to contract operation of said facilities.

The Proposer shall meet all the requirements of federal, state, and local laws, regulations, standards, permitting requirements, orders, ordinances, and any and all future amendments thereto.

III. Evaluation and Selection Process

After the SOQs have been received, they will be evaluated by a committee comprised of CITY representatives. No lobbying of selection committee members or elected officials will be permitted or tolerated during the review process. Said committee, using their sole discretion and judgment, will shortlist one firm for further consideration.

It is understood that the information contained in this SOQ and the experience and innovative approaches demonstrated therein shall be the general basis for selection of a Respondent to provide these professional services. The CITY expects to select the most qualified Respondent based on qualifications, abilities, experience, technical expertise, financial strength, corporate resources and depth, and innovative approaches. The CITY will begin negotiations with the selected highest scoring Respondent. Should the negotiations fail to result in a timely executed agreement, the CITY may elect to terminate negotiations with the first ranked Respondent and begin negotiations with another Respondent, or cancel the process.

IV. Required Contractor Information

This section establishes standards of experience and financial capability that the CITY requires for a Respondent to be considered qualified. The CITY, in its sole discretion, will decide if a Respondent meets the standards. Please note, the Respondent is the entity responding to this solicitation and not a parent company, joint venture partners, or other corporate affiliates.

Respondent must:

1. Have been in the business of providing full contract operation for operation, maintenance, and management (O&M) of water and wastewater treatment systems for at least five (5) years. Full contract operations means, at a minimum, providing all labor and management and paying operations and maintenance expenses.

2. Operate at least five (5) water and wastewater systems equivalent to or larger than the City's systems.

3. Have at least five (5) years of continuous working experience with the State of Oregon's regulatory agencies.

4. Have at least five (5) years of continuous experience providing water and wastewater Treatment plant management services to municipalities.

5. Submit evidence of bonding capability in the annual contract amount. The amount of the bond may be modified depending upon the final scope of services.

6. Have demonstrated successful project transition experience.

7. Have verifiable existing support resources.

8. Have established systems and procedures for quality control, quality assurance, safety, maintenance, regulatory compliance and cost control.

Additionally, interested firms must respond to each of the following requests/questions in a clear and comprehensive manner.

A. Provide the full name, tax identification number, and main office address of the entity (hereinafter referred to as the "Contractor") which would ultimately enter into a contract with the CITY.

B. Identify when the Contractor was organized, and if corporation, where incorporated and how many years engaged in providing full service contract operations under that name. Provide a comprehensive description of Contractor's corporate ownership history. Fully identify and explain any changes in corporate ownership and/or operating name. Describe parent company relationship and history of parent company.

C. Provide a comprehensive reference list of all facilities (water or wastewater) where the Contractor currently provides full-service contract operations.

The above-described comprehensive reference list shall include **only full-service contract operations contracts**. Full-Service Contract Operations is defined as where the Contractor employs all treatment facility O&M staff, pays all chemical and power costs, and is fully responsible for all aspects of facility management, operation, and maintenance.
Contractor shall not include listings on the reference list that are:

i. Facilities that are owned or operated by a parent or holding company, or by other subsidiary of said parent or holding company.

ii. Facilities where the Contractor does not provide full-service contract operations. Facility startup or operations troubleshooting are not considered full-service contract operations (i.e., startup for facility that was designed by Contractor's parent engineering firm).

iii. Facilities where the Contractor provides "management consulting" services only (i.e., Contractor provides facility manager only, with the majority of staff being provided by the client).

D. Describe Contractor's employee benefit program. Provide specific information regarding medical and dental insurance, pension, vacation, sick leave, etc.

V. Sample Contract

The Contractor shall include a contract containing at a minimum provisions as follows:

Provisions of liability for the payment of fines and/or civil penalties levied against the Contractor and/or the CITY by any regulatory agency having jurisdiction, as a result of failure to comply with the terms and conditions of any duly authorized permit, court order, administrative order, law, statute, ordinance, etc. for reasons resulting from the Contractor's negligence during the period of the contract.

Provisions for compliance with the Operating (NPDES) Permit, specifically noting effluent quality and monitoring/reporting requirements and a process control system which furnishes complete and accurate records. System should be capable of readily providing historical data and trends.

Provisions of indemnification and hold harmless of the CITY and its agents, officers, assigns, employees, etc. from any loss or liability for claims, damages, lawsuits for reasons resulting from the Contractor's negligence during the period of the contract.

Provision for a five (5) year term with additional five (5) year extensions including a termination for convenience clause along with a contract termination clause.

Provisions of comprehensive liability insurance policies naming the CITY as additional insured for bodily injury and/or property damage in an amount of not less than Five Million Dollars ($5,000,000); a certificate of such insurance shall be submitted to the CITY (City Manager) on signing of the O&M contract.

Provision of a fixed dollar value for Repair and Replacement such that the Contractor's obligations will be explicit as to maintenance of CITY Water and Wastewater Treatment Plant's equipment and facilities. Such Repair and Replacement limit will not include Contractor's onsite labor. A specific method of decision making concerning the use of funds for repair and replacement should be outlined.

Provision that the Contractor shall be responsible for maintaining all manufacturers' warranties on new equipment purchased by the CITY and assist the CITY in enforcing existing equipment warranties and guarantees.

Provision that the Contractor shall provide a sufficient number of certified qualified personnel, including management, administrative, operational, technical, laboratory, and clerical, who meet relevant State of Oregon requirements and certifications regarding wastewater treatment operations and maintenance, and are capable and demonstrate experience necessary to operate and maintain the facility.

Provision that the Contractor shall operate all facilities such that odor and noise shall be effectively controlled and that no disruption of adjacent neighborhoods shall result.

Provision that the Contractor shall provide training for personnel in areas of operation, maintenance, safety, supervisory skills, laboratory, energy management, etc. A proper safety program must be implemented, and all portions of that program shall be adhered to.

Provision that the Contractor shall provide the CITY with a full accounting of all expenditures at intervals and in sufficient detail as may be determined by the CITY, and assist the CITY in preparation of annual operating budgets.

Provision that the Contractor shall provide the CITY with full documentation that preventive maintenance is being performed on all CITY owned equipment in accordance with manufacturers' recommendations at intervals and in sufficient detail as may be determined by the CITY. Such a maintenance program must include documentation of corrective and preventive maintenance and a spare parts inventory.

Provision that within the first ninety (90) days, the Contractor shall provide the CITY with a listing of any recommended capital improvements the Contractor believes will be required for any of the facilities covered under the contract. The Contractor will not be relieved of his responsibilities to perform if the recommendations are not implemented.

Provision for the Contractor to provide computerized maintenance, process control, and laboratory management systems.

Provision that the Contractor shall finance capital improvement projects that have been requested and/or authorized by the CITY, subject to mutually agreeable terms and conditions of repayment.

VI. Schedule of Events

Each Contractor must submit five (5) copies of a complete SOQ no later than 3:00 pm on May 5, 2017, addressed to:

Gary Milliman, City Manager
City of Brookings
898 Elk Drive
Brookings, OR 97415

clearly marked "STATEMENT OF QUALIFICATIONS—CONTRACT OPERATIONS AND MAINTENANCE, Water and Wastewater Treatment, Brookings, OR."

The CITY selection committee shall review all SOQs and develop a shortlist of the most qualified Contractor for further consideration. This selection shall be made based on the selection committee's sole judgment and discretion.

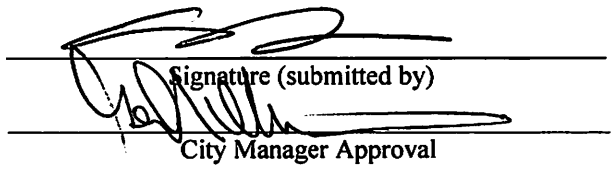
In addition to the data and documentation being submitted by the Contractor in response to this request, the CITY reserves the right to make an onsite inspection and evaluation of any facility at which contract operations services are currently being performed by the Contractor. If the CITY chooses to exercise this right, the Contractor shall provide a representative, with or without notice, to accompany the CITY selection committee or its delegated representatives on any onsite inspection. The inspection is not limited to only one facility. All costs for transportation and subsistence to inspect any facilities incurred by CITY personnel shall be borne by the CITY.

CITY OF BROOKINGS

COUNCIL WORKSHOP REPORT

Meeting Date: April 3, 2017

Originating Dept: Parks



Subject: Special Event Policy

Background/Discussion:

At the March 6, 2017 workshop, the City Council discussed night time activities in Azalea Park. In 2016, the organizers of the Oktoberfest event requested of the City administration that they be allowed to continue operation of the event at Azalea Park into nighttime hours. The Brookings Municipal Code currently provides that Azalea Park...and all other parks except the Mill Beach access...are open "dawn to dusk." The City has authorized only Natures Coastal Holiday (NCH) to be conducted during night time hours.

The park is closed at night for several reasons. One is because there are many potential trip-and- fall conditions which can only be observed in well-lit conditions. Of equal concern are safety of the public and the ability of emergency responders to deal with incidents that may occur in the park during nighttime hours. While the area of the park where an activity is undertaken ...such as the Oktoberfest event which occupied the grass area adjacent to the band shell...may be well lit, pathways leading to the activity area from the Park's four parking lots are not illuminated. The vegetated areas immediately beyond the event area are also heavily vegetated and dark, and is problematic for assuring the safety of event participants who may choose to leave the immediate event area, or may be an attractive opportunity for nefarious activity by event participants or non-participants. Police Officers cannot adequately observe these areas in the dark and first responders may be hindered by the darkness.

The City has experienced other issues related to large events in the park that need a closer look. These issues include the placement of large event tents, bouncy houses and vendors in the grassy areas in front of and adjacent to the band shell. In the past, staff discovered a broken irrigation pipe from a steel stake used to hold

down a bouncy house during the prior season. The band shell area of Azalea Park is full of shallow underground electrical conduit, water lines and irrigation lines. Without proper mapping of these systems, they are susceptible to damage from event organizers setting up large tents and bouncy houses with large tie down stakes. Much of the underground infrastructure was installed by volunteers or without the production of as built drawings. In addition, vehicles in and out of these soft grassy areas for set up can damage irrigation heads.

For the aforementioned reasons staff recommends the implementation of a "Special Event Policy" to address logistical problems associated with larger events that occur in both day and nighttime and that are not normally addressed through our regular Park Use Permit process.

The Special Event Policy will apply when:

Events have more than 500 people
Events where alcohol is served by a vendor
Events where amplified sound occurs beyond regular park hours
Events that occur beyond regular park use hours
Events are longer that 6 hours

Considerations moving forward; Allowing events beyond normal park hours will increase the City's liability exposure. If the City specifies the location of temporary lighting or participates in event set up, the City's current protection from claims and transfer of liability could be breached.

In accordance with the interest expressed by the City Council to accommodate night time events, staff has developed a draft Special Event Policy. This matter has not been reviewed by the Parks and Recreation Commission.

Attachments:

a. Draft Special Event Policy
b. CIS Events Risk Management Bulletin

Special Event Policy

City of Brookings
Parks and Recreation Department

Wild Rogue Relay 2016

POLICY STATEMENT

The purpose of a Special Event Policy(Policy) is to support and facilitate the process of administering large events that offer a valuable public purpose, such as the promotion of tourism and/or economic development, or the provision of recreational, informational, or enriching activities that benefit the greater Brookings community. It is further the policy of the City of Brookings (City) to ensure that the necessary public support that must be provided to outside organizations to ensure the safe and effective operation of large special events will not be subsidized by Brookings citizens.

GENERAL

The Policy applies to facility use requests that will attract more than 500 participants, include the sale of alcoholic beverages or require the exclusive use of an entire City park and associated parking lots. Events with promoters, organizers and event producers who prepare events and activities in which the City is a co-sponsor will be negotiated on a case-by-case basis. Depending upon the nature of a proposed co-sponsored event, policy and fees outlined in the Special Event Policy may or may not apply. The policy is administered by the City.

Permits for events of the size and nature described above will be considered for approval only for Azalea, Stout, Chetco Point and Bud Cross Parks.

The policy is adopted to guide the use of City parks for large special events. Approval for any events will not be considered final until a Special Event Park Use Permit is signed, all fees and deposits are paid, necessary permits are obtained and appropriate certificates of insurance are filed with the City.

Application for a Special Event Use Permit under the policy must be filed at least 30 days prior to the date of the event. All plans requiring approval must be submitted to the city at least 14 calendar days prior to occupying the park. A $500 expedited plan review fee shall apply if the City accepts a late Plan. The additional fee must be paid at the time the Plan is submitted. In the interest of protecting public safety and City property, the City may elect to apply special conditions to its approval of a Special Event Use Permit application, such as a restriction on the location that may be utilized for the event and limitations on the days and hours that the event may be open to the public.

EVENT NARRATIVE

The event organizer will be required to provide a written narrative, which fully describes the nature of the event, including the days and hours of operation, anticipated attendance, an explanation of each event activity, and the number of vendors.

EVENT AREA

The event location (park) and the exact area within a park, for the event operation will be agreed upon between the City and the event organizer. However, if mutually agreeable terms cannot be reached, the City's decision on the location and park area shall be final.

CONTACT PERSON

Event organizers will ensure that the specified contact person (s) for the event shall remain on site and be available during the entire period of the event. The City will supply the event organizer with a telephone number for a designated contact. Off hours emergency contact shall be through police dispatch.

RENTAL FEES

Event organizers shall pay the City the appropriate rental fee (s), as established by City Council Ordinance (Master Fee Schedule). The event organizer shall remit payment of the rental fee to the City upon execution of a Special Event Park Use Permit.

REIMBURSEMENT OF POLICE OFFICER COSTS

Event organizers shall be responsible for reimbursing the City for the costs of providing police officer support to the event. It will be at the City's discretion to determine the level of police officer support necessary to maintain public safety at events authorized under a Special Event Park Use Permit. The City will provide the event organizer with an estimate of police officer costs within 14 days of receiving a completed Special Event Park Use Permit Application. The event organizer shall deposit with the City a sum equal to at least one half the estimated costs prior to occupying a City park under these policies. At the conclusion of the event, the City will provide the event organizer with an accounting of the true and actual cost for providing police officer support to the event. The event organizer must pay any remaining balance within 14 days of receipt of the accounting. If the true and actual cost of providing police officer support to the event was less than the sum already paid to the City by the event organizer, the excess shall be remitted to the event organizer.

SECURITY DEPOSIT

Upon execution of a Special Event Park Use Permit, event organizers shall deposit with the City a sum equal to the first day's park use fee as a security deposit to be applied toward the cost of repairing damages to the park or to the City property caused by the event organizer or event participants, or to remedy other default under the permit. As special circumstances arise, the City may require security deposits in excess of a sum equal to the first day's park use fee. Within thirty (30) days following the event, the City shall either refund the security deposit to the event organizer or shall provide the event organizer a written accounting stating the basis of the City's claim to all or part of the security deposit. If costs of repairing damages to the park exceed the amount of the security deposit, the event organizer will be assessed the charges for all excess costs.

GROUND SET- UP PLAN

Event organizers shall be required to submit a Ground Setup Plan to the City for approval at least fourteen (14) calendar days prior to occupying the park. The City, at its discretion, may elect to accept a Ground Setup Plan not meeting the (14) fourteen calendar days requirement.

Ground Set-up Plan shall specify the location of:

A. All temporary fence lines including entrance gates, emergency exits and access lanes and service entrances;
B. Rides and attractions;
C. First Aid stations;
D. All food and beverage and other vending locations;
E. Utility vehicle, ambulance and event truck parking;
F. Ticket sales booths;
G. Security personnel;
H. Portable toilets;
I. Areas where propane gas will be used;
J. Stages for entertainment and amplified sound;
K. Supplemental lighting
L. Power generators
M. Pedestrian circulation routes

The Ground Set-up Plan is subject to review by the City. The City will respond to the Ground Setup Plan within seven (7) calendar days of its receipt. The response will indicate approval, approval with conditions or rejection. If the Plan is rejected, the City will explain the reasons for rejection to the event organizer and provide a deadline for a revision of the Plan to be re-submitted. The Special Event Park Use Permit is not valid without an approved Ground Set-up Plan. The event organizer shall abide by the approved Ground Set-up Plan as a condition of the Permit.

PARKING PLAN

Event Organizers shall be required to submit a Parking Plan to the City's approval at least fourteen (14) calendar days before occupying the park and shall:

- identify all designated parking areas, including those located off-site.
- describe the measures that the event organizer has taken to reduce on-street parking in surrounding neighborhoods.
- document agreements with off-site parking lot owners to park cars for the event and any agreements with a bus or transit company to shuttle event attendees to and from the site.
- if utilized, shall include shuttle schedules, routes , pick up and drop off locations at the off-site parking lots and the park where the event is taking place.

The City, at its discretion, may elect to accept a Parking Plan not meeting the (14) fourteen calendar days requirement.

The City will respond to the Parking Plan within seven (7) calendar days of its receipt. The response will indicate approval, approval with conditions or rejection. If the Plan is rejected, the City will explain the reasons for rejection to the event organizer and provide a deadline for a revision of the Plan to be re-submitted. The Special Event Park Use Permit is not valid without an approved Parking Plan. The event organizer shall abide by the approved Parking Plan as a condition of the Permit.

SECURITY PLAN

Event organizers shall be required to submit a Security Plan to the Public Safety Director for approval at least fourteen (14) calendar days prior to occupying the park. The City, at its discretion, may elect to accept a Security Plan not meeting the (14) fourteen calendar days requirement.

The Security Plan shall include the following:

A. The number of private security officers, the locations where each private security officer will be stationed and the hours each private security officer is scheduled to work at the event.
B. A description of the uniforms worn by private security officers working at the event.
C. The minimum age required of private security officers permitted to work at the event.
D. A crowd control plan. The crowd control plan shall include:
    1) A description of how the private security firm intends to manage the crowd throughout the event.
    2) A description of the specific steps the private security firm will take to monitor specific activities within the event, such as soccer matches, dances, or any high profile entertainment performances.
    3) A description of the private security firm's standard for exclusion from the event (i.e. violent, threatening, unsafe or criminal behavior, vandalism, etc.)
    4) A description of how the private security firm will interface with the Brookings Police Department to facilitate exclusions or manage emergency situations.
    5) The name of and cellular telephone number for the on-site security manager.
E. Proof of bonding of the private security company.
F. Proof of license and certification of the private security company by the Oregon Department of Public Safety Standards and Training.

The City will respond to the Security Plan within seven (7) calendar days of its receipt. The response will indicate approval, approval with conditions or rejection. If the Plan is rejected, the City will explain the reasons for rejection to the event organizer and provide a deadline for a revision of the Plan to be re-submitted. The Special Event Park Use Permit is not valid without an approved Security Plan. The event organizer shall abide by the approved Security Plan as a condition of the Permit.

ON-SITE VEHICULAR TRAFFIC

To ensure the safety of event visitors, organizers and exhibitors, vehicular traffic within the park during the hours the event is open to the public will be prohibited. This prohibition includes delivery and/ or transport vehicles. All deliveries shall be scheduled to occur during the hours the event is closed to the public. Approved off-hours vehicular movement will be restricted to designated paths, roads and parking areas. The Community Services Director, at their discretion, may authorize specific exemptions to the on-site vehicular traffic prohibition, provided that the safety of the public in attendance at the event can be maintained.

The event organizer will be provided with notice that their failure to comply with the park traffic rules will result in revocation of the Special Event Use Permit. In lieu of revoking the Permit, the City, at its sole discretion after hearing from the event organizer, may elect to

impose a $500 forfeiture per park traffic rule violation. Nothing in this provision shall limit the City's authority to issue citations for violations of any City ordinance or applicable laws.

RESTROOMS

The event organizer shall be required to provide one portable restroom for every 125 expected visitors at any given time the event is open to the public. Five percent of all portable restrooms must meet the requirements set forth by the Americans with Disabilities Act. When restrooms are required in two or more locations, each location must include an ADA approved restroom. Organizers will clean and service these facilities on a frequent basis throughout the event. The Azalea Park band shell restroom can accommodate up to 500 people. The event organizer shall be required to provide one portable restroom for each additional 150 expected visitors at any given time the event is open to the public.

TRASH CONTAINERS AND DUMPSTERS

Event organizers are to provide a dumpster and require each concessionaire or exhibitor to provide two trash cans for use by the public. The concessionaires or exhibitors shall empty these containers on a frequent basis throughout the event and dispose of the trash in an appropriately sized dumpster(s) provided by the event organizer. The event organizer shall ensure that all trash is removed from the park at the end of the event. Location of the dumpster shall be indicated on your event plan.

CLEAN-UP

Event organizers shall be required to perform ongoing daily litter and trash cleanup of the entire permit site throughout and at the conclusion of the event. At the conclusion of the event, the event organizer shall be required to restore the event site to the condition equal to or better than existed prior to the event. Throughout the operation of the event and at the conclusion of each event day, the event organizers shall conduct a neighborhood clean-up detail to pick up litter left by event visitors who park throughout residential neighborhoods and business departments. At a pre-event meeting, City will clarify the extents of the required neighborhood cleanup.

If the event organizer fails to perform the required daily litter clean up described above, they will be provided with notice that their failure to comply with the clean-up policy will result in revocation of the Special Event Use Permit. In lieu of revoking the Permit, the City, at its sole discretion after hearing from the event organizer, may elect to impose a $500 forfeiture per policy violation. Nothing in this provision shall limit the City's authority to issue citations for violations of any city ordinance or applicable laws.

NEIGHBORHOOD RELATIONS

Because large events have a significant impact on surrounding neighborhoods, following the issuance of a Special Event Park Use Permit, the City will require event organizers to notify with flyers the surrounding neighborhood. The flyer shall include dates, times and a description of the event. It shall also invite the neighborhood to participate in the event and provide a City phone number to call should a concern arise. The city will provide event organizers with a mailing list or street map with addresses to delineate the extent of flyer distribution.

PROMOTION OF SPECIAL EVENT

Any promotion of events covered by a Special Event Park Use Permit shall be entirely by Event Organizers at their own expense. Event Organizers shall not publicize, promote, or otherwise advertise the event at a City park location until a Special Event Use Permit is issued, unless such promotion is authorized in advance by the Parks & Planning Manager or designee. On-site banners or signs are allowed two (2) weeks prior to event but not before or during a preceding event.

INSURANCE

Event organizers must provide and maintain at their own expense, comprehensive general liability insurance and comprehensive auto liability insurance with a combined single limit of at least $2,000,000 per occurrence. Depending upon the nature of the event planned, the City may require additional insurance coverage. Such insurance shall be primary to other insurance maintained by the City and shall name the City as additionally insured.

COMPLIANCE WITH PARK RULES

Event organizers must agree to comply with all policies, rules, and laws governing the operation of the City park, and not alter or damage the park's natural or cultural resources or man made improvements in any way through the support or operation of the event activities, and to be responsible for and fully repair all damage to park facilities and resources which may result from any operations under their permit. Under no circumstances, shall event organizers allow nails to be placed in park trees; nor shall stakes shall be placed into the ground at a depth exceeding eight inches. All supplemental lighting systems shall be free standing. No attachments shall be made to existing park systems. Event organizers will be provided with notice that their failure to comply with park rules will result in revocation of their permit. In lieu of revoking the permit, the City, at its sole discretion, and after hearing from the event organizer, may elect to impose a $500 forfeiture per park rule violation. Nothing in this provision shall limit the City's authority to issue citations for violations of any city ordinance or applicable laws.

SOUND AMPLIFICATION

In Accordance with Brookings Municipal Code 12.25.012, Rules and Regulations Specific to City-Owned Parks, amplified sound and/or music is allowed in City parks provided it is contained within the immediate area of the activity. Event organizers will be required to estimate sound output if musical entertainment is included in the event. If it is determined that the decibel of sound is beyond allowable limits, City management or police department will regulate the sound volume. If the violation continues, event organizers will be provided with notice that their failure to comply with park rules has resulted in revocation of their permit. In lieu of revoking the permit, the City, at its sole discretion, and after hearing from the event organizer, may elect to impose a $500 forfeiture per park rule violation. Nothing in this provision shall limit the City's authority to issue citations for violations of any city ordinance or applicable laws.

VENDORS & EXHIBITORS PERMITS

Event Organizers shall be held responsible for communicating all park and event rules, regulations and permit requirements to any vendors and/ or exhibitors they authorize to participate in their event. The City will reserve the right to expel from a facility any vendor that the City determines is not in compliance with provisions of the Special Event Park Use Permit or City rules & regulations. The City will report suspected code violations to appropriate regulatory agencies.

PRE-EVENT WALKTHROUGH

Event Organizer and City will conduct a pre-event walk through at the Event location at least one day prior to the start of the Event. Event Organizer must agree to comply with any additional instructions, site set-up changes and/ or restrictions issued by City that result from this walk through.

ALCOHOLIC BEVERAGES

Alcohol dispensing will **only** be allowed at Azalea Park, and only with the appropriate OLCC Temporary Sales/ Special Event License or an OLCC Temporary Use of Annual License for an event at an unlicensed location. Applications will only be considered for beer and wine; no spirits or hard liquor. Events at which alcohol will be dispensed are required to make exclusive use of the park. If alcohol dispensing is part of the park permit application, the Security Plan shall include:

A. A detailed plan (including notations on the Ground Setup Plan) on how Event Organizer plans to manage and separate minor patrons from adult alcohol consumers.
B. How Event Organizer will check adult patrons' ID.
C. The number and location of private security assigned to supervise the alcohol service area (the City shall establish the number of security officers required per capita on a case by case basis except where daily event attendance is expected to exceed 2,000 persons and in that event it shall be no less than established OLCC requirements).
D. How the Event Organizer will comply with OLCC regulations regarding food service for patrons being served alcohol.

Event organizers that authorize the sale of alcohol in violation of these policies will be provided with notice that their failure to comply with the terms of these policies will result in revocation of their permit. In lieu of revoking the permit, the City, at its sole discretion, and after hearing from the event organizer, may elect to impose a $500forfeiture. Nothing in this provision shall limit the City's authority to issue citations for violations of any city ordinance or applicable laws.

OTHER APPROVALS AND PERMITS

Event organizers will be notified that, apart from the requirements set forth in these policies, it might be necessary for them to obtain other permits and approvals in order to conduct their event, including, but not limited to:

A. Event organizers must require food vendors to obtain a temporary restaurant license from the Curry County Health Department.

B. For any amusement rides, event organizers must obtain inspection and approval of the State of Oregon, Building Codes Division and display a current operating permit for each ride.
C. An emergency access plan for the Event must be approved by the City. Additionally, the Brookings Fire Department has developed public event requirements which must be strictly adhered to.
D. A dance permit must be obtained through the Brookings Permit Office for any public dance.
E. No signage may be displayed by event organizers unless a Temporary Sign Permit has been issued by the Community Development Department. No signs will be permitted in the public right-of way.
F. A Parade Permit must be issued by the City for any parades on City streets or in the public right-of-way.

The City may revoke the permit if the event organizer fails to obtain all of the necessary permits and approvals for any specific activity in which it engages.

AUTHORITY TO SUSPEND OR CANCEL

In the event that the City Manager, Parks & Planning Manager Public Works Director, Police Chief, or other City official designated by the City Manager determines that activities conducted under a Special Event Park Use Permit endanger the health and safety of any person, or will cause damage to real property, or that an event organizer has not complied with any of the terms and conditions of the Special Event Policies or Special Event Park Use Permit, the City, through the action of any of the above-named City officials, may suspend or cancel said Permit. The City reserves the right, at its discretion, to suspend or cancel said Permit at any time without incurring any liability to the event organizer whatsoever. The event organizer shall be required to immediately cease all activities and events within the park upon notice of suspension or cancellation of the Permit.

ANTI-DISCRIMINATION/COMPLIANCE WITH LAWS: Event organizers shall be prohibited from discriminating against any individuals on account of color, race, religion, ancestry, or national origin and to comply with all applicable federal, state and local rules, regulations and ordinances.

citycounty insurance services
www.cisoregon.org

Summertime in the City:
Festivals and Events Risk Management

It's almost summer, which means special events such as festivals, fairs, parades and Saturday markets will soon be happening in cities throughout the state. As cities prepare for summertime events, it's important to include some risk management.

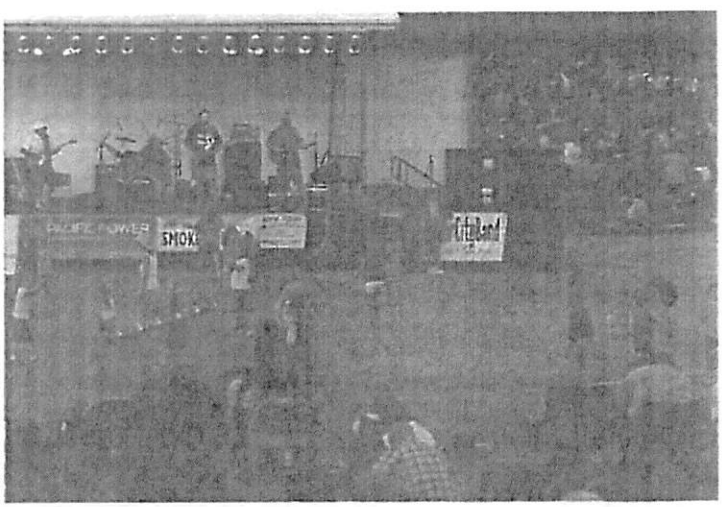
To reduce risk, here are some recommendations for cities to consider during the summer's special event season.

Special Events Checklist

A city should complete a special events checklist for each event it sponsors. These checklists have various questions pertaining to the type of special event, and samples are available on the CIS Learning Center website. Go to *www.learn.cisoregon.org* and click on the "Resources" icon on the top right hand side of the page. Then, select Festivals/Special Events from the list of topics.

Special Events Application

CIS recommends that cities have an application process for third-party sponsored events on city property, especially if your city charges for the use of the facility or property. The special events application should outline what type of event will be occurring; whether the third party has insurance coverage; should include a hold harmless/waiver of liability; identify who will be supervising the event and how; and whether alcohol will be served, and if so, whether the organization has liquor liability coverage as well as licensed OLCC servers. Your city should also obtain copies of the third party's certificate of insurance and have the city listed as an additional insured.



Special Events Coverage

Third party special events held in CIS city-member facilities may qualify for the Tenant User Liability Insurance Program (TULIP). This is a program for CIS members and allows individuals or organizations using municipal facilities for special events to transfer the risk with a low cost policy, protecting both the city and the tenant user. There is an easy-to-use online application that provides an instant quote. Coverage limits are up to $1,000,000 for general liability. More information on this coverage can be found at *www.cisoregon.org/webportal/trust/Tulip.aspx.*

Volunteers

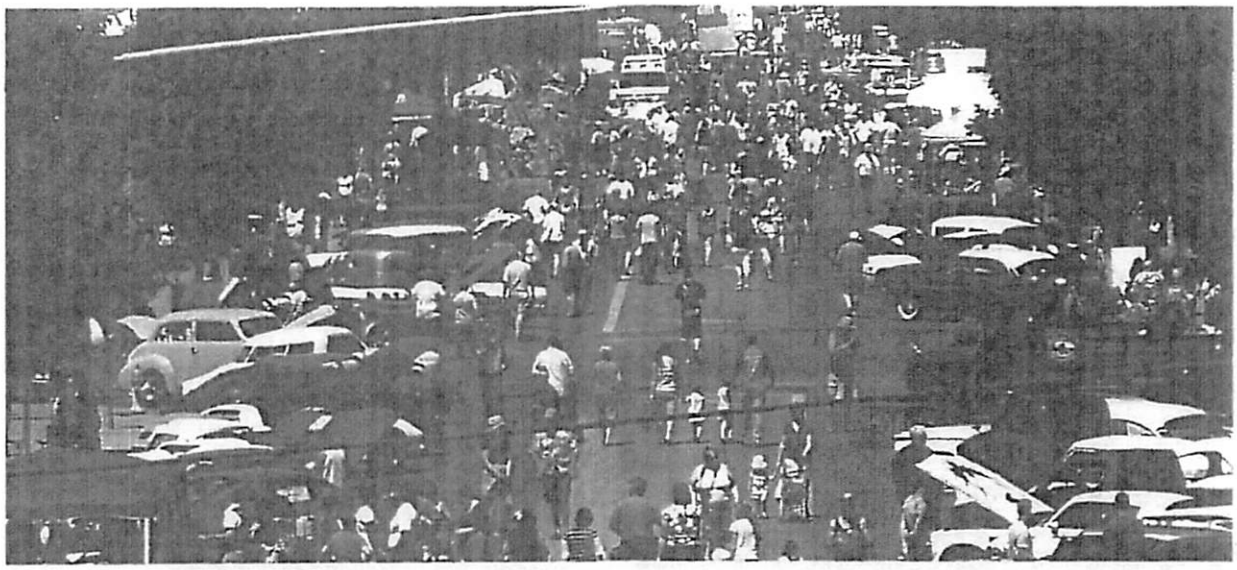
Volunteers are often key to the success of city events, but they need special attention. Information about managing volunteers and special events is also available through the Risk Management Library, on the CIS Learning Center website (*www.learn.cisoregon.org*). Click on the "Resources" icon on the top right hand side of the page, and then select Volunteers from the list of topics. If the volunteers are city volunteers, ensure the volunteers are selected carefully for the type of event being held.

Sign-in sheets must be kept for each event, tracking dates and times the volunteers worked. Ensure that volunteers receive a safety overview prior to the event on risk or safety issues they might face during the event. Verify third party volunteers will be supervised by the third party organization, and that the group will manage any risk to those volunteers.

If you chose to provide workers' compensation coverage to your volunteers, make sure that you maintain rosters and sign-in sheets for each event. CIS has several resources available to members with workers' compensation coverage available on our website, *www.cisoregon.org*, under the "Workers' Compensation" menu. These resources include a sample statement of non-coverage for volunteers, sample volunteer resolution, volunteer coverage guidelines and volunteer rosters.

Insurance Coverage for Third Party Contractors/Event Coordinators

Cities may choose to transfer the risk of the event by contracting the event to another party or contractor, such as for fireworks displays. If your city chooses to transfer the risk in this way, it is important to ensure that all contractors have their own insurance coverage and that the city is listed on the certificate of insurance as an additional insured.



It is very important that you also get a copy of their insurance policy to see what types of exclusions their policy has. For example, a CIS member requested to see a copy of a third party's General Liability Policy to verify their bleachers would be covered. To the member's surprise, they found exclusions in the policy for animals, bleacher collapse, sports participants, mechanical rides, injury to performers, entertainers and partitipants, and a liquor liability exclusion. When the third party group was asked to obtain a policy that didn't exclude the items that pertained to the event, the underwriters removed the exclusions with minimal increase to the premium.

It's important to be diligent to ensure that the contractor's coverage provides the protection that your city needs.

Vendors

Food vendors at your special event should have their own insurance coverage with the city listed as an additional insured on the certificate of coverage. Verify all food vendors have their state food handlers' certificate and that they are following appropriate hand-washing and sanitation procedures.

Events with Alcohol

Anyone serving alcoholic beverages should be a licensed OLCC server and provide proof of liquor liability insurance. Have alcohol serving limits in place (i.e. arm bands or tokens that can be tracked) to ensure that over-serving does not occur. Security should also be present in the event that someone needs to be escorted from the premises and have procedures in place for contacting law enforcement.

Water Concessions, Fountains and Spray Stations

In hot weather, consider having potable drinking water and/or water concessions to ensure that attendees and participants stay hydrated, and water spray stations where attendees can walk under a spray of water to stay cool.

Petting Zoos

E-coli exposure has been an issue in past petting zoos and events where animals are present. Have appropriate hand washing facilities placed at each entrance/exit of the livestock areas, and ensure you have appropriate signage to ensure that people wash their hands before eating or after leaving these areas.

Parades

Instead of throwing candy from vehicles or animals, have people handing out candy along the sides of the streets to avoid the risk of children running into the street. Ensure that all items handed out are safe and lead-free, and that all animals are clearly separated from noisy vehicles such as fire trucks and police cars. Have an appropriate barrier around the parade route and, if possible, have law enforcement to ensure that cars do not inadvertently enter the parade route. Have appropriate pedestrian pathways established away from the parade route, as well as barriers between the onlookers and the parade vehicles and animals.

Bicycle/Running Events

Routes of the events should be properly marked so attendees do not get off course, and blocked so that vehicles do not enter the course area. Have watering stations at regular intervals so that the participants can stay hydrated, especially on hot days.

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Recreational Immunity

By statute, property owners have recreational immunity if they allow others to use their properties or facilities for recreational purposes for free. If your city charges a fee or deposit, typically that immunity goes away. Many times we recommend cities do not charge a fee.

If you are unfamiliar with recreational immunity, information on this topic is also available on the CIS Learning Center website. Click on the "Resources" icon on the top right hand side of the page, and then select Premises Liability from the list of topics.

Facility Maintenance

Even if you have recreational immunity, it is still important to ensure that your facilities and properties are well maintained, in good condition, and have limited risk to those using them.

It is also pertinent to have a regular maintenance schedule and inspection checklists for your facilities, properties and any equipment on them. Make sure all bleachers/stadium seating are in good condition, secure, free of splinters or nails poking out, have appropriate hand railing systems, and do not have gaps that would allow small children to fall through.

Ensure that any fencing that serves as a barrier between livestock/events and attendees is secure and strong enough to prevent anything from reaching the attendees. Ensure that all participants know the risk of the events and have signed a waiver that they are participating at their own risk. Also ensure that no children or spectators are allowed back where the livestock are held.

Last But Not Least

Several months in advance of the event, confirm with your city's risk manager (and/or insurance agent) that you are appropriately covered and have all risk management practices in place. If you are a CIS member, contact us as soon as your city decides to have an event at your property to discuss the particulars. We can let you know whether the event or activity qualifies as a unique risk and if additional coverage will be needed. We'll assist with implementing risk management procedures and protocols that will help ensure your event goes off without any injuries or major catastrophes. ■

CITY OF BROOKINGS

Council WORKSHOP Report

Meeting Date: April 3, 2017

Originating Dept: PW/BD

Signature (submitted by)

City Manager Approval

Subject: Updates to the Engineering Requirements and Standard Specifications for Public Works Infrastructure.

Financial Impact: There should be no financial impact to the City.

Reviewed by Finance & Human Resources Director: _____

Background/Discussion: The City Standard Specifications defines the parameters for workmanship and construction materials for all construction in the City right of way. The last update occurred January 27, 2014 and is a product of combined, thoughtful input from the City Standard Specification committee which includes Public Work Director Paul Stevens, Public Works Supervisor Richard Christensen, and Building Official/ Public Works Inspector Garrett Thomson. Since its adoption, staff has successfully utilized these standards for developer, emergency, and in house City projects.

The Standard Specification Committee reviewed and approved all changes to the specifications and details. The construction standards detail updates are redlined originals. Updates to drawings shall be completed upon receipt of drawing files from Dyer Engineering.

Attachment(s):

a. Original copies of the 2014 Engineering Requirements and Standard Specifications for Public Works Infrastructure.

b. Revised copies of the 2014 Engineering Requirements and Standard Specifications for Public Works Infrastructure.

ENGINEERING REQUIREMENTS
and
STANDARD SPECIFICATIONS
for
PUBLIC WORKS INFRASTRUCTURE

CITY OF BROOKINGS,
CURRY COUNTY, OREGON

Revised and Adopted 1/27/14

Table of Contents

Chapter 18.25
Division 5 - Site Work

Chapter 18.05
Division 1
General Information and Requirements for Submitting Plans

18.05.001 SCOPE

The purpose of this document is to establish correct procedures, outline acceptable standards of workmanship and required specifications for any work or projects being accomplished within City of Brookings jurisdictional rights of way that involves additions to, amendments, or repairs to City infrastructures, or infrastructure that is being constructed with intention to be dedicated to the City and accepted into the inventory of City infrastructure.

The standard specifications also include construction details as an attachment to this document. The specifications and details complement each other and both must be reviewed and adhered to. Generally, the specifications will include more information on parts and ordering information while the details depict graphics on how to construct the improvements.

18.05.002 DEFINITIONS

A. Engineer: A person holding a current Registered Civil Engineering license in the State of Oregon.

B. City: As used herein the term “City” or “City Engineer” shall denote the City Engineer, the City Manager, or his/her designated representative.

C. Contractor: A private person or organization that has entered into a contractual obligation to perform improvements, repairs or maintenance to public facilities or construct facilities proposed to become public facilities.

D. Original developer: A person, partnership, firm, corporation, or other legal entity in whose name the land development to which BMC 17.168.020, 17,168.050, 17.168.060, 17.168.080, and 17.168.100 is applicable, or the legal heirs, assigns or successors of said developer.

E. On-site improvements are defined as improvements made on private properties. Off-site improvements are defined as construction, repair, maintenance, enlargement, and extension to City infrastructure that exists in dedicated rights of way or easements.

F. Standards and Specifications Committee: Council appointed committee responsible for updates to the Engineering Requirements and Standard Specifications for Public Works Construction.

G. Engineering Requirements and Standard Specifications for Public Works Construction: Also will be known as Construction Standards, Public Works Standards and Details, Public Works Infrastructure Standards, or Brookings Specifications.

18.05.003 ABBREVIATIONS AND ACRONYMS

Whenever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as follows:

AASHTO	American Association of State Highway and Transportation Officials
AC	Asbestos cement pipe
ACI	American Concrete Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
BMC	Brookings Municipal Code
BMP	Best Management Practice
CCB	Construction Contractors Board
CI	Cast iron pipe
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DEQ	Department of Environmental Quality
DET	Detail
DI	Ductile iron pipe
DOH	Department of Health
EPA	Environmental Protection Agency
FT	Feet
FTG	Fitting
FLG	Flange
HMAC	Hot mix asphaltic concrete
IBC	International Building Code
ID	Inner diameter
IEEE	Institute of Electrical and Electronics Engineers
MIN	Minimum
MJ	Mechanical joint
MUTCD	Manual of Uniform Traffic Control Devices
NBFU	National Bureau of Fire Underwriter's
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NTS	Not to scale
OAR	Oregon Administrative Rules
OD	Outer diameter
ODOT	Oregon Department of Transportation
OHD	Oregon Health Division, Drinking Water Section
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Act (both Federal and State Agencies)
OUCC	Oregon Utilities Coordinating Council

PCC	Portland cement concrete
PUE	Public Utility Easement
SS	Stainless steel
TYP	Typical
UPC	Uniform Plumbing Code

18.05.004 GENERAL

A. These specifications establish a minimum standard for development projects under City of Brookings jurisdiction. Designs must follow a standard of engineering excellence for clarity and readability. All work must comply with the approved plans. The City of Brookings does not assume responsibility or liability for a developer's alternate methods, recommendations, or engineering designs that deviate from this document.

B. If unusual conditions arise during construction that warrants changes, the City may require a deviation from the typical sections and details of this document.

C. All work should proceed in a systematic manner, with a minimum of inconvenience to the public or impact to City rights of way.

D. Any work, repair, maintenance, additions, or alteration being performed to City infrastructure must be performed under the supervision of a licensed contractor and if it is being performed in a right of way a right of way permit is required per BMC Title 11.

E. Additions or extensions to City infrastructure that are not included in the final approval of a subdivision plat will require a formal dedication to the City.

F. Disturbed or obliterated property corner monuments or survey reference monuments must be restored per ORS 209.150 and 209.155.

G. All construction within Oregon State Highway Rights-of-Way shall be in conjunction with the "General Provisions of the Oregon Department of Transportation."

H. All construction within the Curry County Rights-of-Way shall be in conjunction with the "Curry County Road Department Specifications".

18.05.005 RESPONSIBILITIES

A. The contractor: is responsible to provide all labor, materials and equipment that are necessary to complete the work as specified in the approved plans. If the contractor has questions about City requirements, they are urged to discuss any issues with City staff prior to commencement of work. Work in the public right of way shall not commence until permits have been issued. Work shall not commence until the City has been notified at least 48 hours in advance and a written "Notice to Proceed" or signed permit is issued by the City of Brookings. If work has been discontinued for the time period specified herein, it shall not resume until the City has been notified in writing. All work shall proceed according to the approved plans and latest City standards, which include, but are not limited to, Zoning Ordinances, Subdivision Ordinance, and this document. Any work not meeting these standards is subject to removal and replacement by the City at the contractor's expense.

Other considerations are:

1. Traffic safety, worker safety and safety devices are the responsibility of the contractor, and failure to comply with safety as outlined in this document may result in a cease work order, fine or both.

2. The contractor is responsible for the repair of damaged underground or above ground facilities and the quick restoration of services. The City is not liable for damages the contractor may have caused to private property.

3. Work shall not proceed beyond required inspections. The project shall be inspected under the direction of the City and constructed to the satisfaction of the City.

4. The contractor is responsible to notify Oregon Utilities Coordinating Council (OUCC) and to proceed with underground projects with the appropriate care necessary to avoid damage to underground facilities. The contractor shall pothole and verify the location of marked underground City utilities, their pipe sizes, valves, and etc., and meet all requirements of the OUCC document.

5. Right of way public works construction permits are required for projects that take place in City rights of way. The permit is current for 6 months with a one-time extension of 6 months. The extension request must be submitted in writing and before the expiration date.

6. One-year warranty bond equal to 10 percent of the value for the total public improvements that exceeded $5,000, for a period of one year, as required per BMC 17.80.090.

7. Developments that must install public utilities such as communication and electric facilities in the right of way or PUE must coordinate the installation of those facilities, such as conduits, junction boxes and poles with the appropriate utility company.

8. Contractor is responsible for all clean up of construction debris and excess excavation materials. All existing ditches, culverts, signposts, and similar items are to be left as found, or as specified by a contract or on the approved plans.

9. The temporary shut-down of water services and water mains requires prior notification. The contractor shall notify the City and all affected residents and businesses a minimum of 48 hours prior to the start of a service curtailment. The shut-down will be completed by City personnel only.

10. Contractor is required to keep his Oregon Construction Contractors Board (CCB) license current and a Brookings City business license is required per BMC 5.05.060.

11. The contractor is required to keep a set of approved plans, attached specifications, and permit available to the job site while work is being performed.

12. Any dig ticket underground utility location markings must be removed therefore it is recommended the locators use water soluble paint.

B. The City: will thoroughly review construction plans to assure that all correct materials, their locations, installation procedures and workmanship specifics, that are required, are shown on the plans or included as attachments. City will make available any special requirements pertinent to the project in attachments. When the plans have been deemed correct, work permits will be issued, in writing. City will furnish the contractor with contact information to several City personnel who are familiar with the project, and who will be available during normal City work hours. In addition, City has available a 24 hour emergency contact number for use in the event of an emergency. Also:

1. Although advanced notice for inspections have a 24 hour maximum time limit, City personnel will make every effort to perform inspections as soon as possible.

2. City will provide a right of way/public works construction permit and list of the required inspections pertinent to the project.

3. City is responsible for locating underground City infrastructure within the tolerances described in OUCC documents. City will provide surface marks indicating the location of undergrounded City infrastructure and the contractor shall perform pot-hole verifications. In the event City is not able to locate existing underground utilities from as-built plans or by other technical surface means, City will perform pothole investigation, mark, and provide actual location information to the contractor. The contractor may, at his discretion, expense, and risk, perform actual locate investigation.

4. Upon successful completion of a final inspection the City will authorize new installations to be connected to City systems.

18.05.006 SUBSTITUTIONS

A. Alternate Materials, Equipment and Methods: Requests to substitute products specified by manufacturer or manufacturer's model number, use of alternate equipment or installation procedures as specified throughout this document shall be in writing and be accompanied with sufficient information to allow the City to identify the nature and scope of the request. Types of information to be provided shall include:

1. All submittal information required for the specified equipment, including all deviations from the specified requirements necessitated by the proposed substitution.

2. Materials of construction, including material specifications and references.

3. Performance data including performance curves and guaranteed power consumption, over the range of specified operating conditions.

4. Dimensional drawings, showing required access and clearances, including any changes to the work required to accommodate the proposed substitution.

5. Piping, process and instrumentation drawings, along with control descriptions where applicable.

6. Information and performance characteristics for all system components and ancillary devices to be furnished as a part of the proposed substitution.

7. If the substitution requires any mechanical, electrical, or structural changes, the contractor will be responsible for the costs of evaluating a requested substitution. The City will provide an estimate of costs associated with determining the evaluation of alternatives. The cost for such an evaluation will be determined on a case-by-case basis, after receipt of written request. The City will notify the contractor in writing of said cost. If the contractor wishes to proceed, he shall advise the City in writing and submit additional information as may be requested. The decision to allow a substitution must be made by the City.

18.05.007 GENERAL ENGINEERING REQUIREMENTS

A. Public improvement plans are required to be stamped by an Engineer licensed to perform Civil Engineering in the State of Oregon, and peer reviewed by the City Engineer in the following circumstances:

1. Developments that involve infrastructure and street additions or improvements in conjunction with the subdivision of land.

2. Construction on sites that are subject to the requirements of Chapter 17.100, “Hazardous Building Sites” of the BMC may require additional geologic, flood plain, drainage, erosion, and other professional assessments.

3. Developments that involve extensions of existing infrastructure.

4. Developments in areas where the existing infrastructure is undersized or incompatible.

B. At the time of the first review of a permit application by the Site Plan Committee, developments that are small or simple in nature, such as those that involve single-family residences may be exempted from these engineering requirements, peer review, or both. The applicant will be notified in writing within 10 working days of submission of plans. If peer approval is necessary, the letter will include a consent form authorizing City to peer review the project. Within 10 working days of receiving the signed authorization form from the applicant, the plans will be peer reviewed, and the applicant will be notified in writing of the final comments on the project. The fees for peer review are “actual cost” and must be paid before a permit shall be issued.

C. All engineered specifications and plans are required to meet or exceed the requirements of this document.

D. Inspection Required. Improvements shall be inspected by the City and if requested, by the engineer of record and constructed to the satisfaction of both parties. The City may require changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest. Sewer and water systems shall be approved by the city engineer, or his authorized designee, prior to final hookup.

18.05.08 PLAN SUBMITTAL

A. Preliminary Plan Review – Provide three (3) sets of legible preliminary plans and report as required to the City for initial plan review and comment. The City will provide a plan review fee invoice to be paid before plan review comments are returned. The plan review fee is defined in the Master Fee Schedule. The City will provide plan check comments and direction on whether the plans are "approved as noted," "revise and resubmit," or "reject as incomplete."

B. Subsequent Plan Reviews – Provide three (3) revised plans and plan check comments with a response to all plan check comments.

C. Permit Issuance – After the City has approved the plan set, applicant shall submit five (5) sets of approved legible final construction plans and an engineer's estimate stamped and signed by the applicant's engineer. If the project did not require a licensed engineer, staff will provide a construction estimate based on current City bid results. City staff will calculate the construction permit and inspection fees based on the engineer's (or City's) estimate of construction costs, and provide an invoice for payment before permits are issued. Permit approval will include a public works right of way permit and approved plans. Approved permit and plans shall be valid for 1 year after City's approval date. Failure to execute substantial construction on the development or project within that time shall cause plan approval to expire. The applicant may submit and obtain approval for a one-time extension of one year, in writing, prior to a normal expiration.

D. Plans showing new City facilities or repairs and maintenance of existing facilities must be placed on the Oregon State Plane Coordinate System, South Zone, North American Datum of 1983 (NAD 83), and elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD 88). Upon review by Site Plan Committee, projects that are small or simple in nature may be exempted from this requirement, and may be placed on assumed coordinates and elevations.

E. In addition to City of Brookings approval, other jurisdictions have authority over certain types of projects, and their approvals are also required. It is not feasible for the City to keep the documents of other jurisdictions current with this document. An applicant is advised that there may be requirements from Oregon Department of Human Services, Health Division, Oregon Department of Environmental Quality, other State and Federal regulatory agencies and Curry County Road Department not kept current in this document. City will make every effort to keep said agencies requirements current, on file and perform an advisory role to help an applicant obtain approval from other jurisdictions. The City of Brookings has obtained authority for plan review on water systems by the Oregon Department of Human Services, Health Division, which will permit local review of planned water improvements by the City. An additional fee for plan review will be assessed on each project for which this applies.

F. Construction Plan Requirements: Plans shall be submitted in a scale that allows for easy reading, but shall not be produced on paper larger than 24-inch by 36-inch. Vertical plans shall be drawn in an exaggerated vertical scale of 10 times the horizontal scale, and contain the following general information:

1. A vicinity map, north arrow and scale bar.

2. A title block that includes name and addresses of the applicant and/or his

agent, sheet title and page number, and date and revision number.

3. A plannemetric map (bird's eye view) showing the location of all existing structures and facilities, and proposed facilities, both above and below ground within the project area. By example, but not limited to, show the right of way boundaries of adjacent streets, their edge of pavement and physical and actual centerlines, curb and gutter, and pedestrian facilities.

4. Topographic data in contours or spot elevations or both.

5. All existing and proposed easements not in rights-of-way that are pertinent to the project shall be shown on the plans.

6. When applicable, a centerline profile is required with typical stationing which indicates the location of any cross-section details.

7. When applicable, a below grade cross-section detail showing all proposed underground improvements and their relationship to existing underground utilities.

8. When applicable, cross section details showing proposed improvements such as curb gutter and above grounded utilities with spot elevations.

9. In order to achieve a matched layering affect, the various plan and profile views and cross-section details of water, sewer, storm water facilities and street improvements must be kept on the same scale and stationing throughout the plan sheets.

10. Electrical plans

a. Shall show the location of all existing and proposed electrical utilities such as lines, transformers, pedestal-type connection points, conduit size and lengths, power source connections and street light circuits and controls.

b. Location in trench section detail (including proposed telephone and/or television transmission lines). [Ord. 91-O-484 § 1(1A.07.e). Formerly 16.15.110.]

11. The drafted plans must clearly differentiate between on- site and off-site, existing and proposed improvements. Use diverse pen weights, shading, and line types, or draw the various improvements on separate sheets.

E. Final as-built plans:

1. Within 60 days of project completion submit final plans showing all project information, as-built changes, a copy of newly recorded easements and include:

a. One original map on 4-mil double mat Mylar, in archivable ink; and 2 paper copies on 20# bonded white paper.

b. For those projects completed on computer software, submit electronic files in Autocad compatible ".dwg" or ".dxf" extension formats, copied to an archivable CD disk.

18.05.009 REIMBURSEMENT PROCEDURES

Whenever an original developer as defined in BMC Chapters 13.05.070, 13.10.280, 17.168 or 17.170 provides, pays for, installs, or causes an extension of services to be installed, BMC 17.168.020 (F) authorizes this document to establish a reimbursement procedure. As outlined herein, said developer shall be entitled to reimbursement of a portion of his approved costs for up to 10 years in accordance with the following criteria and procedures:

A. The original developer seeking reimbursement must submit, within 90 days of acceptance of said improvements by the City, an accounting of the actual costs in performing the off-site infrastructure improvements. Actual costs shall be reviewed by the City, which shall then determine the amount of "Approved Costs."

B. Upon the request of the original developer, City shall prepare a reimbursement agreement between City and developer whereby the original developer may recover those portions of the cost of the improvements through a special connection fee collected from other benefitting property owners. The maximum term of said agreement shall be 10 years after City Council approval.

C. City shall identify those properties that are or have a potential to benefit from the infrastructure improvements installed by the original developer, including the properties of the original developer. City shall prepare an analysis indicating how the approved costs would be allocated to all benefitting properties. Such analysis shall, generally, be in the same manner as the procedure used in determining benefit in the formation of a Local Improvement District, but may also include other factors such as parcel size, zoning and property characteristics. Said apportionments shall become a "special connection fee" appurtenant to the benefitting parcels which are not a part of the original development. Said special connection fee shall be collected at the same time as the City collects connection fees and System Development Charges from the identified parcels.

D. Special connection fees collected in accordance with this provision shall be remitted to the original developer within 60 days of receipt by the City. The actual cost to the City in determining the special connection fee cost allocation and in administering the agreement shall be deducted from the amount of reimbursement.

E. City Council approval of the reimbursement agreement is required.

END OF DIVISION

Chapter 18.10
Division 2
Standard Construction Workmanship

18.10.001 CONSTRUCITON SITE EROSION AND SEDIMENT CONTROL

A. Depending upon topography, size, proximity to waterways, State and Federal regulations may apply, and relevant agency approvals must be obtained.

B. Projects that disturb more than an acre require a NPDES 1200-C permit from DEQ.

C. Discharge from dewatering operations shall not directly impact existing watercourses.

D. The contractor will implement Best Management Practices (BMPs) for protection of ground water and dust abatement. Turbidity shall not exceed 10 percent above natural stream turbidities as a result of any project. The turbidity standard may be exceeded for a limited duration, provided all practicable erosion control measures have been implemented, including, but not limited to:

1. Use of filter bags, sediment fences, silt curtains, leave strips or berms, placing mulch and hay bale silt fences, or other measures sufficient to prevent offsite movement of soil.

2. Use of an impervious material to cover stockpiles when unattended or during a rain event.

3. Graveled construction accesses to prevent movement of material offsite via construction vehicles.

4. Spreading mulch on exposed embankments greater than 3 feet in height.

5. Constricting hay bale silt fence at toe of embankments greater than 10 feet in height. Place bales at any locations where soil erosion potential is evident and as directed by the City.

6. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness.

7. Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter the water.

18.10.002 DUST ABATMENT

The contractor shall maintain all work areas reasonably free from dust. Methods of abatement such as sprinkling, chemical treatment, light bituminous treatment, or similar methods shall be used. Sprinkling must be repeated in intervals that keeps the ground damp at all times.

18.10.003 CLEARING, GRADING, EXCAVATION AND GRUBBING

A. Contractor is responsible for removing and disposing of all vegetation. The following are considerations:

1. The contractor shall remove all cleared materials to approved disposal sites. In some instances burning is allowed. Burn permits are required.

2. All stumps, roots and other embedded wood shall be completely removed.

3. Any holes created shall be filled with a suitable material and compacted.

4. Safety barricades, covers and warning lights shall be implemented.

5. Land clearing in sensitive areas, such as, delineated wet lands is not allowed.

B. Grading, clearing and excavation of street rights-of-way and private property meeting the definition of BMC 17.100 shall be performed under the supervision of an engineer or geologist who is knowledgeable and skilled in the treatment of soils, soil stabilization, and soil erosion. Due consideration shall be given to the existing terrain, cross-slope and vegetation. City approved construction plans and a public works permit is required.

18.10.004 MULCHING

Seeded areas and mulched areas which become damaged shall be restored by the contractor to previous conditions.

18.10.005 FIELD CHANGES

During the normal progress of construction minor relocations of improvements or horizontal and vertical deviations may be necessary. City or other jurisdictions having authority must be notified and prior approval obtained. The applicants Engineer will be notified of any significant field changes for review and approval.

18.10.006 PUBLIC SAFETY AND CONVENIENCE

A. The contractor shall comply with all rules and regulations of City, County, State, and Federal authorities regarding the closing, detouring, and load limits of all public streets or highways. No road, public or private, shall be closed or detoured by the contractor except by permit from the City or other jurisdiction such as ODOT and the County. Traffic must be kept open on all roads and streets when no detour is possible. The contractor shall, at all times, perform his work assuring the least possible obstruction to traffic.

B. Access for Police, Fire, Postal, Ambulance, and School Bus Service. The contractor shall notify the Brookings Fire Department, Police Department and when applicable, the School and Postal Service before closing or portions thereof.

C. The contractor shall furnish, install and maintain suitable signs, lights, plating, barricades, fences or other protective measures to insure the safety of the public and construction crew.

D. Contractor shall coordinate the work with all local utilities, affected private property owners, and other affected public agencies.

E. School Crossing Supervision – Modified from Oregon Supplement to MUTCD Section 7E.05, adult cross guards shall use school flags. A STOP paddle is not permitted.

18.10.007 CONSTRUCTION SAFETY MEASURES

Contractor shall comply with all Oregon OSHA requirements.

18.10.008 COMPLIANCE WITH REGULATORY REQUIREMENTS

Contractor shall at all times observe and comply with all Federal and State laws and obtain all necessary permits prior to construction.

18.10.009 BARRICADES, WARNING SIGNS AND TRAFFIC CONTROL

Signs, flags, lights, and other warning and safety devices shall meet the ODOT requirements as outlined in “Temporary Traffic Control Handbook”. In addition, depending on the length of time, the Federal “Manual on Uniform Traffic Control Devices” may apply.

18.10.010 SCHEDULING

Prior to issuance of a Public Works permit, the City shall review and approve an overall schedule for completion of the work and inspections. The contractor is expected to provide 48-hours notice prior to commencing construction and 24 hours for inspections.

18.10.011 RESTORATION AND SITE CLEANUP

Worksite shall be kept clean and orderly at all times and shall be free of excess material and rubbish. Restore all impacts to the original condition or better. Any use of heavy equipment in City right of way must use caution to avoid damages. Any and all damages must be mitigated.

18.10.012 PROTECT IN PLACE

All existing improvements, utilities, and properties both inside and outside the public right of way, surface and subsurface shall be protected from damages by the contractor.

END OF DIVISION

Chapter 18.15
Division 3
Road and Earthwork

18.15.001 GENERAL

A. Earthwork is defined herein as road work, surface and subsurface excavation and backfill in the public right of way or easement dedicated to the City or earthwork associated with grading for new development.

B. Aggregate base is defined herein as crushed rock import used for backfilling subgrades capable of passing through a defined screen size and provides a structural element to the backfill.

C. If unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas of compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage.

D. Shoring, sheeting and bracing is required per Oregon OSHA Standards.

18.15.002 EXCAVATIONS AND BACKFILL REQUIREMENTS

A. Definitions:

1. 95% compaction backfill standard is defined as backfill materials or soils densified to a 95 % “maximum density” when tested in accordance to AASHTO method T-99 (Standard Proctor). Compaction equipment shall be utilized in fills in layers not to exceed 12 inches. The burden of proof of meeting compaction requirements is placed on the contractor. If the City requires additional compaction tests and those tests fail, the contractor is responsible for the costs of the tests. If those compaction tests pass, the City shall pay for the tests.

2. Subsurface investigation is defined as physical efforts to bore and/or pothole to determine the underlying soil type and conditions. A geotechnical engineer and/or Proctor test is required when there is a question on the characteristics of the subsurface for compaction.

B. Excavations/types:

1. Surface:

a. Pavement removal and replacement: Trenches placed in existing paved streets shall provide for a “T” type patch per standard detail number 3-2. This will require an initial and final sawcut just prior to paving.

b. Curb removal. Curbs shall be sawcut through their full thickness and removed. If the adjacent panel is broken, replace the entire panel.

c. Sidewalk removal shall include replacement of the panel between control joints. If the adjacent panel is broken, replace the entire panel.

d. Land clearing and grubbing. Removal of vegetation shall comply with Division 2 Section 3 of the Standards and Specifications.

2. Subsurface:

a. Trench excavation is defined as any man made cut required for undergrounding of infrastructure, repair, or maintenance of utilities. The trench width must provide a clear working space of 6 inches on each side of the pipe for pipes 4 inches in diameter and larger.

b. Potholing of existing utilities is required to verify location, material, and size prior to trench excavation. Potholing is required for all critical and conflicting infrastructure, such as high pressure water mains, sewer interceptors, gas mains, and other utilities that must be protected in place.

c. Foundation stabilization excavation is removal of additional subgrade soil that in the opinion of the Engineer is structurally unsound to use as subgrade. This is determined by the Proctor test or field inspection such that the backfill is unable to compact consistently and evenly. These soils are usually high in clay and/or organic content and are not able to compact to 95% compaction as measured in the Proctor Test.

d. Rock excavation is determined by the City when an excavator of the 44,000 pound class, such as Caterpillar 320D L, or equivalent equipment, is unable to excavate the site and requires drilling. Blasting is prohibited.

C. Backfills

1. Definitions:

a. Class I and II backfill is defined as native material excavated from within the limits of the project, free from vegetation or materials that interfere with compaction and have a maximum particle size of 3 inches. To be approved for trench backfill, these native materials must meet the desired characteristics for surface loading for that location and be capable of field compaction per Table A herein.

b. Class III backfill is defined as 3/4inch minus or 1-1/2-inch minus crushed rock that conforms to the requirements of Section 02630 of the ODOT / APWA Standard Specifications for Construction, except 70 percent of the particles, by weight, shall have at least one mechanically fractured face based on grading requirements of the section. The fracture requirements shall be applicable uniformly through the grading materials involved. (All gravel sizing shall have fracture faces applicable by screen sizes to the 70% level). In section 02630.10(c) the sediment height requirements shall be 3½ inch maximum.

c. Class IV, Controlled Low Strength Material (CLSM) slurry backfill is a highly fluid lean concrete mix of fly ash or slag, Portland cement, fine aggregates and water which results in a dense, non-settling fill, when cured, that can be later broken with hand tools. CLSM shall conform to Section 00420 of the current version of ODOT/APWA Standard Specification for Construction, modified in the following manner: Class IV subgrade must be able to be remove with a hand tool.

d. Road embankment is defined herein as backfill required for the structural integrity of a road. Contractor must submit stamped geotechnical

or civil engineering plans for approval of any road embankment work and is subject to regulatory approval when near a waterway.

e. Foundation Stabilization backfill is a granular material used to stabilize the bottom of a roadway subgrade or pipe trench below the pipe zone. The material shall be 2-inch minus crushed rock conforming to ODOT standards 2630 excepting the sediment height requirements shall be “3.5” maximum.” Any geotextile/geosynthetic fabric installation must comply with ODOT Standard Specifications for Construction Section 02320.

f. For trench depths less than 30-inches in roadways, Class IV slurry backfill must be used.

g. Reclaimed rock and asphalt backfill may be used in place of Class III backfill under the following conditions;

i. No fragments shall be larger than 1-1/2”

ii. The crushed reclaimed rock and AC mix shall not contain more than 25% of reclaimed AC by volume and must be blended well. The rock must be clean, hard and durable. The Inspector shall field verify the crushed mix is well blended prior to replacement and may reject any loads delivered that do not appear to be well blended.

iii. This material will require its own proctor testing to determine compaction requirements and structural viability.

iv. The Inspector reserves the right to terminate the use of this material if these conditions are not met or the proctor test confirms the lack of structural integrity.

D. Roadway and Subgrade Backfill Requirements

1. Utility Trench

a. Top leveling rock. Aggregate base 3/4-inch minus crushed rock conforming to the requirements for aggregate base as specified in Section 02630 of the ODOT standards 2 inch minimum depth in roadway. In some instances other 3/4-inch or minus material, such as recycled asphaltic pavement, can be used subject to City approval.

b. Roadway base course beneath the top leveling rock within the right of way shall be compacted to achieve a depth of at least 4 inches of 1½-inch or minus crushed rock confirming to ODOT standard 2630. Aggregate base shall be placed and compacted in maximum of 6-inch lifts.

c. Trench backfill within paved areas (new and existing) shall be Class III backfill aggregate base consisting of ¾-inch or 1-inch minus crushed rock and conforming to the requirements for base aggregates in Section 02630.10 of the 2008 ODOT Standard Specifications for Construction except in Section 02630.10 (c) Sediment height requirements shall be “3.5” maximum.”

d. Native soils may be used for backfilling trenches between the roadway base and pipe zone or outside of roadways providing they can meet

e. Pipe Zone - Bedding material placed in the pipe zone shall be ¾ inch to minus to the extent of the pipe zone. The pipe zone is defined as the full width of the trench from within 6 inches below the pipe to 6 inches above the pipe barrel.

f. Foundation stabilization zone as previously defined herein.

g. Geosynthetic/geotextile fabric shall be considered for installation on a case by case bases.

h. The City inspector has the discretion to require the Contractor to provide a proctor test when there is a question on the subgrade compaction. If the results of the test prove that the compaction satisfies Table A as follows, the City will be required to reimburse the Contractor for the costs of the proctor test.

TABLE A

FILL AND BACKFILL CLASSIFICATION

Backfill type	Max. lift depth (inches)	Min. Relative Modified Proctor Dry Density %
Foundation stabilization	12	NA
Pipe Zone (bedding)	6	95
Pipe Zone (above bedding)	6	90
Class I and II trench backfill	8	93
Class III trench backfill	12	93
Class IV trench backfill	NA	NA

2. Curb, sidewalk and catch basins

   a. Aggregate base 3/4-inch minus crushed rock conforming to the requirements for aggregate base as specified as top leveling rock herein or ODOT standard 02630.

3. Manholes

   a. Poured in place base – Subgrade shall be native material compacted to a minimum of 90% compaction or foundation stabilization if determined necessary by the City.

b. Prefabricated base – Subgrade shall be Class III compacted to 90% and leveled.

E. Workmanship

1. Contractor to notify the City 24 hours prior to placement of subgrade.

2. Final grades shall be within a 0.5-inch tolerance, any drainage impacts due to altered grades are the responsibility of the contractor.

3. Cleanup. All materials and soils are to be disposed of or recycled from the construction site and adjacent areas in a timely manner. Disposal of all waste materials shall conform to all laws, regulations, and ordinances.

18.15.003 ROADWORK

A. Asphalt Concrete (AC) Pavement

1. General

a. Depth of AC determined by, existing road conditions, and traffic conditions on roadway. Minimum 3" AC installed in one lift and 4" AC depth installed in two, 2-inch lifts.

b. Contractor shall provide mix design and load tickets for review and approval by the City Inspector.

c. Materials

i. Asphalt concrete shall be ½" Dense Graded Mix (formerly called Class C) conforming to Section 00745 of the ODOT Standard Specifications for Construction. For a typical street, a Level 2 Hot Mix Asphaltic Concrete (HMAC) shall be utilized. Projects with heavy commercial or industrial traffic may require the use of Level 3 HMAC at the discretion of the City.

ii. Asphalt tack coat shall conform to Section 00730.11 of the ODOT Standards and Specifications. Application shall be applied at .04-.05 residual gallons per sq yd or at a 1:1 diluted tack application rate of 0.06 – 0.12 gal/sq yd. application. The tack amount should not be too thick (no pooling) and the surface should be coated evenly and lightly.

2. Workmanship

a. Minimum AC temperature at the time of placement shall be 250° F and shall not be placed when the ambient temperature is below 50° F.

b. Weather conditions – AC to be installed in favorable weather conditions for curing and meeting compaction requirements.

c. Surfacing of the AC after compaction shall be smooth and true to established cross section and grade. There shall be no sign of roller marks, loose or broken surface, and when compacted shall conform to the existing grades.

d. Do not leave subsurface exposed to traffic. Temporary measures shall be made for roadway surfaces by installing cold patching or plating an open trench.

3. Compaction and Lifts

a. Shall be at least 92 percent as determined by AASHTO T-230 for each lift. Additional lifts shall not be placed on top of a lift that has not yet met the recommended compaction level.

b. Lifts shall not exceed a compacted depth of three (3) inches.

4. Testing

a. The City will use discretion to determine if laboratory and field testing will be required. If the testing results conclude that the AC composition or installation does not meet standards, the contractor is responsible for all testing charges and shall remove and replace the AC to standard.

A. Seal Coat

1. General. A seal coat is designed to seal and protect asphalt pavements.

a. Amor Seal Heavy Duty Pavement Sealer #A-100 ASTM D-2397 and AASHTO M208, 10 pounds per gallon, dark black color when dry, homogenous uniformity.

b. Wet track abrasion test 15.9 gm. Per sq ft.

c. Application

i. Prior to seal coat, tack seal all cracks

ii. Prior to sealing, asphalt must be thoroughly cleaned and contain no loose debris and dry.

iii. Do not install in temperatures below 65 deg F

iv. Do not apply if rain is expected within 24 hours.

v. Recommend cure of 12-24 hours.

vi. 2 coats minimum required with at 40-60 sq ft/gallon application rate.

B. Tack coat/seal

1. Install at contact surfaces of manholes, catch basins, gutters and existing pavements. Do not place on wet surfaces.

2. Install at joints between the existing and the new AC pavement.

C. Striping

1. General

a. Materials

i. Thermoplastic shall be suitable for asphalt or concrete applications. Apply in accordance with Section 02840 of the current edition of ODOT/APWA Standard Specifications for Construction.

ii. Apply at a temperature of 400 – 500 deg F. Minimum drying time shall be 10 minutes based on 50 deg F and slight wind.

iii. Rapid Dry Paint. To prevent motorists from driving through and tracking wet paint, traffic control shall be installed and maintained until the paint is completely dry. Paint shall be Ennis-Flint, a Traffic Safety Solutions Company at 1-800-331-8118 or approved equal.

2. Crosswalks and Stop Bars width shall be 12 inches.

3. Centerline, traffic lanes, bike lanes, and parking lanes width shall be 4 inches.

4. ADA per current building code and standard details 3.15 and 3.16.

5. School crossings per current MUTCD.

6. Workmanship

a. The pavement surface shall be free of dirt, grease, moisture, and other foreign material prior to placement of striping and pavement markers. Air blast the pavement with an acceptable high-pressure system to remove loose or foreign material.

b. Limits of striping shall comply with the area disturbed by construction.

END OF DIVISION

Chapter 18.20
Division 4
Utilities

18.20.001 DEFINITIONS

A. This section contains specifications for water, sewer and storm drain material and installation requirements.

18.20.002 GENERAL

A. As determined by the City, the City may require parts and material submittals prior to issuance of a Public Works construction permit.

B. Civil engineering plans will be required unless determined by the City that the improvements are minor and pose no risk for damages or safety.

C. All domestic water system designs and construction shall be in accordance with OAR 333-061-0050, Department of Human Services Health Division and as supplemented here.

D. All sanitary sewer design and construction shall be in conjunction with OAR 340-52 and Oregon Department of Environmental Quality "Sanitary Sewer Design Notes" and as supplemented here.

E. All projects impacting storm water surface run-off shall be directed to the Oregon Department of Environmental Quality1200-C permit for applicability.

F. Refer to the applicable ASTM and AWWA standards for detailed specifications on pipe materials.

G. This document sites manufacturers' materials that are commonly stocked by suppliers in Southern Oregon.

H. Alternative materials will be considered by submittal and is outlined in Division 1 18.05.006.

I. All parts and materials shall be new and unused.

J. Any poured in place concrete shall be in accordance with Division 5 Concrete specifications unless otherwise specified herein.

K. All materials shall be installed according to manufacturer's recommendations.

L. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken or otherwise defective materials are used. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Clean ends of pipe thoroughly. Keep debris, tools, rags or other materials out of the pipes at all times. Follow pipe-laying operations closely with joint coating operations as required and backfilling of trenches as specified in Division 3 of these Specifications.

M. Joint deflection and pipe bending for radial curvature shall not exceed the manufacturer recommendations.

N. Do not drop or dump pipe into trenches.

O. Refer to Division 3 herein for subgrade requirements.

P. Deviation from alignment on plans must be approved by the City.

Q. Provide concrete thrust blocking in accordance with the standard details at the end of this division. Allow concrete to cure to needed strength prior to charging the main.

R. Tracing wire is not required for gravity sewer and storm drain installations.

S. Proper measurements of outside diameter, approved fittings and materials, and adequate staffing is available to construct the improvements must be demonstrated to the City prior to shutdown of any water main.

T. Any buried pipe installed less than 30-inches deep in the roadbed will require Class IV slurry backfill per Division 3 herein.

U. Roping/bending pipe will require the contractor to prove that the installation meets manufacturers deflection recommendations or use fittings. The burden of proof is the responsibility of the contractor and may require the Contractor to hire a surveyor.

V. A City Inspector must approve pipe installation and backfill prior to backfill. If backfill occurs prior to city inspection, Contractor will be required to expose the installation.

W. A DEQ asbestos notification form must be submitted by Contractor 5 days prior to removing and disposing of any materials containing asbestos. Proof of proper disposal is required.

X. Safety training for known hazards must be performed by Contractor for all those working at the site.

Table 4.1 Piping Schedule
Allowable Piping Materials for the City of Brookings Utility Construction

Type		Application	Size	Material	Specification	Interior surface or coating	Pipe end
Storm Drain	Gravity	Main	All	HDPE	ADS N-12, WT	Corrugated outside, inside smooth	Push on gasket
	-	Main	4"-15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
	-	Main	18" and greater	PVC	SDR 35, T-1 thickness ASTM F-679	NA	Push on gasket ASTM F-477
		Main	All sizes	Aluminized steel	Type 2 AASHTO M-274 971	Corrugated metal	
	-	Main	18" and under	Concrete	Class 3 reinforced ASTM C-76	NA	ASTM C443/ AASTO M198
	-	Main	21" and larger	Concrete	Class 3 reinforced ASTM C 76-74	NA	ASTM C443/ AASTO M198
	-	Laterals	2"	PVC	Not used, smallest size 4"	NA	NA
	-	Laterals	4" -15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
Sewer	Gravity	Main	4"-15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
	-	Main	18" and greater	PVC	SDR 35, T-1 thickness ASTM F-679	NA	Push on gasket ASTM F-477
	-	Lateral	4"	PVC	SDR 35, ASTM D-3034	NA	Insert a tee
	Pressure	Main	4" - 12"	PVC	AWWA C-900, DR 18, CL-150	NA	MJ Fitting, Bell and Spigot Main Connection
	-	Main	> 12"	PVC	AWWA C-905, DR-18, CL-235	NA	MJ Fitting, Bell and Spigot Main Connection
Water	Pressure	Lateral	3/4" and 1"	Polyethylene	Pressure class 200, IP Sized, HDPE	NA	IP compression
		Lateral	2"	PVC	Schedule 40	NA	Glued
		Main or Lateral	4" - 12"	PVC	AWWA C-900, DR 18, CL-150	NA	MJ Fitting, Bell and Spigot Main Connection
		Main	> 12"	PVC	AWWA C-905, DR-18, CL-235	NA	MJ Fitting, Bell and Spigot Main Connection
		Main	4-12"	DI	CL 52	Cement lined	Flg, MJ, or push on
		Main	Any	HDPE	Upon special consideration	NA	Fusion
		Air Vac assembly	2”	Brass	CL 125 ANSI/ASME B16.15	NA	Threaded nipple per ASTM B687-88

18.20.003 STORM DRAIN

A. General

1. Design Consideration

a. Pipe material and size is dictated by depth of pipe, slope, hydrological and geological conditions and type of pipe and size selected shall be approved by the City. Hydraulic and hydrology calculations signed by a registered civil engineer may be required.

b. Evaluate pre and post development storm water runoff conditions for a 25-year – 24 hours storm event and overland escape route. Site committee will determine whether downstream facilities are adequate for any additional run-off. If deemed inadequate, an engineered detention system or engineered downstream improvement will be required to mitigate the effects of the additional storm water impact from the project.

B. Materials

1. Main Line Pipe

a. Polyvinyl Chloride Pipe (PVC)

i. Small diameter Main (under 15 inches) shall be SDR 35 conforming to ASTM D-3034.

ii. Large Diameter (18 inches and greater) shall be SDR 35, T-1 wall thickness with elastomeric gasket seals conforming to ASTM F-477.

iii. Gasket shall be an integral bell gasketed watertight joint in accordance with ASTM F-1803.

b. Corrugated High Density Polyethylene (HDPE) Pipe shall be ADS N-12 HDPE series 65 (smooth interior wall) as manufactured by Advanced Drainage Systems, Inc. or Hi-Q as manufactured by Hancor for pipe sizes 8 through 36 inches.

i. New installation – all new ADS N-12 pipe installation shall be constructed with push on water tight, gasket connections.

ii. Connection to existing ADS N-12 HDPE – when tying into existing ADS N-12 pipe with a new storm drain connection, install an Inserta Tee fitting.

iii. Couplings shall be corrugated to match the pipe corrugations, and the width shall be not less than 1/2 the nominal diameter of the pipe and shall engage an equal number of corrugations on each side of the pipe joint.

iv. Shall meet the requirements of high density polyethylene pipe requirements of AASHTO M252 and M294. Smooth interior coat required.

c. Concrete Pipe and Fittings

i. Required for pipe depths exceeding the recommended loading for plastic pipe.

ii. 18” and under shall be Class 3 reinforced pipe that conforms to ASTM C -76.

iii. 21” and larger pipe shall be Class 3 reinforced pipe that conforms to ASTM C 76-74

iv. All concrete pipe shall have rubber ring joints in accordance with ASTM C443/AASTO M198 “Joints for Circular Concrete Sewer and Culvert Pipe.”

2. Corrugated Metal Pipe and fittings.

a. Corrugated Metal Pipe and fittings shall be round Aluminized Steel, Type 2 and shall meet the requirements of AASHTO M-274 971. Pipe and fittings shall be from the same manufacturer. Material thickness shall be 0.079 inch (14 gauge).

b. Pipe end connections shall be with manufacturer's joint strap/band that provides full 360-degree contact. Band couplers shall have a full annular corrugation at each end to prevent sliding and pulling apart. Joints shall have rubber “0” rings or neoprene strip gaskets providing watertight seal.

c. Aluminized Steel Pipe Type 2 by Contech, AK.

3. Laterals

a. Storm drain laterals shall be a minimum diameter of 4-inches.

b. Pipe material shall be PVC SDR 35, ASTM 3034.

c. New City owned lateral connections from catch basins are 12-inch minimum. Catch basin lateral connections shall include a manhole at the connection point to the new main.

d. New lateral connections less than 12-inches are private connections to existing gravity mains. Contractor may use Inserta Tee fitting or cut in tee that does not require a manhole.

4. Appurtenances

a. Catch basin

i. Shall be precast units shall be manufactured by Advantage Precast, Keizer, Oregon.

ii. Type – Application depends on drainage characteristics. Use a Type 2 catch basin for steeper slopes and a curb drain inlet for areas with less slope.

1) Type 2 Catch Basin Double Grate per standard detail.

a. Grate by D & L Foundry Model #I-450.

2) Curb inlet per standard detail.

b. Manhole Lids and Catch Basin Access ways shall be slotted cover Olympic Foundry H-20 loading, Model MH-26 G, with lettering “SD”.

C. Testing - Testing of storm drain facilities shall be through visual inspection. Since there is no formal testing for gravity flow drainage facilities, special attention will be paid to workmanship and adherence of manufacturer installation requirements.

18.20.004 SANITARY SEWER

A. Gravity

1. Polyvinyl Chloride (PVC) Pipe

a. Small diameter Main (under 15 inches) shall be SDR 35 conforming to ASTM D-3034.

b. Large Diameter (18 inches and greater) shall be SDR 35, T-1 wall thickness with elastomeric gasket seals conforming to ASTM F-477.

c. Gasket shall be an integral bell gasketed water tight joint in accordance with ASTM F-1803.

d. Toning wire is required when pipe is installed with deflecting joints or “roping” pipe and when the pipe can not be bore sited.

2. Fittings

a. Flexible couplings for connecting PVC to existing concrete service lateral piping, shall be Fernco Series 1006.

b. Flexible couplings for connecting PVC to existing asbestos cement service lateral piping, shall be Fernco Series 1051.

c. Flexible couplings for lateral connections shall be of the appropriate Fernco Series 1006.

d. Provide wyes for all cleanouts.

e. End plugs to be installed for service laterals, sanitary sewer main stubs from manholes and wye fittings of cleanouts.

3. Laterals – refer to Standard Detail 4.11.

a. Existing sewer – Romac Tapping Saddle Style CB, sized for connecting pipe diameter. Stainless steel strap and bolts.

b. In new installations; service laterals shall only be made through a wye fitting per Standard Detail 4.11

c. Service lateral connections to existing systems shall use a standard (4”) saddle truss type connector for each residence (IDU), and shall be placed a minimum of 18” apart.

d. In the event a service lateral is to be abandoned, it must be removed and capped (plugged) at its connection point to the main.

e. Tee-wye shall not be closer than 12 inches to any joint or bell of main line sewer main, which is 12 inches or less in diameter.

f. Provide ends of all service laterals or fittings with approved watertight end plugs, suitably braced to prevent blow-off during internal air testing.

g. Provide accurate horizontal and vertical measurements of new sewer service lateral inverts on as-builts.

4. Testing

a. General. Prior to final inspection the system must be flushed clean which includes manholes. The contractor is responsible for everything necessary to flush the system clean. It is permissible to use City fire hydrants for this purpose. Testing is performed after each section to be tested is (inspected), backfilled and compacted. DEQ requirements must be met. The project engineer is responsible to obtain the correct DEQ documents, perform the test, and submit the completed test results to DEQ. The City must be notified prior to the test and shall be present to witness the tests.

b. Air Test

i. All gravity sanitary sewers including service laterals shall successfully pass a low-pressure air test prior to acceptance and shall be free of leakage. Test first section of pipe laid, as hereinafter specified, to establish that the pipe material is capable of preventing infiltration and that the sanitary sewer mains are being installed to insure that infiltration of ground water will not exceed the amount set forth. Section of pipe tested shall be at least 300 feet in length. If test indicates infiltration exceeding amount specified, defective material or workmanship shall be corrected and test will be rerun until leakage is within the amount specified. Manholes shall be tested as specified in 5.D.1 herein.

ii. Place all air testing equipment above ground and allow no one to enter a manhole or trench where a plugged sewer is under pressure. Release all pressure before the plugs are removed. Testing equipment used must include a pressure relief valve designed to relieve pressure in the sewer under test at 10 psi or less and must allow continuous monitoring of test pressures in order to avoid excessive pressure. Use care to avoid the flooding of the air inlet by infiltrated ground water. (Inject the air at the upper plug if possible.) Use only qualified personnel to conduct the test.

iii. Contractor to perform air test prior to backfilling.

Table 4.2
DURATION AIR TEST PRESSURE DROP

Pipe Diameter (in.)	Minimum Time (Min: Sec)	Length for Minimum Time (Ft.)	Time for Longer Length (Sec.)
4	2:00	597	0.190 L
6	3:00	398	0.429 L
8	4:00	298	0.760 L
10	5:00	239	1.187 L
12	6:00	199	1.709 L
15	7:00	159	2.671 L
18	8:30	133	3.846 L
21	10:00	114	5.235 L
24	11:30	99	6.837 L
27	13:00	88	8.653 L
30	14:30	80	10.683 L

c. TV Test required for new subdivisions or pipe extensions exceeding 100 feet. Contractor shall conduct an internal television inspection of all installed mainline sewers and service laterals to the property line, with a movable eye internal camera that permits investigation of each lateral connection to the mainline. Lines shall be evaluated for compliance with Standard Specifications. Contractor shall provide a copy to City for review of complete color videotape in VCR compatible or digital format for review by the City. Inspection shall be conducted by a City-approved, licensed and bonded technical service, which is equipped to make an audio-visual record. A voice accounting of suspected deficiencies shall be made on the sound track. Inspection firm shall provide the City with written record of any problems noted, on a form approved by the City staff, with stationing and any noted concerns for needed corrective action. Video/digital report and written report shall be submitted to the City, and will become property of the City. If defects are noted in the television inspection, repairs shall be conducted to eliminate defects, and lines shall have a new television inspection provided under identical circumstances until all noted deficiencies are corrected. All costs shall be at developer's expense.

d. Mandrel Test. The Mandrel Test is conducted by pulling the test device through a completed sewer run from manhole to manhole. If the Mandrel gets caught in the pipe and cannot be pulled from manhole to manhole in a straight pass, then the line will fail the Mandrel Test. This test is required for all sewer main construction. Mandrel shall be appropriate size for the pipe to be inspected.

5. Workmanship

a. Minimum slope is 0.5%. Pipe design size shall be for optimum cleaning velocity.

b. Pipe to be installed with spigot end in the direction of flow. Take care to properly align the pipe before push on joints are connected.

B. Force Main

1. General

a. All pipe shall have a 150-psi minimum working pressure.

2. Polyvinyl Chloride Pipe (PVC)

a. There is no reference to pipe materials less than 4-inches since it is unlikely a City maintained force main would be less than 4-inches. Private force mains shall comply with the UPC.

b. 4-inches to 12-inches diameter shall be AWWA C-900, DR 18, Class 150 and conforming to the outer diameter of cast iron pipe.

c. Greater than 12-inches shall be incompliance with AWWA C-905, DR-18, Class 235.

3. HDPE will be considered on a case by case basis and upon approval by the City Engineer.

4. Restraints

a. Thrust blocks; see detail 4.52.

b. Mechanical Joint Fittings used with ductile iron and C900 PVC pipe shall conform to ANSI/AWWA C-110/A21.10 and ANSI/AWWA C-111/A21.11, or ANSI/AWWA C-153/A21.53.

c. Ductile iron fittings are not required to be cement mortar lined for force main sewer applications.

d. Joint restraints required on vertical and horizontal bends and fittings shall be manufactured of high strength ductile iron ASTM A536, Grade 65-45-12.

i. Foster Adapter shall be manufactured by Infact Corporation.

ii. PVC Pipe restrainers shall be EBBA Megalug Series 2000.

e. Testing

i. Please refer to potable water section for testing requirements.

C. Appurtenances

1. Manhole

a. Manhole connectors shall be flexible pipe to manhole to main sewer pipe to precast manholes and shall be KOR-N-SEAL® as manufactured by NPC Inc., Milford, New Hampshire.

b. Provide tees for drop manholes.

c. Manholes shall be formed as shown in the construction details herein.

2. Cleanouts

a. Sewer service lateral cleanouts shall be located in the right of way adjacent to property line. Refer to detail 4.11 herein.

b. Lateral cleanouts or main line cleanouts installed in traffic areas shall have a Christy G-5 traffic rated lid and concrete collar per detail 4.11 herein. Non traffic areas may use a 6-inch landscape round valve box with lid and no concrete ring is required.

c. Cleanouts located in non traffic areas shall be a Christy F-08 lid.

3. Fittings

a. All fittings shall be of the same materials as the pipe unless otherwise specified.

b. Elbows to be installed for cleanouts.

c. Flex couplings for connecting PVC to existing concrete service lateral piping shall be Fernco Series 1051.

d. Flex coupling for connecting PVC to existing asbestos cement service lateral piping shall be Fernco Series 1051.

18.20.005 MANHOLE REQUIREMENTS (SEWER AND STORM DRAIN)

A. General

1. Please refer to the sewer and storm drain sections herein for particular requirements for sewer and/or storm drain manholes.

2. Where a full section of pipe is laid through a manhole, cut out the top section to the full width of pipe and diameter of manhole. Cover exposed edges of pipe completely with mortar.

B. Design criteria

1. Manholes shall be installed preferably every 400 feet but no greater distance than 500.

2. All manholes shall be concentric type unless approved by the City.

3. Refer to Division 3, “Road and Earthwork” for subgrade information.

4. Manhole diameters shall be in accordance with the following:

Table 4.3 - Manhole Sizes

Pipe Diameter	Manhole Diameter
6” – 18”	48”
21” - 42”	60”
48” – 54”	72”
Greater than 54”	Engineered vault

C. Types

1. Poured in place manhole base

a. Construction of a poured in place manhole base requires formwork. Forms for exposed surface shall be steel, plywood or other approved material. Trench walls, large rock or earth is not an approved form material.

b. Portland Cement concrete shall conform to ASTM C-94, Type II. Compressive strength for bases shall not be less than 3,000 psi for 28 days. Maximum aggregate size shall be 1-1/2 inch with no more than a 5-inch slump.

2. Precast manhole

a. Contractor to provide factory submittal verifying that the manhole complies with ASTM C-478.

i. Minimum wall thickness is 5-inches. Cones shall have the same thickness and reinforcement as manhole sections.

ii. Keylock joints grouted and sealed tight with jointing material described herein.

iii. Jointing materials

1) Mortar – shall conform to ASTM C-387 and adhere to the concrete and comprise of one part Portland Cement to two–parts clean Mason's sand passing a 1/8-inch screen.

2) Ram-Nek or Kent-Seal shall be installed at all jointing sections.

iv. Grade rings

1) General. Install to the subgrade as indicated in the standard details.

2) Height. New construction of manholes will have a grade ring no greater than 6-inches height. Existing manholes brought to grade shall not have greater than 18-inches of grade rings. If greater than 18-inches, Contractor will replace the barrel.

3) Installation shall be plumb.

b. Frame, Cover and Collar

i. Set frames in concrete collar with collar being 12" wide, rectangular or circular, and a minimum of 6" depth. Allow for 2" AC lift to grade and tack to manhole cover.

ii. Traffic rated to H-20 loading.

iii. The bearing seat shall not rock when checked with a testing jig.

iv. Manhole frames and covers shall be Olympic Foundry Co., Inc., Part Number MH626S with “S” for sewer and “SD” for storm drain on lid.

v. Manhole paving risers shall be Olympic Co. Inc., Part Number MH26R.

c. Manhole Connector

i. A flexible manhole connector shall be installed for precast storm and sewer manholes.

ii. The connector shall be KOR-N-SEAL.

d. Abandonment of Manhole Stubouts

i. Abandonment of existing stubouts shall be sealed and at main line with a “T” cone expandable plug connection by ETCO Specialty Products, Inc.

3. High Density Polyethylene (HDPE) Manholes with a maximum height of 12 feet and an outside diameter of 48 inches may be used in place of precast concrete manholes as approved by the City Engineer and considered on a case by case basis.

D. Testing

1. Vacuum test

a. General. All manholes shall be vacuum tested that consists of plugging all inlets and outlets and applying a 5 psi or 10-inch Hg vacuum to the manhole. The allowable vacuum pressure loss shall not exceed 1 psi or 2 inches Hg for the time period stated below.

Table 4.4 - Vacuum Test

Depth of Manhole (ft.)	Duration (sec) required for manhole diameters	
	48”	60”
8	20	26
10	25	33
12	30	39
14	35	46
16	40	52
18	45	59
20	50	65
22	55	72

E. Toning Wire and Tape

1. Toning wire shall be No. 12 AWG, solid copper with green-colored insulation. Only installed on sewer pressure force mains, clean outs and laterals.

2. Underground warning tape shall be 6-inch wide, APWA standard green color, reading “Caution – Sewerline Buried Below.”

3. Workmanship

a. Wire and tape shall be buried the entire length of trench and placed above pipe per standard trench detail drawing.

b. Tape shall be placed over the pipe zone material, approximately 6 inches above top of installed pipe. Lay flat and untwisted.

c. Wire shall be brought towards the surface of cleanout.

18.20.006 POTABLE WATER

A. General. All materials must be approved for use in potable water systems. As of January 1, 2014, all brass materials used for potable water supplies must be lead free.

1. Pipe

a. Main

i. General

1) Fittings and valves shall be handled in a manner to avoid damage to the interior lining.

2) All parts used for the project must pass City inspection and shop drawing review before installation.

ii. PVC and Fittings

1) Pipe under 4-inch diameter shall be Schedule 80, Type 1, Grade 1, NSF approved, conforming to ASTM D-1785. Joint shall be solvent welded slip type. Solvent cement shall conform to ASTM D 2564.

2) Pipe 4-inches to 12-inches diameter shall be AWWA C-900, DR 18, Class 150 and conforming to the outer diameter of cast iron pipe.

3) Pipe greater than 12-inches shall be in compliance with AWWA C-905, DR-18, Class 235.

4) All fittings shall be mechanical joint conforming to AWWA C-111, cement line ductile iron, unless a fully restrained fitting is required.

ii. Ductile Iron Pipe and Fittings

1) Ductile iron fittings shall be C153 full body domestic only fittings, cast iron sized.

2) Centrifugally cast ductile iron pipe and spools shall be Class 52 conforming to AWWA C-151 and AWWA C-150.

3) Ductile iron shall be cement lined on the inside conforming to AWWA C-104. Outside coating shall be a bituminous coat 1 mil thick, conforming to AWWA C-151.

4) Joints shall be mechanical joint conforming to AWWA C-111. The bell shall be cast integrally and the pipe shall be provided with an exterior flange and socket with annular recesses for the sealing gasket. Provide sealing gasket, follower gland with boltholes, black iron tee headed bolts, washers and hexagonal nuts.

5) Flanged joints shall meet AWWA C-115. The bolt circle and hole spacing shall conform to ANSI B16.1, Class 125.

6) Gasket material for flanged joints shall be commercial neoprene conforming to ASTM D 2000 approved for potable water.

iii. HDPE only used in special cases as approved by the City Engineer.

iv. Brass pipe pressure class 125 or greater meeting ANSI/ASTM B16.15 for combination air and vacuum release and blow-off valves. Threaded brass fittings to conform to ASTM B687-88.

b. Service and Lateral Assembly

i. All parts must be lead free.

ii. 1" laterals shall be polyethelene (HDPE) pipe pressure class 200, IP sized pipe.

iii. 2" laterals shall be Schedule 40 PVC pipe.

iv. Corporation stops. Corporation stops used with ¾-inch and 1-inch tap shall be Ford Meter Box Company, Type FB1101-3 or Type FB1101-4. Stop shall be furnished with iron pipe thread inlet and PE pack joint outlet, IPS.

v. Gate valves are used for 2-inch services and greater as specified in the gate valve section herein. Ends shall be IP thread.

vi. Angle meter stop

1) Angle meter stops used with 1-inch polyethylene pipe shall be Catalog No. BA63-332W and BA63-444W respectively, as manufactured by Ford Meter Box Company.

2) Angle meter stops that use 2-inch PVC pipe shall be Catalogue Nos. BFA 13-666W and BFA13-777W, respectively, as manufactured by Ford Meter Box Company. Reinforced rubber gaskets required. Furnish angle meter stops with male iron pipe thread by iron pipe PVC pack joint coupling.

vii. Meter box

1) Service boxes for ¾-inch and 1-inch service meters shall be Christy, B-12 for ¾-inch and 1-inch.

2) Double meter installation in one service box shall be Brooks No. 11-2. If double service box is utilized installation shall use a bronze manifold for meters part #UVB63-42W.

3) Meter boxes for 1½-inch and 2-inch meter services shall be Brooks No.36H.

4) Meter box installation shall be flush with existing ground, and aligned straight with property line or sidewalk surface features.

viii. See Appurtenances Section herein for service connection tapping saddle requirements.

2. Fittings

a. All fittings to be ductile iron fittings cast iron sized. Fittings shall be cement mortar lined, 250 psi working pressure. Cement mortar lining must not be damaged or compromised.

b. Compression fitting to be installed for 1” water services with IP connector.

c. Mechanical Joint Fittings used with ductile iron and C900 PVC pipe shall conform to C153 full body domestic only fittings.

d. Joint restraints required on vertical and horizontal bends and fittings shall be manufactured of high strength ductile iron ASTM A536, Grade 65-45-12.

i. Foster Adapter shall be manufactured by Infact Coporation.

ii. PVC Pipe restrainers shall be EBBA Megalug Series 2000 or;

iii. Romagrip restraint manufactured by Romac Industries.

e. Couplings

i. Contractor to verify pipe outside diameter for proper coupling size.

ii. Cast coupling and cast reducing couplings. Transition and straight couplings shall have ductile iron sleeve and end rings and resilient gaskets. Furnish with corrosion resistant, high strength, stainless steel SS 316 bolts and nuts. Supply coupling and assembly with fusion – bonded epoxy coating and lining.

iii. Couplings shall be Ford FC2A ductile iron transition coupling, Romac Macro ductile iron coupling.

iv. End Caps. End cap couplings shall have ductile iron sleeves, end rings, and end caps and resilient gaskets, Smith Blair "482", Romac "EC501". Furnish with corrosion resistant, high-strength, low alloy bolts and nuts. Supply with fusion bonded epoxy coating and lining. All end caps shall have a blow-off assembly as shown in Detail 4.35.

3. Appurtenance

a. Fire hydrant

i. The fire hydrant riser flange must be located a no more than 6-inches above grade and no less than flush with final grade.

ii. Location of fire hydrants shall be as directed in the BMC Title 17 “Land Development Code” and under the direction of the Fire Chief.

iii. Hydrants shall be Waterous "Pacer.” No other hydrants will be considered.

iv. Shall be AWWA C502 Compression type, 250-psi working pressure, dry barrel with main valve to remain closed if barrel should be accidentally broken. Length of barrel shall be field determined but must maintain a minimum of 3’ of bury over the top of pipe and hydrant shall be installed to finish grade, with base flange 6-inch above adjacent ground. Riser extensions will be permitted if needed to maintain these conditions.

v. Hydrants shall have "0" ring seals, rugged main valve, positive drain valve, bronze weather cap, and non-kinking chains. Hydrants shall have bronze to bronze seat retainers and bronze cap nuts. Entire valve mechanism, including drain valves, must be easily removed without digging. Hydrant shall be capable of 360-degree rotation on stem. Operating nut shall be 1½ inch pentagon, National Standard, counter-clockwise opening.

vi. Each hydrant shall be equipped with two, 2½-inch hose nozzles and one, 4½-inch threaded pumper nozzle all with National Standard threads. Size of hydrant valve opening shall be 5¼-inch. Hydrant inlet shall be mechanical joint.

vii. Fire Hydrants shall be backed by manufacturer's five-year warranty on materials and workmanship. Hydrants shall meet or exceed AWWA C502. Color shall be painted with Krylon Industrial Rust Tough color equipment yellow, #R0481.

viii. Barrel extensions shall be manufactured by the hydrant manufacturer.

ix. Hydrant and assembly shall be installed plumb and level.

b. Valve

i. Valve extensions are required when the turning is greater than three feet below grade.

ii. Gate valves are required every 400 feet, on all legs of tees and crosses, fire hydrant runs and on 2-inch water services.

1) Gate valves shall conform to AWWA C509 resilient wedge gate valves. All internal parts shall be accessible without removing the body from the line. The wedge shall be cast iron encapsulated in resilient material in accordance with ASTM D 429. Non-rising stem shall be cast bronze and be manufactured to open when the stem is rotated counterclockwise. Furnish with a 2-inch square operating nut. Valve shall be 200-psi working pressure and factory hydrostatically tested at 400 psi. The stuffing box shall have two

"O-Ring" seals above the thrust collar. Bonnet bolts must be tightened before installation. Valve trim shall be 316 SS.

2) Special note should be taken of the end configuration of valves as indicated on the drawings for various installation conditions. Flanged and mechanical joints on valves shall conform to pipe materials specifications. Gate valves used with combination air and vacuum release and blow-off valves shall be furnished with iron pipe threads.

3) Coating shall be fusion bonded epoxy for the body and bonnet. Interior and exterior coating per AWWA C550.

4) Pressure zone valves shall be supplied with a 5-sided nut.

5) All valves shall be inspected for shelf life. If the shelf life exceeds two years, the valve condition may warrant rejection and the City may require testing certification that it is still in compliance with AWWA standards.

iii. Butterfly valve. Install for buried service, 14-inch pipe main size and larger.

1) Butterfly valves shall conform in all respects to the physical and performance requirements of AWWA C504, short body type having operators suitable for direct burial. Furnish Class 150B valves unless otherwise indicated. Furnish valves having two-inch square operating nuts which shall rotate counter-clockwise to open. All valves shall be 150-psi working pressure, 300-psi test pressure and be furnished with a continuous rubber seat bonded to the body.

iv. Backflow

1) General

a) Backflows shall comply with OAR 333-061-0070.

b) Backflows supplied shall be certified as approved backflow prevention assemblies from one of the following institutions; University of Southern California, Foundation for Cross Connection Control and Hydraulic Research, or other equivalent testing laboratories approved by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research or as approved by the Department (see OAR 333-061-0070)

2) Reduced Pressure (RP) or Double Check Detection Valve

a) OAR standards 333-061-0070 Table 48 defines premises requiring RP and Air Gap backflow prevention, or double check depending on the risk of health hazard.

v. Air Release/Relief Valves

1) Combination Air Vacuum/Air Release shall be full body, fusion epoxy both internal and external with stainless steel 316 trim and accessories.

2) Valve shall have cast iron body, covers and baffle and stainless steel float, designed for normal usage of 150 psi. All other trim shall be stainless steel with the exception of Buna-N seat and adjustable Viton Orifice.

3) One 2-inch gate valve, IPxIP, installed at service connection and as specified shall allow removal and reconditioning of combination air/vacuum relief valve. Connections to water main shall be made through the use of specified service saddle.

4) Canister color green, 18”x30” enclosure manufactured by Pipeline Products Part #VCAS-1830.

vi. Valve box

1) Refer to standard detail 4.31.

2) Valve box shall be traffic rated when in roadway or driveway.

3) Shaft shall be 7-inch inside diameter. Cover shall be "lift pocket" type and lettered "WATER.”

4) Boxes shall be Christy G5.

c. Blow off Assembly

i. Blow-off valves shall be constructed per standard details, with one 2-inch gate valve, as specified, installed for manual operation.

ii. Miscellaneous piping shall be lead free brass or PVC as specified in the standard detail.

iii. Connection to water main shall be made through use of specified service saddle or end cap.

d. Service Saddles (used for service connections)

i. PVC Pipe (AWWA C900)

1) Saddles with ¾-inch to 2-inch taps on 4-inch to 12-inch C900 PVC pipe shall be solid brass, with “O” ring gasket and silicon bronze screw. Supply with I.P. taps with single outside diameter to fit pipe size.

2) Saddle shall be Ford S-91 style.

ii. Transite (Asbestos Cement) and Ductile Iron Pipe

1) Saddles with 1-inch taps on ductile iron pipe shall be stainless steel double strap with stainless allow nuts. Supply with I.P. taps.

2) Saddle shall be Romac 202 N.

e. Tapping sleeve (used for fire service, leak repair and fire hydrant connections not requiring a cut in tee)

1) Shall be CLOW F-5205, Mueller H-615 or equal for non PVC mains. A stainless steel JMC industries model JCM432 or Romac Industries model SST III is required for tapping PVC C-900.

f. Foster adaptors are recommended for mechanical joint connections at tees and valves.

g. Pipe Supports per detail 4.54. Hot dipped galvanized adjustable supports by Pipeline Products.

h. Toning Wire and Tape

i. Toning wire shall be No. 12 AWG, solid copper with Blue-colored insulation.

ii. Underground Warning Tape shall be 6-inch wide, APWA Standards Blue color, reading “CAUTION – WATERLINE BURIED BELOW”.

iii. Install toning wire on all water main and service installations.

iv. Workmanship

1) Wire and tape shall be buried the entire length of trench and placed above pipe per standard trench detail drawing, approximately 6 inches above top of installed pipe. Lay flat and untwisted.

2) Wire shall be brought to the surface and connected at each valve box frame/lid. Distance between tracer lead access locations shall not be more than 1,000 feet. Joints or splices in wire shall be waterproof. If greater than 1,000 feet, a toning wire box is required per Detail 4.51.

3) Wire shall be laid above each water service lateral and brought to the surface at each service meter.

4. Water Main Shutdowns

a. Procedure: Contractor to provide City 48 hours notice for water main shutdown. City will notify all effected properties in the time frame and prior to shut down.

i. Prior to City shutting down and draining the water main, Contractor shall:

1) Pothole as necessary to determine depths, utility conflicts and ODs.

2) Must demonstrate to the City that all parts are on hands and adequate staffing is available for the tie in prior to shut down.

b. Penalty: If Contractor fails to comply with shut down as scheduled, the Contractor will be liable for all expenses incurred in time and materials for

City staff to repeat the shut down. This will include staff time and water loss.

5. Abandonment of facilities

   a. Valve abandonment- Contractor to abandon existing valves in place by;

      i. Close the valve.

      ii. Installing a blind flange if the valve flange is exposed.

      iii. Fill valve can with concrete, remove top lift of can from finish grade

   b. Pipe – Cement plug all pipe 6-inch or less. Slurry fill all larger diameter pipe and/or any pipe susceptible to failure. Abandon water mains at the connection.

6. Testing

   a. Disinfection

      i. Prior to connecting new water mains and appurtenances to the active water system (including installation of valve clusters, fire hydrants, and service saddles/corporation stops), disinfection shall be completed to the satisfaction of the City in compliance with Oregon Health Authority OAR Chapter 333-61-050, including passing the bacteriological test. The contractor shall tie into the water system as soon as reasonably possible, but not more than 72 hours after the bacteriological test has been passed.

      ii. The contractor shall use the Continuous–Feed Method for disinfecting water mains. This section references AWWA C651–86.

      iii. The contractor shall use liquid chlorine or sodium hypochlorite or calcium hypochlorite in the disinfection operations.

         1) Liquid chlorine contains 100% available chlorine and is packaged in steel containers usually of 100–pound, 150–pound or 1–ton net chlorine weight. Liquid chlorine shall be used only (1) in combination with appropriate gas–flow chlorinators and ejectors to provide a controlled high–concentration solution feed to the water to be chlorinated; (2) under the direct supervision of a person who is familiar with the physiological, chemical, and physical properties of liquid chlorine, and who is trained and equipped to handle any emergency that may arise; and (3) when appropriate safety practices are observed to protect working personnel and the public.

         2) Sodium hypochlorite or calcium hypochlorite is available in liquid form in glass, rubber–lined, or plastic containers typically ranging in size from 1 quart to 5 gallons; containers of 30 gallons or larger sizes may be available in some areas. Sodium Hypochlorite contains approximately 5% to 15% available chlorine, but care must be used in control of conditions and length of storage to minimize its deterioration.

iv. Water from the existing distribution system shall be made to flow at a constant, measured rate (measured by City water meter) into the newly laid water main.

v. At a point not more than 10 feet downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. To assure that this concentration is provided, the contractor shall use Table 4.5, which gives the amount of chlorine required for each 100 feet of pipe of various diameters. Solutions of 1% chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter solution requires one pound of calcium hypochlorite in 8 gallons of water.

TABLE 4.5
Chlorine Required to Produce 25–mg/L Concentration in 100 feet of Pipe (by diameter)

Pipe Diameter (inches)	100% Chlorine (pounds)	1% Chlorine Solution (gallons)
4	0.013	0.16
6	0.030	0.36
8	0.054	0.65
10	0.085	1.02
12	0.120	1.44
16	0.217	2.60

b. During the application of chlorine, no part of the main being tested shall be connected to existing valves. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances.

At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.

Direct feed chlorinators, which operate solely from gas pressure in the chlorine cylinder, shall not be used for application of liquid chlorine. The preferred equipment for applying liquid chlorine is a solution–feed, vacuum–operated chlorinator and a booster pump. The vacuum–operated chlorinator mixes the chlorine in solution water; the booster pump injects the chlorine solution into the main to be disinfected. Sodium Hypochlorite solutions may be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions.

When the 24–hour contact time has elapsed, the main shall be flushed until the chlorine, as measured by a comparator in the discharge of the pipe, is 1.5 PPM or less. Adequate precaution shall be taken during flushing of the main to preclude property damage or saturation of the surrounding material.

Upon completion of flushing, a sample of the discharge shall be collected in a bacteriological test bottle for testing by the City. The contractor shall comply with the County Health Department requirements for conducting the test. The City, upon notification by the contractor, shall arrange for the taking of the sample and shall notify the contractor of the results as soon as they are available.

If the test fails (results are positive), the main must be disinfected, flushed, and sampled again. Such operations must be repeated until results are negative.

Full compensation for disinfection shall be considered as incidental to the project and no separate payment shall be made. All costs related to disinfection shall be included in the various other applicable items of work.

5. Potable Water Main and Sewer Force Main Testing

a. General

i. Pressure Testing Pipeline shall take place after water main disinfection and bacteriological testing, and shall be conducted per these specifications.

ii. Full compensation for pressure testing the pipeline shall be considered as incidental to the project and no separate payment shall be made. All costs related to pressure testing the pipeline shall be included in the various other applicable items of work.

b. Procedure

i. The water pressure test, or leakage test, shall establish that the section of line to be tested, including all joints, fittings and other appurtenances, will not leak within the limits of the applicable leakage allowance.

ii. The contractor shall provide all necessary apparatus for testing. A double check valve assembly meeting the requirements of the Oregon Health Authority shall be used at all times. All necessary taps on the main for testing purposes shall be provided and installed by the contractor at locations designated by the City.

iii. All service saddles, corporation stops, fire hydrants, fire lines, blow–offs, air vacuum valves and appurtenances are to be installed on the main pipeline prior to testing. Tie–ins shall be observed by the City at operating pressure prior to backfill.

iv. The contractor shall apply a pressure of 50 percent above normal operating pressure for all tests. This pressure shall be maintained as constant as possible throughout the period of test. All additional water pumped in during the testing period shall be measured and recorded. The contractor shall provide and use an air relief valve so air trapped in the line during test will not affect test results.

v. After test pressure is reached, contractor shall use a calibrated water container and record the quantity of water installed to maintain the test pressure. Compare with the following equation results or for longer pipelines, or if the same parameters, compare with the following leakage chart.

vi. The test duration shall be two hours, and the allowable leakage shall be determined by the formula:

$$L = \frac{ND\sqrt{P}}{7400}$$

where:
L = allowable leakage (gallons per hour)
N = number of joints in the length of pipeline tested
D = nominal diameter of the pipe (inches)
P = average test pressure during the test (pounds per square inch gauge)

Leakage values determined by the above formula are shown in the following table:

Table 4.5 Leakage Allowable
(Gallons per 1,000 feet per hour; 1,000 feet = 50 joints)

Pipe Size (Inches)	Test Pressure (psi)				
	50	100	150	200	250
4	0.19	0.37	0.33	0.38	0.43
6	0.29	0.41	0.50	0.57	0.64
8	0.38	0.54	0.66	0.76	0.85
10	0.48	0.68	0.83	0.96	1.07
12	0.57	0.81	0.99	1.15	1.28

Should the test of the pipe installed disclose leakage in excess of the specified allowable, the contractor shall, at the contractor's expense, locate and repair the defective joints until the leakage is within the specified allowance.

6. PIG flush

a. “Pigging" is required for all water mains 6-inch diameter and greater. Pigging is to be accomplished prior to hydrostatic testing and disinfection. Material for "pigs" shall be polyurethane foam as manufactured by Knapp Polly Pig, Inc. If other than commercial pigs are used, the size and shape of pigs shall be determined by City.

b. A minimum of three (3) pigs shall be flushed through the waterline. The contractor has the option of running all three (3) pigs at the same time or running the pigs one at a time. If all three (3) pigs are run at the same time, the pigs shall be identified individually.

c. Contractor shall provide erosion control as required to prevent damage to existing vegetation/ground.

d. Contractor shall be responsible for flushing "pigs" through waterlines and retrieving "pigs" after operation. If one or more pigs fails to run complete length

of waterline, contractor shall be responsible for retrieving pigs and repeating the pigging operation.

e. If after pigging and disinfection, the bacteriological test fails, the contractor shall re-pig the waterline.

f. The contractor shall notify the City a minimum of 24 hours prior to pigging the waterlines and review erosion control methods for City's approval. City can require waterlines to be 're-pigged' if excessive foreign material is encountered during 'pigging'.

g. The contractor will be required to temporarily remove and replace the necessary pipe and fittings as required to place and remove "pigs" for flushing.

h. All waterlines that are not "pigged" shall be flushed through an opening at least six (6) inches in diameter.

i. The contractor shall provide all fittings and pipe necessary to perform the flushing.

j. The contractor may use water provided by the City to perform the pigging and flushing.

k. The contractor shall provide erosion protection where necessary.

END OF DIVISION

Chapter 18.25
Division 5
Site Work

18.25.001 DEFINITIONS

A. This section contains specification information on right of way improvements, usually above ground or related to surface features and site specific standards.

18.25.002 FORMWORK

A. General

1. Formwork described herein includes falsework and is temporary or permanent molds into which concrete is poured.

2. Shall conform to ACI-347 “Standards Recommended Practice for Concrete Formwork,” current edition.

B. Materials

1. Plywood shall be APA approved as required to support concrete at rate of placement.

2. Steel forms may be used.

3. All wood used shall be suitable for construction, free of major defects and warps.

4. Manufacturers’ assemblies may be used as forms provided that maximum loadings and deflections used on jacks, brackets, columns, joists and other manufacturer’s devices do not exceed the manufacturer's recommendations.

5. Include all items devices necessary for proper placement, spacing, supporting and reinforcing steel in place for City approval.

6. Form Ties

a. Bolts, rods or other approved devices shall be used for internal form ties and shall be of sufficient quantities to prevent spreading of the forms.

b. Ties shall be placed 1 inch away from the top finished surface of the concrete.

c. The use of ties consisting of twisted wire loops will not be permitted.

d. Bolts and rods that are to be completely withdrawn shall be coated with grease.

e. Ties application shall be as recommended by the manufacturer for conditions of installation.

C. Workmanship

1. Shall resist spreading, shifting, settling and deflection no greater than 1/8 inch between supports after concrete placement. Forms to be tight and well braced.

2. Site shall be secured to protect the public from injury.

3. Do not remove formwork until concrete has hardened and attained sufficient strength to permit safe removal and adequate support of inherent and imposed loads. Protect from vandalism.

18.25.003 REINFORCED STEEL

A. Submittals

1. Shop drawings to include; bending and placing diagrams by supplier and in accordance with ACI publication 315-65, product description and coating, sample, certificates of compliance and Mill Test results.

B. Product Delivery, Storage and Handling

1. Store in manner as to prevent excessive rusting and fouling with grease, dirt, or other bond weakening coatings.

C. Materials

1. Reinforcing bars shall be clean billet steel, ASTM A615, Grade 60. Reinforcing steel shall be cleaned of mill dust, dried concrete, or other coatings that may reduce bond. When concrete placement is delayed, reinforcement shall be cleaned or replaced.

2. Tie wires shall be ASTM A-82-66.

3. Welded wire fabric shall be ASTM A-185-72.

D. Workmanship

1. Shop fabricate and cold-bend as detailed on reviewed shop drawings.

2. Conform to requirements as ACI 316-65 and ACI 301-66 Section 504, or current edition, where specific details are not shown on drawings or specifications.

3. Ensure placement will permit concrete protection in conformance with ACI 318-63, Section 308, or current edition, or to extent shown.

4. Support and fasten bars securely with concrete blocks, spacers, chairs or ties. Wire-tie bar intersections, secure bars at intervals not exceeding 80 x diameter of bar for horizontal bars and 192 x diameter of bar for vertical bars.

5. Rebar to be installed to avoid conflicts with conduits.

6. Splices and laps in conformance with ACI 318-63, Section 805 or current edition.

7. Safety- secure plastic caps on ends of exposed rebar. Contractor shall adhere to OSHA requirements for impalement protection.

E. City testing and inspection in accordance with current building code.

18.25.004 CAST IN PLACE CONCRETE

A. General

1. Contractor must receive prior approval from the City for the concrete mix design.

2. Truck mix and ready mix shall exceed ASTM C387, 4,000 psi at 28 days and shall be a high strength concrete mix.

3. Concrete shall have a 5-inch maximum slump when tested in accordance with ASTM C 143.

4. Cement shall be 5½ sacks per cubic yard of concrete, as a guideline.

5. Admixtures or accelerators will be considered on a case by case basis.

B. Workmanship

1. The concrete shall be placed in a maximum elapsed time of 1½ hours after the mixing water and cement has entered the drum until completion of discharge.

2. Use of ready mix concrete shall not be in progress or continued when a descending air temperature in the shade and away from artificial heat falls below 40 degrees Fahrenheit.

3. Provide a smooth finish. Protect concrete from damage during the first 7-day curing time.

4. Compaction**.** The contractor shall compact the concrete by means of vibration. The contractor shall operate the equipment in such a manner that a satisfactory compaction of the concrete is produced. Finished surface to be within 1/8" tolerance of planned grade.

C. Sidewalks – Refer to Standard Detail 5.13

1. Subgrade – please refer to Division 3, 18.15.002 herein.

2. Mix shall be as stated in 18.25.004 herein.

3. Thickness – 4-inches.

4. Control Joints – as specified in Standard Detail 5.13.

5. Workmanship

a. Broom finish, smooth even surface with 2% cross fall. Defects may require replacement of panel.

b. As specified in 18.25.004 herein.

c. Contraction joints shall be installed every 5 feet and aligned with adjacent curb contraction joints.

D. Curb and Gutter – Standard Detail 5.10.

1. Curb and gutter section must be integrally placed as a monolithic unit.

2. Curb and gutter shall have contraction joints in 5-foot intervals. Align contraction joints with adjacent sidewalk contraction joints where possible. Install per Subsection F and Standard Details herein.

E. Driveway Approach

1. Subgrade - please refer to Division 3, 18.15.002 herein.

2. Mix shall be as stated in 18.25.004 herein.

3. Thickness – 6 inches.

4. Contraction joints - as specified in Standard Detail 5.13 and Subsection F herein.

F. Control joints

1. Install as shown on Standard Detail 5.13.

2. Expansion joints

a. Install where new sidewalk is poured adjacent to existing sidewalks

b. Bring joint material to within one (1) inch of top surface, fill remainder of joint material with standard sealing compound.

c. Expansion joint material shall be ½-inch thick preformed asphalt fiberboard conforming to ASTM D 994.

d. Install at interface of new and old curb.

3. Contraction joints

a. May be jig sawed or hand formed “bull nose” with round over tool deeper than parting tool to a joint depth to be a minimum of one-third the total depth of the section.

b. Install where sidewalks abut vertical surfaces. In sidewalks, contraction joints shall be installed at right angles.

c. Install at interface of straight curb and short radius section and both sides of driveway cut.

d. Install along curb and gutter at 15 foot intervals not to exceed 45 feet.

e. Align sidewalk joints at 5 foot intervals with curb and gutter joints at 15 foot intervals.

18.25.005 SIGNPOSTS

A. General - This item shall consist of the furnishing, fabricating, galvanizing and erecting of signposts in conformity with the lines, grades, dimensions and locations as directed or provided by the City of Brookings.

B. Materials

1. Posts shall be 2 inch x 2 inch square fit or Telespar posts (holes 4 sides) zinc-coated as manufactured by Traffic Safety Supply or approved equal.

2. Anchor section shall be 2¼ inch x 2¼ inch x 3 foot.

3. Base section of post consists of 2½ inch x 2½ inch x 18 inch long base sleeve.

4. All posts to be set in a minimum 3,000 psi concrete mix as shown in Standard Detail 5.20.

C. Workmanship

1. Posts shall be installed in accordance with the double 12-gauge installation that utilizes a two-piece breakaway anchor.

2. Posts shall be set in cylindrical foundations. For concrete foundation's hole shall be excavated for the bury depth of the post: not less than 12 inches in diameter.

3. Sign posts shall be erected plumb.

18.25.006 STREET SIGNS

A. General – All new signage must meet the minimum retroreflectivity requirements as identified by the MUTCD.

B. Retroreflectivity Requirements Summary

1. White copy on overhead guide signs must be made from prismatic sheeting.

2. White copy on ground mounted street name signs cannot be made from Type I sheeting.

3. Warning signs (black on yellow or orange) cannot be made from Type I sheeting.

4. Regulatory signs (black on white) must retain a minimum retroreflectivity level of ≥ 50 cd/lx/m^2 (while use of Type I sheeting—with an initial retroreflectivity value of 70 cd/lx/m^2—is allowed, sign life will be short and may result in poor life cycle value).

5. Stop signs (white on red) have a minimum contrast ratio of ≥ 3:1 (white reflectivity ÷ red reflectivity).

18.25.007 STREET LIGHTS

A. General – Street lights shall be provided for all developments within the City.

B. Location

1. New Streets – As part of a new street development, street lighting shall be installed at intersections and at a maximum distance of 220 feet apart with the following exceptions:

a. A cul-de-sac where the terminus is less than 150 feet from the nearest lighted intersection; otherwise, a street light shall be installed at the end of the cul-de-sac.

b. For streets serving industrial areas, there shall be a minimum of one (1) street light at each intersection.

2. Existing Streets – Developments having 200 feet or more of frontage on an existing street shall install a minimum of one (1) street light for the first 200 feet, plus one (1) street light per 220 feet of additional frontage. A development with less than 200 feet of frontage on an existing street shall enter into a deferred improvement agreement for future street light installation.

3. As determined by Site Plan Committee or traffic engineering designee to prevent a hazardous driving condition.

4. Alternative Standards - Residential homeowner's associations may propose alternative lighting standards under the following conditions; the proposed lighting configuration and specifications are stamped by a registered civil engineer, and the homeowners association shall take full responsibility for maintenance and powering of the street lights through recordation of covenants, codes and restrictions (CC&Rs). The City Attorney shall review and approve the CC&Rs. The homeowners association must be formed and in accordance with Oregon law and shall hold the City harmless from damage claims arising from negligence on the part of the homeowners association in regards to luminance, maintenance and supplying power.

C. Types

1. Chetco Avenue and Downtown Decorative Light, 14' pole. Color F283 green finish distributed by Platt, Beaverton Oregon.

2. "Tear Drop" Decorative Lights, 30' pole. Light fixture by Phillips Lumec.

3. Standard Luminare Light, 30' pole. Manufactured by Shakespeare, part #BH-30-16-N5-BG-20 (pole and base), #OPAR-6-BZ (arm), #OPHW-1-BZ (hardware) and per Standard Detail 5.30 herein.

D. Service – Nearest facility carrying 120 volts secondary and controlled by individual photoelectric control devices. All services shall be underground.

18.25.008 TREE TRIMMING AND REMOVAL

A. General. Any tree trimming work that involves the public right of way, including staging, shall be required to obtain a Public Works permit and shall comply with all general conditions contained herein.

18.25.009 RESERVED

189.25.010 RESERVOIR AND PUMP STATION FACILITIES

A. Paint and Colors

1. Roof is weathered wood.

2. Forest Green for Reservoirs and Pump Stations.

18.25.011 PARKS AND RECREATION FACILITIES - RESERVED

END OF DIVISION

Standard Construction Details
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4.54 Pipe Support

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5.14 Typical Street Section

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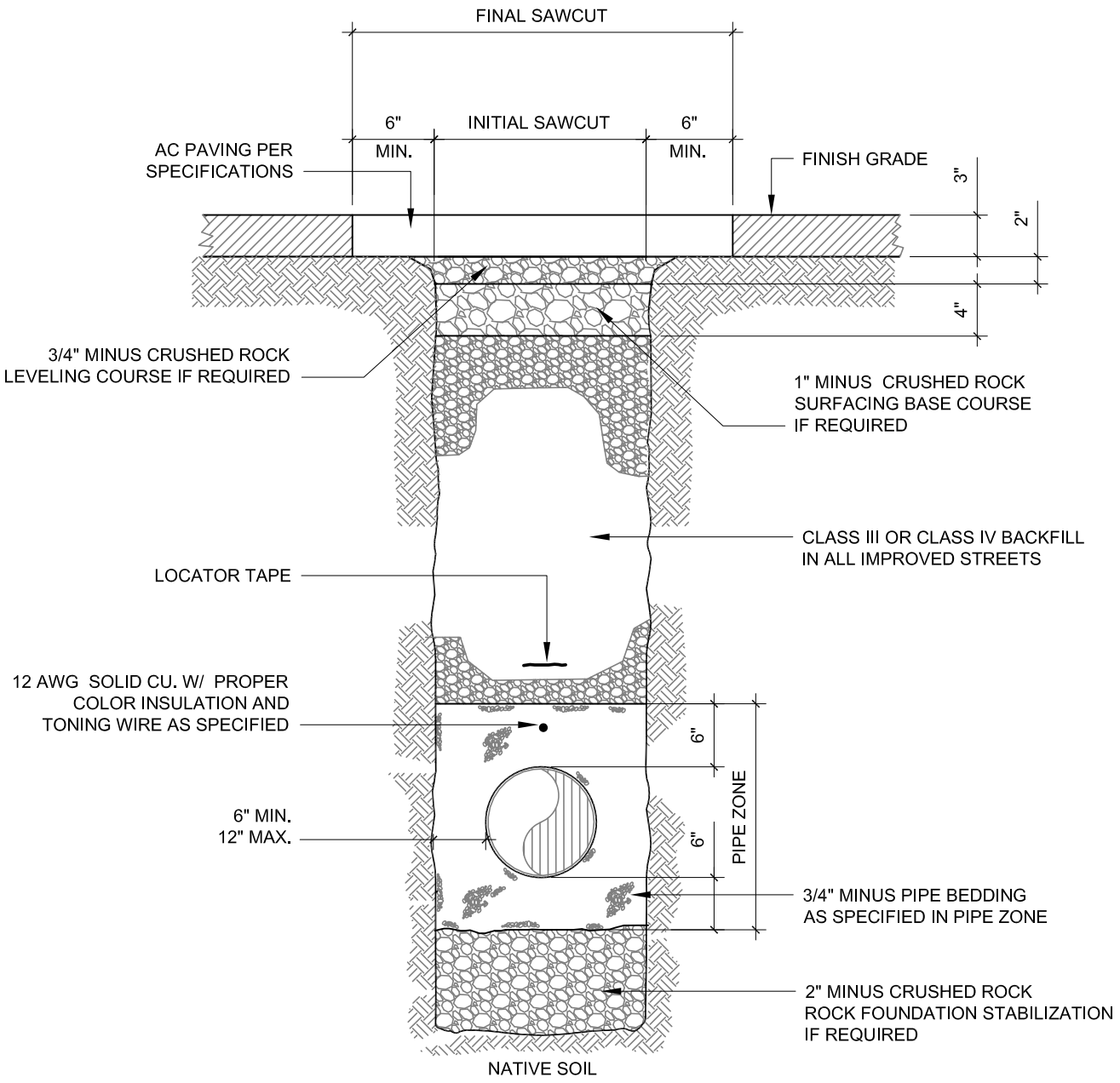
5.33 Luminar Base

5.34 Cluster Mailbox

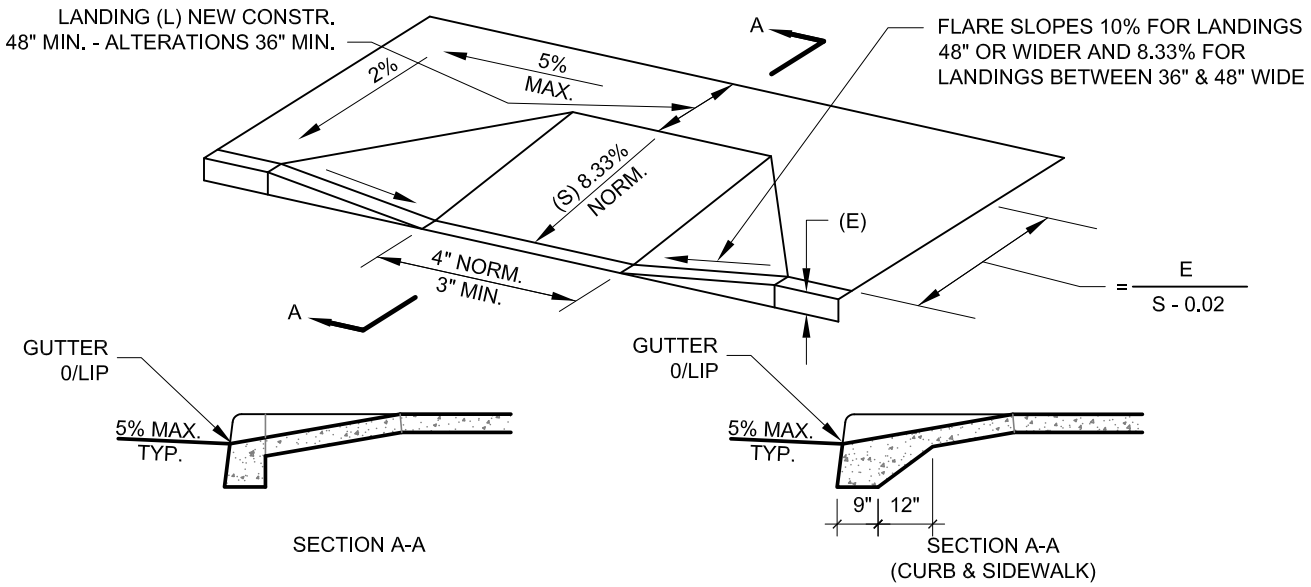
5.35 Single Mailbox

T. PATCH



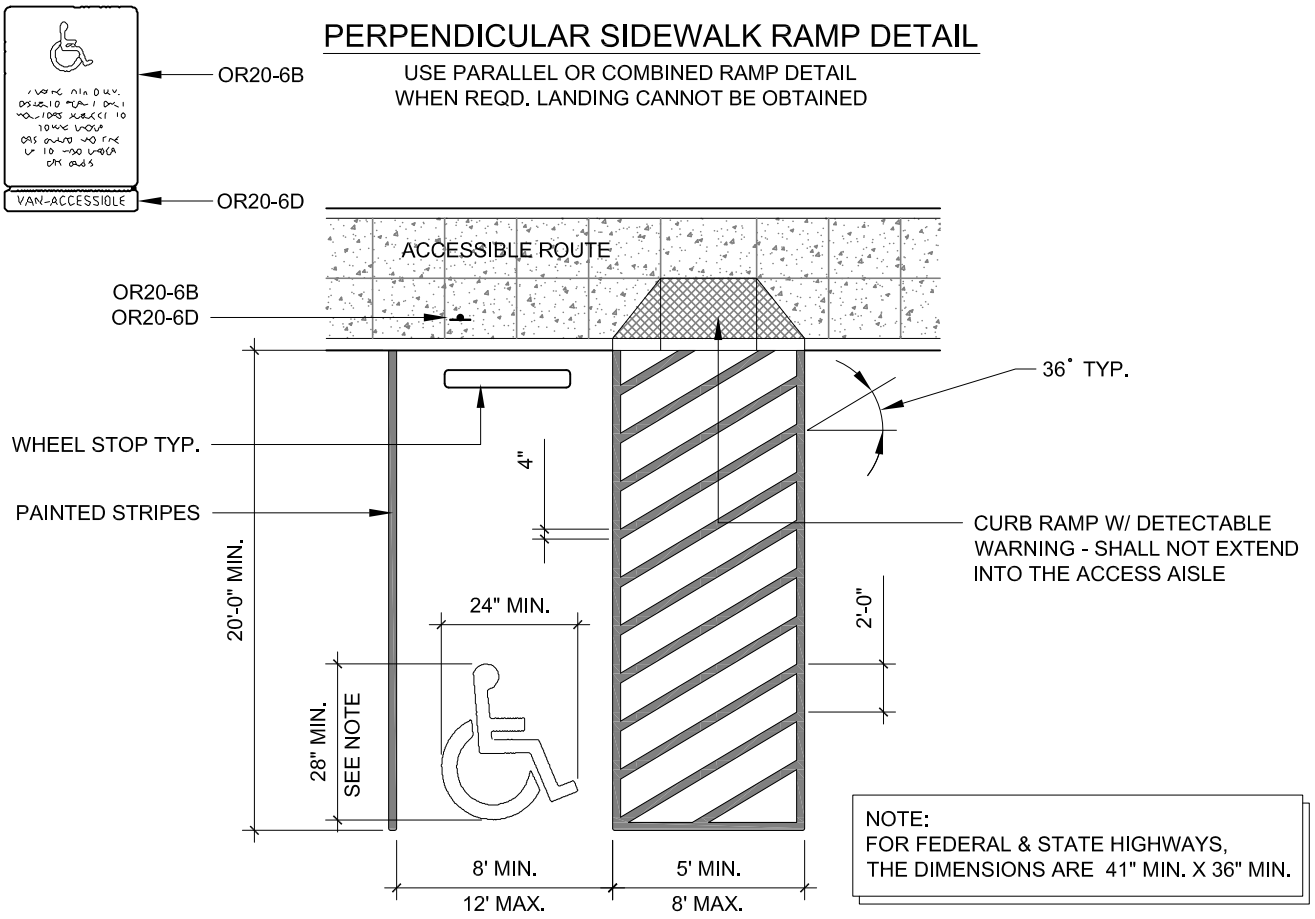
NOTE:
TRENCH LINES LOCATED OUTSIDE IMPROVED (PAVED) ROADWAY WILL BACKFILL WITH NATIVE MATERIAL TO MATCH EXISTING GRADE

CITY OF BROOKINGS - STANDARD DETAIL	
TYPICAL TRENCH DETAIL	**3.10**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



PERPENDICULAR SIDEWALK RAMP DETAIL

USE PARALLEL OR COMBINED RAMP DETAIL
WHEN REQD. LANDING CANNOT BE OBTAINED



NOTE:
FOR FEDERAL & STATE HIGHWAYS,
THE DIMENSIONS ARE 41" MIN. X 36" MIN.

WHITE STRIPING AND PAVEMENT STENCIL REQUIRED

STROKE WIDTH ON SYMBOL IS 3" MINIMUM
BLUE BACKGROUND AND BLUE PAINTED CURB OPTIONAL

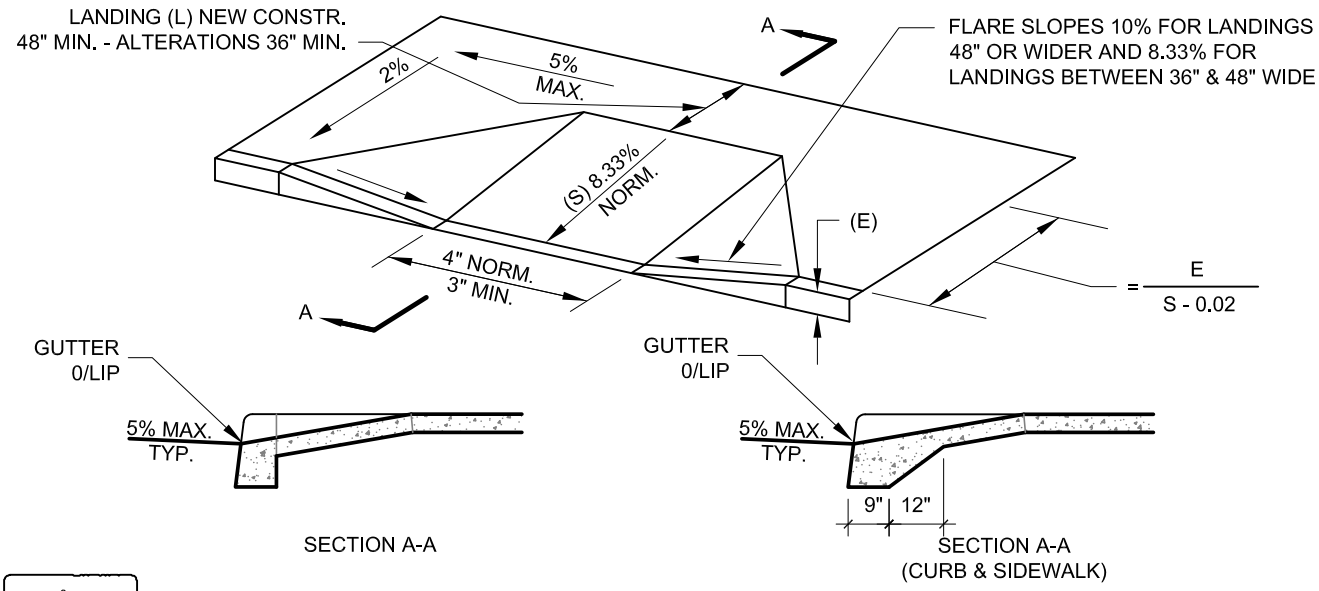
CITY OF BROOKINGS - STANDARD DETAIL

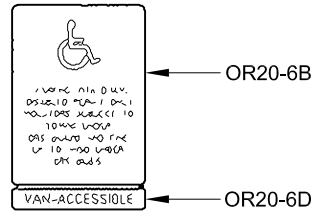
ADA SINGLE PARKING SPACE

3.15

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



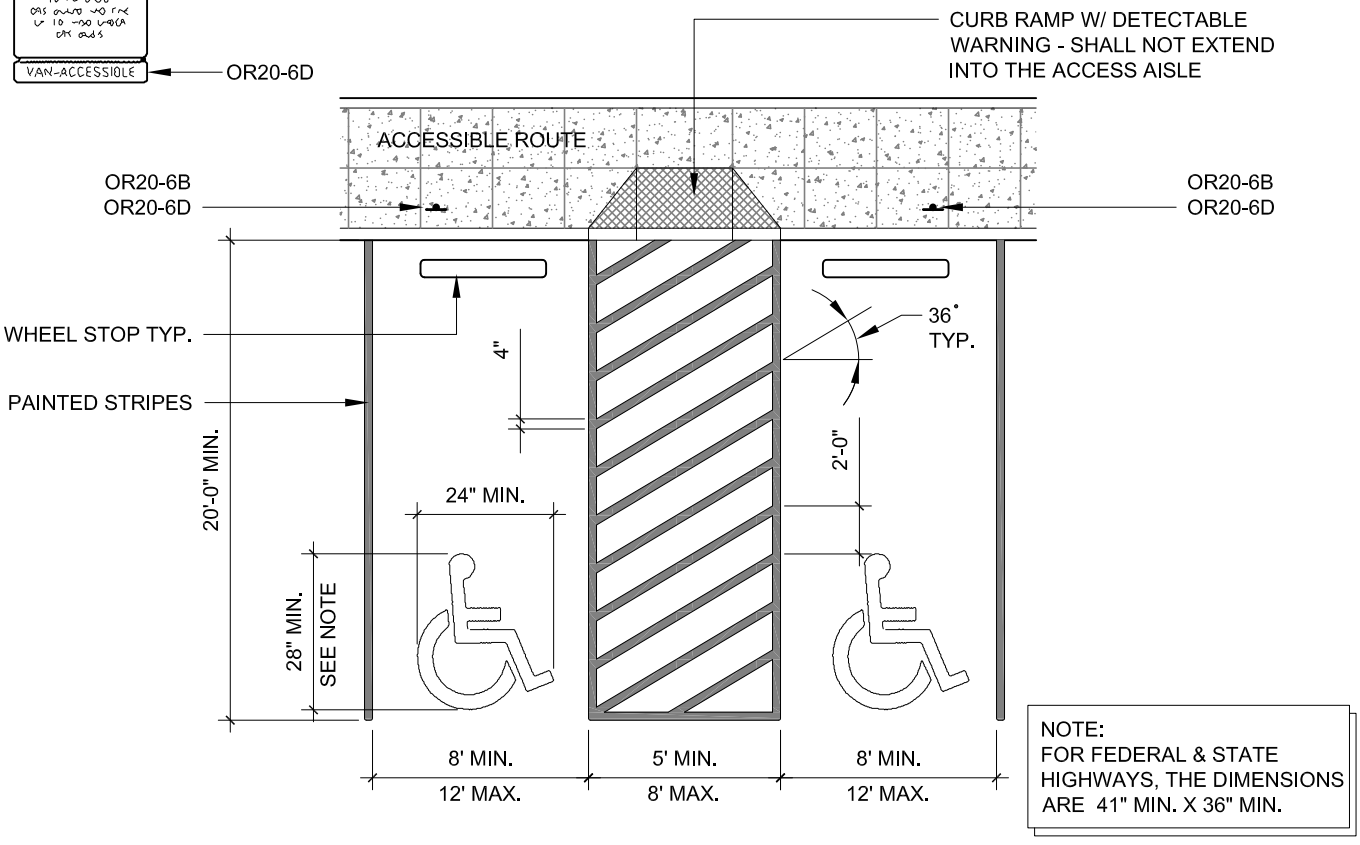


OR20-6B

OR20-6D

PERPENDICULAR SIDEWALK RAMP DETAIL

USE PARALLEL OR COMBINED RAMP DETAIL
WHEN REQD. LANDING CANNOT BE OBTAINED

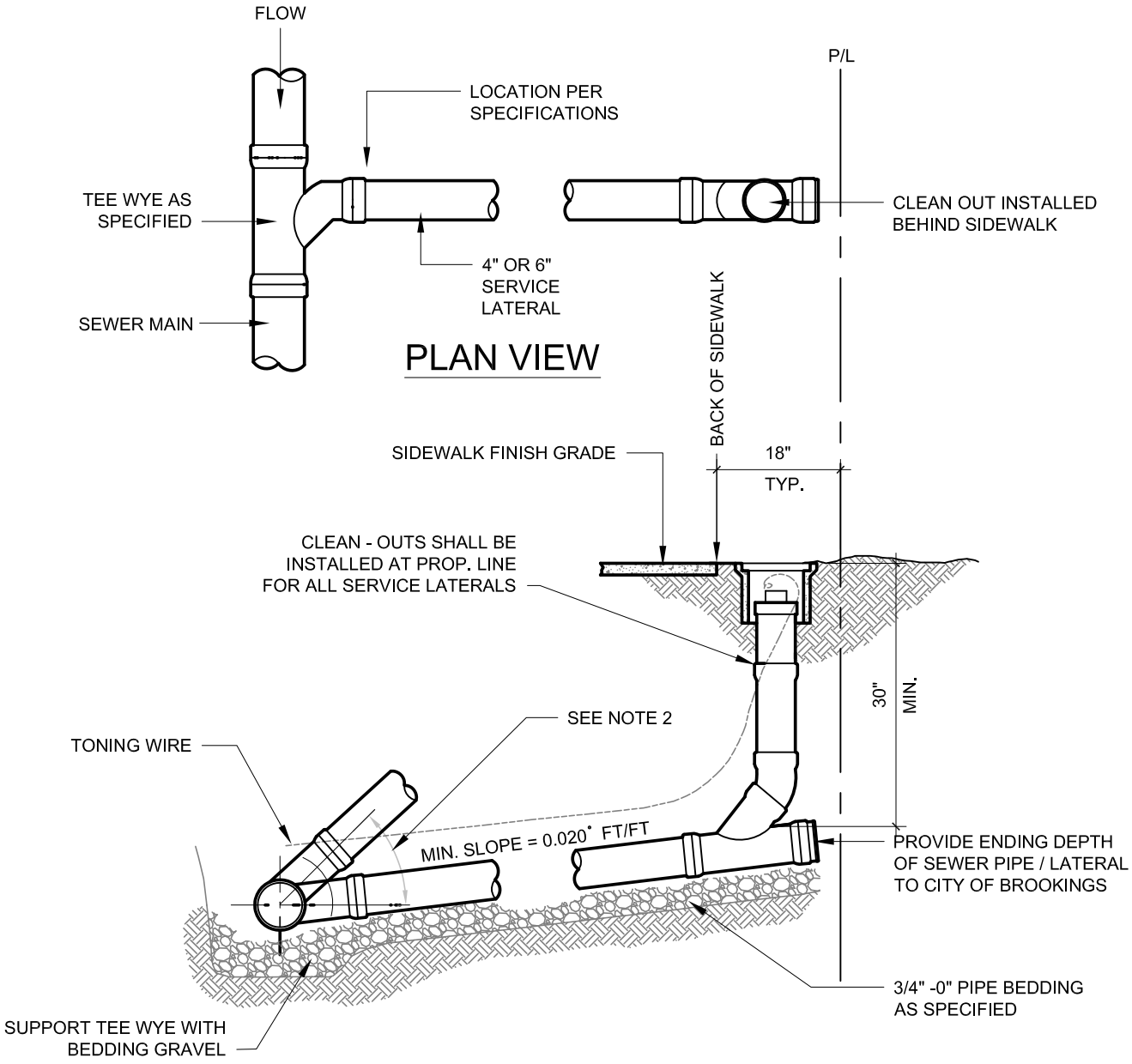


NOTE:
FOR FEDERAL & STATE HIGHWAYS, THE DIMENSIONS ARE 41" MIN. X 36" MIN.

WHITE STRIPING AND PAVEMENT STENCIL REQUIRED

STROKE WIDTH ON SYMBOL IS 3" MINIMUM
BLUE BACKGROUND AND BLUE PAINTED CURB OPTIONAL

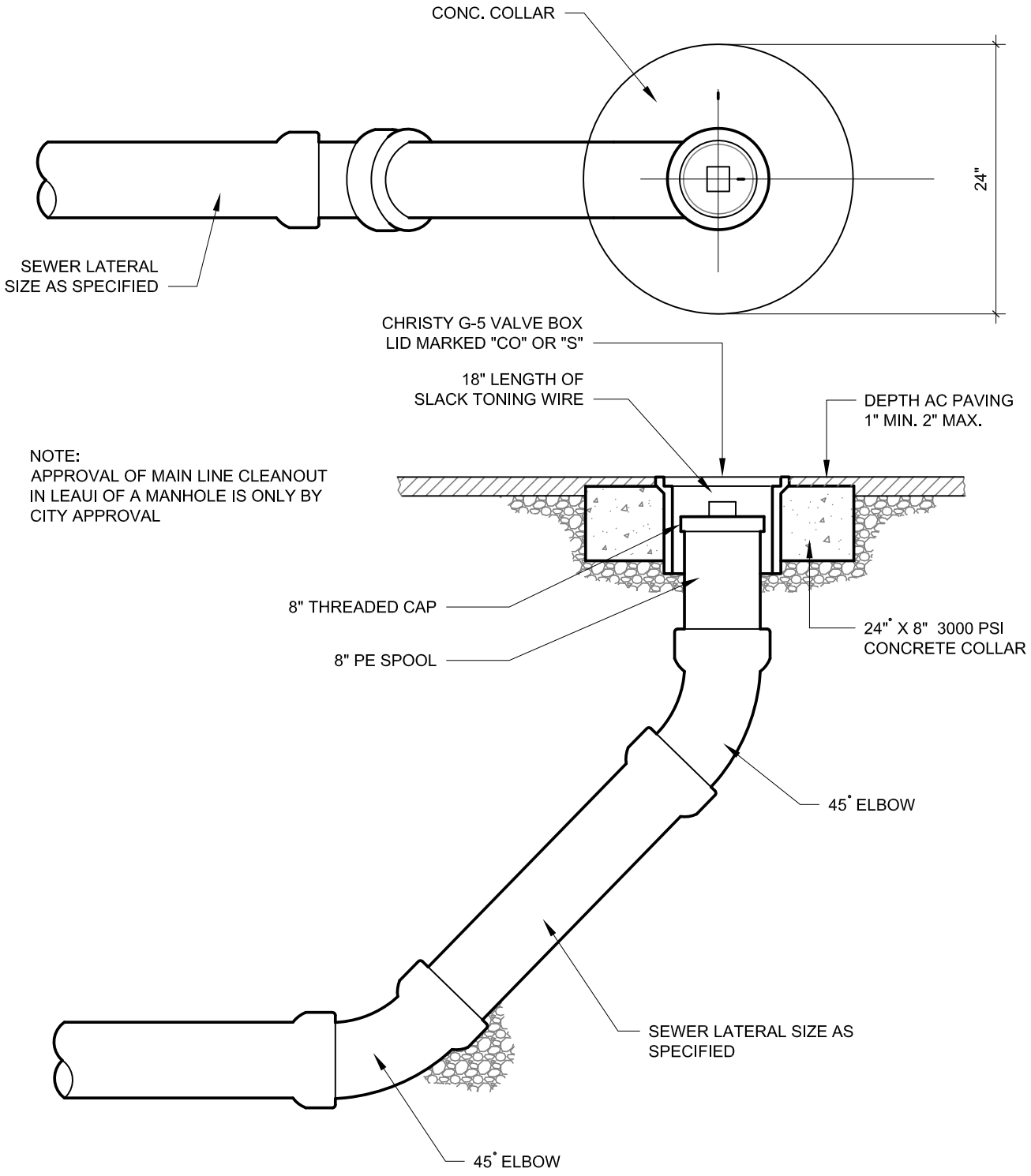
	CITY OF BROOKINGS - STANDARD DETAIL	
	ADA DOUBLE PARKING SPACE	3.16
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTES:

1) MINIMUM DEPTH AT RIGHT-OF-WAY OR PROPERTY LINE SHALL BE 30 INCHES
2) LAY SERVICE LATERAL AT MAX. 45° FROM HORIZONTAL TO ACHIEVE REQUIRED DEPTH AT PROPERTY LINE WHEN MINIMUM SLOPE RESULTS IN EXCESSIVE DEPTH.
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH GREEN INSULATION WITH 18" TAG END IN CLEAN OUT BOX
4) IF LOCATED IN DRIVEWAY APPROACHES USE CHRISTY F08C LID
5) ALL LOCATIONS OF SERVICE LINES SHALL BE NOTED ON NEW CURB WITH A MARK "S".
6) NO CURB WEEP HOLES SHALL BE LOCATED WITHIN 18" OF THE CLEAN OUT BOX.

CITY OF BROOKINGS - STANDARD DETAIL		
SEWER SERVICE LATERAL		4.11
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	



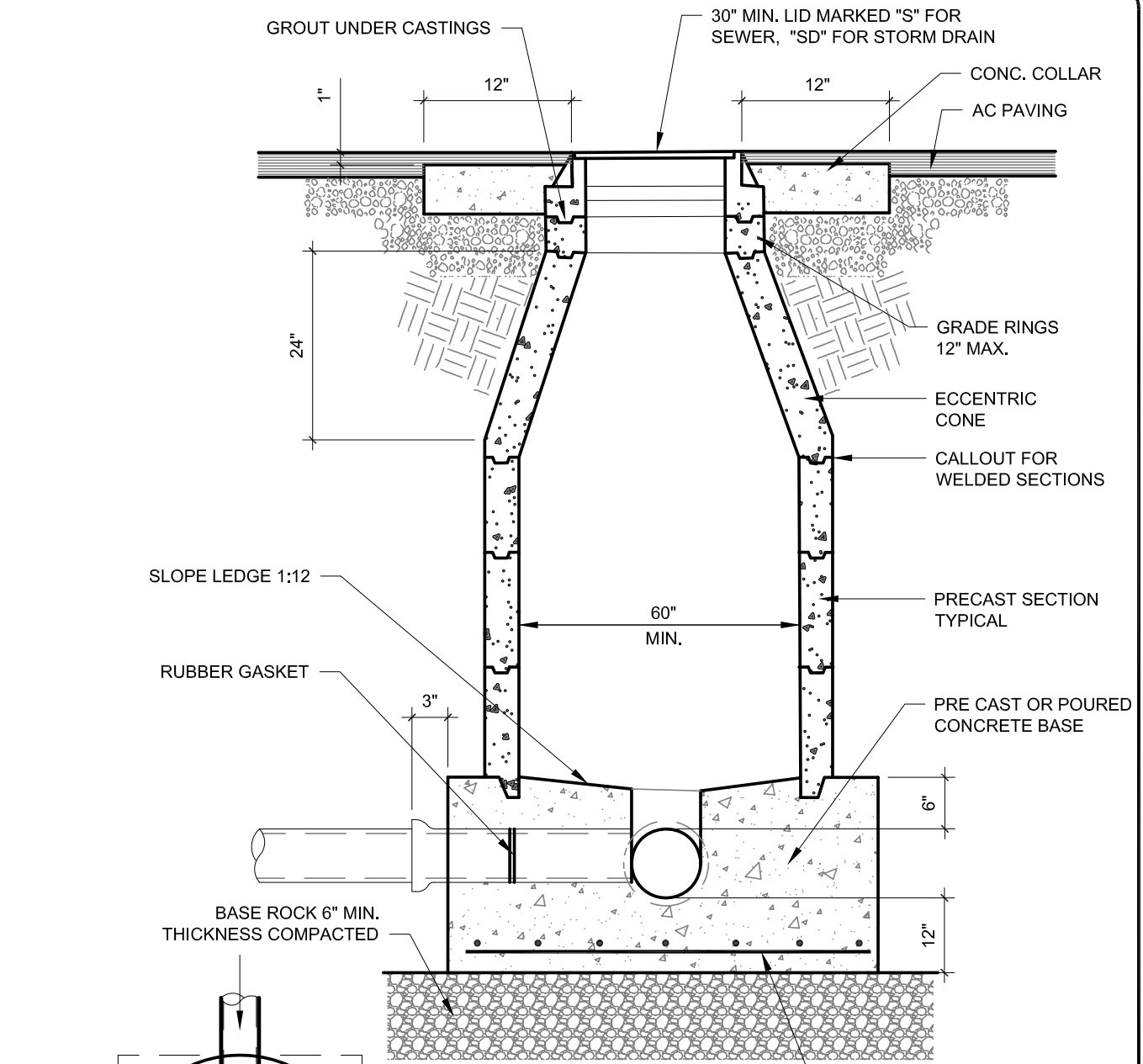
CITY OF BROOKINGS - STANDARD DETAIL

MAINLINE CLEANOUT

4.12

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



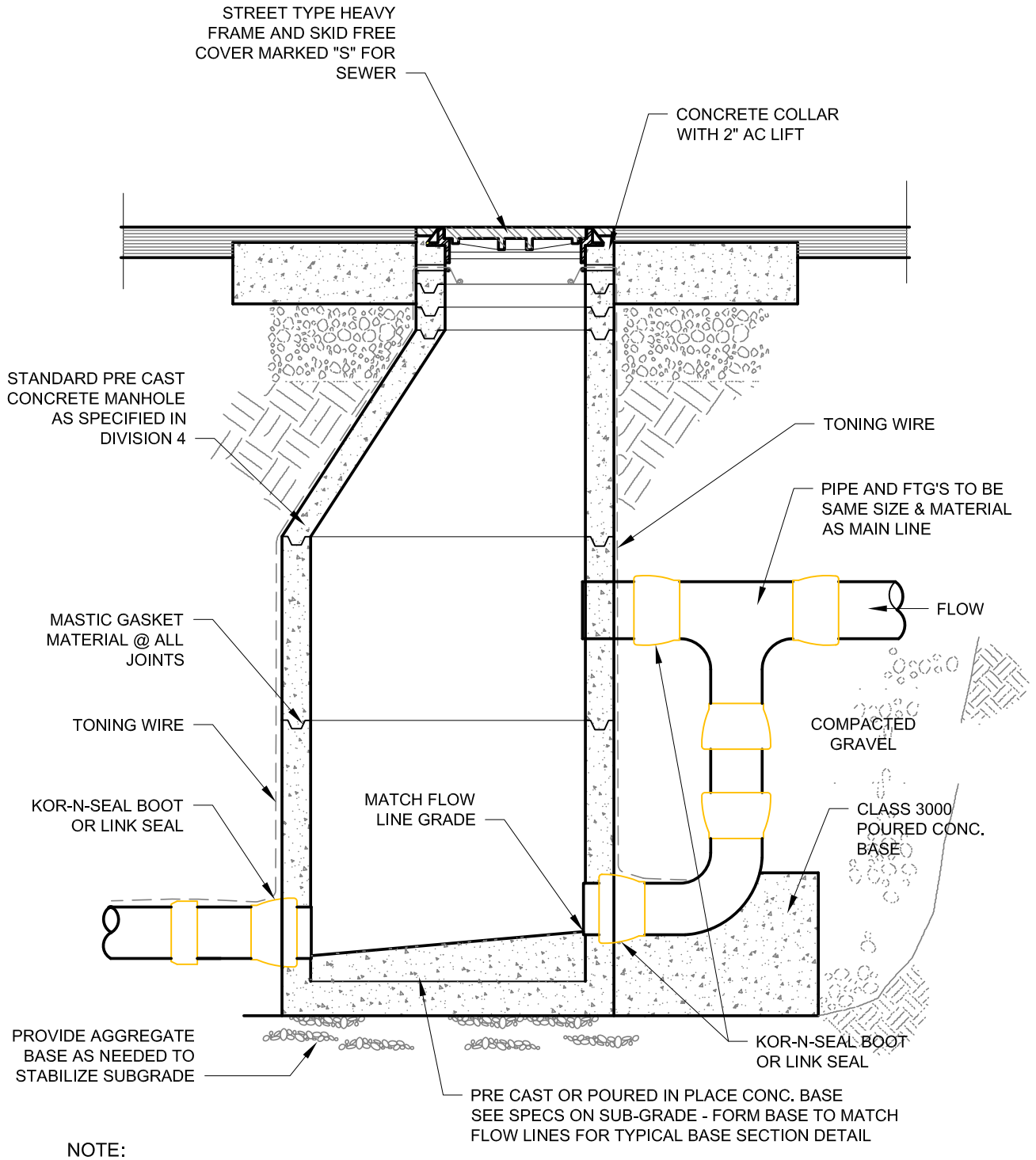
CITY OF BROOKINGS - STANDARD DETAIL

STANDARD MANHOLE - CONCENTRIC

4.13

APPROVED BY RESOLUTION 14-R-1024

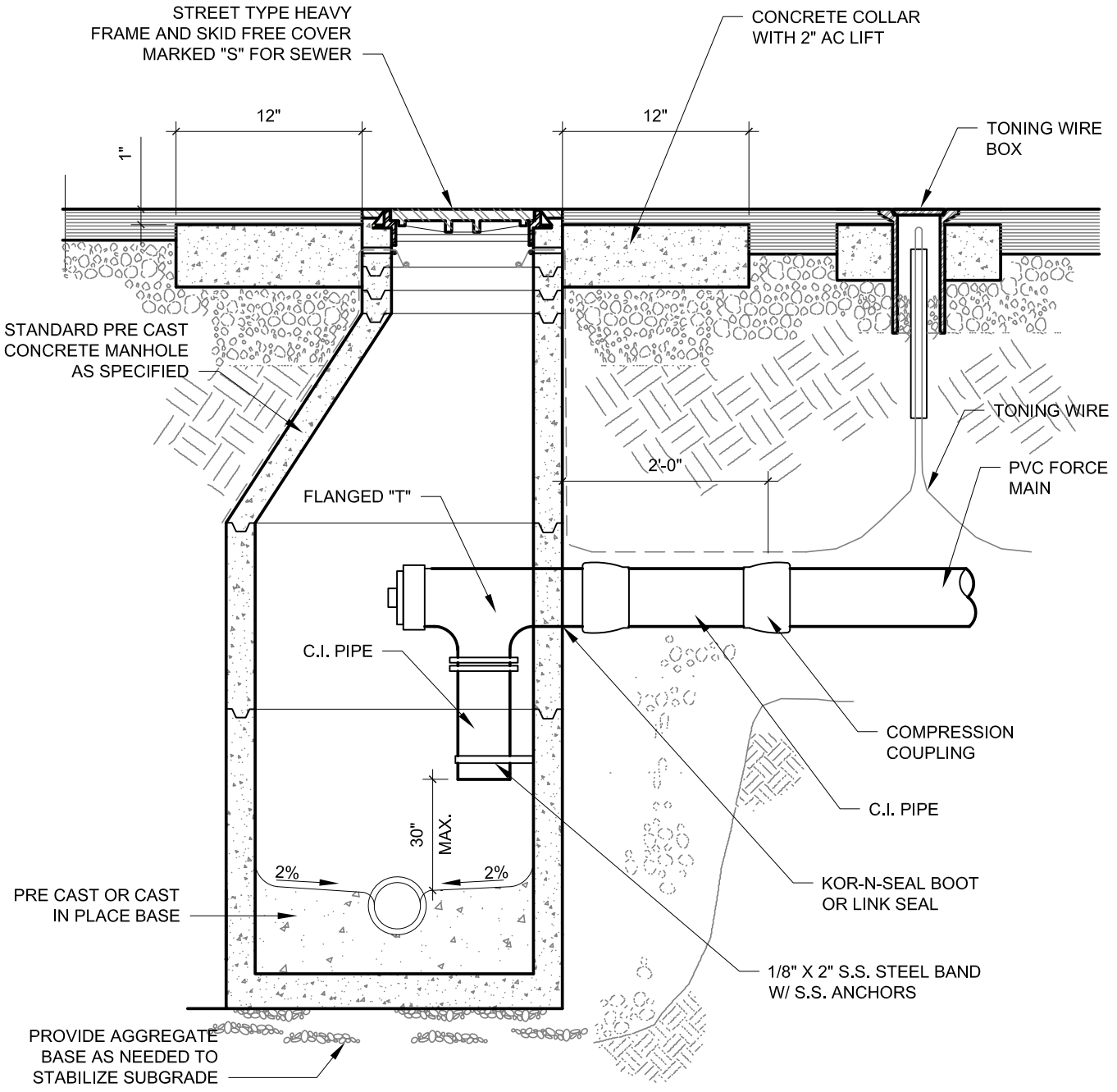
DATE: 2/26/2014



NOTE:

1. STUBS TO MANHOLE MUST BE "KOR-N-SEAL" BOOTS OR CORE DRILL W/LINKSEAL AND GROUTED WATERTIGHT.
2. NEED TO INSTALL GREEN CARSONITE STAKE WHEN MANHOLE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S

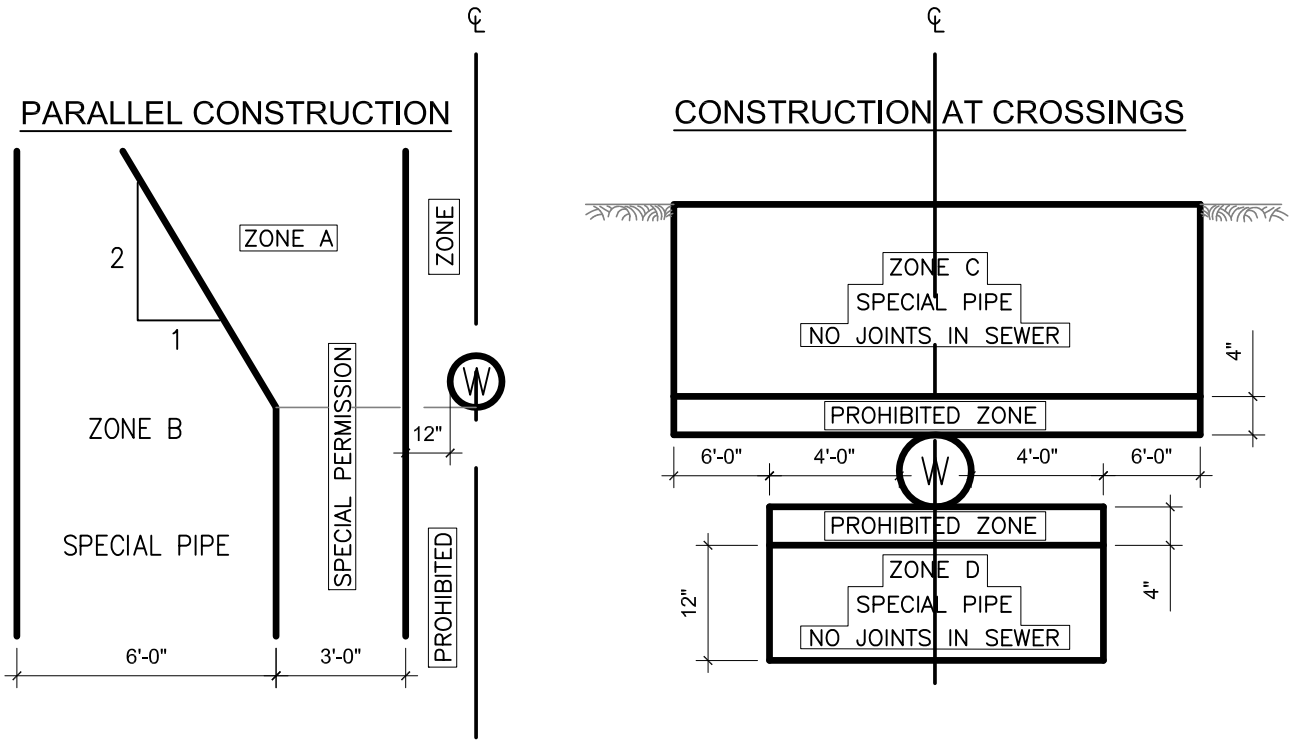
CITY OF BROOKINGS - STANDARD DETAIL	
OUTER DROP MANHOLE	**4.14**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTE:

1. STUBS TO MANHOLE MUST BE "KOR-N-SEAL" BOOTS OR CORE DRILL W/LINKSEAL AND GROUTED WATERTIGHT.
2. NEED TO INSTALL GREEN CARSONITE STAKE WHEN MANHOLE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S
3. FOR POURED IN PLACE BASE SEE 4.13

CITY OF BROOKINGS - STANDARD DETAIL		
INNER DROP MANHOLE		**4.15**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	



NOTES:
1. ZONES IDENTICAL ON EITHER SIDE OF CENTERLINE
2. ZONE "P" IS A PROHIBITED ZONE

ZONE SPECIAL CONSTRUCTION REQUIRED FOR SANITARY SEWER LINE

A. SANITARY SEWER LINES PARALLEL TO WATER MAINS SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE RESPONSIBLE HEALTH AGENCY AND WATER SUPPLIER.

B. A SANITARY SEWER LINE PLACED PARALLEL TO A WATER MAIN SHALL BE CONSTRUCTED OF:

1. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS.
2. PLASTIC SANITARY SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT.
3. CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS.
4. REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINTS (PER AWWA C302-74).

C. A SANITARY SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF:

1. DUCTILE IRON PIPE WITH HOT DIPPED BITUMINOUS COATING AND MECHANICAL JOINTS.
2. A CONTINUOUS SECTION OF CLASS 200 (DR14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT CENTERED OVER THE PIPE BEING CROSSED.
3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
4. ANY SANITARY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.

D. A SANITARY SEWER LINE CROSSING A WATER MAIN SHALL BE CONSTRUCTED OF:

1. A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
2. A CONTINUOUS SECTION OF CLASS 200 (DR14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT CENTERED OVER THE PIPE BEING CROSSED.
3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
4. ANY SANITARY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.
5. ANY SANITARY SEWER PIPE SEPARATED BY A TEN-FOOT, FOUR INCH THICK REINFORCED CONCRETE SLAB. CONTRACTOR TO PROVIDE DETAIL FOR APPROVAL BY CITY

CITY OF BROOKINGS - STANDARD DETAIL	
SANITARY SEPARATION - SEWER (CASE 1)	**4.16**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014

NOTES:

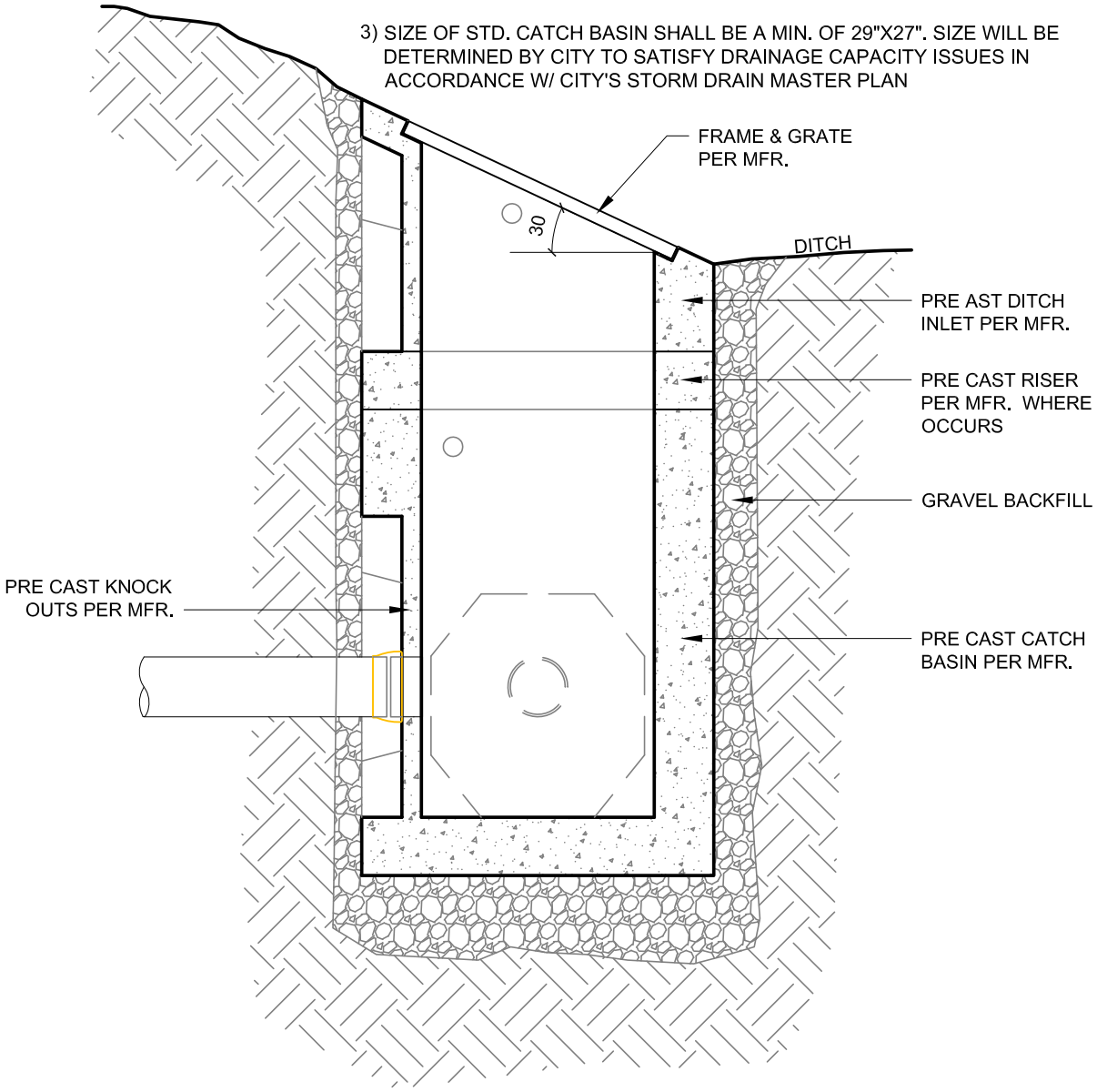
1) PREFABRICATED UNITS FROM ADVANTAGE PRE CAST OR APPROVED OTHER

ADVANTAGE PRE CAST
1302 CANDLEWOOD DR NORTH
KEIZER, OREGON 97303

2) CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING. & BIKE FRIENDLY

DITCH INLET GRATE: 1/4" F.B.
C.O. SALEM GRATE: 1/4" F.B. GALVANIZED
O.D.O.T. GRATE 5/8" F.B.

3) SIZE OF STD. CATCH BASIN SHALL BE A MIN. OF 29"X27". SIZE WILL BE DETERMINED BY CITY TO SATISFY DRAINAGE CAPACITY ISSUES IN ACCORDANCE W/ CITY'S STORM DRAIN MASTER PLAN



SECTION

CITY OF BROOKINGS - STANDARD DETAIL

DITCH INLET

4.21

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014

NOTES:

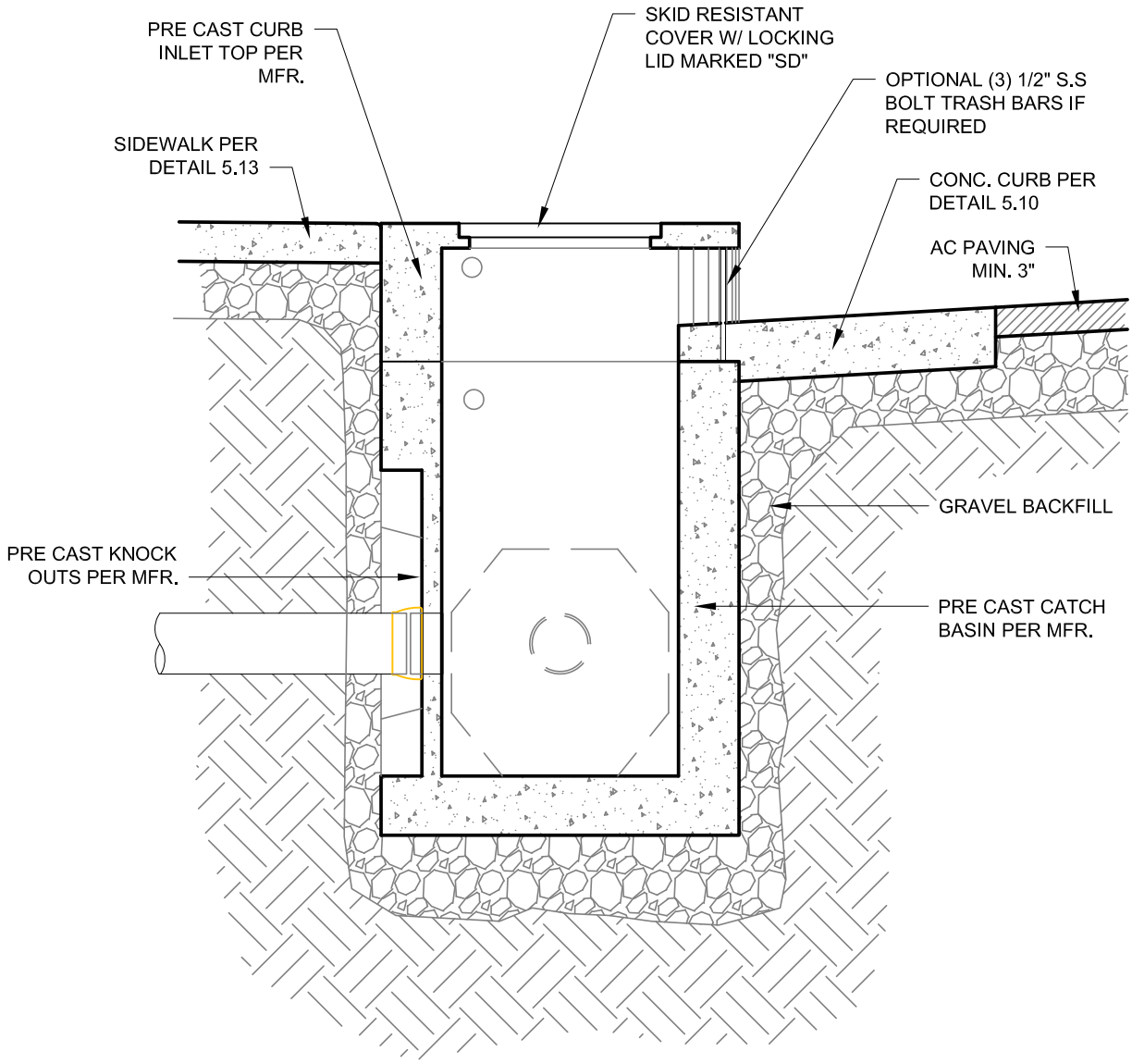
1) PREFABRICATED UNITS FROM ADVANTAGE PRE CAST OR APPROVED OTHER

ADVANTAGE PRE CAST
1302 CANDLEWOOD DR NORTH
KEIZER, OREGON 97303

2) CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING.

DITCH INLET GRATE: 1/4" F.B.
C.O. SALEM GRATE: 1/4" F.B. GALVANIZED
O.D.O.T. GRATE 5/8" F.B.

3) SIZE OF STD. CATCH BASIN SHALL BE A MIN. OF 29"X27". SIZE WILL BE DETERMINED BY CITY TO SATISFY DRAINAGE CAPACITY ISSUES IN ACCORDANCE W/ CITY'S STORM DRAIN MASTER PLAN



SECTION

CITY OF BROOKINGS - STANDARD DETAIL	
CURB DRAIN INLET - TYPICAL	4.22
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014

NOTES:

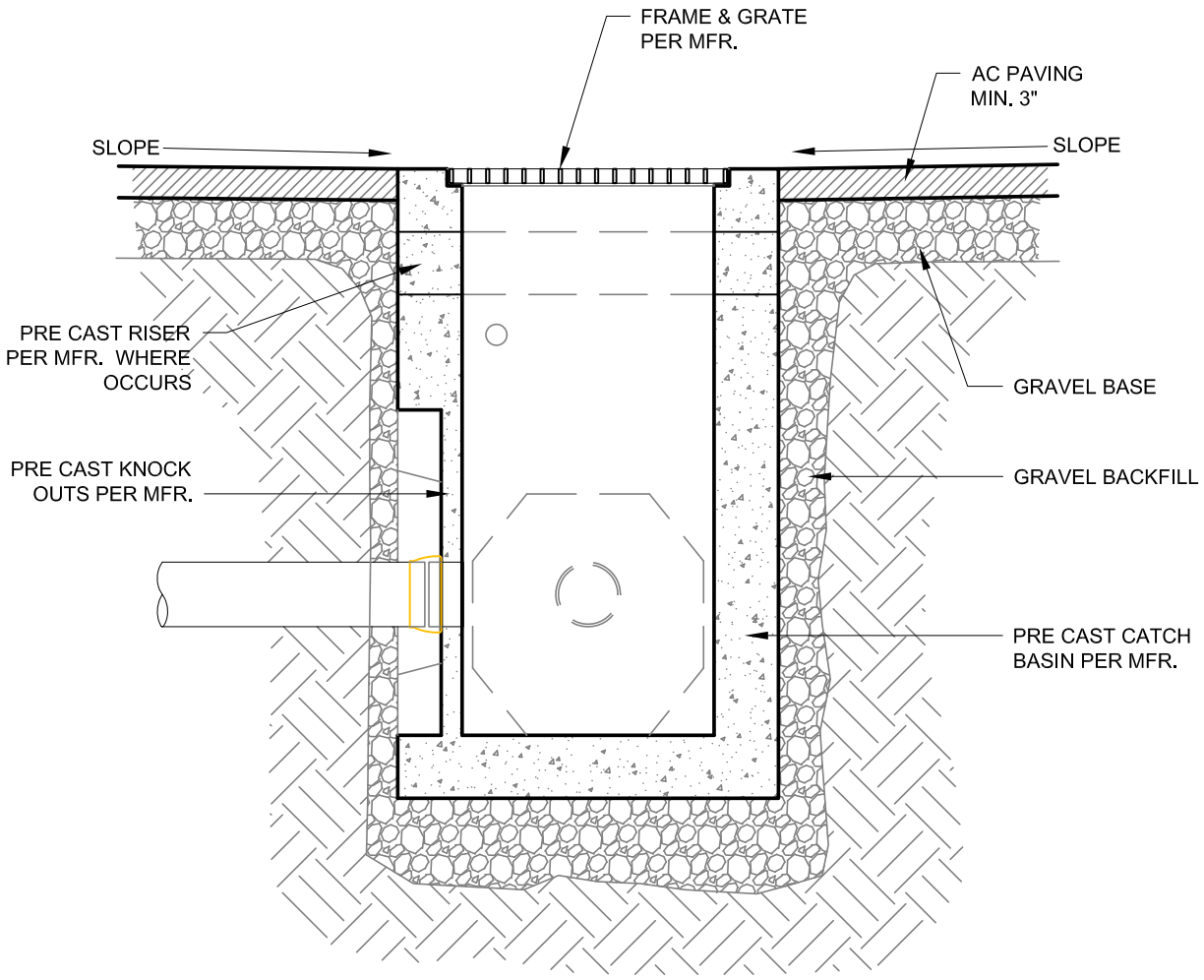
1) PREFABRICATED UNITS FROM ADVANTAGE PRE CAST OR APPROVED OTHER

ADVANTAGE PRE CAST
1302 CANDLEWOOD DR NORTH
KEIZER, OREGON 97303

2) CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING. & BIKE FRIENDLY

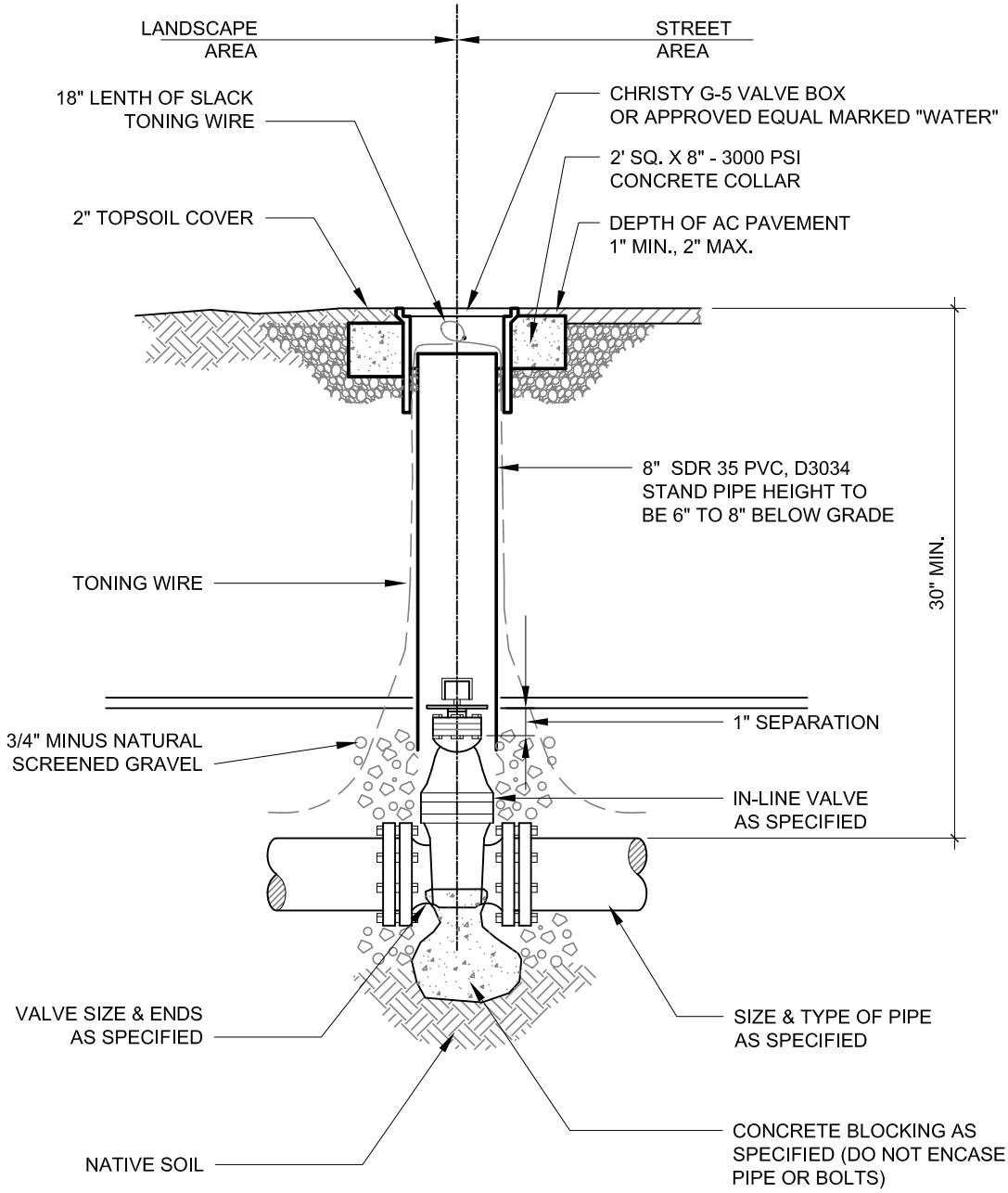
DITCH INLET GRATE: 1/4" F.B.
C.O. SALEM GRATE: 1/4" F.B. GALVANIZED
O.D.O.T. GRATE 5/8" F.B.

3) SIZE OF STD. CATCH BASIN SHALL BE A MIN. OF 29"X27". SIZE WILL BE DETERMINED BY CITY TO SATISFY DRAINAGE CAPACITY ISSUES IN ACCORDANCE W/ CITY'S STORM DRAIN MASTER PLAN



SECTION

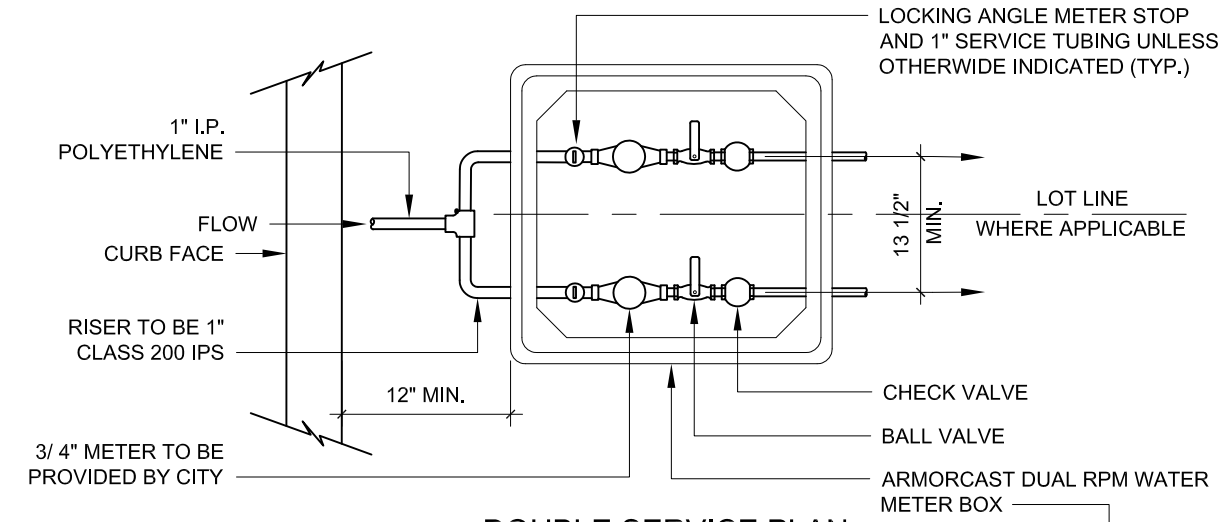
CITY OF BROOKINGS - STANDARD DETAIL		
CATCH BASIN		4.23
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	



NOTE:

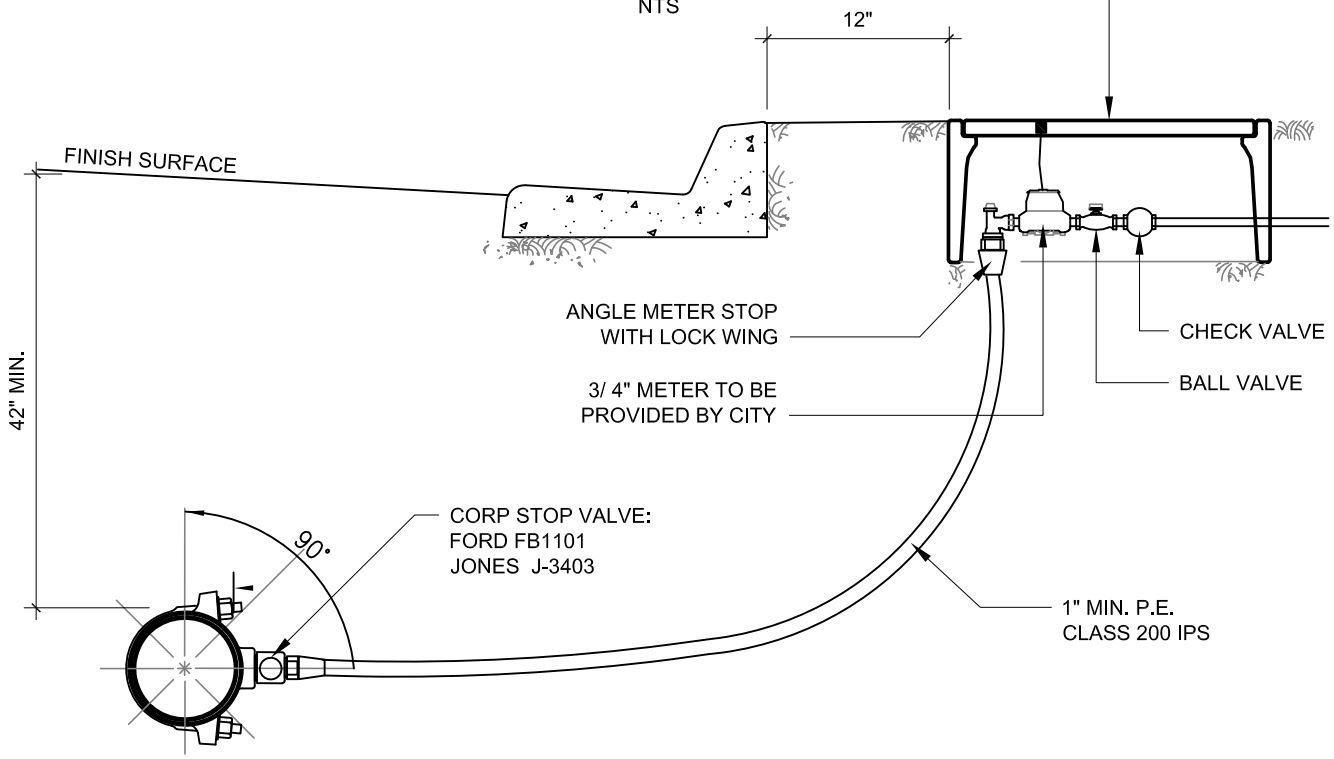
1. VALVE STEM EXTENSION NECESSARY IF GRADE TO TOP OF VALVE NUT IS GREATER THAN 3'-0".
2. MAY USE VC212 SELF CENTERING VALVE STAND PIPE SETTER FOR 8' SDR 3034.
3. BLUE CARSONITE STAKE REQUIRED WHEN VALVE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S.

	CITY OF BROOKINGS - STANDARD DETAIL	
	TYPICAL POTABLE WATER VALVE BOX	4.31
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



DOUBLE SERVICE PLAN

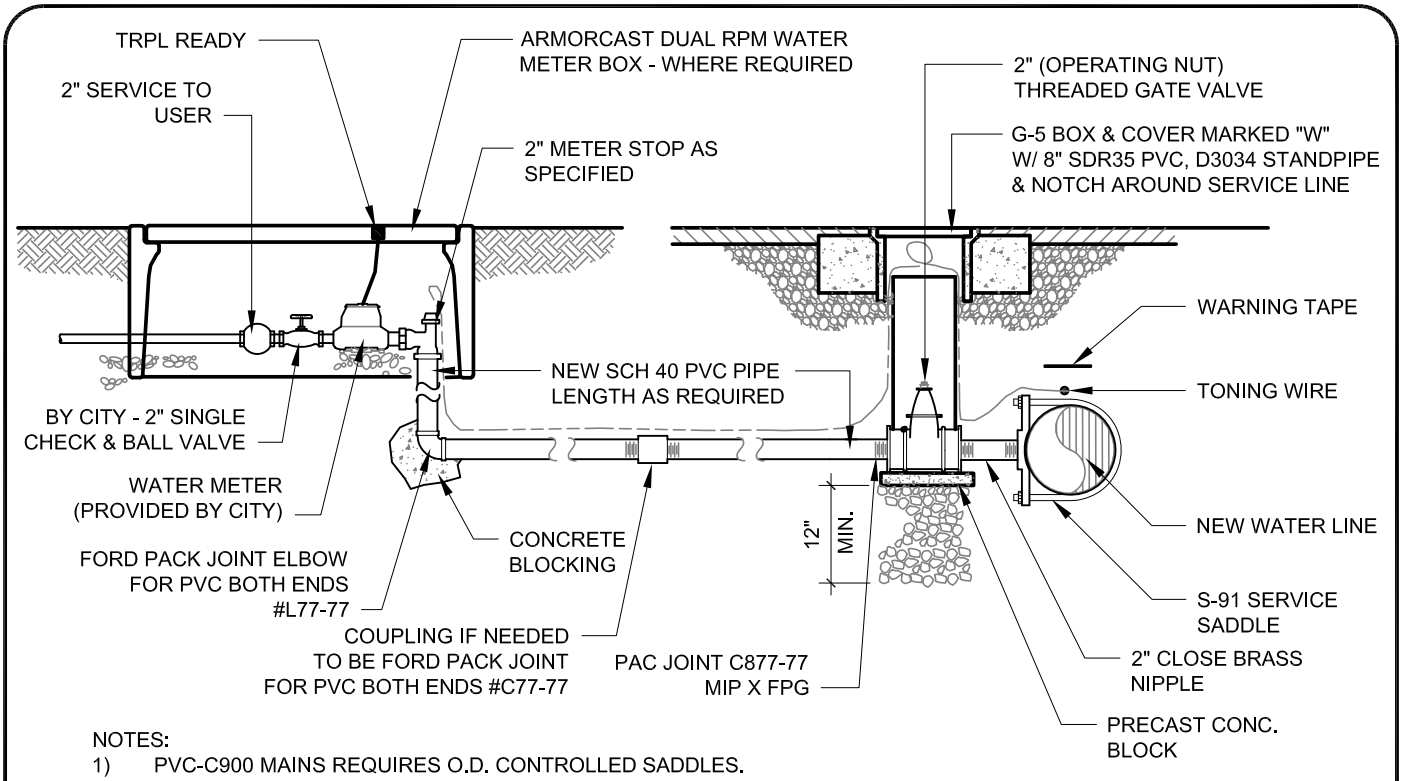
NTS



NOTES:

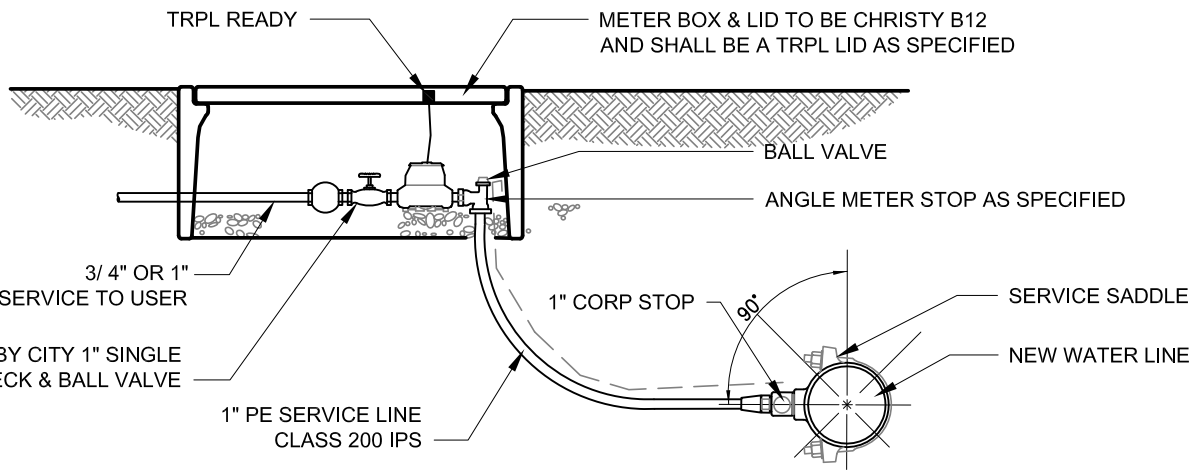
1. NEW SERVICES WILL NOT BE SPLICED WHEN DAMAGED, SERVICE WILL BE RENEWED.
2. SINGLE SERVICES ARE SIMILAR, UNLESS OTHERWISE INDICATED.
3. CITY APPROVED CROSS-CONNECTION CONTROL DEVICES REQUIRED ON ALL NEW AND RENEWED COMMERCIAL, INDUSTRIAL, IRRIGATION AND PARTICULAR RESIDENTIAL WATER SERVICES, REGARDLESS OF SIZE.
4. CONTRACTOR TO PROVIDE AND INSTALL #14 GA. COATED TRACER WIRE ON ALL P.E. SERVICES.
5. METER BOXES NOT TO BE INSTALLED IN DRIVEWAYS PER BROOKINGS MUNICIPAL CODE (BMC)

CITY OF BROOKINGS - STANDARD DETAIL		
1" or 3/4" METER MANIFOLD		**4.32**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	



NOTES:
1) PVC-C900 MAINS REQUIRES O.D. CONTROLLED SADDLES.
2) USE FORD PACK JOINT COUPLINGS MALE I.P. X PVC COMPRESSION AT TAPPING VALVE PVC 90° BEND & ANGLE METER STOP. (NO PVC MALE OR FEMALE ADAPTERS)
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION.

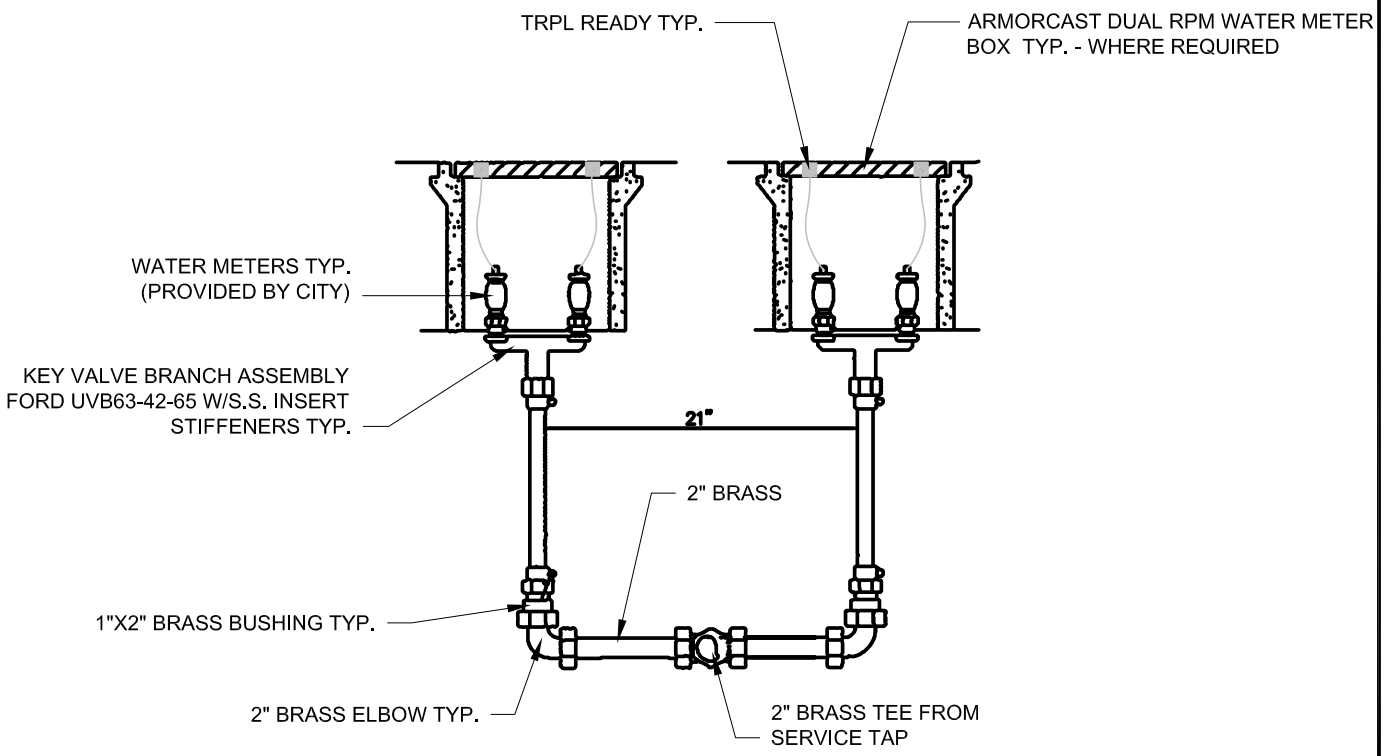
TYPICAL 2" WATER SERVICE



NOTES:
1) PVC-C900 MAINS REQUIRES O.D. CONTROLLED SADDLES.
2) USE FORD PACK JOINT COUPLINGS MALE I.P. X PE COMPRESSION AT TAPPING VALVE, AND AT CONNECTION TO ANGLE METER STOP. (NO PVC MALE OR FEMALE ADAPTERS)
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION.
4) P.E. SERVICE TO BE TAPPED 90° OFF OF MAINLINE EITHER 3 OR 9 O'CLOCK POSITION UNLESS APPROVED BY CITY
5) WHEN INSTALLING 3/4" METER USE FORD A24 METER BUSHING FOR 1" ANGLE METER STOP. MAY INSTALL WYE BRANCH FOR 5/8" X 3/4" METERS UPON CITY APPROVAL.

TYPICAL 1" WATER SERVICE

CITY OF BROOKINGS - STANDARD DETAIL	
1" & 2" WATER SERVICE	**4.33**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



2" MANIFOLD SECTION

SEE DETAIL 4.33 FOR SERVICE TAP DETAILS

NOTES:

1. ALL LOCATIONS OF SERVICE LATERALS 3/4"-2" SHALL BE NOTED ON THE CURB WITH A MARKED "W" INSTALLED IN THE CURB.
2. #12 AWG SOLID CORE TONING WIRE AND TAPE.
3. USE FORD PACK JOINT COUPLINGS MALE I.P. x PVC COMPRESSION @ 2" TAPPING VALVE AND AT CONNECTION TO METER MANIFOLD ASSEMBLY.
4. USE FORD 1" MALE IP x PE ADAPTER #C86-44 WITH S.S. INSERT FOR DUAL SERVICE.
5. AMOUNT OF METERS ON ASSEMBLY DETERMINED BY PROJECT ENGINEER'S FLOW CALCULATIONS.
6. ALL METER BOX COVERS MUST BE "TRPL" READY.
7. BRASS MUST BE LEAD FREE AFTER JANUARY 1, 2014

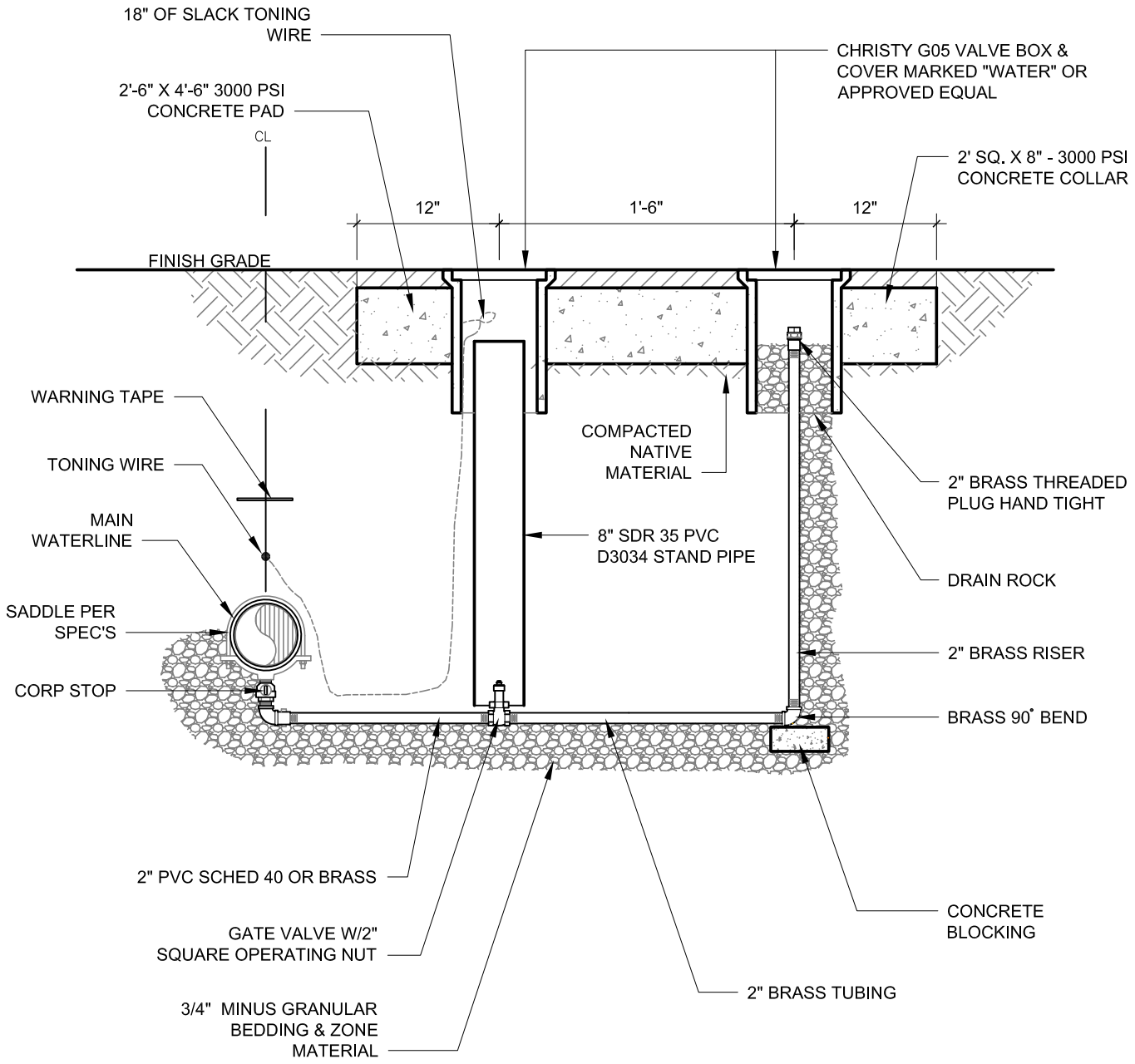
- NO 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION

2" MANIFOLD ASSEMBLY FOR EVEN AMOUNT OF 5/8" OR 3/4" WATER METERS

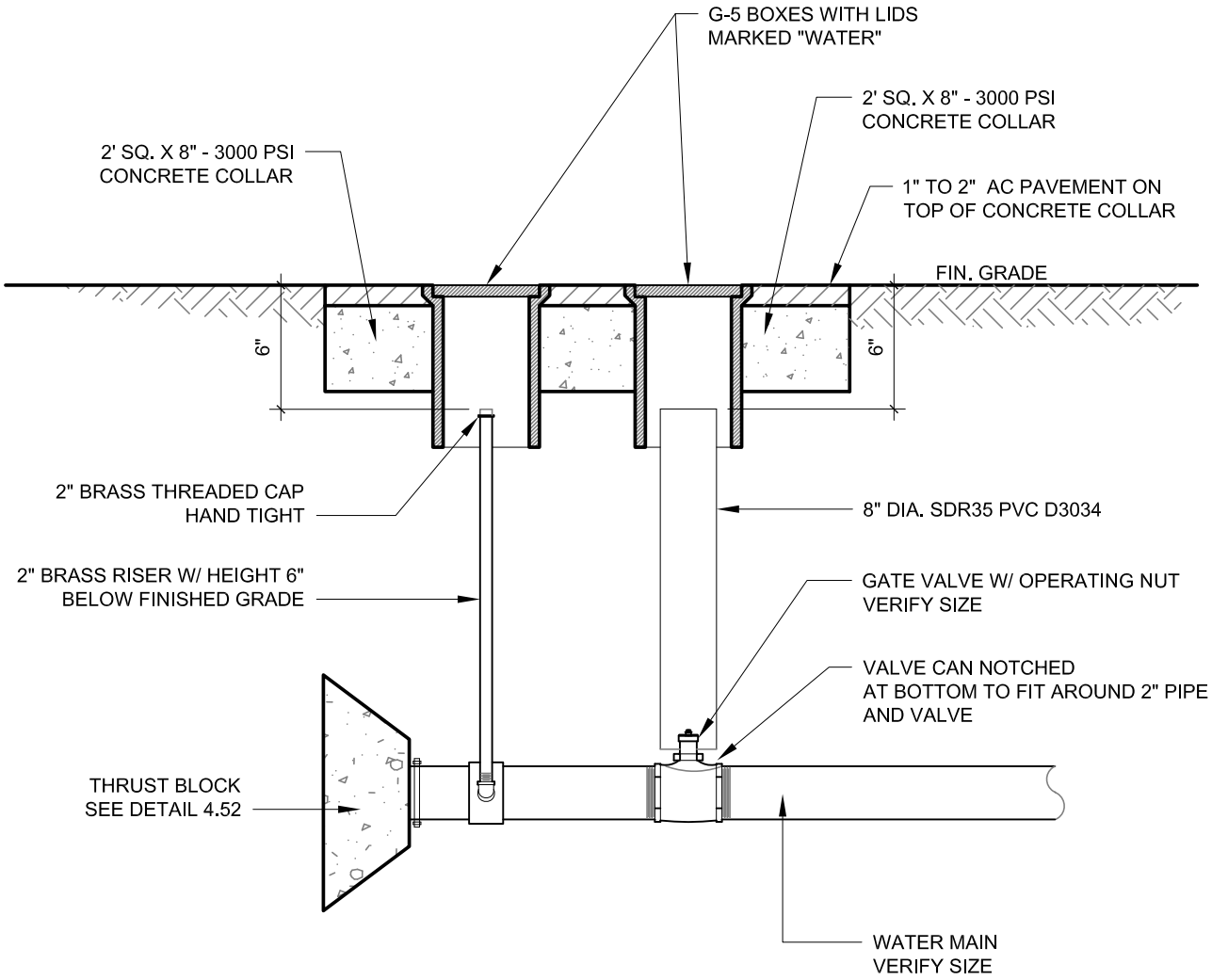
METER ASSEMBLY:

NO MORE THAN 4 TOTAL 5/ 8 INCH METERS PER 2 INCH MANIFOLD. ADDITIONAL METERS WILL REQUIRE NEW CONNECTIONS OR DIFFERENT SIZED METER MUST HAVE ENGINEERED FLOW CALCULATIONS

	CITY OF BROOKINGS - STANDARD DETAIL	
	2" MANIFOLD FOR UP TO 4 - 5/8" METERS	**4.33a**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014

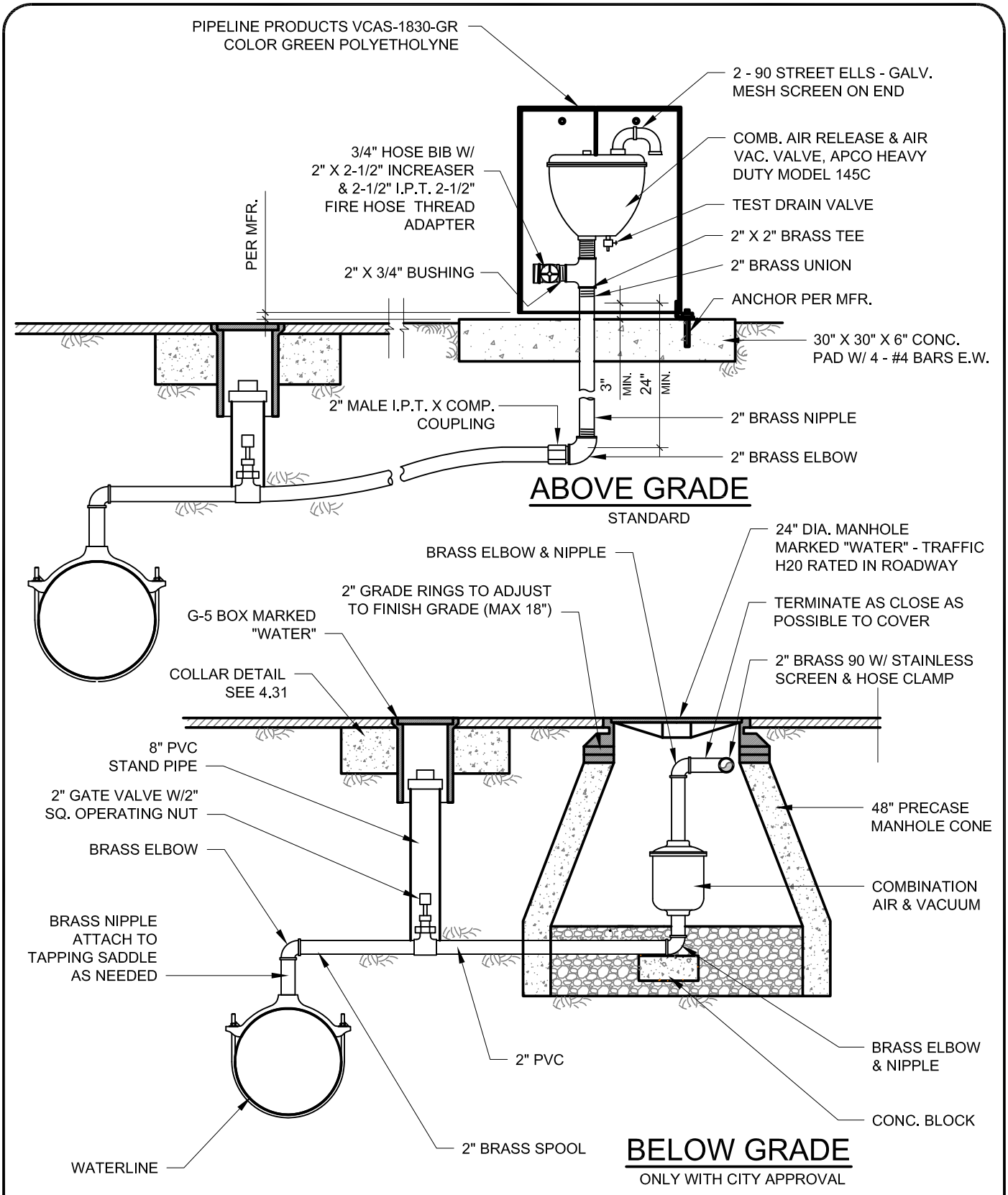


CITY OF BROOKINGS - STANDARD DETAIL	
2" WATER BLOW OFF ASSEMBLY	**4.34**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTE:
BLOW OFF ASSEMBLY AND END OF WATER MAIN MUST HAVE
A KICKER / THRUST BLOCK INSTALLED

	CITY OF BROOKINGS - STANDARD DETAIL	
	STANDARD WATER BLOW OFF ASSEMBLY	**4.35**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



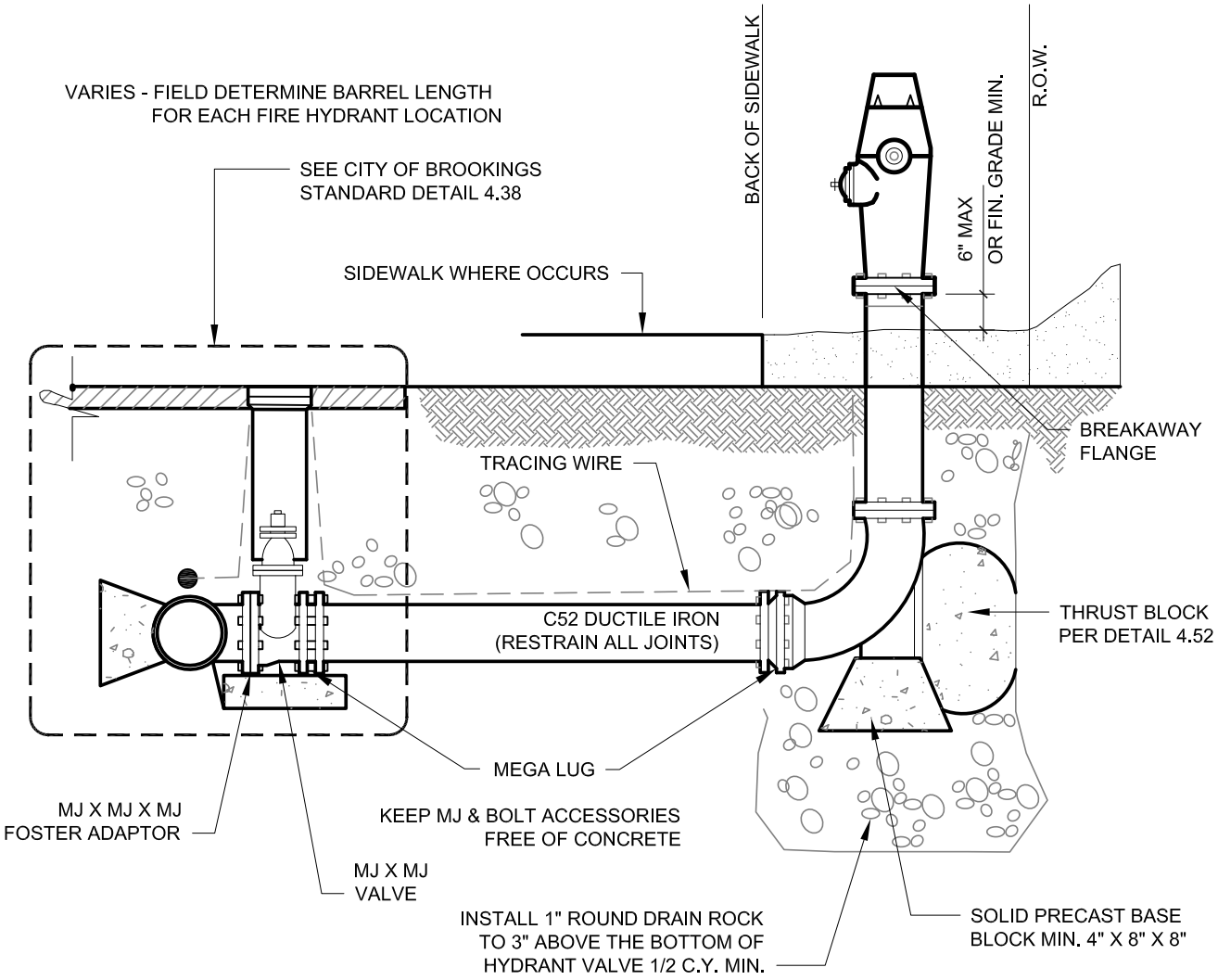
CITY OF BROOKINGS - STANDARD DETAIL

2" COMBINATION AIR & VACUUM RELIEF

4.36

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



NOTES

1) RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINT FITTINGS, "MEGA LUG"

2) THERE SHALL BE A MINIMUM OF 36" HORIZONTAL CLEARANCE AROUND HYDRANT.

3) FIRE HYDRANTS SHALL BE PLACED TO PROVIDE A MINIMUM OF 5' CLEARANCE FROM DRIVEWAYS, POLES, AND OTHER OBSTRUCTIONS.

4) WHEN PLACED ADJACENT TO CURB, HYDRANT PORT SHALL BE 24" FROM FACE OF CURB & MAINTAIN ADA SIDE WALK WIDTHS.

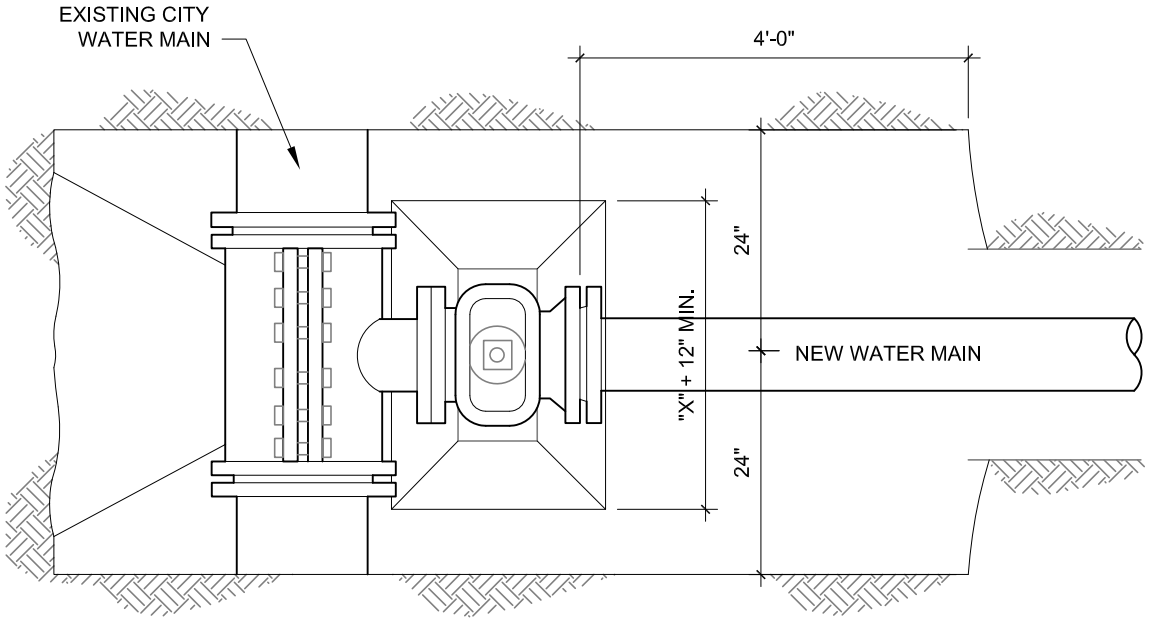
5) CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AS PER THRUST BLOCK STANDARD DRAWING 4.52. DO NOT BLOCK DRAIN HOLES & COVER MJ GLANDS & ACCESSORIES.

6) EXTENSIONS REQUIRED FOR HYDRANT SYSTEMS SHALL BE INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS.

7) HYDRANT PUMPER PORT SHALL FACE DIRECTION OF ACCESS.

8) INSTALL BOLLARDS (DETAIL 5.18) WHERE NEEDED TO PROTECT FROM COLLISION

	CITY OF BROOKINGS - STANDARD DETAIL	
	FIRE HYDRANT ASSEMBLY	**4.37**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



PLAN VIEW

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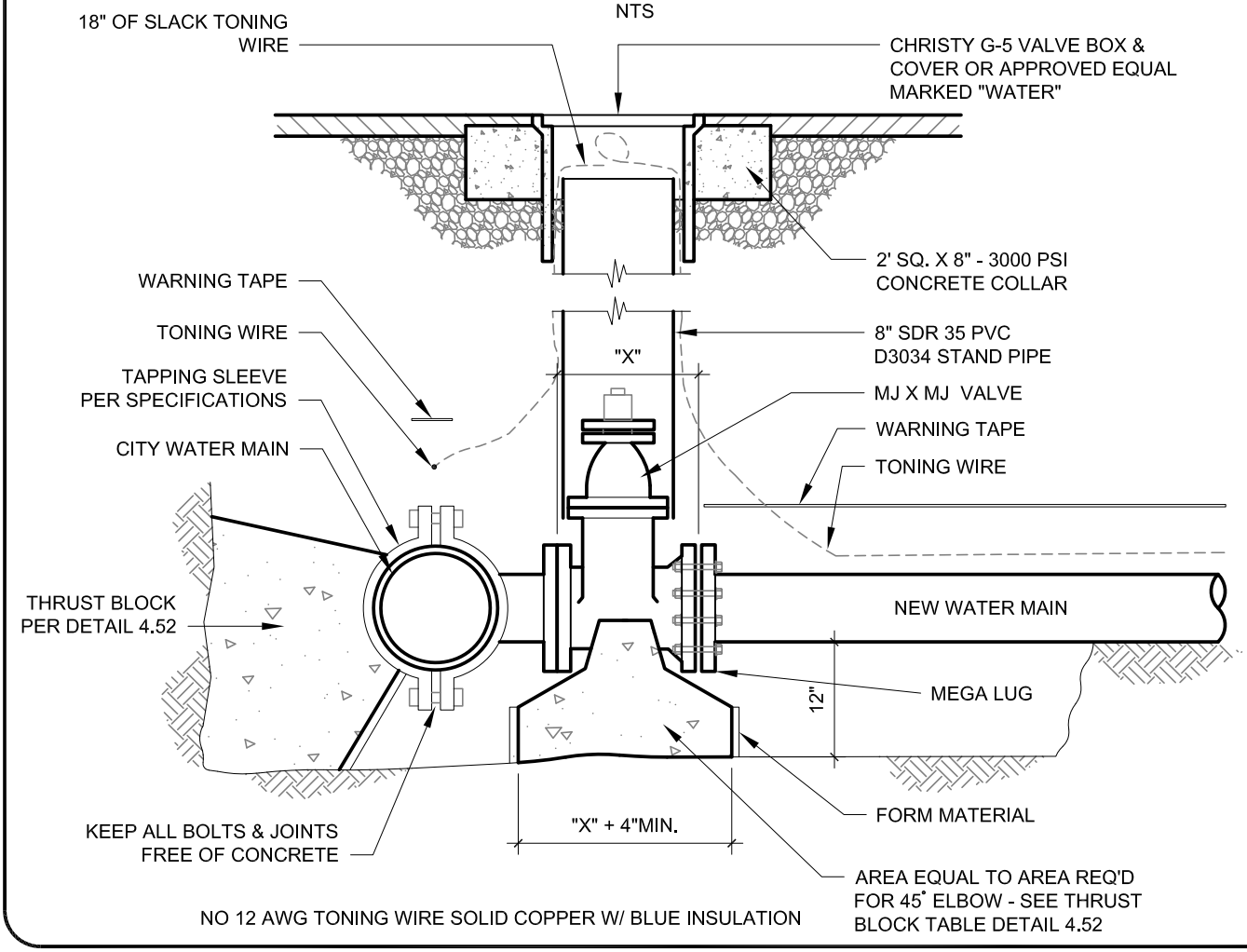


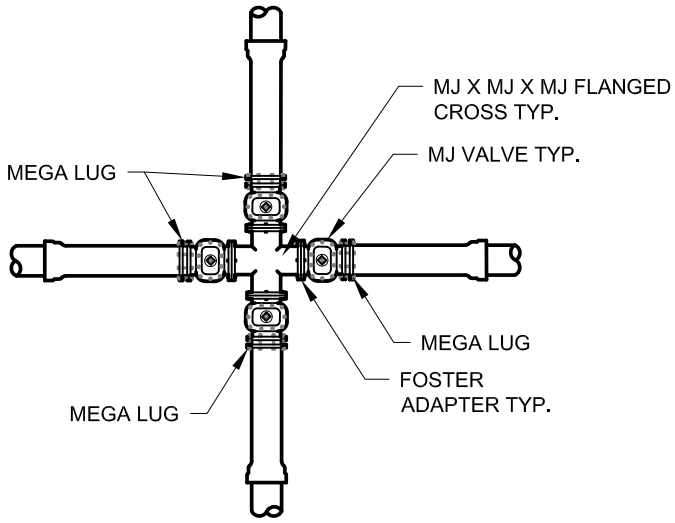
CITY OF BROOKINGS - STANDARD DETAIL

4" - 12" TAPPING SLEEVE & VALVE

4.38

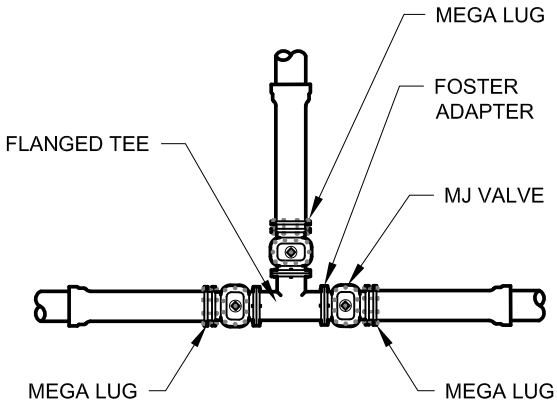
APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



CROSS - TYPICAL CONNECTIONS

NTS



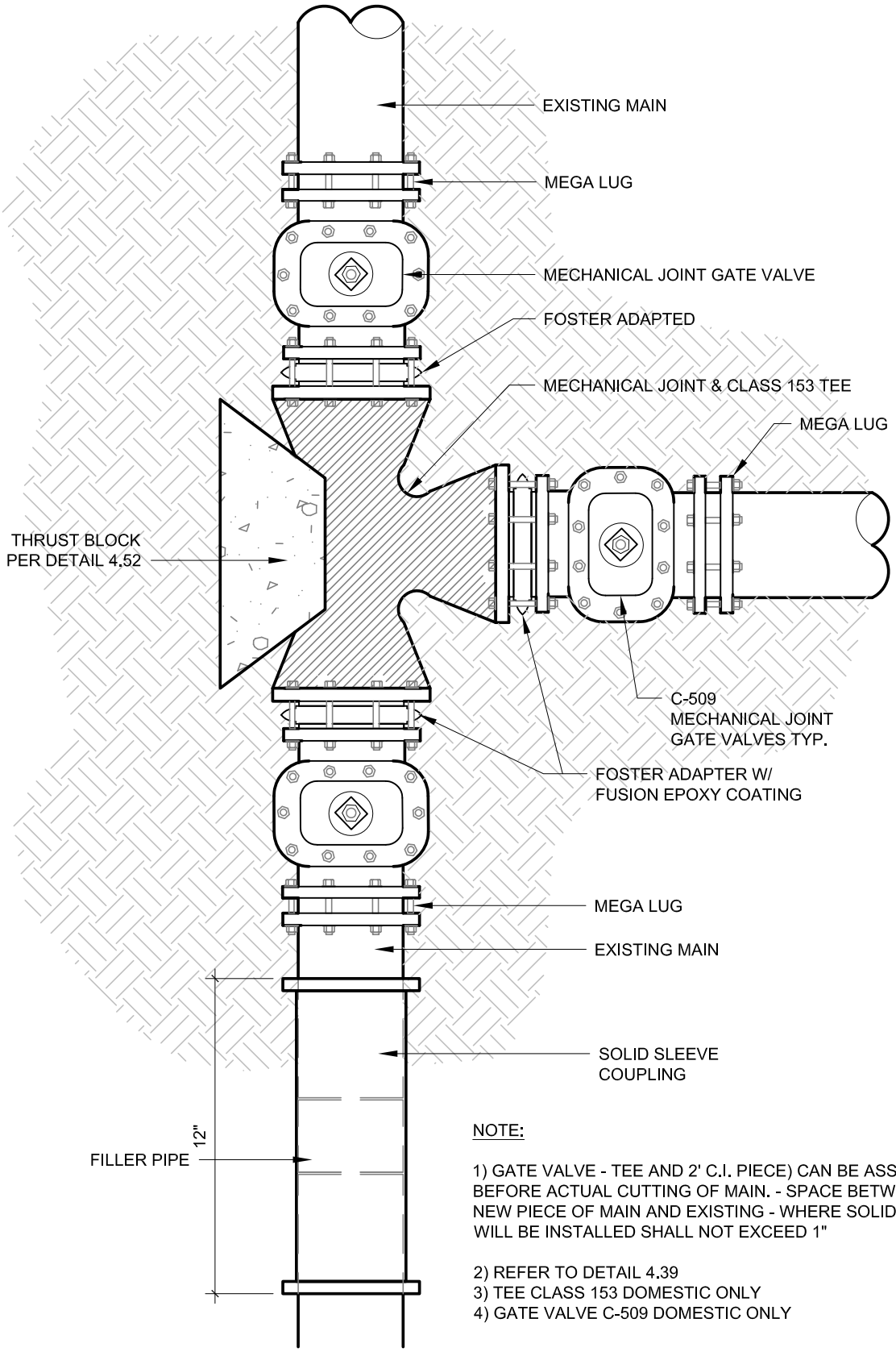
TEE - TYPICAL CONNECTIONS

NTS

NOTES:

1. VALVES SHALL GENERALLY BE LOCATED ON EACH BRANCH OF WATER MAIN INTERSECTIONS. WHERE RELATIVELY SHORT LINES (LESS THAN 500 FEET IN LENGTH) ARE INVOLVED, ONE OF THE TWO VALVES BETWEEN INTERSECTIONS MAY BE OMITTED.
2. WATER MAINS IN PUBLIC STREETS SHALL BE LOCATED PARALLEL TO AND 5 FEET NORTH OR WEST OF STREET CENTERLINES WHENEVER POSSIBLE.
3. SEE DETAIL 4.40 FOR CUT IN CONSTRUCTION DETAIL

CITY OF BROOKINGS - STANDARD DETAIL		
WATER MAIN CONNECTION AT INTERSECTIONS		4.39
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	



NOTE:

1) GATE VALVE - TEE AND 2' C.I. PIECE) CAN BE ASSEMBLED BEFORE ACTUAL CUTTING OF MAIN. - SPACE BETWEEN NEW PIECE OF MAIN AND EXISTING - WHERE SOLID SLEEVE WILL BE INSTALLED SHALL NOT EXCEED 1"

2) REFER TO DETAIL 4.39
3) TEE CLASS 153 DOMESTIC ONLY
4) GATE VALVE C-509 DOMESTIC ONLY

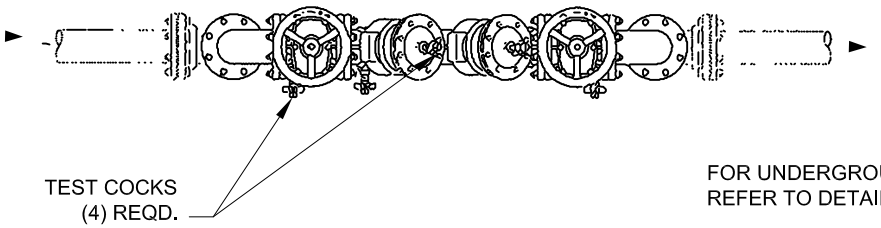
CITY OF BROOKINGS - STANDARD DETAIL

CUT-IN TEE & GATE VALVE

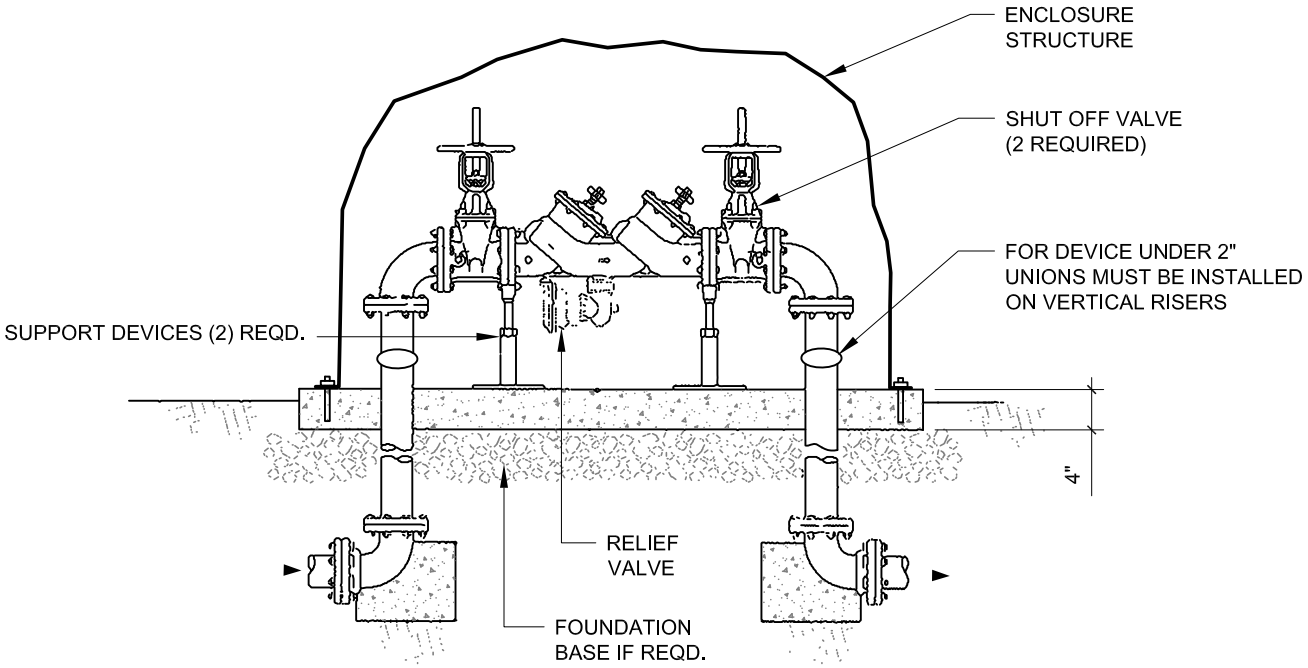
4.40

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



PLAN



SECTION

NOTES:
BACKFLOW PREVENTION ASSEMBLIES -

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. SHALL ALWAYS BE INSTALLED HORIZONTALLY, NEVER VERTICALLY, UNLESS THEY ARE SPECIFICALLY APPROVED FOR VERTICAL INSTALLATION.

B. SHALL ALWAYS BE INSTALLED ABOVE THE 100 YEAR (1%) FLOOD LEVEL UNLESS APPROVED BY THE CITY.

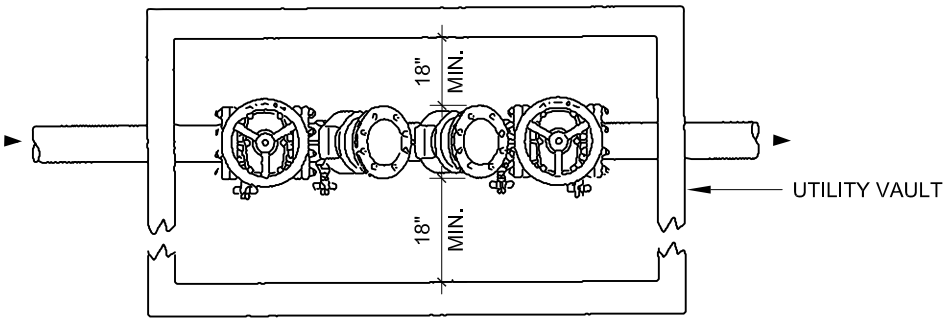
C. SHALL NEVER HAVE EXTENDED OR PLUGGED RELIEF VALVES

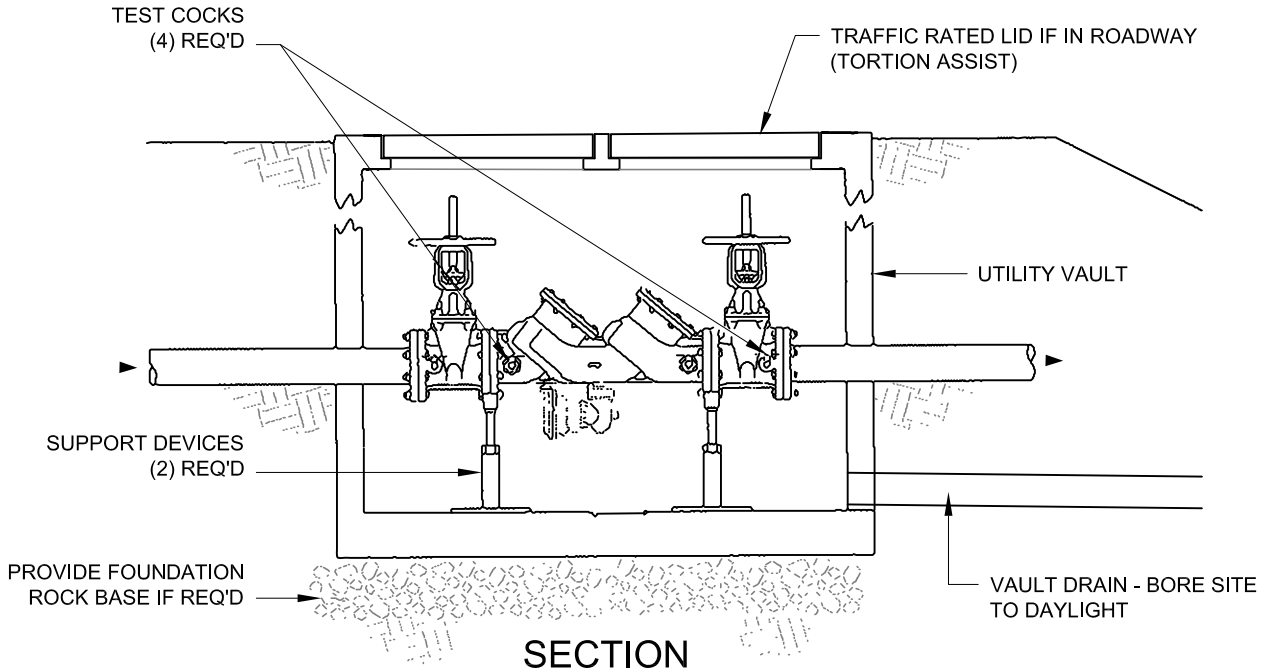
D. SHALL BE PROTECTED FROM FREEZING WHEN NECESSARY

E. SHALL BE PROVIDED WITH AN APPROVED AIR GAP DRAIN.

F. MAY BE INSTALLED WITH REDUCED CLEARANCES IF THE PIPES ARE 2 INCHES IN DIAMETER OR SMALLER, PROVIDED THAT THEY ARE ACCESSIBLE FOR HTE TESTING AND REPAIRING, AND APPROVED BY THE CITY.

CITY OF BROOKINGS - STANDARD DETAIL	
RP OR DC STANDARD BACKFLOW ASSEMBLY ABOVE GROUND	**4.41**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014





SECTION

NOTES:
BACKFLOW PREVENTION ASSEMBLIES

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. SHALL CONFORM TO BOTTOM AND SIDE CLEARANCES WHEN THE BACKFLOW ASSEMBLY IS INSTALLED INSIDE A VAULT.

C. MAY BE INSTALLED VERTICALLY AS WELL AS HORIZONTALLY PROVIDED THE ASSEMBLY IS SPECIFICALLY LISTED FOR THAT ORIENTATION IN THE DEPARTMENTS APPROVED BACKFLOW PREVENTION ASSEMBLY LIST.

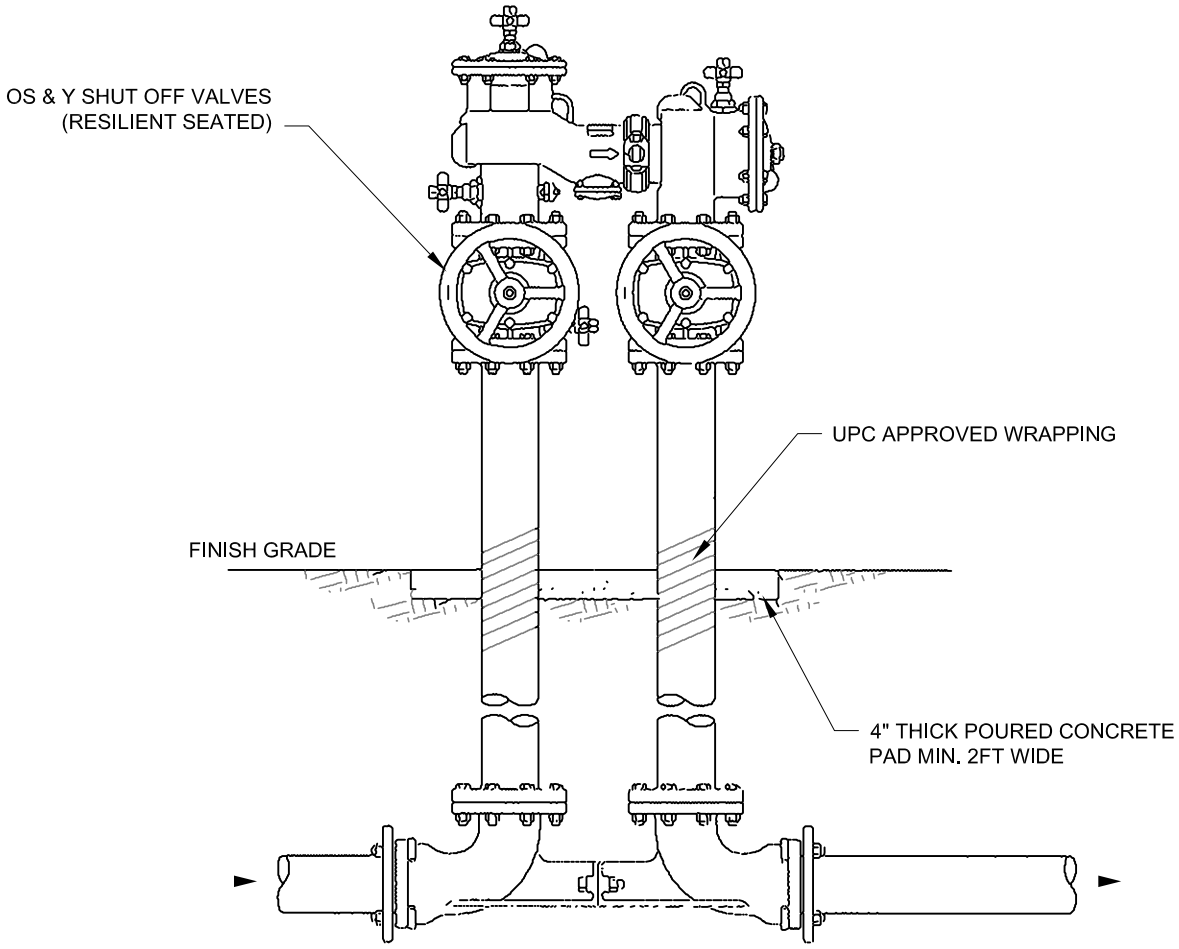
D. PROVIDE THAT WATER-TIGHT FITTED PLUGS OR CAPS ARE INSTALLED INTHE COCKS, AND THE A SSEMBLY SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION

E. SHALL NOT BE INSTALLED AT A HEIGHT GREATER THAN 5 FEET UNLESS THERE IS A PERMANENTLY INSTALLED PLATFORM MEETING OREGON OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OR-OSHA) STANDARDS TO FACILITATE SERVICING THE ASSEMBLY.

F. MAY BE INSTALLED WITH REDUCED CLEARANCES IN THE PIPES ARE 2 INCHES IN DIAMETER OR SMALLER, PROVIDED THAT THEY ARE ACCESSIBLE FOR TESTING AND REPAIRING, AND APPROVED BY THE CITY.

G. VAULT WITH RP REQUIRES 4 INCHES PVC DRAIN SITED TO DAYLIGHT FOR FREE DRAINAGE

CITY OF BROOKINGS - STANDARD DETAIL	
DOUBLE CHECK OR RP BELOW GROUND VAULT	**4.42**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTES:

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. BACKFLOW DEVICES SHALL BE INSTALLED ADJACENT TO AND ON PROPERTY SIDE OF SIDEWALK WHERE APPLICABLE. THE ASSEMBLY SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE WATER METER

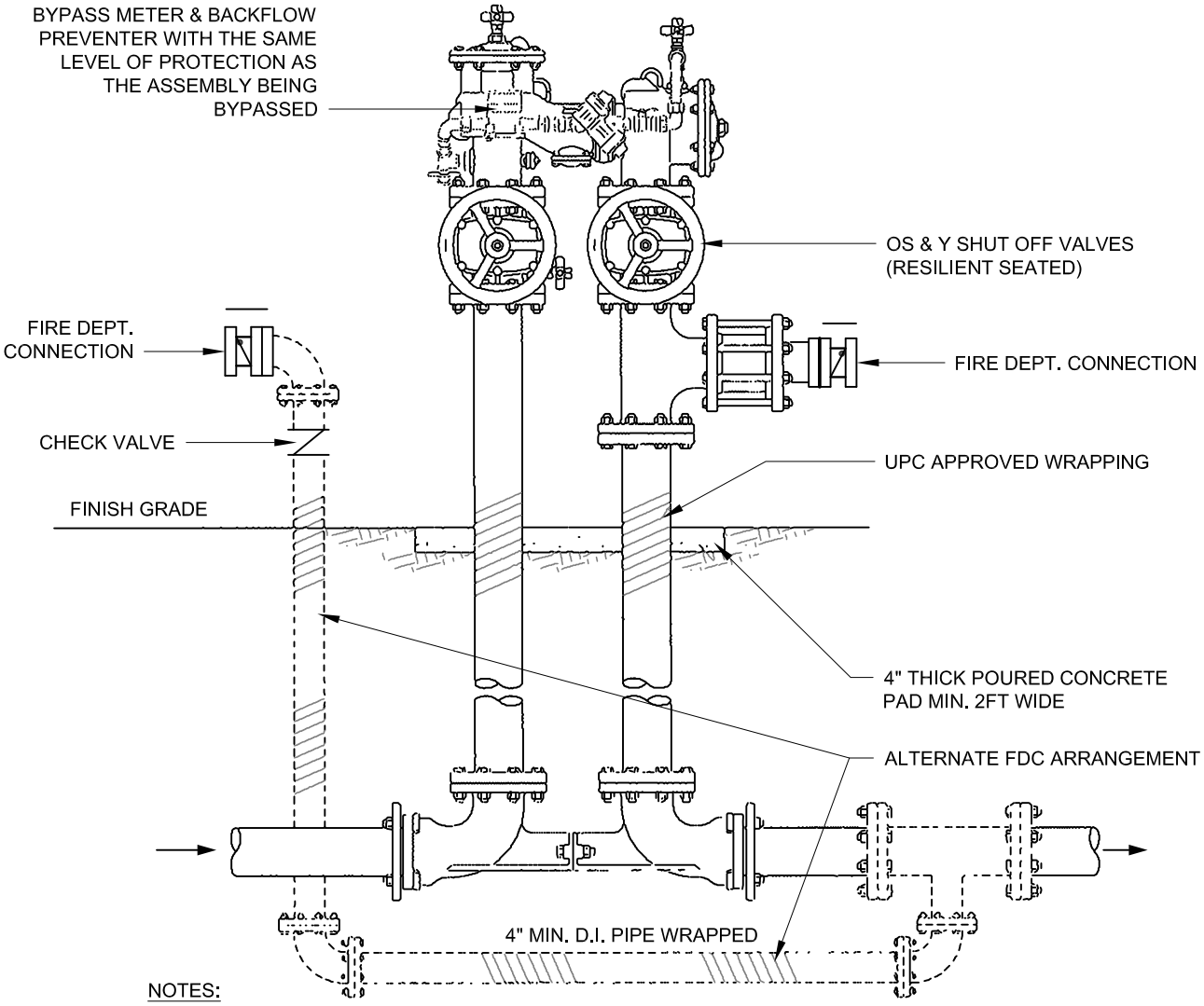
C. ALL DEVICES WILL HAVE RESILIENT SEATED SHUT OFF VALVES. TEST COCKS WILL HAVE THREADED ENDS

E. PRESSURE DIFFERENTIAL VALVE OPENING TO BE 24" MINIMUM ABOVE GRADE

F. ALL PIPES AND SPOOLS SHALL BE DUCTILE IRON AND ALL JOINTS FLANGED

G. MASTIC ALL BOLTS/NUTS OR USE 316 GRADE STAINLESS STEEL COMPONENTS

	CITY OF BROOKINGS - STANDARD DETAIL	
	RP OR DC BACKFLOW ASSEMBLY - RESTRICTED SPACE	**4.43**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTES:

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. FIRE DEPARTMENT CONNECTION TO REMAIN ZISIBLE AND ACCESSIBLE. PAINT SAFETY YELLOW

C. D.I. PIPE TO BE PROTECTED WRAP CA-1200. POLYGUARD CA-14 MASTIC OR APPROVED EQUAL

D. ALL CONNECTIONS TO BE FLANGED

E. ALL TRIM HARDWARE TO BE BRASS OR BRONZE

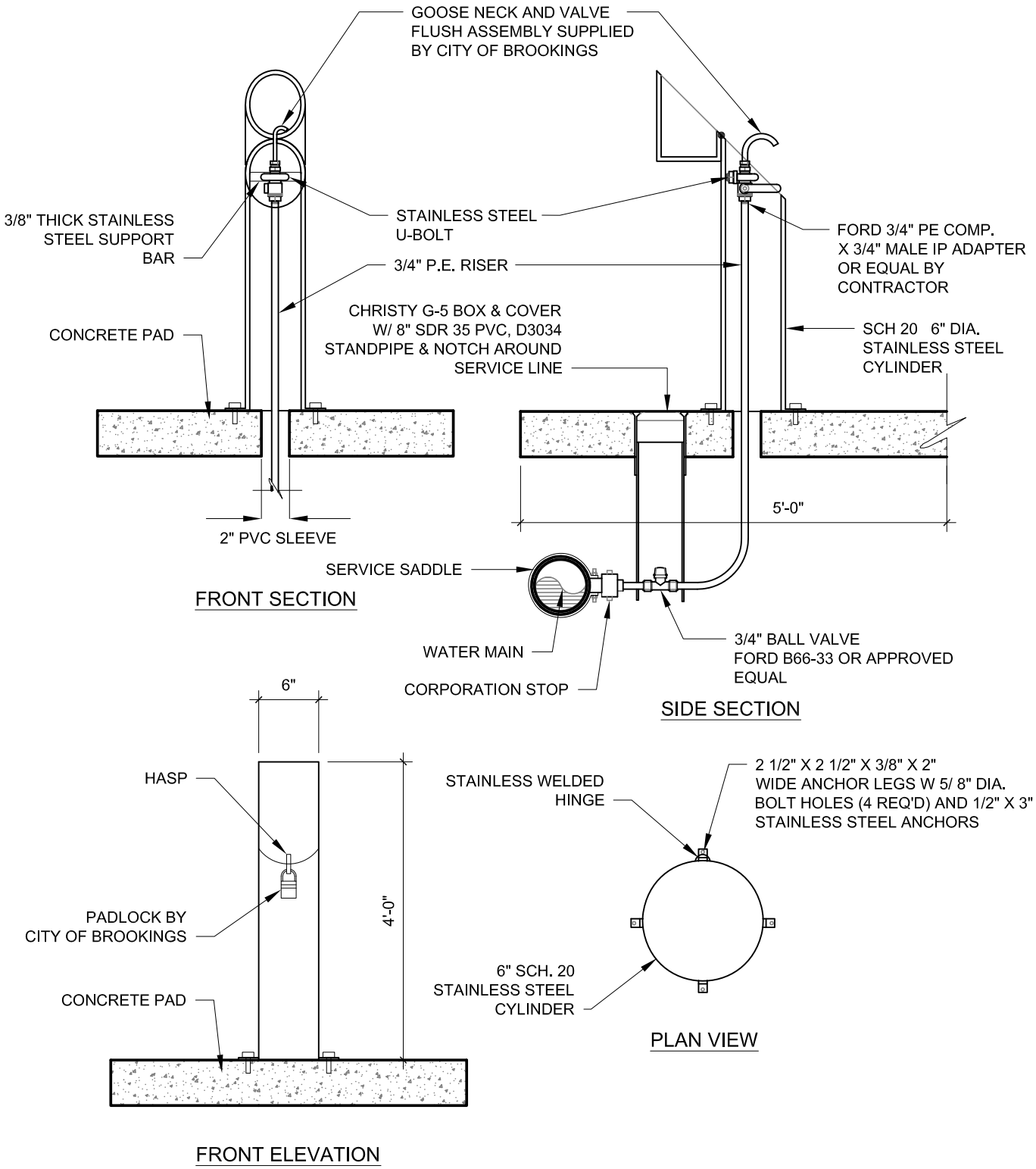
F. METER TO BE CUBIC FT. REGISTRATION.

G. MASTIC ALL BOLTS/NUTS OR USE STAINLESS STEEL COMPONENTS

H. FIRE DEPT. CONNECTION TO BE LOCATED PER FIRE MARSHALL

I. DCDA TO BE LOCATED WITH IN 10 FT. OF PROPERTY LINE

	CITY OF BROOKINGS - STANDARD DETAIL	
	FIRE SERVICE DOUBLE CHECK BACKFLOW ASSEMBLY	4.44
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



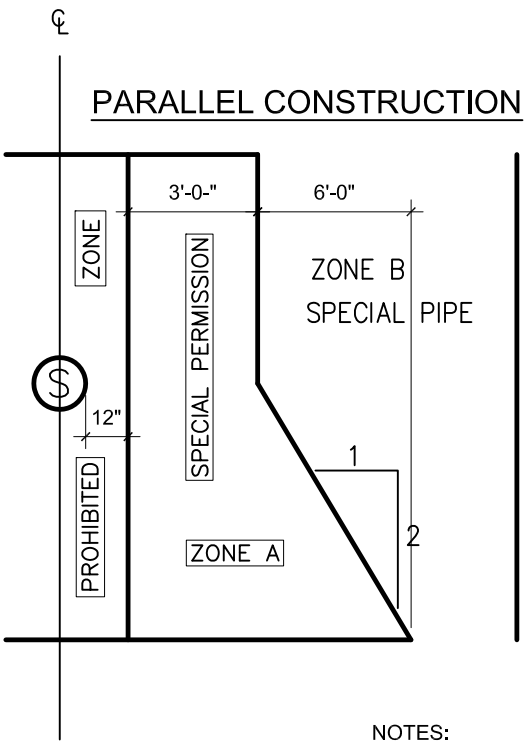
CITY OF BROOKINGS - STANDARD DETAIL

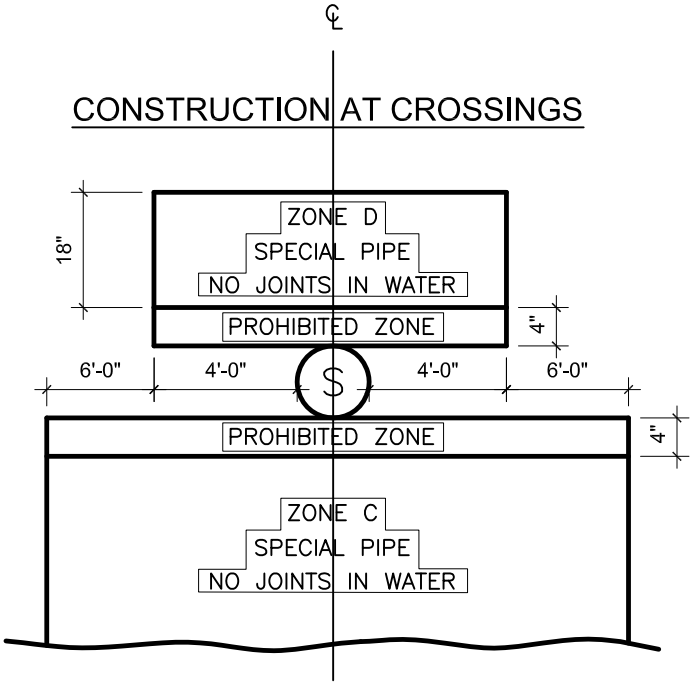
WATER SAMPLING STATION

4.46

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014





NOTES:
1. ZONES IDENTICAL ON EITHER SIDE OF CENTERLINE
2. ZONE "P" IS A PROHIBITED ZONE

ZONE SPECIAL CONSTRUCTION REQUIRED FOR WATER

A. NO WATER MAINS PARALLEL TO SEWERS SHALL BE CONSTRUCTED WITHOUT APPROVAL FROM THE CITY

B. THE REQUIREMENTS FOR CONSTRUCTING A WATER MAIN PARALLELING A SEWER LINE SHALL BE AS FOLLOWS:

1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING
2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE.
3. CLASS 200 PRESSURE RATED PLASTIC PVC WATER PIPE. DR 14 PER AWWA C900 OR EQUIVALENT
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA C300 OR C301 OR C303

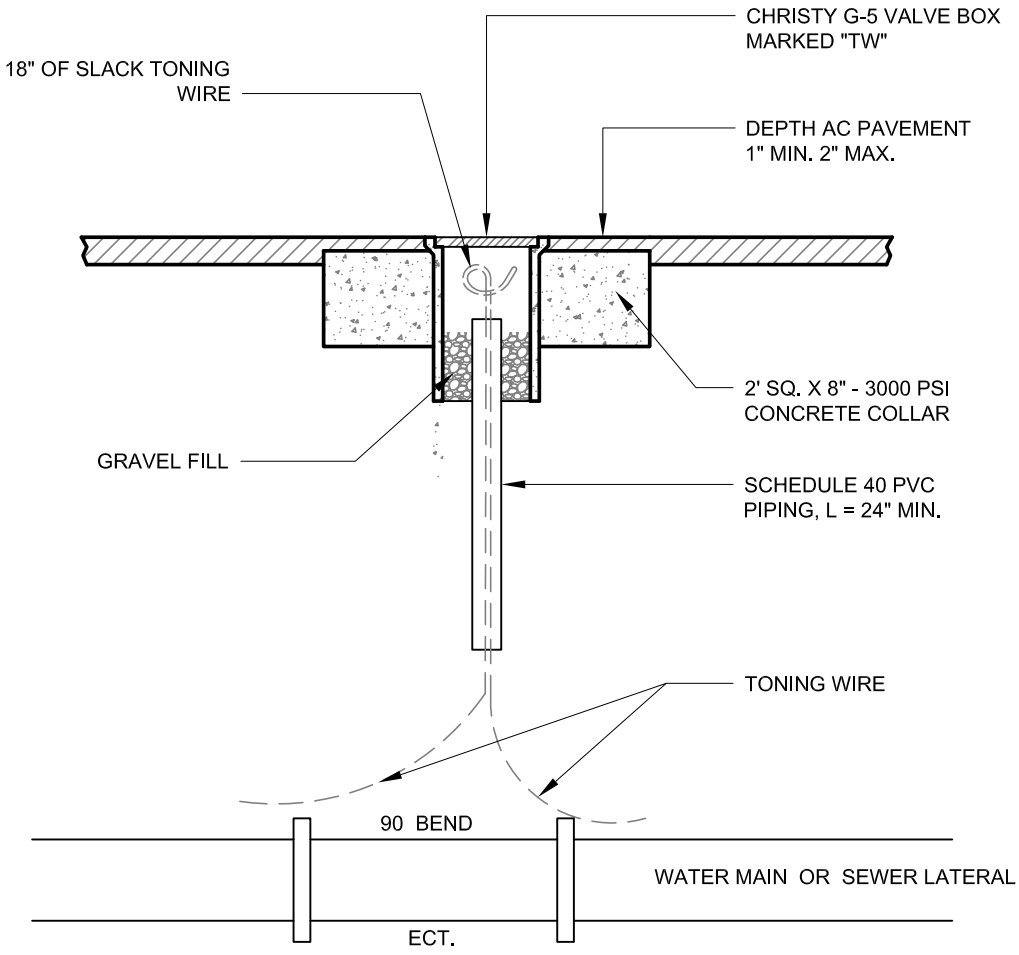
C. A WATER MAIN CONSTRUCTED CROSSING A SEWER LINE SHALL HAVE NO JOINTS AND BE CONSTRUCTED OF ONE OF THE FOLLOWING:

1. DUCTILE IRON PIPE WITH HOT DIPPED BITUMINOUS COATING
2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE
3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE PER AWWA OR EQUIVALENT
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA C300 OR C301 OR C303

D. A WATER MAIN CONSTRUCTED CROSSING A SEWER LINE SHALL HAVE NO JOINTS WITHIN FOUR FEET FROM EITHER SIDE OF THE SEWER AND BE CONSTRUCTED OF ONE OF THE FOLLOWING:

1. DUCTILE IRON PIPE WITH HOT DIPPED BITUMINOUS COATING
2. DIPPED AND WRAPPED ONE-FOURTH-INCH-THICK WELDED STEEL PIPE
3. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 AWWA C900) OR EQUIVALENT
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA C300 OR C301 OR C303

	CITY OF BROOKINGS - STANDARD DETAIL	
	SANITARY SEPARATION - WATER (CASE-2)	4.47
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



NOTES:

1) PLACE TONING WIRE BOX ABOVE NEW WATERLINE. TONING WIRE SHALL BE BROUGHT TO SURFACE INSIDE EACH TONING WIRE BOX LOCATED ABOVE D.I.P. FITTING.

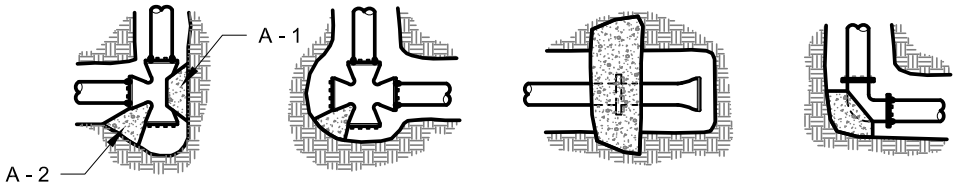
2) WHEN WATER VALVES ARE NOT AVAILABLE FOR TONING WIRE STATIONS.

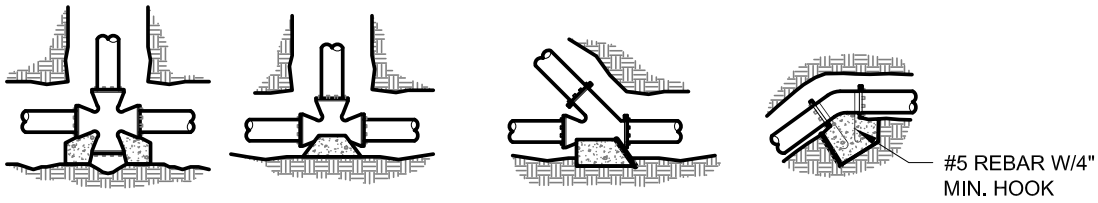
3) SURFACE TONING WIRE AT 500' SPACING.

	CITY OF BROOKINGS - STANDARD DETAIL	
	TONING / LOCATING WIRE BOX	4.51
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014

(HORIZONTAL) BEARING AREA OF THRUST BLOCK IN SQUARE FEET						
FITTING SIZE	VLV, TEE, WYE, DEAD END AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS: TEE PLUGGED ON RUN	45 BEND	22-1/2 BEND	11-1/4 BEND
2	0.2	0.2	0.3	0.2	0.1	0.05
3	0.5	0.9	0.8	0.4	0.2	0.1
4	0.9	1.4	1.3	0.7	0.4	0.2
6	2.1	2.8	3.0	1.6	0.8	0.4
8	3.8	4.8	5.3	2.9	1.5	0.7
10	5.9	7.3	8.3	4.5	2.3	1.2
12	8.5	10.3	12.0	6.5	3.3	1.7
14	11.5	13.8	16.3	8.8	4.5	2.3
16	15.1	17.8	21.3	11.5	5.9	3.0
18	19.1	22.4	27.0	14.6	7.4	3.7
20	23.6	27.5	33.3	18.0	9.2	4.6
24	33.9	39.2	48.0	26.0	13.2	6.7

(VERTICAL) VOLUME OF THRUST BLOCK IN CUBIC YARDS				
FITTING SIZE	90 BEND	45 BEND	22-1/2 BEND	11-1/4 BEND
2	0.2	0.1	0.0	0.0
3	0.4	0.2	0.1	0.1
4	0.7	0.4	0.2	0.1
6	1.5	0.8	0.4	0.2
8	2.7	1.5	0.8	0.4
10	4.3	2.3	1.2	0.6
12	6.1	3.3	1.7	0.8
14	8.3	4.5	2.3	1.2
16	10.9	5.9	3.0	1.5
18	13.8	7.5	3.8	1.9
20	17.0	9.2	4.7	2.4
24	24.5	13.3	6.8	3.4





NOTES:

1) CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.

2) ALL CONCRETE TO BE 3000 PSI

3) INSTALL ISOLATION MATERIAL BETWEEN PIPE AND/OR FITTINGS BEFORE POURING BLOCKING.

4) CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES WITH FORMS.

5) SEE TYPICAL HYDRANT SETTING DETAILS FOR BLOCKING LOCATIONS.

RODS FOR VERTICAL BENDS		
FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#5	30"
14"-16"	#8	36"

BEARING AREA OF REDUCERS SHALL BE THE DIFFERENCE BETWEEN VALUES FOR DEAD ENDS FOR EACH END SIZE (IE. 6X8: 3.8-2.1 = 1.7 SQ. FT.)

VALUES BASED ON 150 PSI WATER PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.

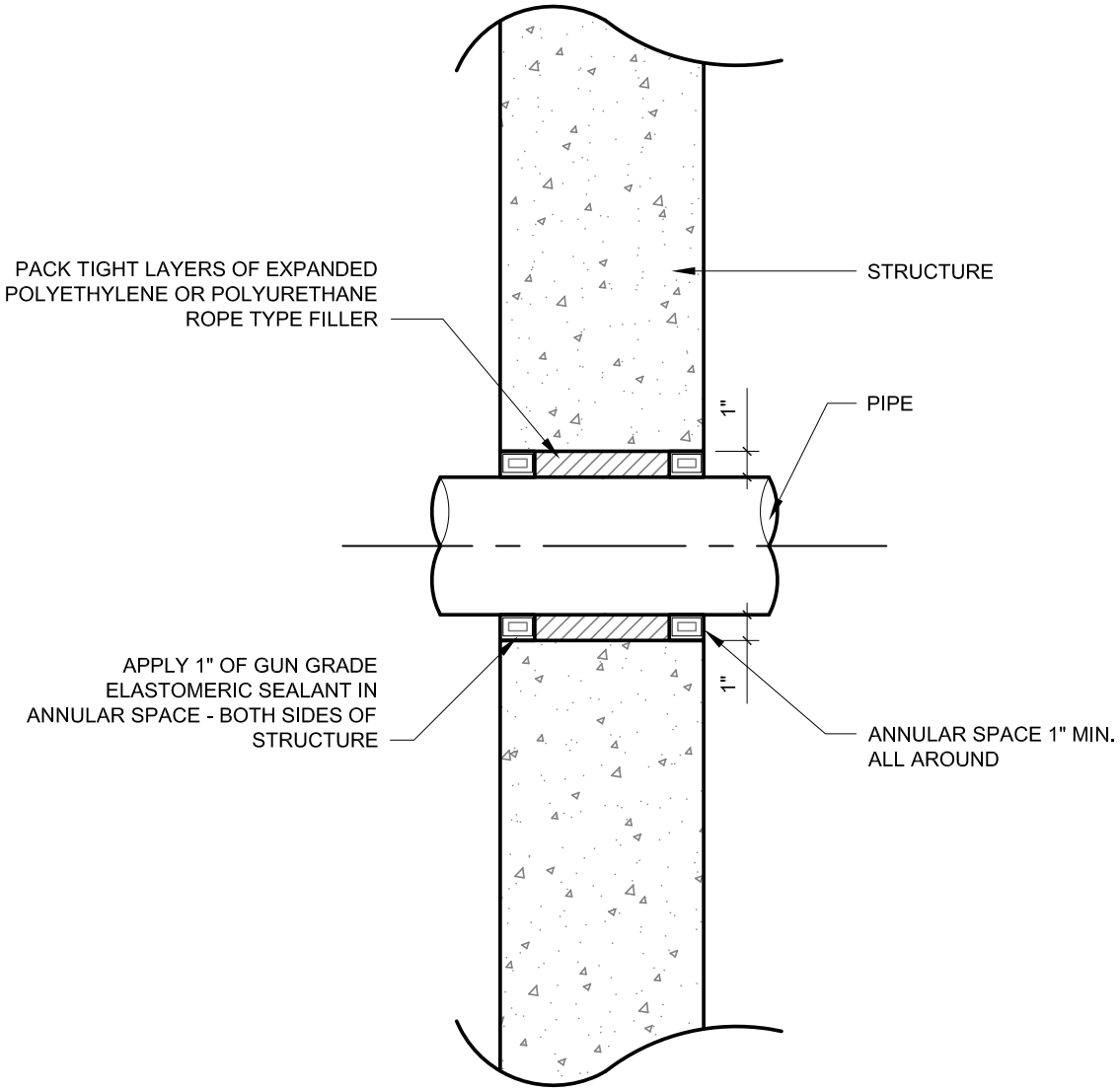
CITY OF BROOKINGS - STANDARD DETAIL

THRUST BLOCKING

4.52

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



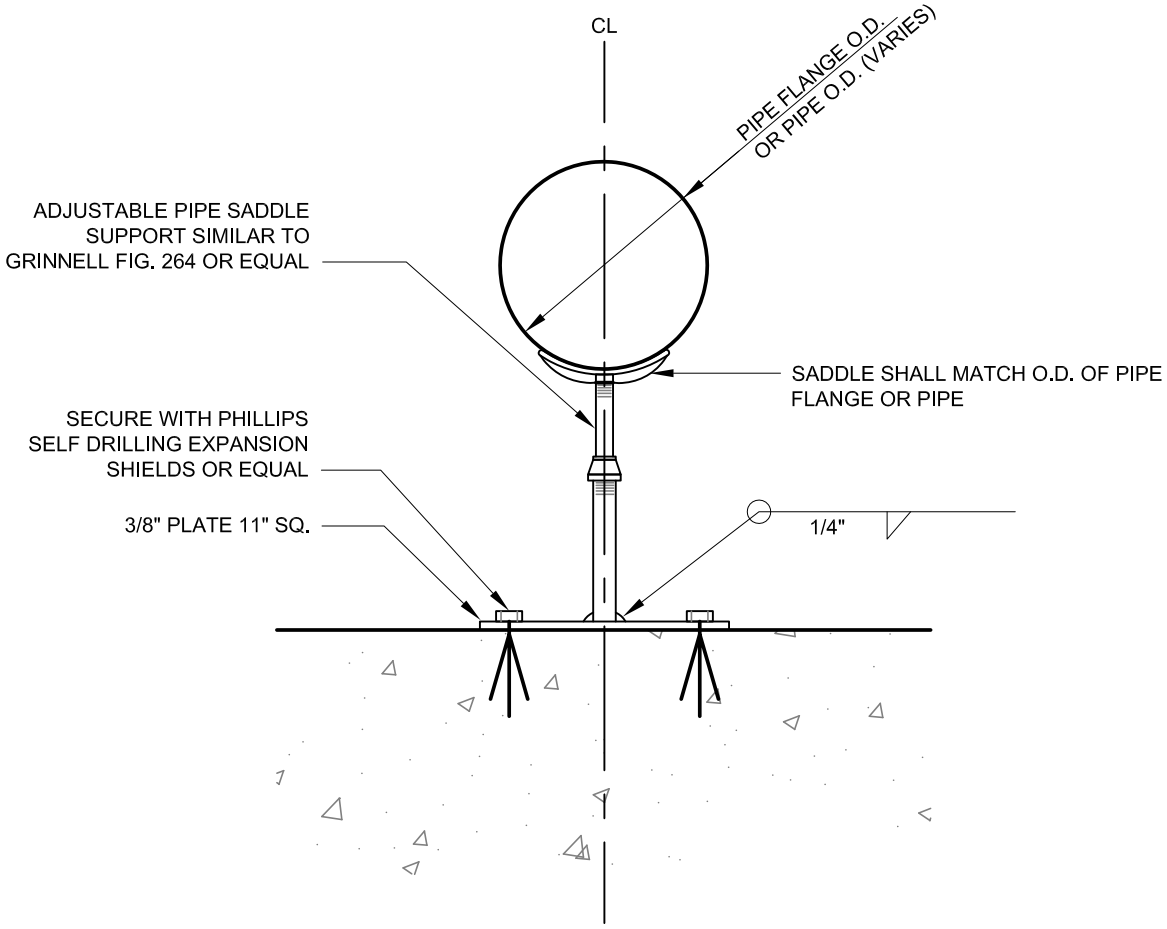
CITY OF BROOKINGS - STANDARD DETAIL

PIPE PENETRATION DETAIL

4.53

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



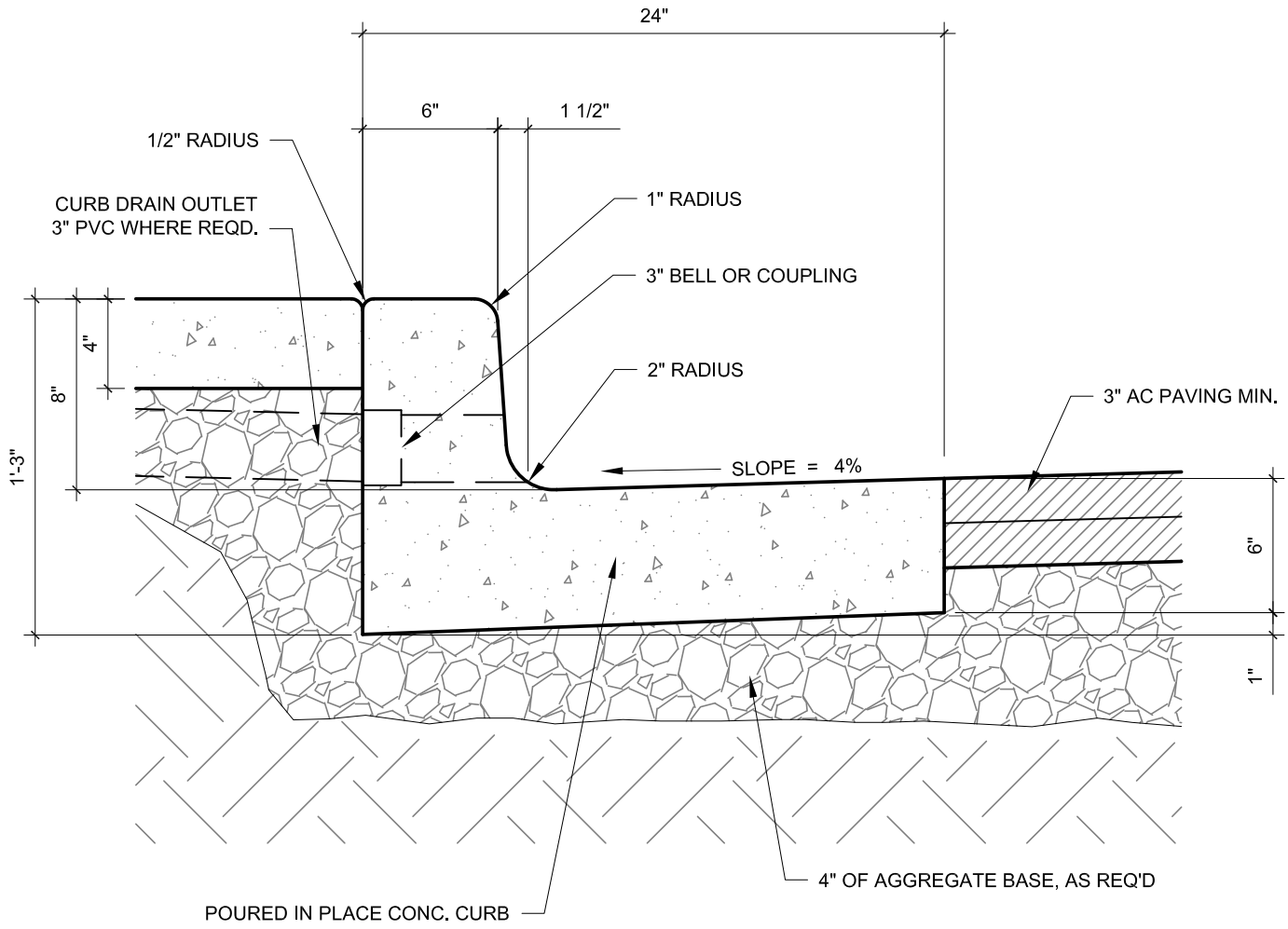
CITY OF BROOKINGS - STANDARD DETAIL

PIPE SUPPORT DETAIL

4.54

APPROVED BY RESOLUTION 14-R-1024

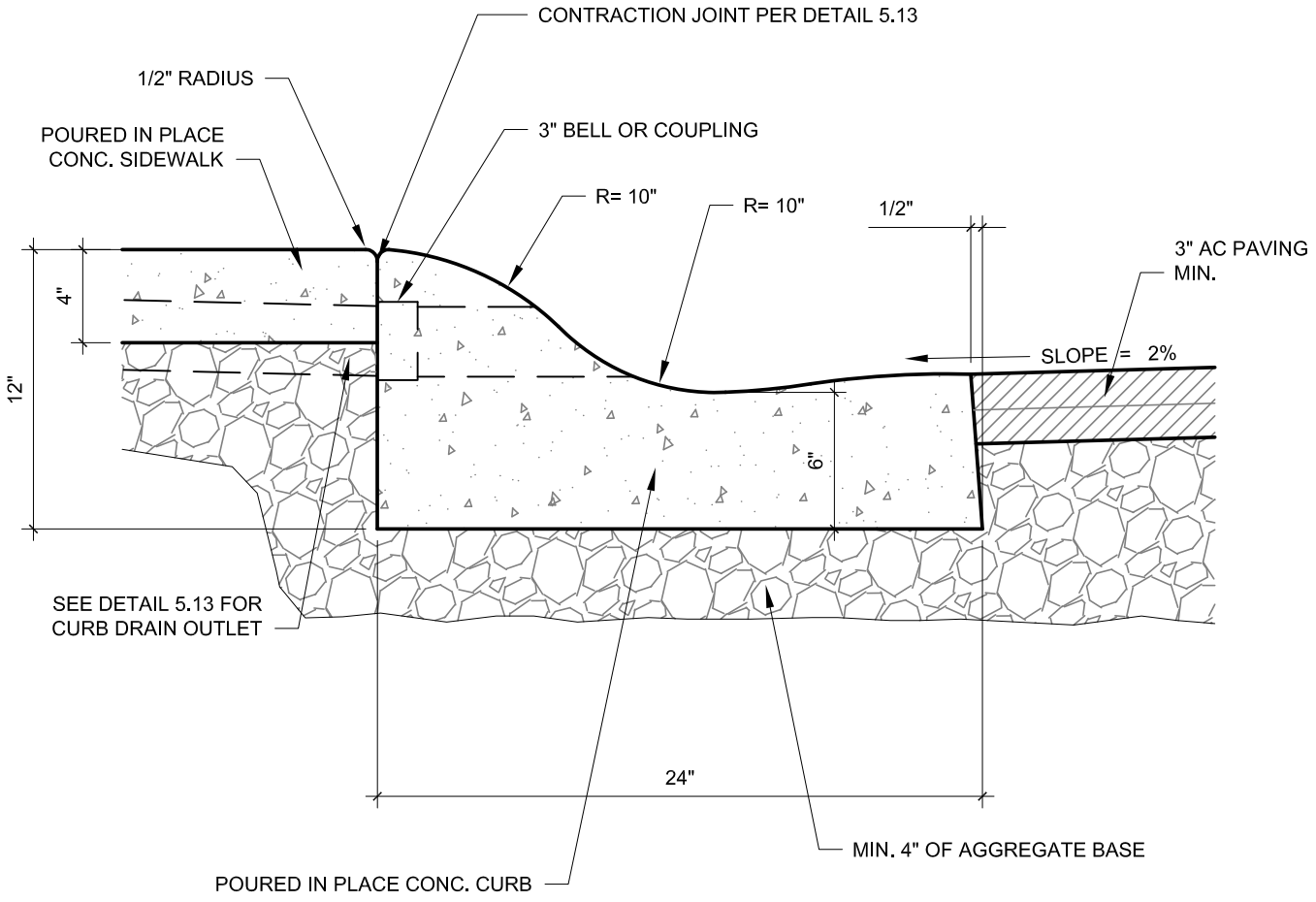
DATE: 2/26/2014



NOTE:

1. REFER TO DETAIL 5.13 FOR CONTRACTION JOINTS
2. MINIMUM DIMENSION STANDARDS NOTED
3. CONCRETE PER SPECIFICATIONS

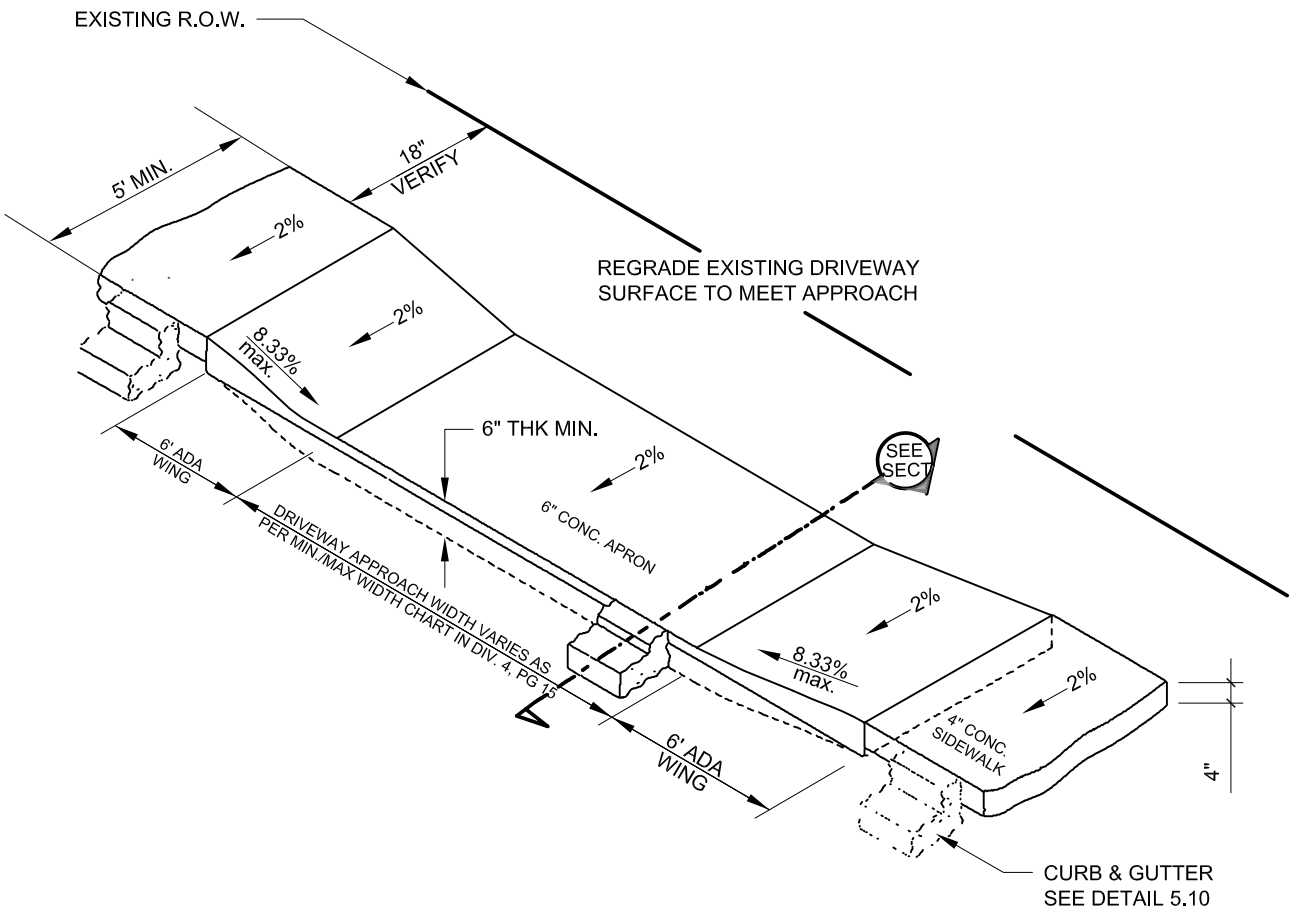
CITY OF BROOKINGS - STANDARD DETAIL		
STANDARD CURB & GUTTER		**5.10**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	

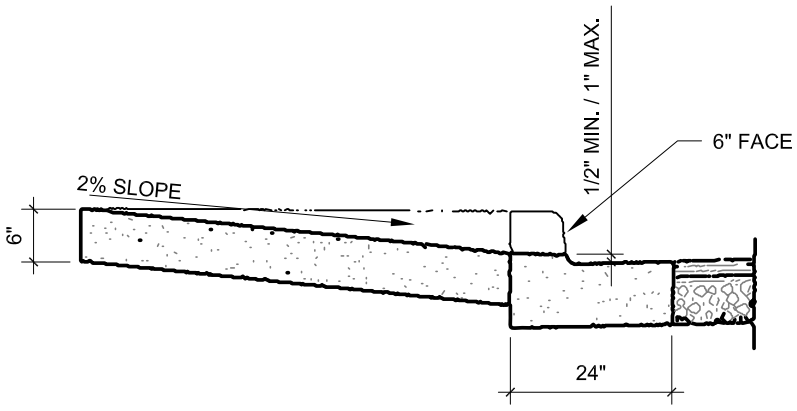


NOTE:

1. REFER TO DETAIL 5.13 FOR CONTRACTION JOINTS
2. MINIMUM DIMENSION STANDARDS NOTED
3. CONCRETE PER SPECIFICATIONS

CITY OF BROOKINGS - STANDARD DETAIL	
ROLLED CURB - DAWSON TRACT ONLY	**5.11**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014





SECTION AT CURB CUT

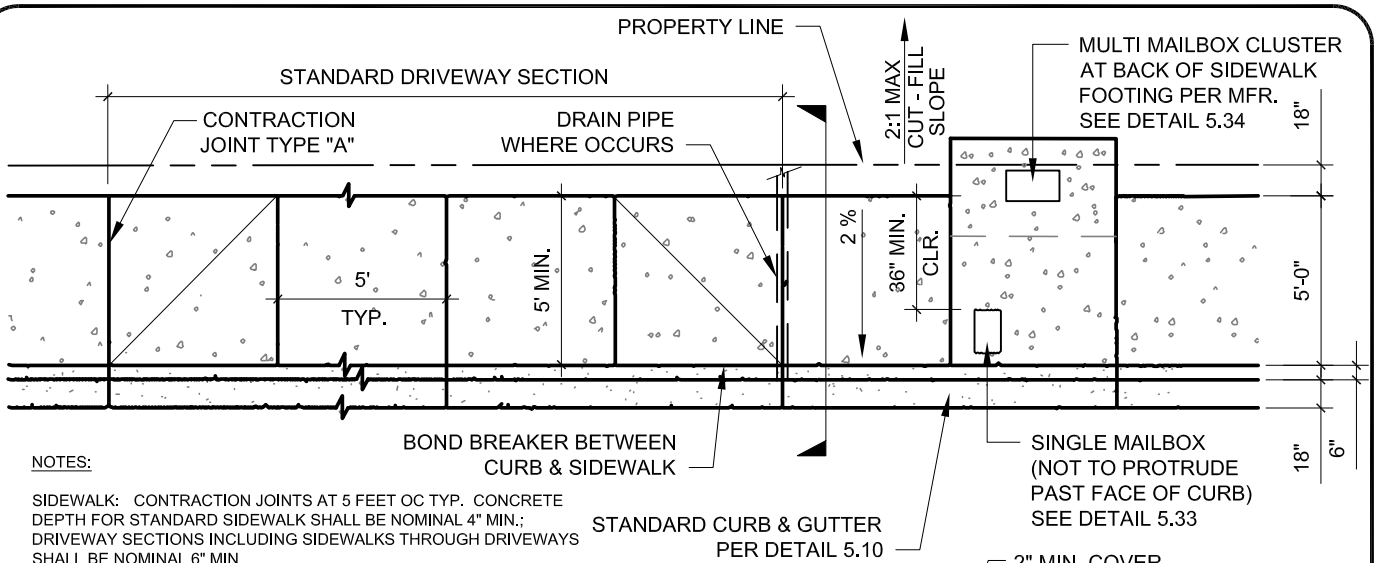
CITY OF BROOKINGS - STANDARD DETAIL

DRIVEWAY CURB CUT

5.12

APPROVED BY RESOLUTION 14-R-1024

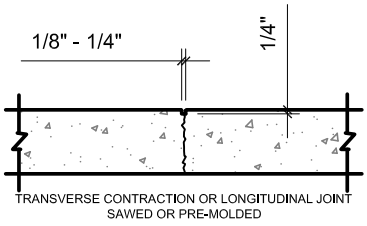
DATE: 2/26/2014



NOTES:

SIDEWALK: CONTRACTION JOINTS AT 5 FEET OC TYP. CONCRETE DEPTH FOR STANDARD SIDEWALK SHALL BE NOMINAL 4" MIN.; DRIVEWAY SECTIONS INCLUDING SIDEWALKS THROUGH DRIVEWAYS SHALL BE NOMINAL 6" MIN.

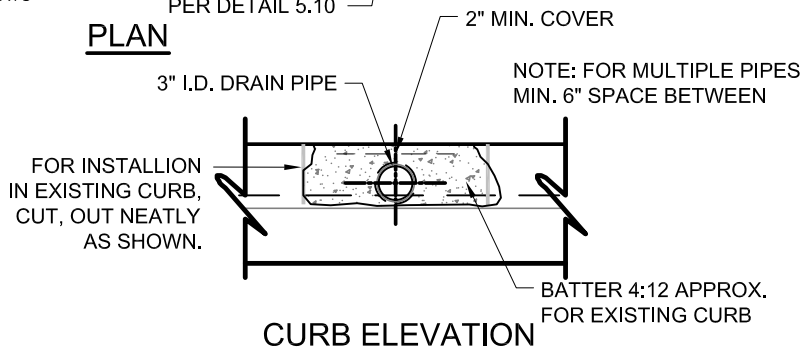
CURB: CONTRACTION JOINTS AT 15 FEET



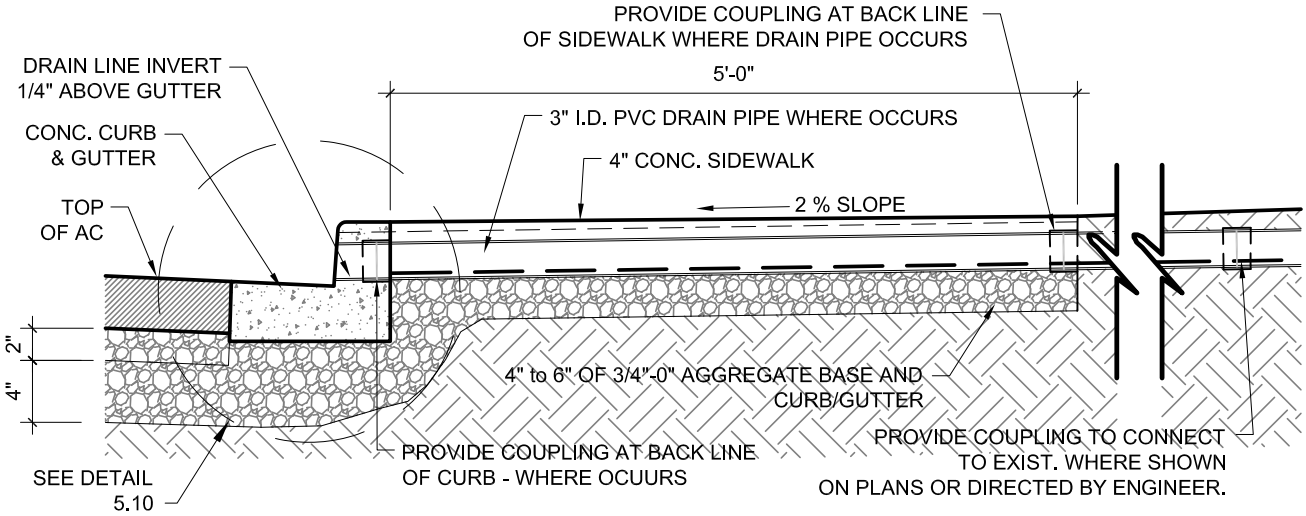
JOINT TYPE A

CONTROL (CONTRACTION) JOINTS

PLAN



CURB ELEVATION



SECTION

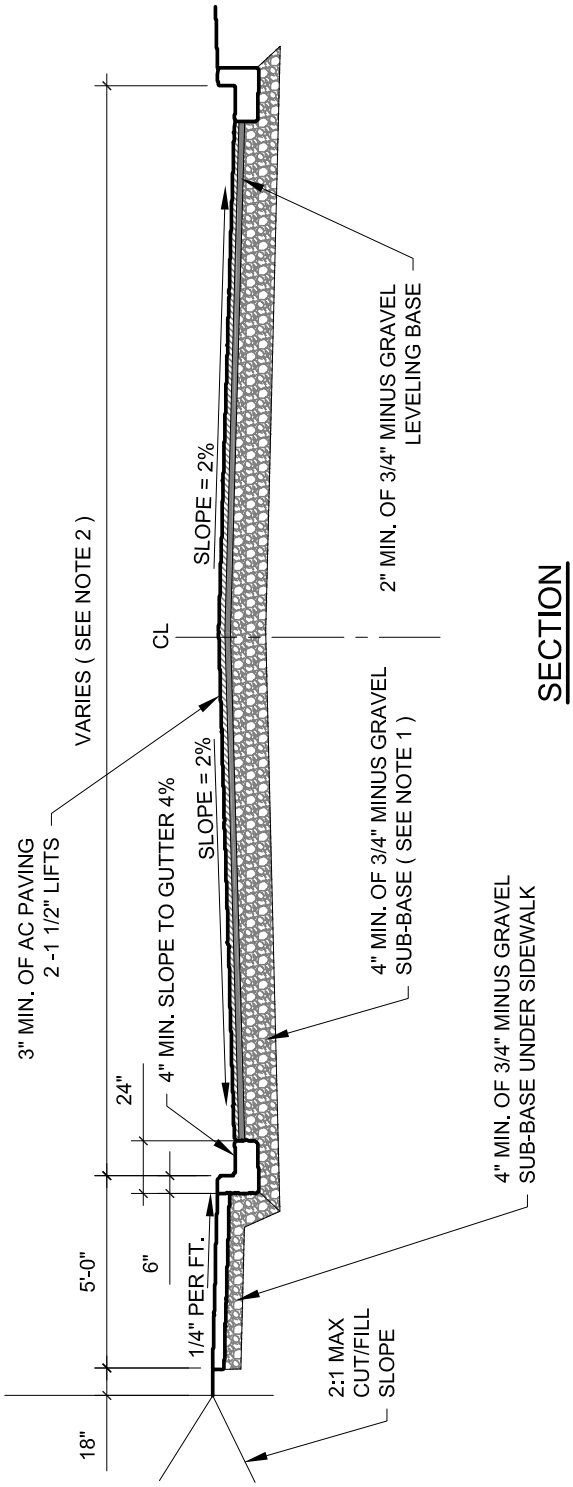
NOTE:

1. (2) DRAINS PER LOT MAXIMUM. NO DRAIN TO BE INSTALLED WITHIN DRIVEWAY AREA OR WITHIN 1 FT. OF WATER METER BOX OR SEWER CLEANOUT.

2. WHERE LOCATIONS PERMIT A CONTRACTION JOINT CENTERED OVER TOP OF PIPE MAY BE USED IN LIEU OF MESH. PRIOR APPROVAL BY CITY ENGINEER REQ'D.

* 3. IF ROLLED CURB USE 6' SIDEWALK

CITY OF BROOKINGS - STANDARD DETAIL	
CURB & SIDEWALK PLAN	**5.13**
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



SECTION

NOTE:

1. ACTUAL BASE REQUIREMENTS MAY BE ALTERED BY CITY DUE TO PARTICULAR SITE CHARACTERISTICS
2. WIDTH TO BE IN ACCORDANCE WITH CITY OF BROOKINGS SUBDIVISION ORDINANCE

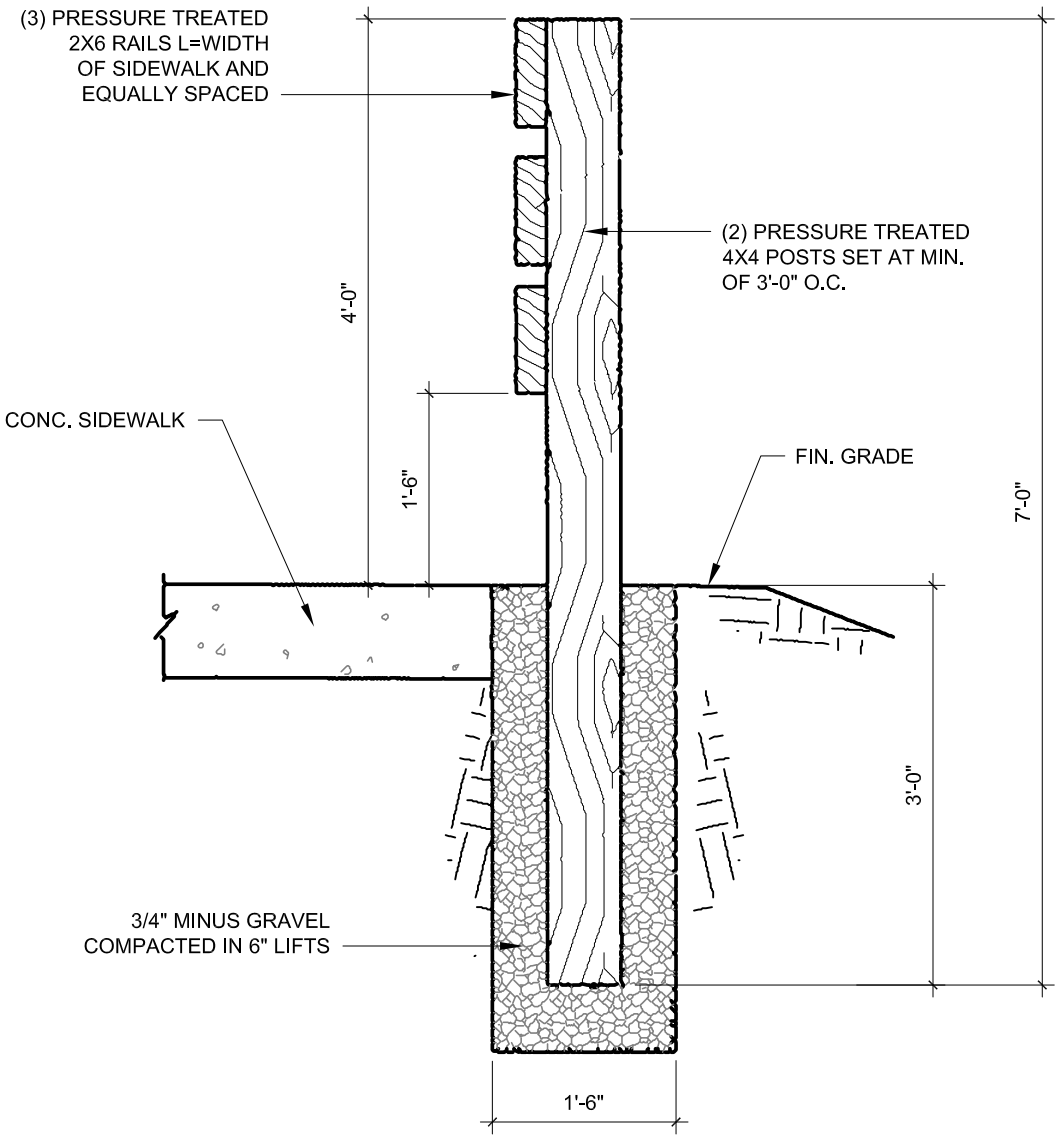
CITY OF BROOKINGS - STANDARD DETAIL

TYPICAL STREET SECTION

5.14

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



SECTION

NOTES:

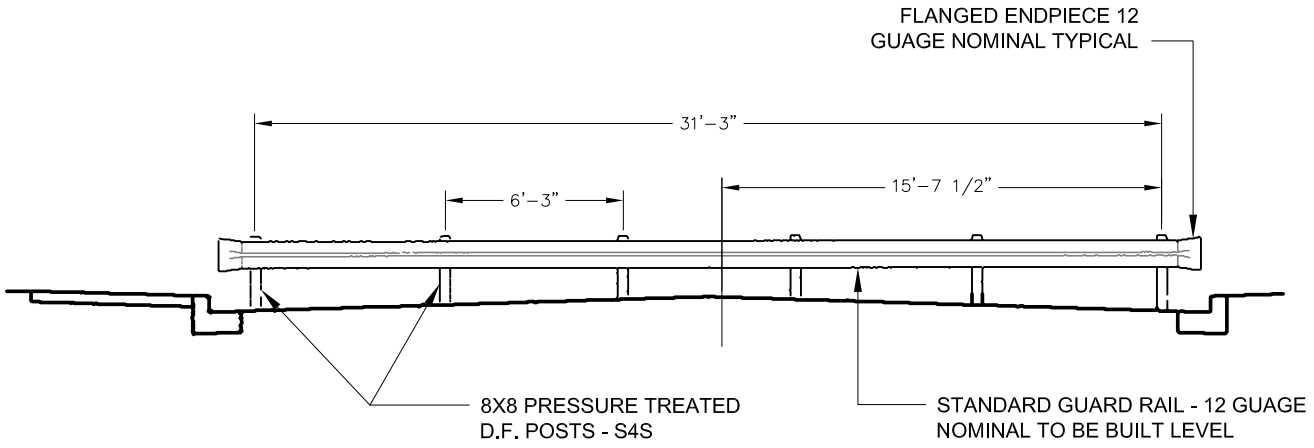
1) CONTRACTOR TO FIELD VERIFY WIDTH OF SIDEWALK BEFORE CONSTRUCTION OF BARRICADE.

2) ALL MATERIALS SHALL BE AS SPECIFIED

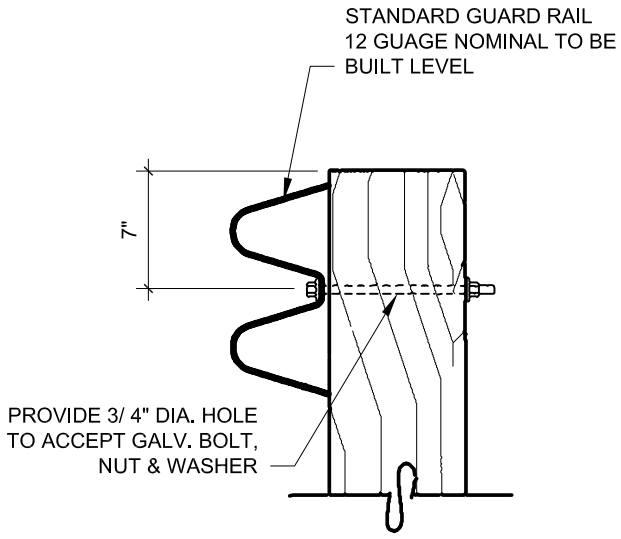
3) BARRICADE TO BE PAINTED WHITE WITH TWO COATS OF PREMIUM EXTERIOR PAINT.

4) ALL FASTENERS SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.

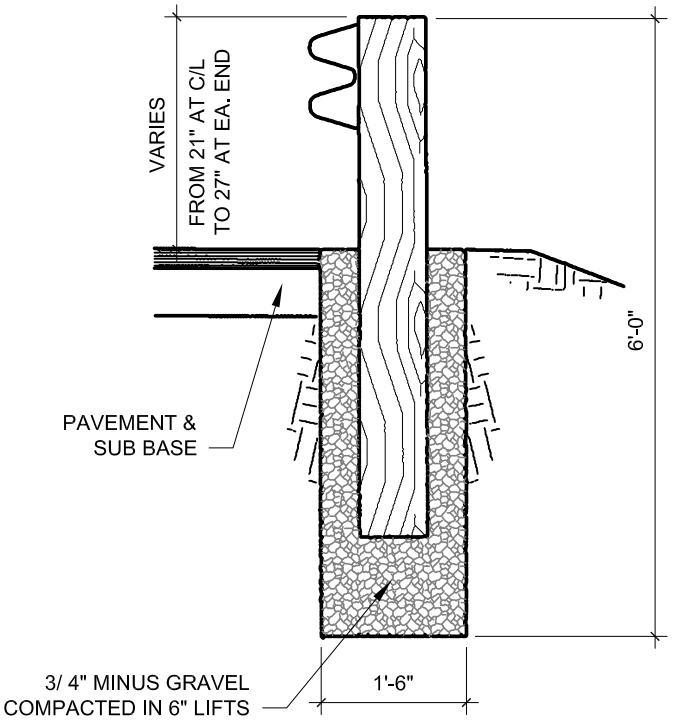
	CITY OF BROOKINGS - STANDARD DETAIL	
	SIDEWALK BARRICADE	5.15
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



STREET

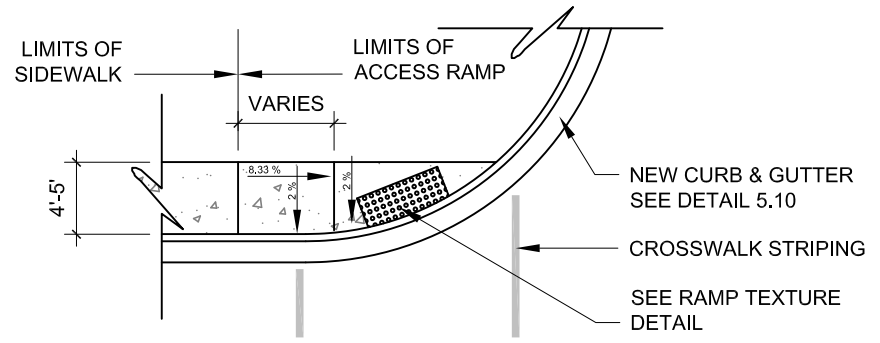


ASSEMBLY DETAIL

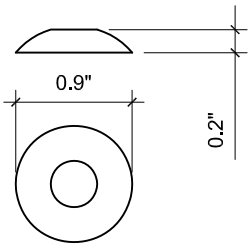


SECTION

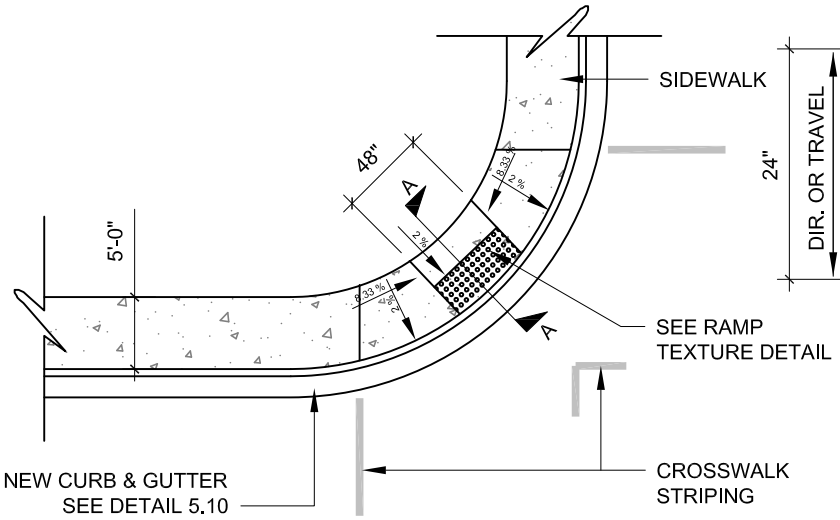
CITY OF BROOKINGS - STANDARD DETAIL		
GUARD RAIL BARRIER		5.16
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014	

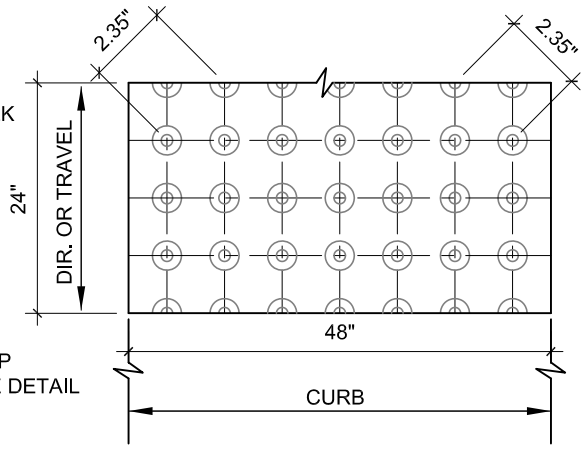


TYPE I SIDWALK ACCESS RAMP



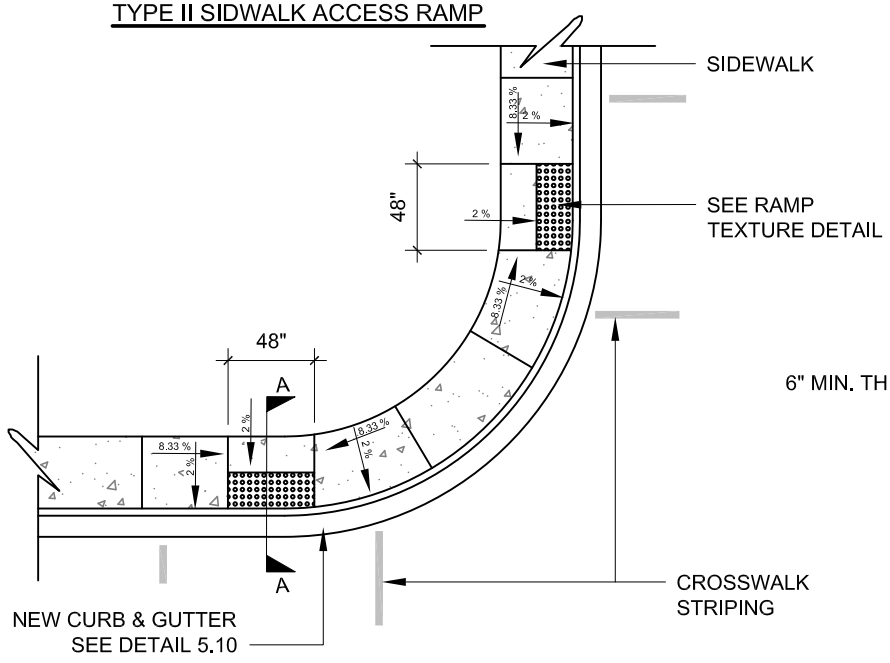
TRUNCATED DOME DETAIL

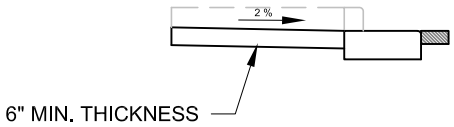




ACCESS RAMP TEXTURE PATTERN DETAIL

TYPE II SIDWALK ACCESS RAMP

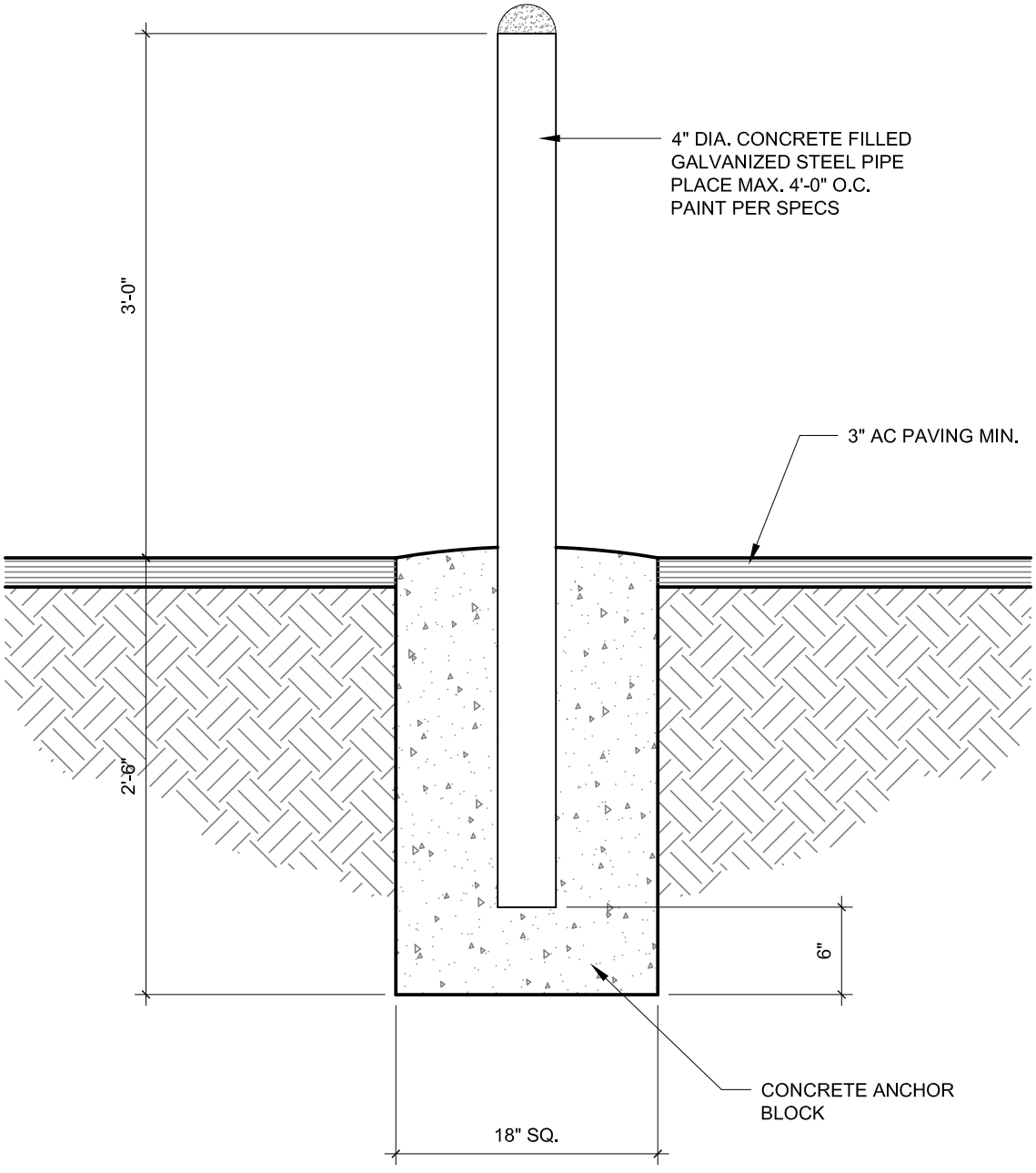




SECTION A-A

TYPE III SIDWALK ACCESS RAMP

CITY OF BROOKINGS - STANDARD DETAIL	
SIDEWALK ACCESS RAMP DETAILS	5.17
APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



CITY OF BROOKINGS - STANDARD DETAIL

GUARD POST

5.18

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014

ALL SIGNS ARE TO BE DIAMOND GRADE, REFLECTIVE SHEATHING. STREET NAME SIGNS ARE TO BE EXTRUDED DOUBLE SIDED.

NO PARKING THIS SIDE OF STREET
RED ON WHITE BACKGROUND
12" x 18"

STOP SIGN STANDARD 24" x 24"

STREET NAME SIGN
WHITE ON GREEN BACKGROUND
4" LETTERING ON 6"
SIGN-LENGTH DETERMINED BY NUMBER OF LETTERS IN STREET NAME
ON EXTRUDED BLADE

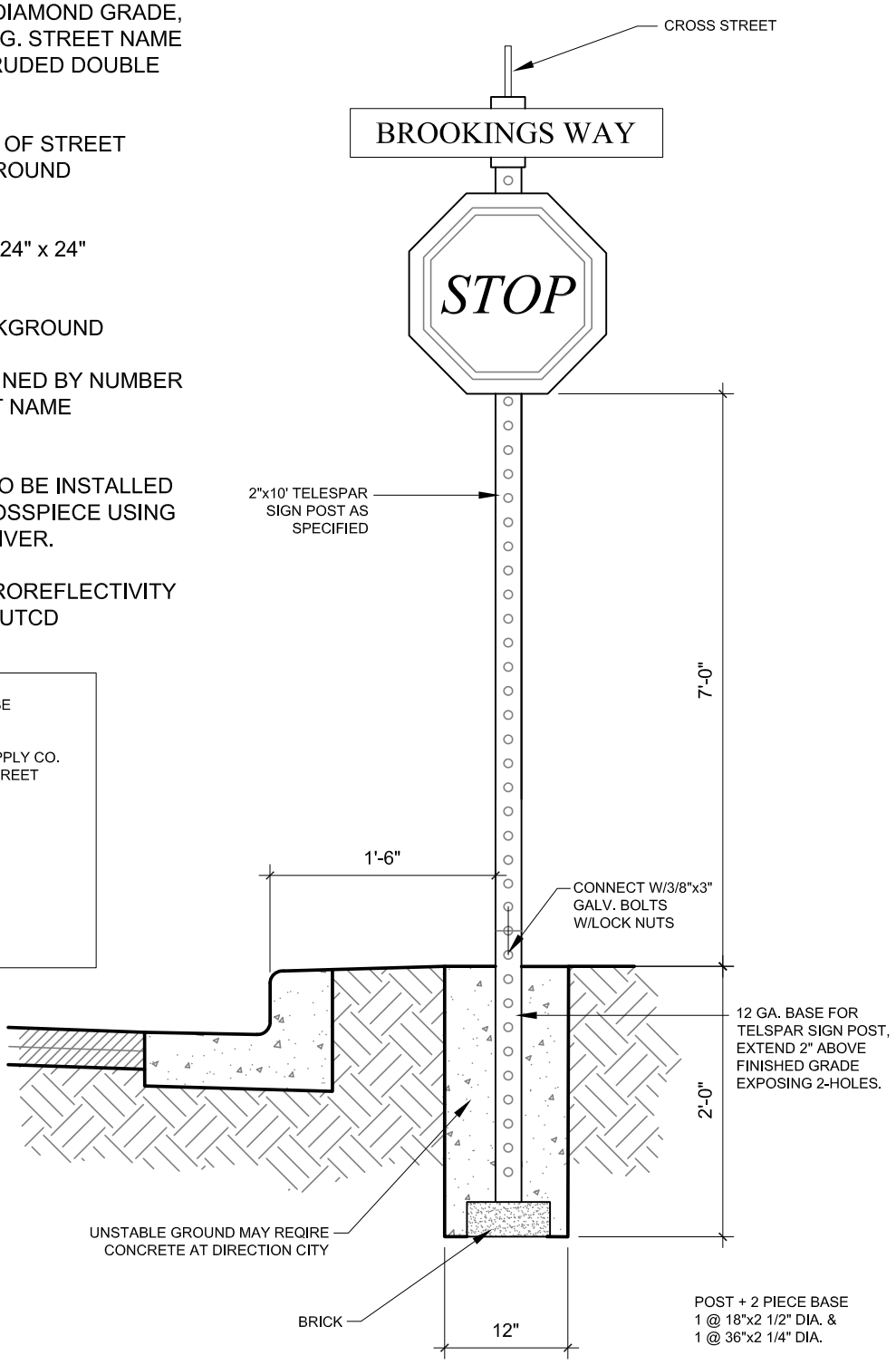
STREET NAME SIGNS TO BE INSTALLED W/2" CAP. AND 90Ø CROSSPIECE USING 5 1/4" EXTRUDED RECEIVER.

MUST COMPLY W/ RETROREFLECTIVITY REQUIREMENTS PER MUTCD

STREET SIGNS CAN BE ORDERED FROM:

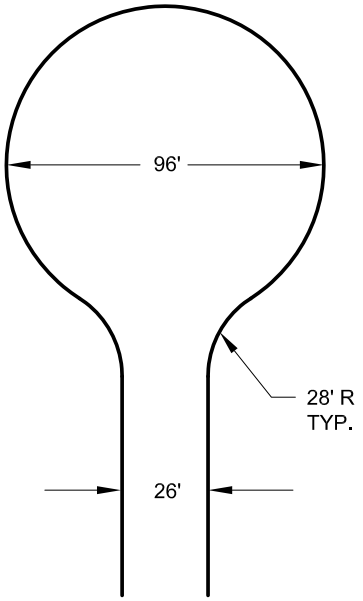
TRAFFIC SAFETY SUPPLY CO.
2324 SE UMATILLA STREET
PORTLAND OR. 97202
PH (503) 235-8531
FAX (503) 235- 5112

LYLE SIGNS, INC.
115 17TH ST. SW.
JAMESTOWN, N.D.
1-877-895-8816
FAX 701-252-9472

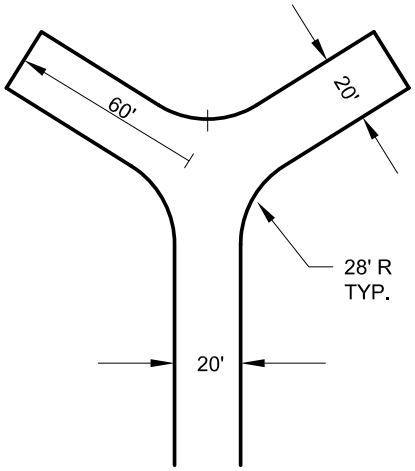


NOTE:
1. NEW PROJECTS REQUIRE EXTRA SET OF STREET SIGNS FOR PUBLIC WORKS
2. ALL HOLES & BOTTOM OF TELSPAR POST BASE MUST BE TAPED OFF TO PREVENT CONCRETE FROM BLOCKING HOLES.

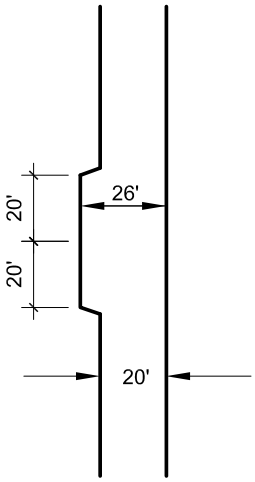
	CITY OF BROOKINGS - STANDARD DETAIL	
	SIGN POST INSTALLATION	**5.20**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 2/26/2014



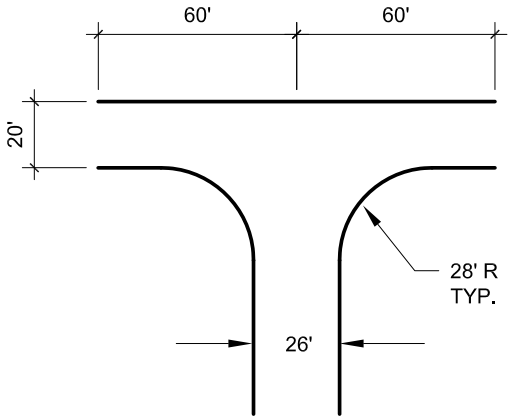
96' DIAMETER
CUL DE SAC



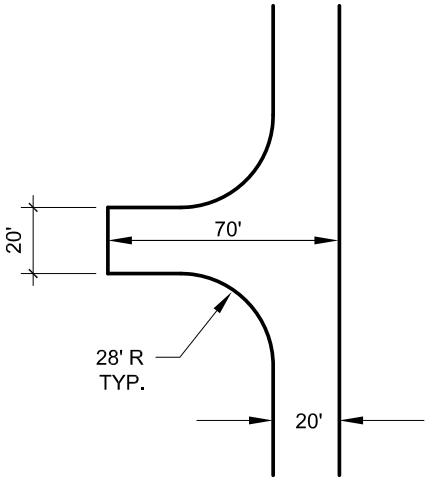
60' "Y"



MIN. CLEARANCE
AROUND A FIRE
HYDRANT



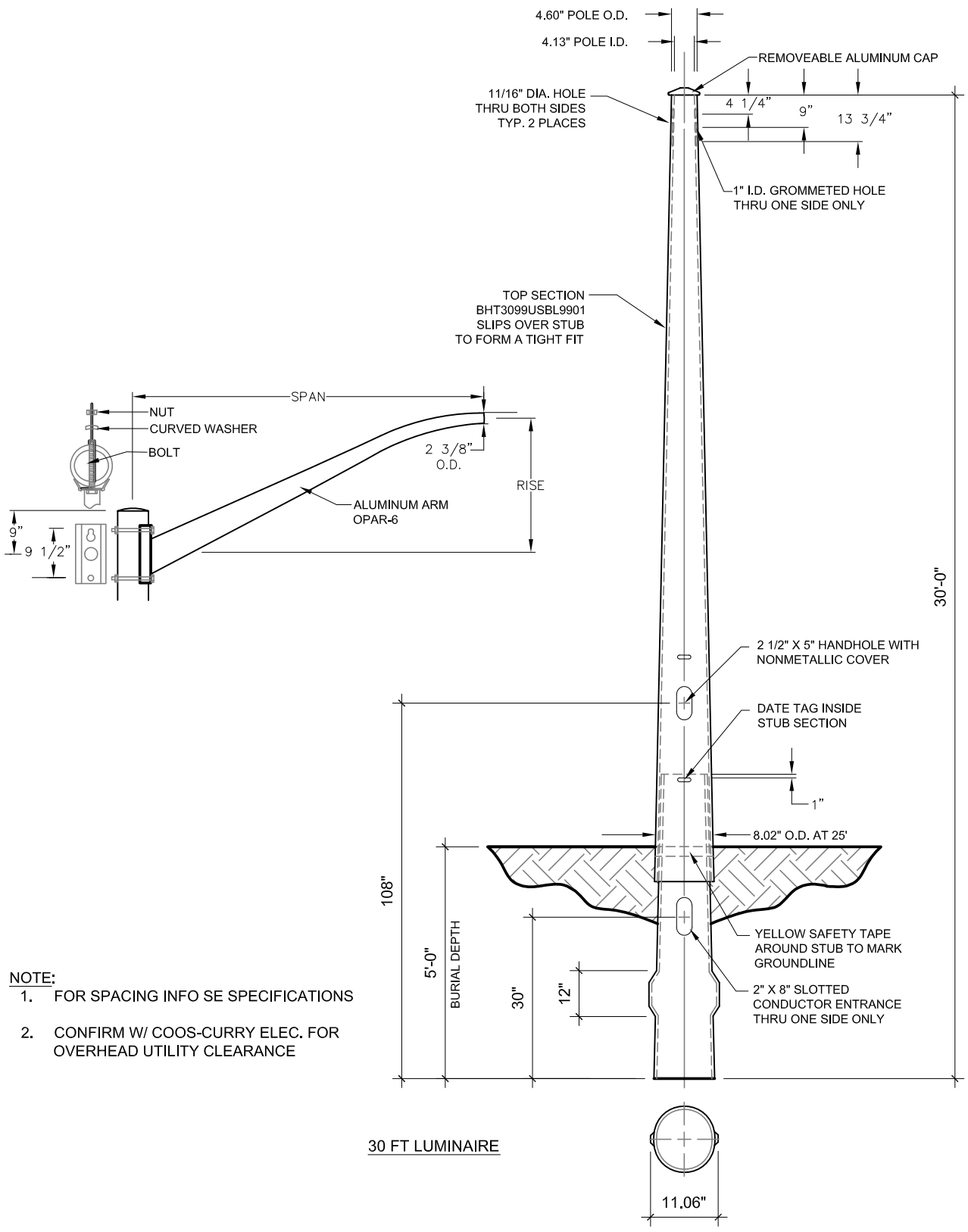
120' HAMMERHEAD



ACCEPTABLE ALT.
TO 120' HAMMERHEAD

MINIMUM FOR ACCESS - ACTUAL DESIGN WIDTH BASED ON
STREET DESIGN STANDARDS

	CITY OF BROOKINGS - STANDARD DETAIL	
	FIRE ACCESS TURN AROUND	**5.25**
	APPROVED BY RESOLUTION 14-R-1024 120	DATE: 2/26/2014



NOTE:

1. FOR SPACING INFO SE SPECIFICATIONS
2. CONFIRM W/ COOS-CURRY ELEC. FOR OVERHEAD UTILITY CLEARANCE

30 FT LUMINAIRE

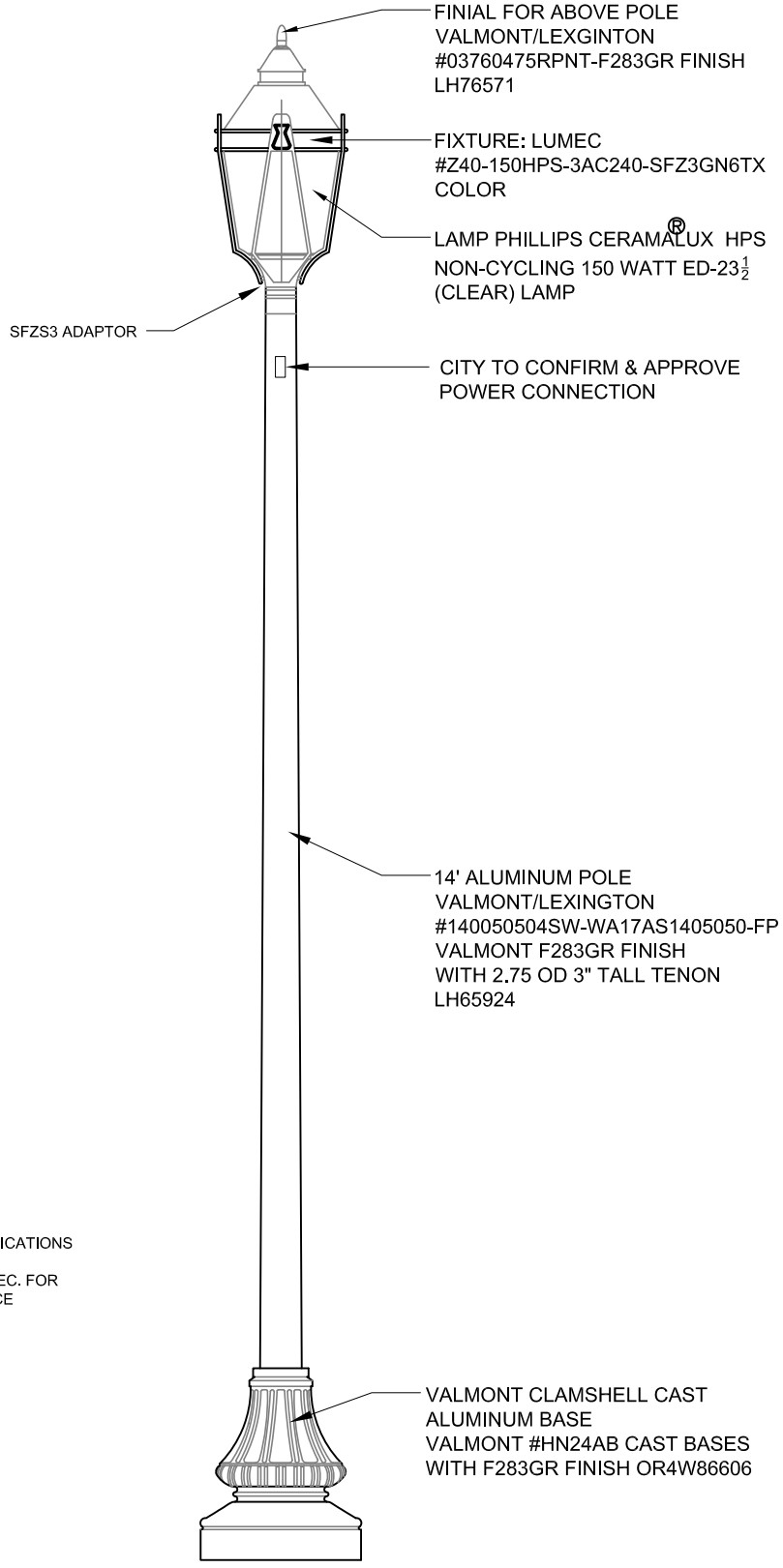
CITY OF BROOKINGS - STANDARD DETAIL

STANDARD STREET LIGHT

5.30

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



NOTE:
1. FOR SPACING INFO SE SPECIFICATIONS
2. CONFIRM W/ COOS-CURRY ELEC. FOR OVERHEAD UTILITY CLEARANCE

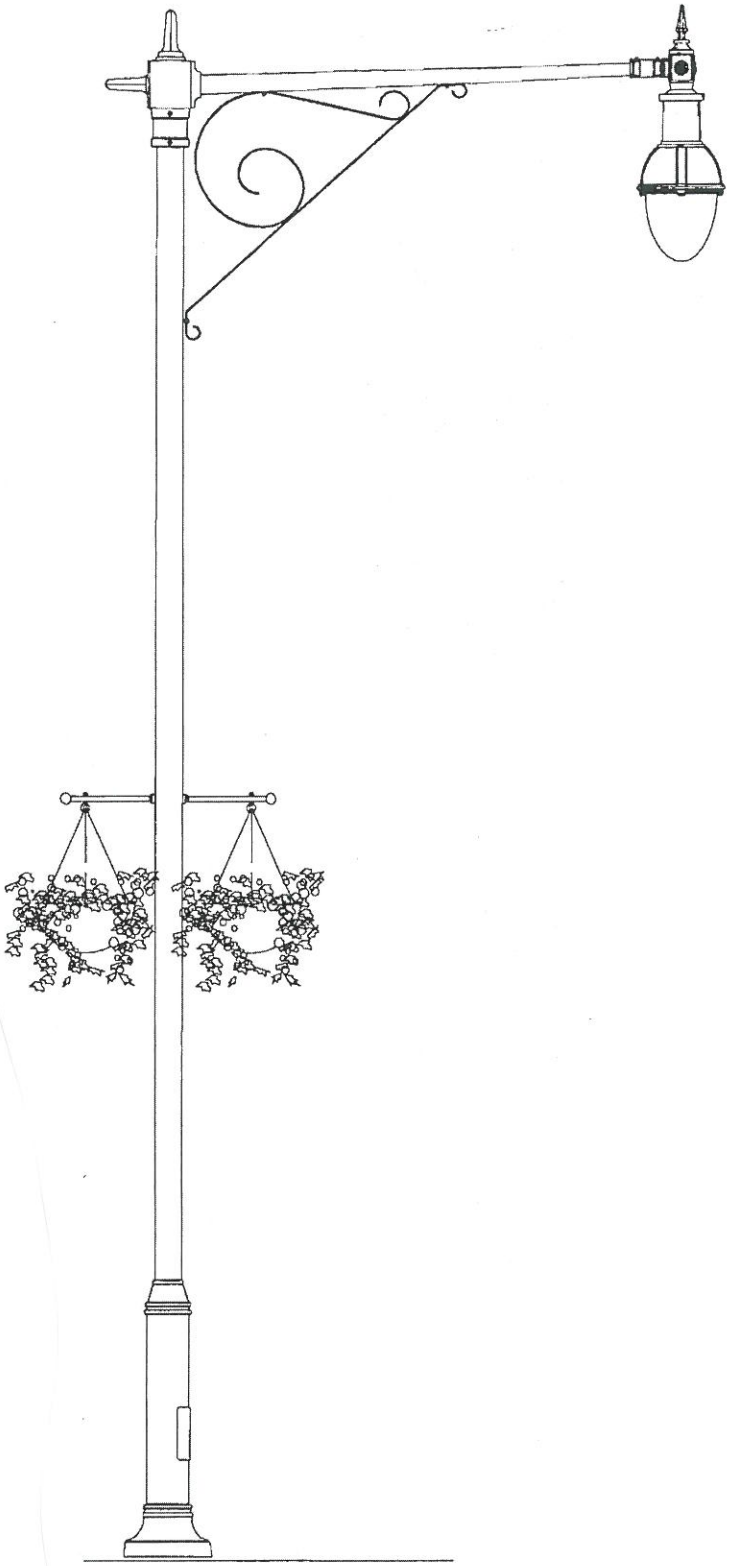
CITY OF BROOKINGS - STANDARD DETAIL

DOWNTOWN DECORATIVE STREET LIGHT TYPE 1

5.31

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



Luminaire: RN20-THA3-SMA
Mounting: PR8-1A
Pole: SSM8-PS

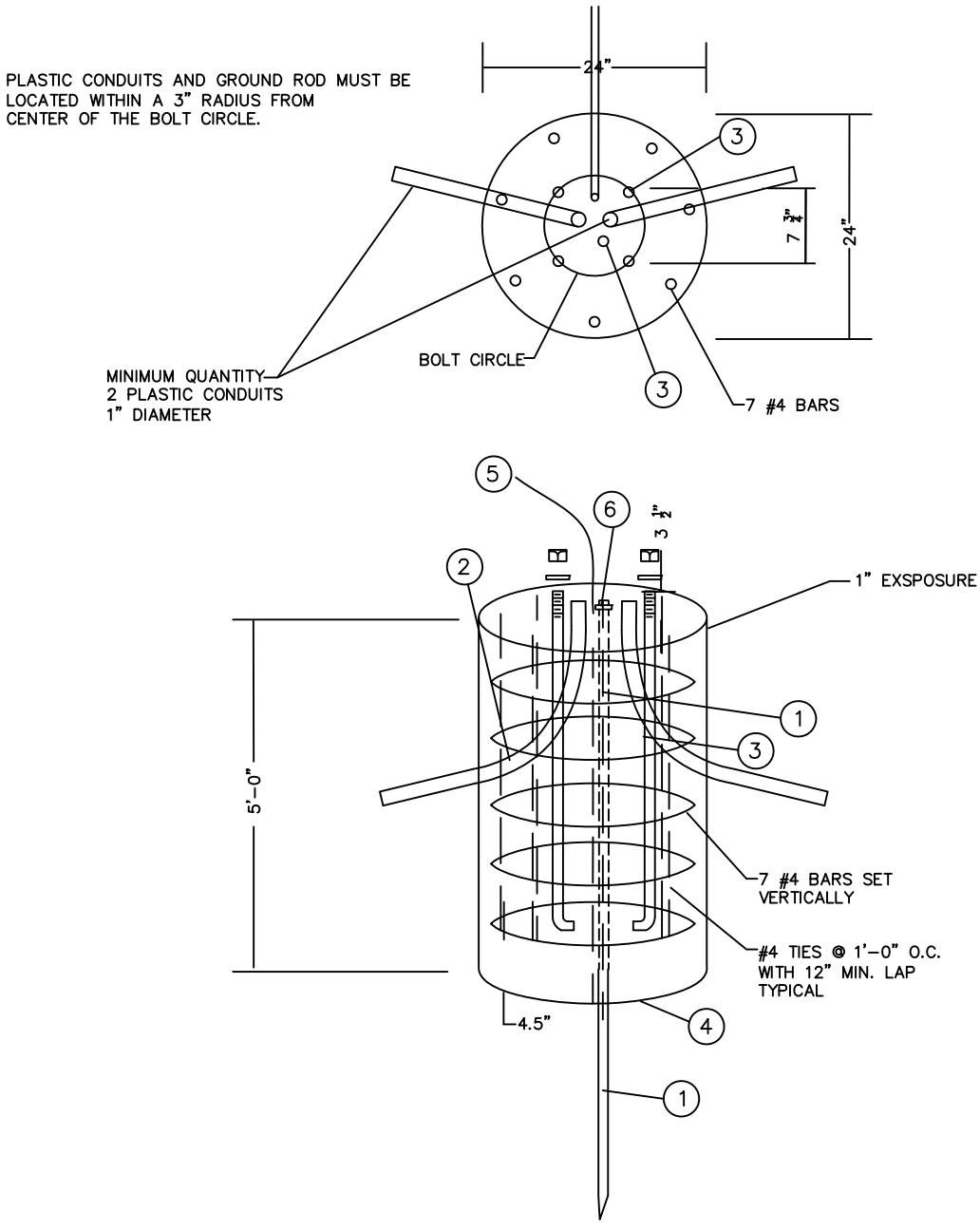
CITY OF BROOKINGS - STANDARD DETAIL

DOWNTOWN DECORATIVE STREET LIGHT TYPE 2

5.32

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



NO.	DESCRIPTION
1	ROD, GROUND, 5/8" X 8'
2	CONDUIT, FLEXIBLE, 1"
3	BOLT, ANCHOR, 1" X 36" WITH 4" HOOK, GALVANIZED
4	CONCRETE, 5 BAG MIX - 3000 PSI
5	CONDUCTOR, SEE PLAN
6	GROUND ROD CLAMP

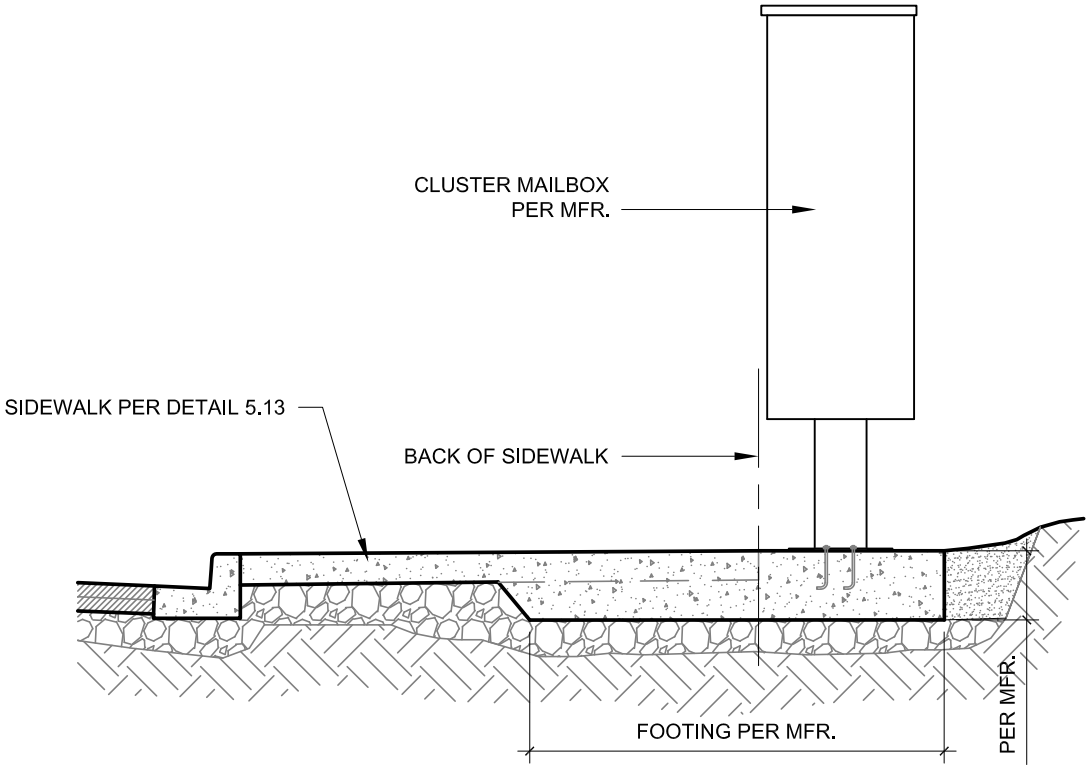
CITY OF BROOKINGS - STANDARD DETAIL

LUMINAIRE BASE

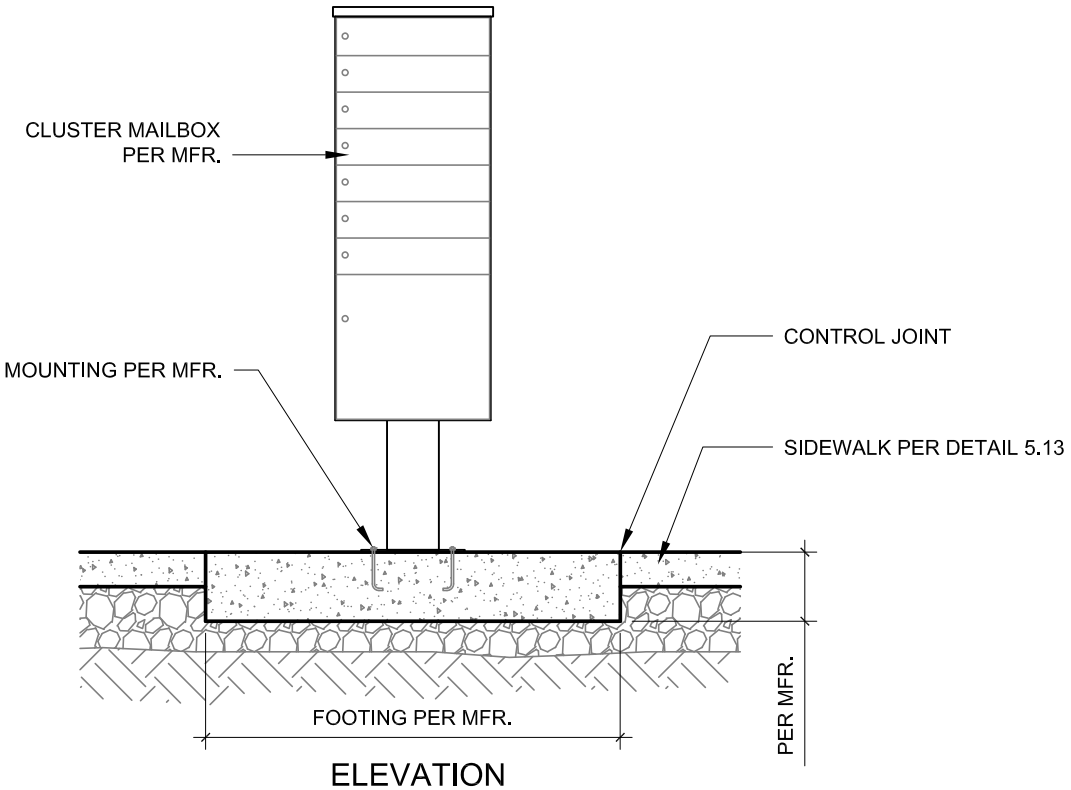
5.33

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



SECTION DETAIL



ELEVATION

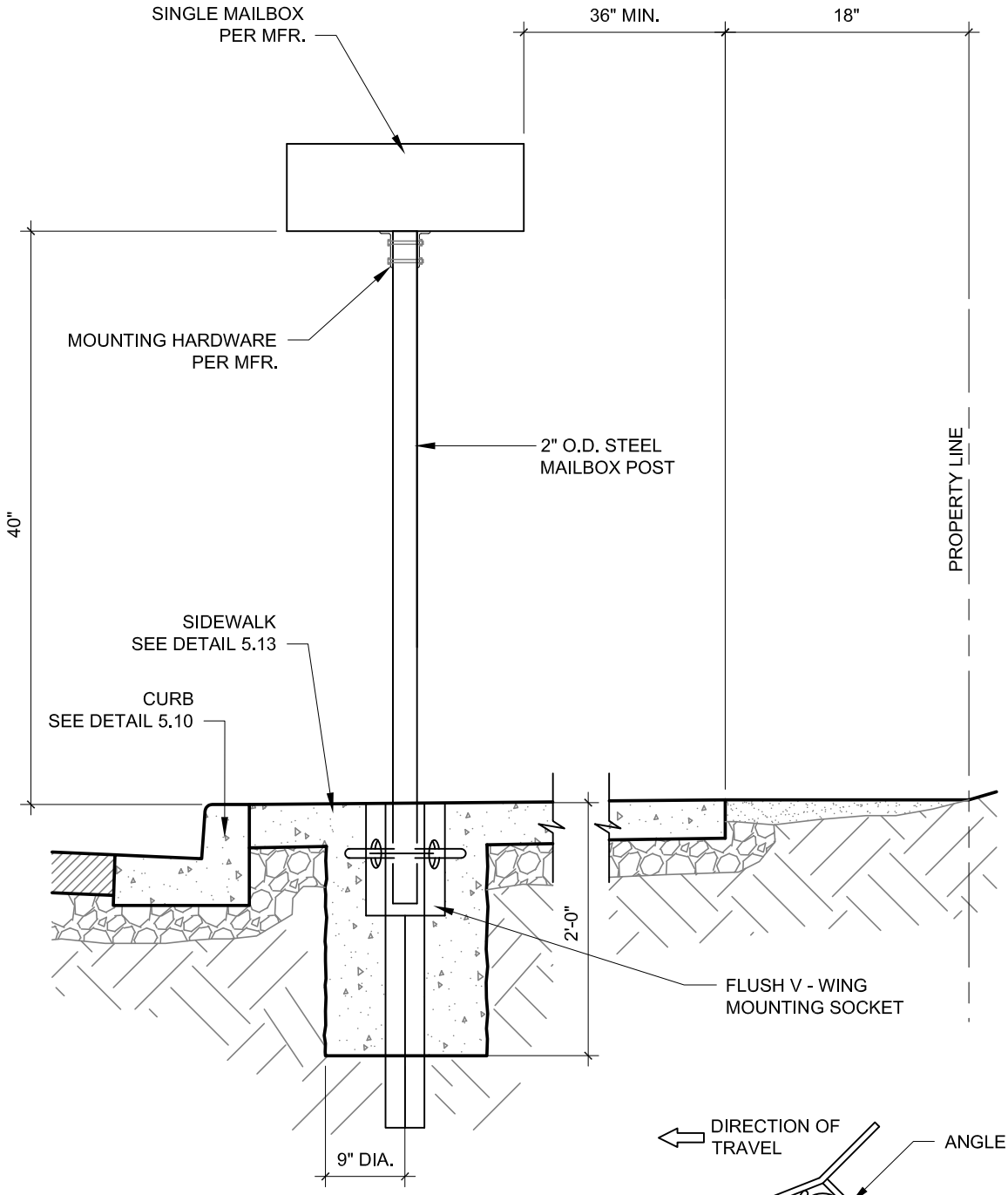
CITY OF BROOKINGS - STANDARD DETAIL

CLUSTER MAILBOX DETAIL

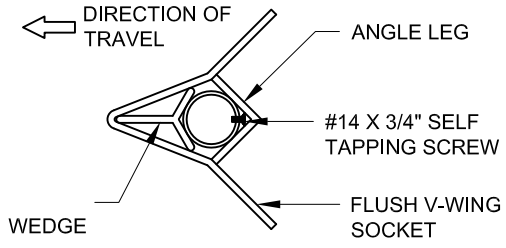
5.34

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014



SECTION



POST MOUNTING
SOCKET

CITY OF BROOKINGS - STANDARD DETAIL

SINGLE MAILBOX DETAIL

5.35

APPROVED BY RESOLUTION 14-R-1024

DATE: 2/26/2014

STANDARD SPECIFICATIONS
for
PUBLIC WORKS
INFRASTRUCTURE

CITY OF BROOKINGS,
CURRY COUNTY, OREGON

Draft 2017

Chapter 18.05
Division 1
General Information and Requirements for Submitting Plans

18.05.001 SCOPE

The purpose of this document is to establish correct procedures, outline acceptable standards of workmanship and required specifications for any work or projects being accomplished within City of Brookings jurisdictional rights of way that involves additions to, amendments, or repairs to City infrastructures, or infrastructure that is being constructed with intention to be dedicated to the City and accepted into the inventory of City infrastructure.

The standard specifications also include construction details as an attachment to this document. The specifications and details complement each other and both must be reviewed and adhered to. Generally, the specifications will include more information on parts and ordering information while the details depict graphics on how to construct the improvements.

18.05.002 DEFINITIONS

A. Engineer: A person holding a current Registered Civil Engineering license in the State of Oregon.

B. City: As used herein the term "City" or "City Engineer" shall denote the City Engineer, the City Manager, or his/her designated representative.

C. Contractor: A private person or organization that has entered into a contractual obligation to perform improvements, repairs or maintenance to public facilities or construct facilities proposed to become public facilities. Contractors shall hold a valid Oregon contractor's license and a valid City business license.

D. Original developer: A person, partnership, firm, corporation, or other legal entity in whose name the land development to which BMC 17.168.020, 17,168.050, 17.168.060, 17.168.080, and 17.168.100 is applicable, or the legal heirs, assigns or successors of said developer.

E. On-site improvements are defined as improvements made on private properties. Off-site improvements are defined as construction, repair, maintenance, enlargement, and extension to City infrastructure that exists in dedicated rights of way or easements.

F. Standards and Specifications Committee: Council appointed committee responsible for updates to the Engineering Requirements and Standard Specifications for Public Works Construction.

G. Standard Specifications for Public Works Infrastructure: Also will be known as Construction Standards, Public Works Standards and Details, Public Works Infrastructure Standards, or Brookings Specifications.

18.05.003 ABBREVIATIONS AND ACRONYMS

Whenever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as follows:

AASHTO	American Association of State Highway and Transportation Officials
AC	Asbestos cement pipe
ACI	American Concrete Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
BMC	Brookings Municipal Code
BMP	Best Management Practice
CCB	Construction Contractors Board
CI	Cast iron pipe
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DEQ	Department of Environmental Quality
DET	Detail
DI	Ductile iron pipe
DOH	Department of Health
EPA	Environmental Protection Agency
FT	Feet
FTG	Fitting
FLG	Flange
HMAC	Hot mix asphaltic concrete
IBC	International Building Code
ID	Inner diameter
IEEE	Institute of Electrical and Electronics Engineers
MIN	Minimum
MJ	Mechanical joint
MUTCD	Manual of Uniform Traffic Control Devices
NBFU	National Bureau of Fire Underwriter's
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NTS	Not to scale
OAR	Oregon Administrative Rules
OD	Outer diameter
ODOT	Oregon Department of Transportation
OHD	Oregon Health Division, Drinking Water Section
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Act (both Federal and State Agencies)

OUCC	Oregon Utilities Coordinating Council
PCC	Portland cement concrete
PUE	Public Utility Easement
SS	Stainless steel
TRPL	Touch Read Programmable Logic
TYP	Typical
UPC	Uniform Plumbing Code

18.05.004 GENERAL

A. These specifications establish a minimum standard for development projects under City of Brookings jurisdiction. Designs must follow a standard of engineering excellence for clarity and readability. All work must comply with the approved plans. The City of Brookings does not assume responsibility or liability for a developer's alternate methods, recommendations, or engineering designs that deviate from this document.

B. If unusual conditions arise during construction that warrants changes, the City may require a deviation from the typical sections and details of this document.

C. All work should proceed in a systematic manner, with a minimum of inconvenience to the public or impact to City rights of way.

D. Any work, repair, maintenance, additions, or alteration being performed to City infrastructure must be performed under the supervision of a licensed contractor and if it is being performed in a right of way a right of way permit is required per BMC Title 11.

E. Additions or extensions to City infrastructure that are not included in the final approval of a subdivision plat will require a formal dedication to the City.

F. Disturbed or obliterated property corner monuments or survey reference monuments must be restored per ORS 209.150 and 209.155.

G. All construction within Oregon State Highway Rights-of-Way shall be in conjunction with the "General Provisions of the Oregon Department of Transportation."

H. All construction within the Curry County Rights-of-Way shall be in conjunction with the "Curry County Road Department Specifications".

18.05.005 RESPONSIBILITIES

A. The contractor: is responsible to provide all labor, materials and equipment that are necessary to complete the work as specified in the approved plans. If the contractor has questions about City requirements, they are urged to discuss any issues with City staff prior to commencement of work. Work in the public right of way shall not commence until permits have been issued. Work shall not commence until the City has been notified at least 48 hours in advance and a written "Notice to Proceed" or signed permit is issued by the City of Brookings. If work has been discontinued for the time period specified herein, it shall not resume until the City has been notified in writing. All work shall proceed according to the approved plans and latest City standards, which include, but are not limited to, Zoning Ordinances, Subdivision Ordinance, and this document. Any work not meeting these standards is subject to removal and replacement by the City at the contractor's expense.

Other considerations are:

1. Traffic safety, worker safety and safety devices are the responsibility of the contractor, and failure to comply with safety as outlined in this document may result in a cease work order, fine or both.

2. The contractor is responsible for the repair of damaged underground or above ground facilities and the quick restoration of services. The City is not liable for damages the contractor may have caused to private property.

3. Work shall not proceed beyond required inspections. The project shall be inspected under the direction of the City and constructed to the satisfaction of the City.

4. The contractor is responsible to notify Oregon Utilities Coordinating Council (OUCC) and to proceed with underground projects with the appropriate care necessary to avoid damage to underground facilities. The contractor shall pothole and verify the location of marked underground City utilities, their pipe sizes, valves, and etc., and meet all requirements of the OUCC document.

5. Right of way public works construction permits are required for projects that take place in City rights of way. The permit is current for 6 months with a one-time extension of 6 months. The extension request must be submitted in writing and before the expiration date.

6. One-year warranty bond equal to 10 percent of the value for the total public improvements that exceeded $5,000, for a period of one year, as required per BMC 17.80.090.

7. Developments that must install public utilities such as communication and electric facilities in the right of way or PUE must coordinate the installation of those facilities, such as conduits, junction boxes and poles with the appropriate utility company.

8. Contractor is responsible for all clean up of construction debris and excess excavation materials. All existing ditches, culverts, signposts, and similar items are to be left as found, or as specified by a contract or on the approved plans.

9. The temporary shut-down of water services and water mains requires prior notification. The contractor shall notify the City and all affected residents and businesses a minimum of 48 hours prior to the start of a service curtailment. The shut-down will be completed by City personnel only.

10. Contractor is required to keep his Oregon Construction Contractors Board (CCB) license current and a Brookings City business license is required per BMC 5.05.060.

11. The contractor is required to keep a set of approved plans, attached specifications, and permit available to the job site while work is being performed.

12. Any dig ticket underground utility location markings must be removed therefore it is recommended the locators use water soluble paint.

B. The City: will thoroughly review construction plans to assure that all correct materials, their locations, installation procedures and workmanship specifics, that are required, are shown on the plans or included as attachments. City will make available any special requirements pertinent to the project in attachments. When the plans have been deemed correct, work permits will be issued, in writing. City will furnish the contractor with contact information to several City personnel who are familiar with the project, and who will be available during normal City work hours. In addition, City has available a 24 hour emergency contact number for use in the event of an emergency. Also:

1. Although advanced notice for inspections have a 24 hour maximum time limit, City personnel will make every effort to perform inspections as soon as possible.

2. City will provide a right of way/public works construction permit and list of the required inspections pertinent to the project.

3. City is responsible for locating underground City infrastructure within the tolerances described in OUCC documents. City will provide surface marks indicating the location of undergrounded City infrastructure and the contractor shall perform pot-hole verifications. In the event City is not able to locate existing underground utilities from as-built plans or by other technical surface means, City will perform pothole investigation, mark, and provide actual location information to the contractor. The contractor may, at his discretion, expense, and risk, perform actual locate investigation. City shall not be held responsible for the inaccuracy of records that were not created by the City.

4. Upon successful completion of a final inspection the City will authorize new installations to be connected to City systems.

18.05.006 SUBSTITUTIONS

A. Alternate Materials, Equipment and Methods: Requests to substitute products specified by manufacturer or manufacturer's model number, use of alternate equipment or installation procedures as specified throughout this document shall be in writing and be accompanied with sufficient information to allow the City to identify the nature and scope of the request. Types of information to be provided shall include:

1. All submittal information required for the specified equipment, including all deviations from the specified requirements necessitated by the proposed substitution.

2. Materials of construction, including material specifications and references.

3. Performance data including performance curves and guaranteed power consumption, over the range of specified operating conditions.

4. Dimensional drawings, showing required access and clearances, including any changes to the work required to accommodate the proposed substitution.

5. Piping, process and instrumentation drawings, along with control descriptions where applicable.

6. Information and performance characteristics for all system components and ancillary devices to be furnished as a part of the proposed substitution.

7. If the substitution requires any mechanical, electrical, or structural changes, the contractor will be responsible for the costs of evaluating a requested substitution. The City will provide an estimate of costs associated with determining the evaluation of alternatives. The cost for such an evaluation will be determined on a case-by-case basis, after receipt of written request. The City will notify the contractor in writing of said cost. If the contractor wishes to proceed, they shall advise the City in writing and submit additional information as may be requested. The decision to allow a substitution must be made by the City.

18.05.007 GENERAL ENGINEERING REQUIREMENTS

A. Public improvement plans are required to be stamped by an Engineer licensed to perform Civil Engineering in the State of Oregon, and peer reviewed by the City Engineer in the following circumstances:

1. Developments that involve infrastructure and street additions or improvements in conjunction with the subdivision of land.

2. Construction on sites that are subject to the requirements of Chapter 17.100, "Hazardous Building Sites" of the BMC may require additional geologic, flood plain, drainage, erosion, and other professional assessments.

3. Developments that involve extensions of existing infrastructure.

4. Developments in areas where the existing infrastructure is undersized or incompatible.

B. At the time of the first review of a permit application by the Site Plan Committee, developments that are small or simple in nature, such as those that involve single-family residences may be exempted from these engineering requirements, peer review, or both. The applicant will be notified in writing within 10 working days of submission of plans. If peer approval is necessary, the letter will include a consent form authorizing City to peer review the project. Within 10 working days of receiving the signed authorization form from the applicant, the plans will be peer reviewed, and the applicant will be notified in writing of the final comments on the project. The fees for peer review are "actual cost" and must be paid before a permit shall be issued.

C. All engineered specifications and plans are required to meet or exceed the requirements of this document.

D. Inspection Required. Improvements shall be inspected by the City and if requested, by the engineer of record and constructed to the satisfaction of both parties. The City may require changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest. Sewer and water systems shall be approved by the city engineer, or his authorized designee, prior to final hookup.

18.05.008 PLAN SUBMITTAL

A. Preliminary Plan Review – Provide three (3) sets of legible preliminary plans and report as required to the City for initial plan review and comment. The City will provide a

plan review fee invoice to be paid before plan review comments are returned. The plan review fee is defined in the Master Fee Schedule. The City will provide plan check comments and direction on whether the plans are "approved as noted," "revise and resubmit," or "reject as incomplete."

B. Subsequent Plan Reviews – Provide three (3) revised plans and plan check comments with a response to all plan check comments.

C. Permit Issuance – After the City has approved the plan set, applicant shall submit five (5) sets of approved legible final construction plans and an engineer's estimate stamped and signed by the applicant's engineer. If the project did not require a licensed engineer, staff will provide a construction estimate based on current City bid results. City staff will calculate the construction permit and inspection fees based on the engineer's (or City's) estimate of construction costs, and provide an invoice for payment before permits are issued. Permit approval will include a public works right of way permit and approved plans. Approved permit and plans shall be valid for 1 year after City's approval date. Failure to execute substantial construction on the development or project within that time shall cause plan approval to expire and required a new permit and associated fees to be paid prior to commencement of work. The applicant may submit and obtain approval for a one-time extension of one year, in writing, prior to a normal expiration.

D. Plans showing new City facilities or repairs and maintenance of existing facilities must be placed on the Oregon State Plane Coordinate System, South Zone, North American Datum of 1983 (NAD 83), and elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD 88). Upon review by Site Plan Committee, projects that are small or simple in nature may be exempted from this requirement, and may be placed on assumed coordinates and elevations.

E. In addition to City of Brookings approval, other jurisdictions have authority over certain types of projects, and their approvals are also required. It is not feasible for the City to keep the documents of other jurisdictions current with this document. An applicant is advised that there may be requirements from Oregon Department of Human Services, Health Division, Oregon Department of Environmental Quality, other State and Federal regulatory agencies and Curry County Road Department not kept current in this document. City will make every effort to keep said agencies requirements current, on file and perform an advisory role to help an applicant obtain approval from other jurisdictions. The City of Brookings has obtained authority for plan review on water systems by the Oregon Department of Human Services, Health Division, which will permit local review of planned water improvements by the City. An additional fee for plan review will be assessed on each project for which this applies.

F. Construction Plan Requirements: Plans shall be submitted in a scale that allows for easy reading, but shall not be produced on paper larger than 24 inch by 36 inch. Vertical plans shall be drawn in an exaggerated vertical scale of 10 times the horizontal scale, and contain the following general information:

1. A vicinity map, north arrow and scale bar.

2. A title block that includes name and addresses of the applicant and/or his agent, sheet title and page number, and date and revision number.

3. A plannemetric map (bird's eye view) showing the location of all existing structures and facilities, and proposed facilities, both above and below ground within the project area. By example, but not limited to, show the right of way boundaries of adjacent streets, their edge of pavement and physical and actual centerlines, curb and gutter, and pedestrian facilities.

4. Topographic data in contours or spot elevations or both.

5. All existing and proposed easements not in rights-of-way that are pertinent to the project shall be shown on the plans.

6. When applicable, a centerline profile is required with typical stationing which indicates the location of any cross-section details.

7. When applicable, a below grade cross-section detail showing all proposed underground improvements and their relationship to existing underground utilities.

8. When applicable, cross section details showing proposed improvements such as curb gutter and above grounded utilities with spot elevations.

9. In order to achieve a matched layering affect, the various plan and profile views and cross-section details of water, sewer, storm water facilities and street improvements must be kept on the same scale and stationing throughout the plan sheets.

10. Electrical plans

   a. Shall show the location of all existing and proposed electrical utilities such as lines, transformers, pedestal-type connection points, conduit size and lengths, power source connections and street light circuits and controls.

   b. Location in trench section detail (including proposed telephone and/or television transmission lines). [Ord. 91-O-484 § 1(1A.07.e). Formerly 16.15.110.]

11. The drafted plans must clearly differentiate between on- site and off-site, existing and proposed improvements. Use diverse pen weights, shading, and line types, or draw the various improvements on separate sheets.

12. When applicable, a drainage plan showing changes in site run off/run on and any additions to the normal flows of the storm drain system is required.

G. Final as-built plans:

1. Within 60 days of project completion submit final plans showing all project information, as-built changes, a copy of newly recorded easements and include:

   a. One original map on 4-mil double mat Mylar, in archivable ink; and 2 paper copies on 20# bonded white paper.

   b. For those projects completed on computer software, submit electronic files in Autocad compatible ".dwg" or ".dxf" extension formats, copied to an archivable CD disk.

18.05.009 REIMBURSEMENT PROCEDURES

Whenever an original developer as defined in BMC Chapters 13.05.070, 13.10.280, 17.168 or 17.170 provides, pays for, installs, or causes an extension of services to be installed, BMC 17.168.020 (F) authorizes this document to establish a reimbursement procedure. As outlined herein, said developer shall be entitled to reimbursement of a portion of his approved costs for up to 10 years in accordance with the following criteria and procedures:

A. The original developer seeking reimbursement must submit, within 90 days of acceptance of said improvements by the City, an accounting of the actual costs in performing the off-site infrastructure improvements. Actual costs shall be reviewed by the City, which shall then determine the amount of "Approved Costs."

B. Upon the request of the original developer, City shall prepare a reimbursement agreement between City and developer whereby the original developer may recover those portions of the cost of the improvements through a special connection fee collected from other benefitting property owners. The maximum term of said agreement shall be 10 years after City Council approval.

C. City shall identify those properties that are or have a potential to benefit from the infrastructure improvements installed by the original developer, including the properties of the original developer. City shall prepare an analysis indicating how the approved costs would be allocated to all benefitting properties. Such analysis shall, generally, be in the same manner as the procedure used in determining benefit in the formation of a Local Improvement District, but may also include other factors such as parcel size, zoning and property characteristics. Said apportionments shall become a "special connection fee" appurtenant to the benefitting parcels which are not a part of the original development. Said special connection fee shall be collected at the same time as the City collects connection fees and System Development Charges from the identified parcels.

D. Special connection fees collected in accordance with this provision shall be remitted to the original developer within 60 days of receipt by the City. The actual cost to the City in determining the special connection fee cost allocation and in administering the agreement shall be deducted from the amount of reimbursement.

E. City Council approval of the reimbursement agreement is required.

END OF DIVISION

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Chapter 18.10
Division 2
Standard Construction Workmanship

18.10.001 CONSTRUCITON SITE EROSION AND SEDIMENT CONTROL

A. Depending upon topography, size, proximity to waterways, State and Federal regulations may apply, and relevant agency approvals must be obtained.

B. Projects that disturb more than an acre require a NPDES 1200-C permit from DEQ.

C. Discharge from dewatering operations shall not directly impact existing watercourses.

D. The contractor will implement Best Management Practices (BMPs) for protection of ground water and dust abatement. Turbidity shall not exceed 10 percent above natural stream turbidities as a result of any project. The turbidity standard may be exceeded for a limited duration, provided all practicable erosion control measures have been implemented, including, but not limited to:

1. Use of filter bags, sediment fences, silt curtains, leave strips or berms, placing mulch and hay bale silt fences, or other measures sufficient to prevent offsite movement of soil.

2. Use of an impervious material to cover stockpiles when unattended or during a rain event.

3. Graveled construction accesses to prevent movement of material offsite via construction vehicles.

4. Spreading mulch on exposed embankments greater than 3 feet in height.

5. Constricting hay bale silt fence at toe of embankments greater than 10 feet in height. Place bales at any locations where soil erosion potential is evident and as directed by the City.

6. Erosion control measures shall be maintained as necessary to ensure their continued effectiveness

7. Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter the water.

8. Refueling and storing equipment shall be on a non permeable surface or in a designated area and shall have a petroleum spill cleanup kit stored in the designated area.

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18.10.002 DUST ABATMENT

The contractor shall maintain all work areas reasonably free from dust. Methods of abatement such as sprinkling, chemical treatment, light bituminous treatment, or similar methods shall be used. Sprinkling must be repeated in intervals that keeps the ground damp at all times.

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18.10.003 CLEARING, GRADING, EXCAVATION AND GRUBBING

A. Contractor is responsible for removing and disposing of all vegetation. The following are considerations:

1. The contractor shall remove all cleared materials to approved disposal sites. In some instances burning is allowed. Burn permits are required.
2. All stumps, roots and other embedded wood shall be completely removed.
3. Any holes created shall be filled with a suitable material and compacted.
4. Safety barricades, covers and warning lights shall be implemented.
5. Land clearing in sensitive areas, such as, delineated wet lands is not allowed.

B. Grading, clearing and excavation of street rights-of-way and private property meeting the definition of BMC 17.100 shall be performed under the supervision of an engineer or geologist who is knowledgeable and skilled in the treatment of soils, soil stabilization, and soil erosion. Due consideration shall be given to the existing terrain, cross-slope and vegetation. City approved construction plans and a public works permit is required.

18.10.004 MULCHING

Seeded areas and mulched areas which become damaged shall be restored by the contractor to previous conditions.

18.10.005 FIELD CHANGES

During the normal progress of construction minor relocations of improvements or horizontal and vertical deviations may be necessary. City or other jurisdictions having authority must be notified and prior approval obtained. The applicants Engineer will be notified of any significant field changes for review and approval.

18.10.006 PUBLIC SAFETY AND CONVENIENCE

A. The contractor shall comply with all rules and regulations of City, County, State, and Federal authorities regarding the closing, detouring, and load limits of all public streets or highways. No road, public or private, shall be closed or detoured by the contractor except by permit from the City or other jurisdiction such as ODOT and the County. Traffic must be kept open on all roads and streets when no detour is possible. The contractor shall, at all times, perform his work assuring the least possible obstruction to traffic.

B. Access for Police, Fire, Postal, Ambulance, and School Bus Service. The contractor shall notify the Brookings Fire Department, Police Department and when applicable, the School and Postal Service before closing or portions thereof.

C. The contractor shall furnish, install and maintain suitable signs, lights, plating, barricades, fences or other protective measures to insure the safety of the public and construction crew.

D. Contractor shall coordinate the work with all local utilities, affected private property owners, and other affected public agencies.

E. School Crossing Supervision – Modified from Oregon Supplement to MUTCD Section 7E.05, adult cross guards shall use school flags. A STOP paddle is not permitted.

18.10.007 CONSTRUCTION SAFETY MEASURES

Contractor shall comply with all Oregon OSHA requirements.

18.10.008 COMPLIANCE WITH REGULATORY REQUIREMENTS

Contractor shall at all times observe and comply with all Federal and State laws and obtain all necessary permits prior to construction. Contractor shall have certification training in all applied fields of construction that is bid upon and assumes the responsibility. Contractors shall have a confined entry permit prior to entering a confined space when applicable. Contractor shall use shoring as necessary and shall bear all responsibility for trench safety. Contractor shall properly remove and dispose of all asbestos as required by the DEQ.

18.10.009 BARRICADES, WARNING SIGNS AND TRAFFIC CONTROL

Signs, flags, lights, and other warning and safety devices shall meet the ODOT requirements as outlined in "Temporary Traffic Control Handbook". In addition, depending on the length of time, the Federal "Manual on Uniform Traffic Control Devices" may apply.

18.10.010 SCHEDULING

Prior to issuance of a Public Works permit, the City shall review and approve an overall schedule for completion of the work and inspections. The contractor is expected to provide 48-hours notice prior to commencing construction and 24 hours for inspections.

18.10.011 RESTORATION AND SITE CLEANUP

Worksite shall be kept clean and orderly at all times and shall be free of excess material and rubbish. Restore all impacts to the original condition or better. Any use of heavy equipment in City right of way must use caution to avoid damages. Any and all damages must be mitigated.

18.10.012 PROTECT IN PLACE

All existing improvements, utilities, and properties both inside and outside the public right of way, surface and subsurface shall be protected from damages by the contractor.

END OF DIVISION

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Chapter 18.15
Division 3
Road and Earthwork

18.15.001 GENERAL

A. Earthwork is defined herein as road work, surface and subsurface excavation and backfill in the public right of way or easement dedicated to the City or earthwork associated with grading for new development.

B. Aggregate base is defined herein as crushed rock import used for backfilling subgrades capable of passing through a defined screen size and provides a structural element to the backfill.

C. If unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas of compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage.

D. Shoring, sheeting and bracing is required per Oregon OSHA Standards.

18.15.002 EXCAVATIONS AND BACKFILL REQUIREMENTS

A. Definitions:

1. 95% compaction backfill standard is defined as backfill materials or soils densified to a 95 % "maximum density" when tested in accordance to AASHTO method T-99 (Standard Proctor). Compaction equipment shall be utilized in fills in layers not to exceed 12 inches. The burden of proof of meeting compaction requirements is placed on the contractor. If the City requires additional compaction tests and those tests fail, the contractor is responsible for the costs of the tests. If those compaction tests pass, the City shall pay for the tests.

2. Subsurface investigation is defined as physical efforts to bore and/or pothole to determine the underlying soil type and conditions. A geotechnical engineer and/or Proctor test is required when there is a question on the characteristics of the subsurface for compaction.

B. Excavations/types:

1. Surface:

   a. Pavement removal and replacement: Trenches placed in existing paved streets shall provide for a "T" type patch per standard detail number 3.10. This will require an initial and final sawcut just prior to paving.

   b. Curb removal. Curbs shall be sawcut through their full thickness and removed. If the adjacent panel is broken, replace the entire panel.

   c. Sidewalk removal shall include replacement of the panel between control joints. If the adjacent panel is broken, replace the entire panel.

   d. Land clearing and grubbing. Removal of vegetation shall comply with Division 2 Section 3 of the Standards and Specifications.

2. Subsurface:

   a. Trench excavation is defined as any man made cut required for undergrounding of infrastructure, repair, or maintenance of utilities. The trench width must provide a clear working space of 6 inches on each side of the pipe for pipes 4 inches in diameter and larger.

   b. Potholing of existing utilities is required to verify location, material, and size prior to trench excavation. Potholing is required for all critical and conflicting infrastructure, such as high pressure water mains, sewer interceptors, gas mains, and other utilities that must be protected in place.

   c. Foundation stabilization excavation is removal of additional subgrade soil that in the opinion of the Engineer is structurally unsound to use as subgrade. This is determined by the Proctor test or field inspection such that the backfill is unable to compact consistently and evenly. These soils are usually high in clay and/or organic content and are not able to compact to 95% compaction as measured in the Proctor Test.

   d. Rock excavation is determined by the City when an excavator of the 44,000 pound class, such as Caterpillar 320D L, or equivalent equipment, is unable to excavate the site and requires drilling. Blasting is prohibited.

C. Backfills

1. Definitions:

   a. Class I and II backfill is defined as native material excavated from within the limits of the project, free from vegetation or materials that interfere with compaction and have a maximum particle size of 3 inches. To be approved for trench backfill, these native materials must meet the desired characteristics for surface loading for that location and be capable of field compaction per Table A herein.

   b. Class III backfill is defined as ¾ inch minus or 1½ inch minus crushed rock that conforms to the requirements of Section 02630 of the ODOT/ APWA Standard Specifications for Construction, except 70 percent of the particles, by weight, shall have at least one mechanically fractured face based on grading requirements of the section. The fracture requirements shall be applicable uniformly through the grading materials involved. (All gravel sizing shall have fracture faces applicable by screen sizes to the 70% level). In section 02630.10(c) the sediment height requirements shall be 3½ inch maximum.

   c. Class IV, Controlled Low Strength Material (CLSM) slurry backfill is a highly fluid lean concrete mix of fly ash or slag, Portland cement, fine aggregates and water which results in a dense, non-settling fill, when cured, that can be later broken with hand tools. CLSM shall conform to Section 00442 of the current version of ODOT/APWA Standard Specification for Construction, modified in the following manner: Class IV subgrade must be able to be remove with a hand tool.

d. Road embankment is defined herein as backfill required for the structural integrity of a road. Contractor must submit stamped geotechnical or civil engineering plans for approval of any road embankment work and is subject to regulatory approval when near a waterway.

e. Foundation Stabilization backfill is a granular material used to stabilize the bottom of a roadway subgrade or pipe trench below the pipe zone. The material shall be 2 inch minus crushed rock conforming to ODOT standards 2630 excepting the sediment height requirements shall be "3.5 inch maximum." Any geotextile/geosynthetic fabric installation must comply with ODOT Standard Specifications for Construction Section 02320.

f. For trench depths less than 30 inches in roadways, Class IV slurry backfill must be used.

g. Reclaimed rock and asphalt backfill may be used in place of Class III backfill under the following conditions;

   i. No fragments shall be larger than 1½ inch.

   ii. The crushed reclaimed rock and AC mix shall not contain more than 25% of reclaimed AC by volume and must be blended well. The rock must be clean, hard and durable. The Inspector shall field verify the crushed mix is well blended prior to replacement and may reject any loads delivered that do not appear to be well blended.

   iii. This material will require its own proctor testing to determine compaction requirements and structural viability.

   iv. The Inspector reserves the right to terminate the use of this material if these conditions are not met or the proctor test confirms the lack of structural integrity.

D. Roadway and Subgrade Backfill Requirements

1. Utility Trench

   a. Top leveling rock. Aggregate base ¾ inch minus crushed rock conforming to the requirements for aggregate base as specified in Section 02630 of the ODOT standards 2 inch minimum depth in roadway. In some instances other 3/4-inch or minus material, such as recycled asphaltic pavement, can be used subject to City approval.

   b. Roadway base course beneath the top leveling rock within the right of way shall be compacted to achieve a depth of at least 4 inches of 1½-inch or minus crushed rock confirming to ODOT standard 2630. Aggregate base shall be placed and compacted in maximum of 6-inch lifts.

   c. Trench backfill within paved areas (new and existing) shall be Class III backfill aggregate base consisting of ¾-inch or 1-inch minus crushed rock and conforming to the requirements for base aggregates in Section 02630.10 of the 2015 ODOT Standard Specifications for Construction except in Section 02630.10 (c) Sediment height requirements shall be "3.5 inch maximum."

d. Native soils may be used for backfilling trenches between the roadway base and pipe zone or outside of roadways if approved by engineer providing they can meet compaction requirements (standard proctor 95%) and shall be free of deleterious and organic materials.

e. Pipe Zone - Bedding material placed in the pipe zone shall be ¾ inch minus, 5/8 natural or washed sand to the extent of the pipe zone. The pipe zone is defined as the full width of the trench from within 6 inches below the pipe to 6 inches above the pipe barrel.

f. Foundation stabilization zone as previously defined herein.

g. Geosynthetic/geotextile fabric shall be considered for installation on a case by case basis.

h. The City inspector has the discretion to require the Contractor to provide a proctor test when there is a question on the subgrade compaction. If the results of the test prove that the compaction satisfies Table 3.1 as follows, the City will be required to reimburse the Contractor for the costs of the proctor test.

TABLE 3.1
FILL AND BACKFILL CLASSIFICATION

Backfill type	Max. lift depth (inches)	Min. Relative Modified Proctor Dry Density %
Foundation stabilization	12	NA
Pipe Zone (bedding)	6	95
Pipe Zone (above bedding)	6	90
Class I and II trench backfill	8	93
Class III trench backfill	12	93
Class IV trench backfill	NA	NA

2. Curb, sidewalk and catch basins

   a. Aggregate base 3/4-inch minus crushed rock conforming to the requirements for aggregate base as specified as top leveling rock herein or ODOT standard 02630.

3. Manholes

   a. Poured in place base – Subgrade shall be native material compacted to a minimum of 90% compaction or foundation stabilization if determined necessary by the City.

   b. Prefabricated base – Subgrade shall be Class III compacted to 90% and leveled.

E. Workmanship

1. Contractor to notify the City 24 hours prior to placement of subgrade.

2. Final grades shall be within a 0.5-inch tolerance, any drainage impacts due to altered grades are the responsibility of the contractor.

3. Cleanup. All materials and soils are to be disposed of or recycled from the construction site and adjacent areas in a timely manner. Disposal of all waste materials shall conform to all laws, regulations, and ordinances.

18.15.003 ROADWORK

A. Asphalt Concrete (AC) Pavement

1. General

   a. Depth of AC determined by, existing road conditions, and traffic conditions on roadway. Minimum 3 inch AC installed in one lift and 4 AC depth installed in two, 2-inch lifts.

   b. Contractor shall provide mix design and load tickets for review and approval by the City Inspector.

   c. Materials

      i. Asphalt concrete shall be ½ inch Dense Graded Mix (formerly called Class C) conforming to Section 00745 of the ODOT Standard Specifications for Construction. For a typical street, a Level 2 Hot Mix Asphaltic Concrete (HMAC) shall be utilized. Projects with heavy commercial or industrial traffic may require the use of Level 3 HMAC at the discretion of the City.

      ii. Asphalt tack coat shall conform to Section 00730.11 of the ODOT Standards and Specifications. Application shall be applied at 0.05 residual gallons per sq yd or at a 1:1 diluted tack application rate of 0.06 – 0.12 gal/sq yd. application. The tack amount should not be too thick (no pooling) and the surface should be coated evenly and lightly.

2. Workmanship

   a. Minimum AC temperature at the time of placement shall be 250° F and shall not be placed when the ambient temperature is below 50° F.

   b. Weather conditions – AC to be installed in favorable weather conditions for curing and meeting compaction requirements as defined by the City.

   c. Surfacing of the AC after compaction shall be smooth and true to established cross section and grade. There shall be no sign of roller marks, loose or broken surface, and when compacted shall conform to the existing grades.

   d. Do not leave subsurface exposed to traffic. Temporary measures shall be made for roadway surfaces by installing cold patching or plating an open trench or temporary backfill with compacted gravel flush with grade.

3. Compaction and Lifts
    a. Shall be at least 92 percent as determined by AASHTO T-230 for each lift. Additional lifts shall not be placed on top of a lift that has not yet met the recommended compaction level.
    b. Lifts shall not exceed a compacted depth of three (3) inches.
4. Testing
    a. The City will use discretion to determine if laboratory and field testing will be required. If the testing results conclude that the AC composition or installation does not meet standards, the contractor is responsible for all testing charges and shall remove and replace the AC to standard.

B. Seal Coat
1. General. A seal coat is designed to seal and protect asphalt pavements.
    a. Armor Seal Heavy Duty Pavement Sealer #A-100 ASTM D-2397 and AASHTO M208, 10 pounds per gallon, dark black color when dry, homogenous uniformity or City approved equal.
    b. Wet track abrasion test 15.9 gm per sq ft.
    c. Application
        i. Prior to seal coat, tack seal all cracks
        ii. Prior to sealing, asphalt must be thoroughly cleaned and contain no loose debris and dry.
        iii. Do not install in temperatures below 65 deg F
        iv. Do not apply if rain is expected within 24 hours.
        v. Recommend cure of 12-24 hours.
        vi. 2 coats minimum required with at 40-60 sq ft/gallon application rate.
        vii. Protection shall be provided for manhole covers, catch basins inlets, and gutter flowlines.

C. Tack coat/seal
1. Install at contact surfaces of manholes, catch basins, gutters and existing pavements. Do not place on wet surfaces.
2. Install at joints between the existing and the new AC pavement.

D. Striping
1. General
    a. Materials
        i. Thermoplastic shall be suitable for asphalt or concrete applications. Apply in accordance with Section 00850 of the current edition of ODOT/APWA Standard Specifications for Construction.

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ii. Apply at a temperature of 400 – 500 deg F. Minimum drying time shall be 10 minutes based on a minimum 50 deg F ambient temperature and slight wind.

iii. Rapid Dry Paint. To prevent motorists from driving through and tracking wet paint, traffic control shall be installed and maintained until the paint is completely dry. Paint shall be Ennis-Flint, a Traffic Safety Solutions Company at 1-800-331-8118 or approved equal.

2. Crosswalks and stop bars shall be 12 inches wide.
3. Centerline, traffic lanes, bike lanes, and parking lanes shall be 4 inches wide.
4. ADA per current building code and standard details 3.15 and 3.16.
5. School crossings per current MUTCD.
6. Workmanship
   a. The pavement surface shall be free of dirt, grease, moisture, and other foreign material prior to placement of striping and pavement markers. Air blast the pavement with an acceptable high-pressure system to remove loose or foreign material.
   b. Limits of striping shall comply with the area disturbed by construction.
   c. Centerline striping shall be Rapid Dry Traffic Rated Paint only with reflective bead.

END OF DIVISION

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Chapter 18.20
Division 4
Utilities

18.20.001 DEFINITIONS

A. This section contains specifications for water, sewer and storm drain material and installation requirements.

18.20.002 GENERAL

A. As determined by the City, the City may require parts and material submittals prior to issuance of a Public Works construction permit.

B. Civil engineering plans will be required unless determined by the City that the improvements are minor and pose no risk for damages or safety.

C. All domestic water system designs and construction shall be in accordance with OAR 333-061-0050, Department of Human Services Health Division and as supplemented here.

D. All sanitary sewer design and construction shall be in conjunction with OAR 340-52 and Oregon Department of Environmental Quality "Sanitary Sewer Design Notes" and as supplemented here.

E. All projects impacting storm water surface run-off shall be directed to the Oregon Department of Environmental Quality 1200-C permit for applicability.

F. Refer to the applicable ASTM and AWWA standards for detailed specifications on pipe materials.

G. This document sites manufacturers' materials that are commonly stocked by suppliers in Southern Oregon.

H. Alternative materials will be considered by submittal and is outlined in Division 1 18.05.006.

I. All parts and materials shall be new and unused.

J. Any poured in place concrete shall be in accordance with Division 5 Concrete Specifications unless otherwise specified herein.

K. All materials shall be installed according to manufacturer's recommendations.

L. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken or otherwise defective materials are used. Prevent foreign material from entering the pipe while it is being placed in the trench. Remove all foreign material from the inside of the pipe and joint before the next pipe is placed. Clean ends of pipe thoroughly. Keep debris, tools, rags or other materials out of the pipes at all times. Follow pipe laying operations closely with joint coating operations as required and backfilling of trenches as specified in Division 3 of these Specifications.

M. Joint deflection and pipe bending for radial curvature shall not exceed the manufacturer recommendations.

N. Do not drop or dump pipe into trenches.

O. Refer to Division 3 herein for subgrade requirements.

P. Deviation from alignment on plans must be approved by the City.

Q. Provide concrete thrust blocking in accordance with the standard details at the end of these specifications. Allow concrete to cure to needed strength prior to charging the main.

R. Tracing wire is not required for gravity sewer and storm drain installations if the lines where bore sighted.

S. Prior to shutdown of any water main public notification, proper measurements of outside diameter, approved fittings and materials, and verification adequate staffing shall be available to construct the improvements shall be demonstrated to the City.

T. Any buried pipe installed less than 30 inches deep in the roadbed will require Class IV slurry backfill per Division 3 herein.

U. Roping/bending pipe shall be by the City engineer's approval and will require the Contractor to prove that the installation meets manufacturer's deflection recommendations or shall use fittings. The burden of proof is the responsibility of the Contractor and may require the Contractor to hire a surveyor.

V. A City Inspector must approve pipe installation and backfill prior to backfill. If backfill occurs prior to city inspection, Contractor will be required to expose the installation.

W. A DEQ asbestos notification form must be submitted by Contractor five (5) days prior to removing and disposing of any materials containing asbestos. Proof of proper disposal is required.

X. Safety training for known hazards must be performed by Contractor for all those working at the site.

Table 4.1 Piping Schedule
Allowable Piping Materials for the City of Brookings Utility Construction

Type		Application	Size	Material	Specification	Interior surface or coating	Pipe end
Storm Drain	Gravity	Main	All	HDPE	ADS N-12, WT	Corrugated outside, inside smooth	Push on gasket
	-	Main	4"-15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
	-	Main	18" and greater	PVC	SDR 35, T-1 thickness ASTM F-679	NA	Push on gasket ASTM F-477
		Main	All sizes	Aluminized steel	Type 2 AASHTO M-274 971	Corrugated metal	
	-	Main	18" and under	Concrete	Class 3 reinforced ASTM C-76	NA	ASTM C443/ AASTO M198
	-	Main	21" and larger	Concrete	Class 3 reinforced ASTM C 76-74	NA	ASTM C443/ AASTO M198
	-	Laterals	2"	PVC	Not used, smallest size 4"	NA	NA
	-	Laterals	4" -15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
Sewer	Gravity	Main	4"-15"	PVC	SDR 35, ASTM D-3034	NA	Push on gasket
	-	Main	18" and greater	PVC	SDR 35, T-1 thickness ASTM F-679	NA	Push on gasket ASTM F-477
	-	Lateral	4"	PVC	SDR 35, ASTM D-3034	NA	Insert a tee
	Pressure	Main	4" - 12"	PVC	AWWA C-900, DR 18, CL-150	NA	MJ Fitting, Bell and Spigot Main Connection
	-	Main	> 12"	PVC	AWWA C-905, DR-18, CL-235	NA	MJ Fitting, Bell and Spigot Main Connection
Water	Pressure	Lateral	3/4" and 1"	Polyethylene	Pressure class 200, IP Sized, HDPE	NA	IP compression
		Lateral	2"	PVC	Schedule 40	NA	Glued
		Main or Lateral	4" - 12"	PVC	AWWA C-900, DR 18, CL-150	NA	MJ Fitting, Bell and Spigot Main Connection
		Main	> 12"	PVC	AWWA C-905, DR-18, CL-235	NA	MJ Fitting, Bell and Spigot Main Connection
		Main	4-12"	DI	CL 52	Cement lined	Flg, MJ, or push on
		Main	Any	HDPE	Upon special consideration	NA	Fusion
		Air Vac assembly	2"	Brass	CL 125 ANSI/ASME B16.15	NA	Threaded nipple per ASTM B687-88

18.20.003 STORM DRAIN

A. General

1. Design Consideration

a. Pipe material and size is dictated by depth of pipe, slope, hydrological and geological conditions and type of pipe and size selected shall be approved by the City. Hydraulic and hydrology calculations signed by a registered civil engineer may be required.

b. Evaluate pre and post development storm water runoff conditions for a 25 year – 24 hour storm event and overland escape route. Site committee will determine whether downstream facilities are adequate for any additional run-off. If deemed inadequate, an engineered detention system or engineered downstream improvement will be required to mitigate the effects of the additional storm water impact from the project.

B. Materials

1. Main Line Pipe

a. Polyvinyl Chloride Pipe (PVC)

i. Small diameter Main (under 15 inches) shall be SDR 35 conforming to ASTM D-3034.

ii. Large Diameter (18 inches and greater) shall be SDR 35, T-1 wall thickness with elastomeric gasket seals conforming to ASTM F-477.

iii. Gasket shall be an integral bell gasketed watertight joint in accordance with ASTM F-1803.

b. Corrugated High Density Polyethylene (HDPE) Pipe shall be ADS N-12 HDPE series 65 (smooth interior wall) as manufactured by Advanced Drainage Systems, Inc., or Hi-Q as manufactured by Hancor for pipe sizes 8 through 36 inches or City approved equal.

i. New installation – all new ADS N-12 pipe installation shall be constructed with push on water tight, gasket connections.

ii. Connection to existing ADS N-12 HDPE – when tying into existing ADS N-12 pipe with a new storm drain connection, install an Inserta Tee fitting.

iii. Couplings shall be corrugated to match the pipe corrugations, and the width shall be not less than 1/2 the nominal diameter of the pipe and shall engage an equal number of corrugations on each side of the pipe joint.

iv. Shall meet the requirements of high density polyethylene pipe requirements of AASHTO M252 and M294. Smooth interior coat required.

c. Concrete Pipe and Fittings

i. Required for pipe depths exceeding the recommended loading for plastic pipe.

ii. 18 inches and under shall be Class 3 reinforced pipe that conforms to ASTM C 76.

iii. 21 inches and larger pipe shall be Class 3 reinforced pipe that conforms to ASTM C 76-74

iv. All concrete pipe shall have rubber ring joints in accordance with ASTM C443/AASHTO M198 "Joints for Circular Concrete Sewer and Culvert Pipe."

2. Corrugated Metal Pipe and fittings.

a. Corrugated Metal Pipe and fittings shall be round Aluminized Steel, Type 2 and shall meet the requirements of AASHTO M-274 971. Pipe and fittings shall be from the same manufacturer. Material thickness shall be 0.079 inch (14 gauge).

b. Pipe end connections shall be with manufacturer's joint strap/band that provides full 360 degree contact. Band couplers shall have a full annular corrugation at each end to prevent sliding and pulling apart. Joints shall have rubber "0" rings or neoprene strip gaskets providing watertight seal.

c. Aluminized Steel Pipe Type 2 by Contech, AK or City approved equal.

3. Laterals

a. Storm drain laterals shall be a minimum diameter of 4 inches.

b. Pipe material shall be PVC SDR 35, ASTM 3034.

c. New City owned lateral connections from catch basins are 12 inch minimum. Catch basin lateral connections shall include a manhole at the connection point to the new main.

d. New lateral connections less than 12 inches are private connections to existing gravity mains. Contractor may use Inserta Tee fitting or cut in tee that does not require a manhole.

4. Appurtenances

a. Catch basin

i. Shall be precast units manufactured by Advantage Precast, Keizer, OR.

ii. Type – Application depends on drainage characteristics. Use a Type 2 catch basin for steeper slopes and a curb drain inlet for areas with less slope.

1) Type 2 Catch Basin Double Grate per standard detail.

a. Grate shall fit standard ODOT G2 box.

2) Curb inlet per standard detail.

b. Manhole Lids and Catch Basin Access ways shall be slotted cover Olympic Foundry H-20 loading, Model MH-26 G, with lettering "SD".

C. Testing - Testing of storm drain facilities shall be through visual inspection, flushing of the line and verification with CCTV. Since there is no formal testing for gravity flow drainage facilities, special attention will be paid to workmanship and adherence of manufacturer installation requirements.

18.20.004 SANITARY SEWER

A. Gravity

1. Polyvinyl Chloride (PVC) Pipe

   a. Small diameter Main (under 15 inches) shall be SDR 35 conforming to ASTM D-3034.

   b. Large Diameter (18 inches and greater) shall be SDR 35, T-1 wall thickness with elastomeric gasket seals conforming to ASTM F-477.

   c. Gasket shall be an integral bell gasketed water tight joint in accordance with ASTM F-1803.

   d. Toning wire is required when pipe is installed with deflecting joints or "roping" pipe and when the pipe cannot be bore sited.

2. Fittings

   a. Flexible couplings for connecting PVC to existing concrete service lateral piping, shall be Fernco Series 1006.

   b. Flexible couplings for connecting PVC to existing asbestos cement service lateral piping, shall be Fernco Series 1051.

   c. Flexible couplings for lateral connections shall be of the appropriate Fernco Series 1006.

   d. Provide wyes for all cleanouts.

   e. End plugs to be installed for service laterals, sanitary sewer main stubs from manholes and wye fittings of cleanouts.

3. Laterals – refer to Standard Detail 4.11.

   a. Existing sewer – Romac Tapping Saddle Style CB, sized for connecting pipe diameter. Stainless steel strap and bolts.

   b. In new installations; service laterals shall only be made through a wye fitting per Standard Detail 4.11.

   c. Service lateral connections to existing systems shall use a standard (4 inch) saddle truss type connector for each residence (IDU), and shall be placed a minimum of 18 inches apart.

   d. In the event a service lateral is to be abandoned, it must be removed and capped (plugged) at its connection point to the main.

e. Tee-wye shall not be closer than 12 inches to any joint or bell of main line sewer main, which is 12 inches or less in diameter.

f. Provide ends of all service laterals or fittings with approved watertight end plugs, suitably braced to prevent blow-off during internal air testing.

g. Provide accurate horizontal and vertical measurements of new sewer service lateral inverts on as-builts.

4. Testing

a. General. Prior to final inspection the system must be flushed clean which includes manholes. The contractor is responsible for everything necessary to flush the system clean. It is permissible to use City fire hydrants for this purpose. Testing is performed after each section to be tested is (inspected), backfilled and compacted. DEQ requirements must be met. The project engineer is responsible to obtain the correct DEQ documents, perform the test, and submit the completed test results to DEQ. The City must be notified prior to the test and shall be present to witness the tests.

b. Air Test

i. All gravity sanitary sewers including service laterals shall successfully pass a low pressure air test prior to acceptance and shall be free of leakage. Test first section of pipe laid, as hereinafter specified, to establish that the pipe material is capable of preventing infiltration and that the sanitary sewer mains are being installed to insure that infiltration of ground water will not exceed the amount set forth. Section of pipe tested shall be at least 300 feet in length. If test indicates infiltration exceeding amount specified, defective material or workmanship shall be corrected and test will be rerun until leakage is within the amount specified. Manholes shall be tested as specified in 18.20.005.D.1 herein.

ii. Place all air testing equipment above ground and allow no one to enter a manhole or trench where a plugged sewer is under pressure. Release all pressure before the plugs are removed. Testing equipment used must include a pressure relief valve designed to relieve pressure in the sewer under test at 10 psi or less and must allow continuous monitoring of test pressures in order to avoid excessive pressure. Use care to avoid the flooding of the air inlet by infiltrated ground water. (Inject the air at the upper plug if possible.) Use only qualified personnel to conduct the test.

iii. Contractor to perform air test prior to backfilling.

Table 4.2
DURATION AIR TEST PRESSURE DROP

Pipe Diameter (in.)	Minimum Time (Min: Sec)	Length for Minimum Time (Ft.)	Time for Longer Length (Sec.)
4	2:00	597	0.190 L
6	3:00	398	0.429 L
8	4:00	298	0.760 L
10	5:00	239	1.187 L
12	6:00	199	1.709 L
15	7:00	159	2.671 L
18	8:30	133	3.846 L
21	10:00	114	5.235 L
24	11:30	99	6.837 L
27	13:00	88	8.653 L
30	14:30	80	10.683 L

c. TV Test required for new subdivisions or pipe extensions exceeding 100 feet. Contractor shall conduct an internal television inspection of all installed mainline sewers and service laterals to the property line, with a movable eye internal camera that permits investigation of each lateral connection to the mainline. Lines shall be evaluated for compliance with Standard Specifications. Contractor shall provide a complete color copy to City for review in electronic video/digital format. Inspection shall be conducted by a City approved, licensed and bonded technical service, which is equipped to make an audio-visual record. A voice accounting of suspected deficiencies shall be made on the sound track. Inspection firm shall provide the City with written record of any problems noted, on a form approved by the City staff, with stationing and any noted concerns for needed corrective action. Video/digital report and written report shall be submitted to the City, and will become property of the City. If defects are noted in the television inspection, repairs shall be conducted to eliminate defects, and lines shall have a new television inspection provided under identical circumstances until all noted deficiencies are corrected. All costs shall be at developer's expense.

d. Mandrel Test. The Mandrel Test is conducted by pulling the test device through a completed sewer run from manhole to manhole. If the Mandrel gets caught in the pipe and cannot be pulled from manhole to manhole in a straight pass, then the line will fail the Mandrel Test. This test is required for all sewer main construction. Mandrel shall be the appropriate size for the pipe to be inspected.

5. Workmanship

a. Minimum slope is 0.5%. Pipe design size shall be for optimum cleaning velocity.

b. Pipe to be installed with spigot end in the direction of flow. Take care to properly align the pipe before push on joints are connected.

B. Force Main

1. General

a. All pipe shall have a 150 psi minimum working pressure.

2. Polyvinyl Chloride Pipe (PVC)

a. There is no reference to pipe materials less than 4 inches since it is unlikely a City maintained force main would be less than 4 inches. Private force mains shall comply with the UPC.

b. 4 inches to 12 inches diameter shall be AWWA C-900, DR 18, Class 150 and conforming to the outer diameter of cast iron pipe.

c. Greater than 12 inches shall be incompliance with AWWA C-905, DR-18, Class 235.

3. HDPE will be considered on a case by case basis and upon approval by the City Engineer.

4. Restraints

a. Thrust blocks; see detail 4.52.

b. Mechanical Joint Fittings used with ductile iron and C900 PVC pipe shall conform to ANSI/AWWA C-110/A21.10 and ANSI/AWWA C-111/A21.11, or ANSI/AWWA C-153/A21.53.

c. Ductile iron fittings are not required to be cement mortar lined for force main sewer applications.

d. Joint restraints required on vertical and horizontal bends and fittings shall be manufactured of high strength ductile iron ASTM A536, Grade 65-45-12.

i. Foster Adapter shall be manufactured by Infact Corporation, epoxy coated with stainless trim or City approved equal.

ii. PVC Pipe restrainers shall be EBBA Megalug Series 2000, epoxy coated with stainless trim or City approved equal.

e. Testing

i. Please refer to potable water section for testing requirements.

C. Appurtenances

1. Manhole

a. Manhole connectors shall be KOR-N-SEAL® as manufactured by NPC Inc., Milford, NH or City approved equal. Install per manufacturers installation instructions.

b. Provide tees for drop manholes.

c. Manholes shall be formed as shown in construction details 4.13-4.15.

2. Cleanouts

   a. Sewer service lateral cleanouts shall be located in the right of way adjacent to property line. Refer to detail 4.11 herein.

   b. Lateral cleanouts or main line cleanouts installed in traffic areas shall have a Christy G-5 box with a traffic rated lid stamped sewer and a concrete collar per detail 4.11.

   c. Lateral cleanouts and mainline cleanouts in non traffic areas shall have a Christy F08 box and concrete lide marked sewer, no concrete collar is required.

3. Fittings

   a. All fittings shall be of the same materials as the pipe unless otherwise specified.

   b. Elbows to be installed for cleanouts.

   c. Flex couplings for connecting PVC to existing concrete service lateral piping shall be Fernco Series 1051.

   d. Flex coupling for connecting PVC to existing asbestos cement service lateral piping shall be Fernco Series 1051.

18.20.005 MANHOLE REQUIREMENTS (SEWER AND STORM DRAIN)

A. General

1. Refer to storm drain section 18.20.003, the sanitary sewer section 18.20.004, and details 4.13-4.15 for particular requirements for storm and/or sewer manholes.

2. Where a full section of pipe is laid through a manhole, cut out the top section to the full width of pipe and diameter of manhole. Cover exposed edges of pipe completely with mortar.

B. Design criteria

1. Manholes shall be installed preferably every 400 feet but no greater distance than 500 feet.

2. All manholes shall be concentric type unless approved by the City.

3. Refer to Division 3, "Road and Earthwork" for subgrade information.

4. Manhole diameters shall be in accordance with the following:

Table 4.3 - Manhole Sizes

Pipe Diameter	Manhole Diameter
6" – 18"	48"
21" - 42"	60"
48" – 54"	72"
Greater than 54"	Engineered vault

Manhole Inside Diameter	45° Deflection Maximum Size of Pipe	90° Deflection Maximum Size of Pipe
48 inches	24 inches	18 inches
60 inches	36 inches	27 inches
72 inches	42 inches	30 inches
84 inches	48 inches	36 inches
96 inches	60 inches	42 inches

Minimum diameter of precast manholes for maximum pipe size.
Any alternatives shall be preapproved by the City.

C. Types

1. Poured in place manhole base

   a. Construction of a poured in place manhole base requires formwork. Forms for exposed surface shall be steel, plywood or other approved material. Trench walls, large rock or earth is not an approved form material.

   b. Portland Cement concrete shall conform to ASTM C-94, Type II. Compressive strength for bases shall not be less than 3,000 psi for 28 days. Maximum aggregate size shall be 1½ inch with no more than a 5 inch slump. Poured in place concrete manhole base shall be 8 inch minimum and 12 inch maximum thickness.

2. Precast manhole

   a. Contractor to provide factory submittal verifying that the manhole complies with ASTM C-478.

      i. Minimum wall thickness is 5 inches. Cones shall have the same thickness and reinforcement as manhole sections.

      ii. Keylock joints grouted and sealed tight with jointing material described herein.

      iii. Jointing materials

         1) Mortar – shall conform to ASTM C-387 and adhere to the concrete and comprise of one part Portland Cement to two–parts clean Mason's sand passing a 1/8 inch screen.

         2) Ram-Nek or Kent-Seal shall be installed at all jointing sections or City approved equal.

      iv. Grade rings

         1) General. Install to the subgrade as indicated in the standard details.

         2) Height. New construction of manholes will have a grade ring no greater than 6 inches height. Existing manholes brought to grade shall not have greater than 18 inches of grade rings. If greater than 18 inches, Contractor will replace the barrel.

         3) Installation shall be plumb.

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b. Frame, Cover and Collar

i. Set frames in concrete collar with collar being 12 inches wide, rectangular or circular, and a minimum of 6 inch depth. Allow for 2 inch AC lift to grade and tack to manhole cover.

ii. Traffic rated to H-20 loading.

iii. The bearing seat shall not rock when checked with a testing jig.

iv. Manhole frames and covers shall be Olympic Foundry Co., Inc., Part Number MH26S with "S" for sewer and "SD" for storm drain on lid or EJ equivalent.

v. Manhole paving risers shall be Olympic Co. Inc., Part Number MH26R.

c. Manhole Connector

i. A flexible manhole connector shall be installed for precast storm and sewer manholes.

ii. The connector shall be KOR-N-SEAL or City approved equivalent.

d. Manhole Stubouts

i. Existing stubouts shall be sealed at main line with a "T" cone expandable plug connection by Specialty Products, Inc. or City approved equal.

3. High Density Polyethylene (HDPE) Manholes with a maximum height of 12 feet and an outside diameter of 48 inches may be used in place of precast concrete manholes as approved by the City Engineer and considered on a case by case basis. HDPE manhole shall be white in color on the inside. Must provide engineering calculations showing that HDPE manhole will not float.

D. Testing

1. Vacuum test

a. General. All manholes shall be vacuum tested that consists of plugging all inlets and outlets and applying a 5 psi or 10 inch Hg vacuum to the manhole. The allowable vacuum pressure loss shall not exceed 1 psi or 2 inches Hg for the time period stated below.

Table 4.4 - Vacuum Test

Depth of Manhole (ft.)	Duration (sec) required for manhole diameters	
	48"	60"
8	20	26
10	25	33
12	30	39
14	35	46
16	40	52
18	45	59
20	50	65
22	55	72

E. Toning Wire and Tape

1. Toning wire shall be No. 12 AWG, solid copper with green colored insulation. Only installed on sewer pressure force mains, clean outs and laterals. Toning wire shall have a continuous connection thru all adjoining sections. Use appropriate connectors as necessary. See 18.20.006.A.3.h.iv.2 for detailed specifications.

2. Underground warning tape shall be 6 inches wide, APWA standard green color, reading "Caution – Sewerline Buried Below."

3. Workmanship

a. Wire and tape shall be buried the entire length of trench and placed above pipe per standard trench detail drawing.

b. Tape shall be placed over the pipe zone, approximately 12 inches above top of installed pipe and approximately 12 inches below finished grade. Tape shall lay flat and untwisted.

c. Wire shall be brought towards the surface of cleanout.

18.20.006 POTABLE WATER

A. General. All materials must be approved for use in potable water systems. As of January 1, 2014, all brass materials used for potable water supplies must be lead free. Domestic only, buy American required.

1. Pipe

a. Main

i. General

1) Fittings and valves shall be handled in a manner to avoid damage to the interior lining.

2) All parts used for the project must pass City inspection and shop drawing review before installation.

ii. PVC and Fittings

1) Pipe under 4 inch diameter shall be Schedule 80, Type 1, Grade 1, NSF approved, conforming to ASTM D-1785. Joint shall be solvent welded slip type. Solvent cement shall conform to ASTM D 2564.

2) Pipe 4 inches to 12 inches diameter shall be AWWA C-900, DR 18, Class 150 and conforming to the outer diameter of cast iron pipe.

3) Pipe greater than 12 inches shall be in compliance with AWWA C-905, DR-18, Class 235.

4) All fittings shall be mechanical joint conforming to AWWA C-111, cement line ductile iron, unless a fully restrained fitting is required.

iii. Ductile Iron Pipe and Fittings

1) Ductile iron fittings shall be C153 full body domestic only fittings, cast iron sized.

2) Centrifugally cast ductile iron pipe and spools shall be Class 52 conforming to AWWA C-151 and AWWA C-150.

3) Ductile iron shall be cement lined on the inside conforming to AWWA C-104. Outside coating shall be a bituminous coat 1 mil thick, conforming to AWWA C-151.

4) Joints shall be mechanical joint conforming to AWWA C-111. The bell shall be cast integrally and the pipe shall be provided with an exterior flange and socket with annular recesses for the sealing gasket. Provide sealing gasket, follower gland with bolt holes, black iron tee headed bolts, washers and hexagonal nuts.

5) Flanged joints shall meet AWWA C-115. The bolt circle and hole spacing shall conform to ANSI B16.1, Class 125.

6) Gasket material for flanged joints shall be commercial neoprene conforming to ASTM D 2000 approved for potable water.

iv. HDPE only used in special cases as approved by the City Engineer.

v. Brass pipe pressure class 125 or greater meeting ANSI/ASTM B16.15 for combination air and vacuum release and blow-off valves. Threaded brass fittings to conform to ASTM B687-88.

b. Service and Lateral Assembly

i. All parts must be lead free.

ii. 1 inch laterals shall be polyethylene (HDPE) pipe pressure class 200, IP sized pipe.

iii. 2 inch laterals shall be Schedule 40 PVC pipe.

iv. Corporation stops. Corporation stops used with ¾ inch and 1 inch tap shall be Ford Meter Box Company, Type FB1101-3 or Type FB1101-4. Stop shall be furnished with iron pipe thread inlet and PE pack joint outlet, IPS.

v. Gate valves are used for 2 inch services and greater as specified in the gate valve section herein. Ends shall be IP threaded.

vi. Angle meter stop

1) Angle meter stops used with 1 inch polyethylene pipe shall be Catalog No. BA63-332W and BA63-444W respectively, as manufactured by Ford Meter Box Company.

2) Angle meter stops that use 2 inch PVC pipe shall be catalogue nos. BFA 13-666W and BFA13-777W, respectively, as manufactured by Ford Meter Box Company. Reinforced rubber gaskets required. Furnish angle meter stops with male iron pipe thread by iron pipe PVC pack joint coupling.

vii. Meter box

1) Service boxes for ¾ inch and 1 inch service meters shall be Armorcast Dual RPM water meter boxes.

2) Double meter installation in one service box shall be Armorcast Dual RPM water meter boxes. If double service box is utilized, installation shall use a bronze manifold for meters part #UVB63-42W.

3) Meter boxes for 1½ inch and 2 inch meter services shall be Armorcast Dual RPM water meter boxes.

4) Meter box installation shall be flush with existing ground, and aligned straight with property line or sidewalk surface features.

viii. See Appurtenances Section herein for service connection tapping saddle requirements.

2. Fittings

a. All fittings to be ductile iron fittings cast iron sized. Fittings shall be cement mortar lined, 250 psi working pressure. Cement mortar lining must not be damaged or compromised.

b. Compression fitting to be installed for 1 inch water services with IP connector.

c. Mechanical Joint Fittings used with ductile iron and C900 PVC pipe shall conform to C153 full body domestic only fittings.

d. Joint restraints required on vertical and horizontal bends and fittings shall be manufactured of high strength ductile iron ASTM A536, Grade 65-45-12 and shall be fusion epoxy coated and have stainless trim.

i. Foster Adapter shall be manufactured by Infact Corporation.

ii. PVC Pipe restrainers shall be EBBA Megalug Series 2000 or Romagrip restraint manufactured by Romac Industries.

e. Couplings

i. Contractor to verify pipe outside diameter for proper coupling size.

ii. Cast coupling and cast reducing couplings. Transition and straight couplings shall have ductile iron sleeve and end rings and resilient gaskets. Furnish with corrosion resistant, high strength, stainless steel SS 316 bolts and nuts. Supply coupling and assembly with fusion – bonded epoxy coating and lining.

iii. Couplings shall be HiMax epoxy coated with stainless trim ductile iron transition coupling, Romac Macro ductile iron coupling.

iv. End Caps. Shall be C153 end caps only. Supply with fusion bonded epoxy coating and lining. All end caps shall have a blow-off assembly as shown in Detail 4.35.

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3. Appurtenance

a. Fire hydrant

i. The fire hydrant riser flange must be located at no more than 6 inches above grade and no less than flush with final grade.

ii. Location of fire hydrants shall be as directed in the BMC Title 17 "Land Development Code" and under the direction of the Fire Chief.

iii. Hydrants shall be Waterous "Pacer." No other hydrants will be considered.

iv. Hydrants shall be AWWA C502 Compression type, 250 psi working pressure, dry barrel with main valve to remain closed if barrel should be accidentally broken. Length of barrel shall be field determined but must maintain a minimum of 3 feet of bury over the top of pipe and hydrant shall be installed to finish grade, with base flange 6 inches above adjacent ground. Riser extensions will be permitted if needed to maintain these conditions.

v. Hydrants shall have "0" ring seals, rugged main valve, positive drain valve, bronze weather cap, and non-kinking chains. Hydrants shall have bronze to bronze seat retainers and bronze cap nuts. Entire valve mechanism, including drain valves, must be easily removed without digging. Hydrant shall be capable of 360 degree rotation on stem. Operating nut shall be 1½ inch pentagon, National Standard, counter-clockwise opening.

vi. Each hydrant shall be equipped with two, 2½ inch hose nozzles and one, 4½ inch threaded pumper nozzle all with National Standard threads. Size of hydrant valve opening shall be 5¼ inch. Hydrant inlet shall be mechanical joint.

vii. Fire Hydrants shall be backed by manufacturer's five year warranty on materials and workmanship. Hydrants shall meet or exceed AWWA C502. Color shall be painted with Krylon Industrial Rust Tough color equipment yellow, #R0481.

viii. Barrel extensions shall be manufactured by the hydrant manufacturer.

ix. Hydrant and assembly shall be installed plumb and level.

b. Valve

i. Valve extensions are required when the turning is greater than three feet below grade.

ii. Gate valves are required every 400 feet, on all legs of tees and crosses, fire hydrant runs and on 2 inch water services.

1) Gate valves shall conform to AWWA C509 resilient wedge gate valves. All internal parts shall be accessible without removing the body from the line. The wedge shall be cast iron encapsulated in resilient material in accordance with ASTM D 429. Non-rising stem

shall be cast bronze and be manufactured to open when the stem is rotated counterclockwise. Furnish with a 2 inch square operating nut. Valve shall be 200 psi working pressure and factory hydrostatically tested at 400 psi. The stuffing box shall have two "O-Ring" seals above the thrust collar. Bonnet bolts must be tightened before installation. Valve trim shall be 316 SS.

2) Special note should be taken of the end configuration of valves as indicated on the drawings for various installation conditions. Flanged and mechanical joints on valves shall conform to pipe materials specifications. Gate valves used with combination air and vacuum release and blow-off valves shall be furnished with iron pipe threads.

3) Coating shall be fusion bonded epoxy for the body and bonnet. Interior and exterior coating per AWWA C550.

4) Pressure zone valves shall be supplied with a five-sided nut.

5) All valves shall be inspected for shelf life. If the shelf life exceeds two years, the valve condition may warrant rejection and the City may require testing certification that it is still in compliance with AWWA standards.

iii. Butterfly valve. Install for buried service, 14 inch pipe main size and larger.

1) Butterfly valves shall conform in all respects to the physical and performance requirements of AWWA C504, short body type having operators suitable for direct burial. Furnish Class 150B valves unless otherwise indicated. Furnish valves having two inch square operating nuts which shall rotate counter clockwise to open. All valves shall be 150 psi working pressure, 300 psi test pressure and be furnished with a continuous rubber seat bonded to the body.

iv. Backflow

1) A Reduced Pressure Principle Backflow Prevention Assembly (RP) or Reduced Pressure Principle-Detector Backflow Prevention Assembly (RPDA): OAR 333-061-0071.

a) Shall conform to bottom and side clearances when the assembly is installed inside a building. Access doors may be provided on the top or sides of an above ground vault.

b) Shall always be installed horizontally, never vertically, unless they are specifically approved for vertical installation.

c) Shall always be installed above the 100 year (1 Percent) flood level unless approved by the appropriate local administrative authority having jurisdiction.

d) Shall never have extended or plugged relief valves.

e) Shall be protected from freezing when necessary.

f) Shall be provided with an approved air gap drain.

g) Shall not be installed in an enclosed vault or box unless a bore-sighted drain to daylight is provided.

h) May be installed with reduced clearances if the pipes are two inches in diameter or smaller, are accessible for testing and repairing and approved by the appropriate local administrative authority having jurisdiction.

i) Shall not be installed at a height greater than five feet unless there is a permanently installed platform meeting Oregon Occupational Safety and Health Administration (OR-OSHA) standards to facilitate servicing the assembly; and

j) Be used to protect against a non-health hazard or health hazard for back siphonage or backpressure conditions.

2) A Double Check Valve Backflow Prevention Assembly (DC) or Double Check Detector Backflow Prevention Assembly (DCDA) OAR 333-061-0071.

a) Shall conform to bottom and side clearances when the assembly is installed inside a building.

b) May be installed vertically as well as horizontally provided the assembly is specifically listed for that orientation in the Authority's approved Backflow Prevention Assembly list.

c) May be installed below grade in a vault, provided that water-tight fitted plugs or caps are installed in the test cocks, and the assembly shall not be subject to continuous immersion.

d) Shall not be installed at a height greater than five feet unless there is a permanently installed platform meeting Oregon Occupational Safety and Health Administration (OR OSHA) standards to facilitate servicing the assembly.

e) May be installed with reduced clearances if the pipes are two inches in diameter or smaller, provided that they are accessible for testing and repairing, and approved by the appropriate local administrative authority having jurisdiction.

f) Shall have adequate drainage provided except that the drain shall not be directly connected to a sanitary or storm water drain. Installers shall check with the water supplier and appropriate local administrative authority having jurisdiction for additional requirements.

g) Shall be protected from freezing when necessary; and

h) Be used to protect against non-health hazards under back siphonage and backpressure conditions.

v. Air Release/Relief Valves

1) Combination Air Vacuum/Air Release shall be full body, fusion epoxy both internal and external with stainless steel 316 trim and accessories.

2) Valve shall have cast iron body, covers and baffle and stainless steel float, designed for normal usage of 150 psi. All other trim shall be stainless steel with the exception of Buna-N seat and adjustable Viton Orifice.

3) One 2 inch gate valve, IP x IP, installed at service connection and as specified shall allow removal and reconditioning of combination air/vacuum relief valve. Connections to water main shall be made through the use of specified service saddle.

4) Canister color green, 18" x 30" enclosure manufactured by Pipeline Products Part #VCAS-1830.

vi. Valve box

1) Refer to standard detail 4.31.

2) Valve box shall be traffic rated when in roadway or driveway.

3) Shaft shall have 7 inch inside diameter. Cover shall be "lift pocket" type and lettered "WATER."

4) Boxes shall be Christy G5.

c. Blow off Assembly

i. Blow-off valves shall be constructed per standard details, with one 2 inch gate valve, as specified, installed for manual operation.

ii. Miscellaneous piping shall be lead free brass or PVC as specified in the standard detail.

iii. Connection to water main shall be made through use of specified service saddle or end cap.

d. Service Saddles (used for service connections)

i. PVC Pipe (AWWA C900)

1) Saddles with ¾ inch to 2 inch taps on 4 inch to 12 inch C900 PVC pipe shall be solid brass, with "O" ring gasket and silicon bronze screw. Supply with IP taps with single outside diameter to fit pipe size.

2) Saddle shall be Ford S-91 style or Mueller equivalent.

ii. Transite (Asbestos Cement) and Ductile Iron Pipe

1) Saddles with 1 inch taps on ductile iron pipe shall be stainless steel double strap with stainless alloy nuts. Supply with IP threads.

2) Saddle shall be Romac 202 N.

e. Tapping sleeve (used for fire service, leak repair and fire hydrant connections not requiring a cut in tee)

1) Shall be CLOW F-5205, Mueller H-615 or equal for non PVC mains. A stainless steel JMC industries model JCM432 or Romac Industries model SST III is required for tapping PVC C-900.

f. Foster adaptors are recommended for mechanical joint connections at tees and valves.

g. Pipe Supports per detail 4.54. Hot dipped galvanized adjustable supports by Pipeline Products or City approved equal.

h. Toning Wire and Tape

i. Toning wire shall be No. 12 AWG, solid copper with blue colored insulation.

ii. Underground warning tape shall be 6 inches wide, APWA Standards, blue color, reading "CAUTION – WATERLINE BURIED BELOW".

iii. Install toning wire on all water main and service installations.

iv. Workmanship

1) Wire and tape shall be buried the entire length of trench and placed above pipe per standard trench detail drawing, approximately 6 inches above top of installed pipe. Lay flat and untwisted.

2) Wire shall be brought to the surface and connected at each valve box frame/lid. Distance between tracer lead access locations shall not be more than 1,000 feet. Joints or splices in wire shall be waterproof. If greater than 1,000 feet, a toning wire box is required per Detail 4.51.

3) Wire shall be laid above each water service lateral and brought to the surface at each service meter.

4. Water Main Shutdowns

a. Procedure: Contractor shall provide four (4) working days notice for scheduled water main shutdowns so that the City can provide customers with 48 hours notice prior to service interruption. City will notify all effected properties in the time frame and prior to shut down.

i. Prior to City shutting down and draining the water main, Contractor shall:

1) Pothole as necessary to determine depths, utility conflicts and ODs.

2) Must demonstrate to the City that all parts are on hands and adequate staffing is available for the tie in prior to shut down.

b. Penalty: If Contractor fails to comply with shut down as scheduled, the Contractor will be liable for all expenses incurred in time and materials for City staff to repeat the shut down. This will include staff time and water loss.

5. Abandonment of facilities

   a. Valve abandonment - Contractor to abandon existing valves in place by;

      i. Close the valve.

      ii. Installing a blind flange if the valve flange is exposed.

      iii. Fill valve can with concrete, remove top lift of can from finish grade

   b. Pipe – Cement plug all pipe 6 inch or less. Slurry fill all larger diameter pipe and/or any pipe susceptible to failure. Abandon water mains at the connection.

6. Testing

   a. Disinfection

      i. Prior to connecting new water mains and appurtenances to the active water system (including installation of valve clusters, fire hydrants, and service saddles/corporation stops), disinfection shall be completed to the satisfaction of the City in compliance with Oregon Health Authority OAR Chapter 333-61-050, including passing the bacteriological test. The contractor shall tie into the water system as soon as reasonably possible, but not more than 72 hours after the bacteriological test has been passed.

      ii. The contractor shall use the Continuous–Feed Method for disinfecting water mains. This section references AWWA C651–86.

      iii. The contractor shall use liquid chlorine or sodium hypochlorite or calcium hypochlorite in the disinfection operations.

         1) Liquid chlorine contains 100% available chlorine and is packaged in steel containers usually of 100 pound, 150 pound or 1 ton net chlorine weight. Liquid chlorine shall be used only (1) in combination with appropriate gas flow chlorinators and ejectors to provide a controlled high concentration solution feed to the water to be chlorinated; (2) under the direct supervision of a person who is familiar with the physiological, chemical, and physical properties of liquid chlorine, and who is trained and equipped to handle any emergency that may arise; and (3) when appropriate safety practices are observed to protect working personnel and the public.

         2) Sodium hypochlorite or calcium hypochlorite is available in liquid form in glass, rubber–lined, or plastic containers typically ranging in size from 1 quart to 5 gallons; containers of 30 gallons or larger sizes may be available in some areas. Sodium Hypochlorite contains approximately 5% to 15% available chlorine, but care must be used in control of conditions and length of storage to minimize its deterioration.

iv. Water from the existing distribution system shall be made to flow at a constant, measured rate (measured by City water meter) into the newly laid water main.

v. At a point not more than 10 feet downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. To assure that this concentration is provided, the contractor shall use Table 4.5, which gives the amount of chlorine required for each 100 feet of pipe of various diameters. Solutions of 1% chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter solution requires one pound of calcium hypochlorite in 8 gallons of water.

TABLE 4.5
Chlorine Required to Produce 25–mg/L Concentration
in 100 feet of Pipe (by diameter)

Pipe Diameter (inches)	100% Chlorine (pounds)	1% Chlorine Solution (gallons)
4	0.013	0.16
6	0.030	0.36
8	0.054	0.65
10	0.085	1.02
12	0.120	1.44
16	0.217	2.60

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b. During the application of chlorine, no part of the main being tested shall be connected to existing valves. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances.

At the end of this 24 hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L free chlorine.

Direct feed chlorinators, which operate solely from gas pressure in the chlorine cylinder, shall not be used for application of liquid chlorine. The preferred equipment for applying liquid chlorine is a solution feed, vacuum operated chlorinator and a booster pump. The vacuum operated chlorinator mixes the chlorine in solution water; the booster pump injects the chlorine solution into the main to be disinfected. Sodium Hypochlorite solutions may be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions.

When the 24 hour contact time has elapsed, the main shall be flushed until the chlorine, as measured by a comparator in the discharge of the pipe, is 1.5 PPM or less. Adequate precaution shall be taken during flushing of the main to preclude property damage or saturation of the surrounding material. Heavily chlorinated water shall be dechlorinated and defused when flushed after disinfection of main lines. Heavily chlorinated water

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may be discharged into sanitary sewer system in certain situations per City approval.

Upon completion of flushing, a sample of the discharge shall be collected in a bacteriological test bottle for testing by the City. The contractor shall comply with the County Health Department requirements for conducting the test. Bacteriological test shall be performed by an Oregon certified testing facility. The City, upon notification by the contractor, shall arrange for the taking of the sample and shall notify the contractor of the results as soon as they are available. After 24 hours a second sample of the discharge shall be collected in a bacteriological test bottle for testing by the City.

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If the test fails (results are positive), the main must be disinfected, flushed, and sampled again. Such operations must be repeated until results are negative.

Full compensation for disinfection shall be considered as incidental to the project and no separate payment shall be made. All costs related to disinfection shall be included in the various other applicable items of work.

7. Potable Water Main and Sewer Force Main Testing

   a. General

      i. Pressure Testing Pipeline shall take place after water main disinfection and bacteriological testing, and shall be conducted per these specifications.

      ii. Full compensation for pressure testing the pipeline shall be considered as incidental to the project and no separate payment shall be made. All costs related to pressure testing the pipeline shall be included in the various other applicable items of work.

   b. Procedure

      i. The water pressure test, or leakage test, shall establish that the section of line to be tested, including all joints, fittings and other appurtenances, will not leak within the limits of the applicable leakage allowance.

      ii. The contractor shall provide all necessary apparatus for testing. A double check valve assembly meeting the requirements of the Oregon Health Authority shall be used at all times. All necessary taps on the main for testing purposes shall be provided and installed by the contractor at locations designated by the City.

      iii. All service saddles, corporation stops, fire hydrants, fire lines, blow–offs, air vacuum valves and appurtenances are to be installed on the main pipeline prior to testing. Tie–ins shall be observed by the City at operating pressure prior to backfill

      iv. The contractor shall apply a pressure of 50 percent above normal operating pressure for all tests. This pressure shall be maintained as constant as possible throughout the period of test. All additional water pumped in during the testing period shall be measured and recorded.

The contractor shall provide and use an air relief valve so air trapped in the line during test will not affect test results.

v. After test pressure is reached, contractor shall use a calibrated water container and record the quantity of water installed to maintain the test pressure. Compare with the following equation results or for longer pipelines, or if the same parameters, compare with the following leakage chart.

vi. The test duration shall be two hours, and the allowable leakage shall be determined by the following formula:

$$L = \frac{ND\sqrt{P}}{7400}$$

where:

L = allowable leakage (gallons per hour)
N = number of joints in the length of pipeline tested
D = nominal diameter of the pipe (inches)
P = average test pressure during the test (pounds per square inch gauge)

Leakage values determined by the above formula are shown in the following table:

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Table 4.65 Leakage Allowable
(Gallons per 1,000 feet per hour; 1,000 feet = 50 joints)

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Pipe Size (Inches)	Test Pressure (psi)				
	50	100	150	200	250
4	0.19	0.37	0.33	0.38	0.43
6	0.29	0.41	0.50	0.57	0.64
8	0.38	0.54	0.66	0.76	0.85
10	0.48	0.68	0.83	0.96	1.07
12	0.57	0.81	0.99	1.15	1.28

Should the test of the pipe installed disclose leakage in excess of the specified allowable, the contractor shall, at the contractor's expense, locate and repair the defective joints until the leakage is within the specified allowance.

8. PIG flush

a. "Pigging" is required for all water mains 6 inch diameter and greater. Pigging is to be accomplished prior to hydrostatic testing and disinfection. Material for "pigs" shall be polyurethane foam as manufactured by Knapp Polly Pig, Inc. If other than commercial pigs are used, the size and shape of pigs shall be determined by City.

b. A minimum of three (3) pigs shall be flushed through the waterline. The contractor has the option of running all three (3) pigs at the same time or running the pigs one at a time. If all three (3) pigs are run at the same time, the pigs shall be identified individually.

c. Contractor shall provide erosion control as required to prevent damage to existing vegetation/ground.

d. Contractor shall be responsible for flushing "pigs" through waterlines and retrieving "pigs" after operation. If one or more pigs fails to run complete length of waterline, contractor shall be responsible for retrieving pigs and repeating the pigging operation.

e. If after pigging and disinfection, the bacteriological test fails, the contractor shall re-pig the waterline.

f. The contractor shall notify the City a minimum of 24 hours prior to pigging the waterlines and review erosion control methods for City's approval. City can require waterlines to be "re-pigged' if excessive foreign material is encountered during 'pigging'.

g. The contractor will be required to temporarily remove and replace the necessary pipe and fittings as required to place and remove "pigs" for flushing.

h. All waterlines that are not "pigged" shall be flushed through an opening at least 6 inches in diameter.

i. The contractor shall provide all fittings and pipe necessary to perform the flushing.

j. The contractor may use water provided by the City to perform the pigging and flushing.

k. The contractor shall provide erosion protection where necessary.

END OF DIVISION

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Chapter 18.25
Division 5
Site Work

18.25.001 DEFINITIONS

A. This section contains specification information on right of way improvements, usually above ground or related to surface features and site specific standards.

18.25.002 FORMWORK

A. General

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1. Formwork described herein includes falsework and is temporary or permanent molds into which concrete is poured.

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2. Shall conform to ACI-347 "Standards Recommended Practice for Concrete Formwork," current edition.

B. Materials

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1. Plywood shall be APA approved as required to support concrete at rate of placement.
2. Steel forms may be used.
3. All wood used shall be suitable for construction, free of major defects and warps.
4. Manufacturers' assemblies may be used as forms provided that maximum loadings and deflections used on jacks, brackets, columns, joists and other manufacturer's devices do not exceed the manufacturer's recommendations.
5. Include all items and devices necessary for the proper placement, spacing, supporting and reinforcing of steel in place, for City approval.

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6. Form Ties
   a. Bolts, rods or other approved devices shall be used for internal form ties and shall be of sufficient quantities to prevent spreading of the forms.
   b. Ties shall be placed 1 inch away from the top finished surface of the concrete.
   c. The use of ties consisting of twisted wire loops will not be permitted.
   d. Bolts and rods that are to be completely withdrawn shall be coated with grease.
   e. ~~Ties application~~The application of reinforcing ties shall be as recommended by the manufacturer for conditions of installation.

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C. Workmanship

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1. Shall resist spreading, shifting, settling and deflection no greater than 1/8 inch between supports after concrete placement. Forms to be tight and well braced.

2. Site shall be secured to protect the public from injury.

3. Do not remove formwork until concrete has hardened and attained sufficient strength to permit safe removal and adequate support of inherent and imposed loads. Protect from vandalism.

18.25.003 REINFORCED STEEL

A. Submittals

1. Shop drawings to include; bending and placing diagrams by supplier and in accordance with ACI publication 315-65, product description and coating, sample, certificates of compliance and Mill Test results.

B. Product Delivery, Storage and Handling

1. Store in manner as to prevent excessive rusting and fouling with grease, dirt, or other bond weakening coatings.

C. Materials

1. Reinforcing bars shall be clean billet steel, ASTM A615, Grade 60. Reinforcing steel shall be cleaned of mill dust, dried concrete, or other coatings that may reduce bond. When concrete placement is delayed, reinforcement shall be cleaned or replaced.

2. Tie wires shall be ASTM A-82-66.

3. Welded wire fabric shall be ASTM A-185-72.

D. Workmanship

1. Shop fabricate and cold-bend as detailed on reviewed shop drawings.

2. Conform to requirements as ACI 316-65 and ACI 301-66 Section 504, or current edition, where specific details are not shown on drawings or specifications.

3. Ensure placement will permit concrete protection in conformance with ACI 318-63, Section 308, or current edition, or to extent shown.

4. Support and fasten bars securely with concrete blocks, spacers, chairs or ties. Wire-tie bar intersections, secure bars at intervals not exceeding 80 x diameter of bar for horizontal bars and 192 x diameter of bar for vertical bars.

5. Rebar to be installed to avoid conflicts with conduits.

6. Splices and laps in conformance with ACI 318-63, Section 805 or current edition.

7. Safety- secure plastic caps on ends of exposed rebar. Contractor shall adhere to OSHA requirements for impalement protection.

E. City testing and inspection in accordance with current building code.

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18.25.004 CAST IN PLACE CONCRETE

A. General

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1. Contractor must receive prior approval from the City for the concrete mix design.

2. Truck mix and ready mix shall exceed ASTM C387, 4,000 psi at 28 days and shall be a high strength concrete mix.

3. Concrete shall have a 5 -inch maximum slump when tested in accordance with ASTM C 143.

4. Cement shall be 5½ sacks per cubic yard of concrete, as a guideline.

5. Admixtures or accelerators will be considered on a case by case basis.

B. Workmanship

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1. The concrete shall be placed in a maximum elapsed time of 1½ hours after the mixing water and cement has entered the drum until completion of discharge.

2. Use of ready mix concrete shall not be in progress or continued when a descending air temperature in the shade and away from artificial heat falls below 40 degrees Fahrenheit.

3. Provide a smooth finish. Protect concrete from damage during the first seven ~~7~~-day curing time.

4. Compaction. The contractor shall compact the concrete by means of vibration. The contractor shall operate the equipment in such a manner that a satisfactory compaction of the concrete is produced. Finished surface to be within 1/8 inch" tolerance of planned grade.

C. Sidewalks – Refer to Standard Detail 5.13

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1. Subgrade – please refer to Division 3, 18.15.002 herein.

2. Mix shall be as stated in 18.25.004 herein.

3. Thickness – 4-inches.

4. Control Joints – as specified in Standard Detail 5.13.

5. Workmanship

   a. Broom finish, smooth even surface with 2% cross fall. Defects may require replacement of panel.

   b. As specified in 18.25.004 herein.

   c. Contraction joints shall be installed every 5 feet and aligned with adjacent curb contraction joints.

D. Curb and Gutter – Standard Detail 5.10.

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1. Curb and gutter section must be integrally placed as a monolithic unit.

2. Curb and gutter shall have contraction joints in 15-_foot intervals. Align contraction joints with adjacent sidewalk contraction joints where possible. Install per Subsection F and Standard Details herein.

E. Driveway Approach

1. Subgrade - please refer to Division 3, 18.15.002 herein.

2. Mix shall be as stated in 18.25.004 herein.

3. Thickness – 6 inches.

4. Contraction joints - as specified in Standard Detail 5.13 and Subsection F herein.

F. Control joints

1. Install as shown on Standard Detail 5.13.

2. Expansion joints

   a. Install expansion joint material where new sidewalk is poured adjacent to existing sidewalks. ~~where new sidewalk is poured adjacent to existing sidewalks~~

   b. Bring joint material to within ½ ~~one (1)~~ inch of top surface, fill remainder of joint material with standard sealing compound.

   c. Expansion joint material shall be ½-inch thick preformed asphalt fiberboard conforming to ASTM D 994.

   d. Install at interface of new and old curb.

3. Contraction joints

   a. May be jig sawed or hand formed "bull nose" with round over tool deeper than parting tool to a joint depth to be a minimum of one-third the total depth of the section.

   b. Install where sidewalks abut vertical surfaces. In sidewalks, contraction joints shall be installed at right angles.

   c. Install at interface of straight curb and short radius section and both sides of driveway cut.

   d. Install along curb and gutter at 15 foot intervals not to exceed 45 feet.

   e. Align sidewalk joints at 5 foot intervals with curb and gutter joints at 15 foot intervals.

18.25.005 SIGNPOSTS

A. General - This item shall consist of the furnishing, fabricating, galvanizing and erecting of signposts in conformity with the lines, grades, dimensions and locations as directed or provided by the City of Brookings.

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B. Materials

1. Posts shall be steel 2 inch x 2 inch square fit or Telespar posts (holes 4 sides) zinc-coated as manufactured by Traffic Safety Supply or approved equal.

2. Anchor section shall be 2¼ inch x 2¼ inch x 3 foot.

3. Base section of post consists of 2½ inch x 2½ inch x 18 inch long base sleeve.

4. All posts to be set in a minimum 3,000 psi concrete mix as shown in Standard Detail 5.20.

C. Workmanship

1. Posts shall be installed in accordance with the double 12-gauge installation that utilizes a two-piece breakaway anchor.

2. Posts shall be set in cylindrical foundations. For concrete foundation's hole shall be excavated for the bury depth of the post: not less than 12 inches in diameter.

3. Sign posts shall be erected plumb.

18.25.006 STREET SIGNS

A. General – All new signage must meet the minimum retroreflectivity requirements as identified by the MUTCD.

B. Retroreflectivity Requirements Summary

1. White copy on overhead guide signs must be made from prismatic sheeting.

2. White copy on ground mounted street name signs cannot be made from Type I sheeting.

3. Warning signs (black on yellow or orange) cannot be made from Type I sheeting.

4. Regulatory signs (black on white) must retain a minimum retroreflectivity level of ≥ 50 cd/lx/m^2 (while use of Type I sheeting—with an initial retroreflectivity value of 70 cd/lx/m^2—is allowed, sign life will be short and may result in poor life cycle value).

5. Stop signs (white on red) have a minimum contrast ratio of ≥ 3:1 (white reflectivity ÷ red reflectivity).

18.25.007 STREET LIGHTS

A. General – Street lights shall be provided for all developments within the City.

B. Location

1. New Streets – As part of a new street development, street lighting shall be installed at intersections and at a maximum distance of 220 feet apart with the following exceptions:

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a. A cul-de-sac where the terminus is less than 150 feet from the nearest lighted intersection; otherwise, a street light shall be installed at the end of the cul-de-sac.

b. For streets serving industrial areas, there shall be a minimum of one (1) street light at each intersection.

2. Existing Streets – Developments having 200 feet or more of frontage on an existing street shall install a minimum of one (1) street light for the first 200 feet, plus one (1) street light per 220 feet of additional frontage. A development with less than 200 feet of frontage on an existing street shall enter into a deferred improvement agreement for future street light installation.

3. As determined by Site Plan Committee or traffic engineering designee to prevent a hazardous driving condition.

4. Alternative Standards - Residential homeowner's associations may propose alternative lighting standards under the following conditions; the proposed lighting configuration and specifications are stamped by a registered civil engineer, and the homeowners association shall take full responsibility for maintenance and powering of the street lights through recordation of covenants, codes and restrictions (CC&Rs). The City Attorney shall review and approve the CC&Rs. The homeowners association must be formed ~~and~~ in accordance with Oregon law and shall hold the City harmless from damage claims arising from negligence on the part of the homeowners association in regards to luminance, maintenance and supplying power.

C. Types

1. Chetco Avenue and Downtown Decorative Light, 14 foot' pole. Color F283 green finish distributed by Platt, Beaverton, OR ~~Oregon~~.

2. "Tear Drop" Decorative Lights, 30 foot' pole. Light fixture by Phillips Lumec.

3. Standard Luminare Light, 30 foot' pole. Manufactured by Shakespeare, part #BH-30-16-N5-BG-20 (pole and base), #OPAR-6-BZ (arm), #OPHW-1-BZ (hardware) and per Standard Detail 5.30 herein.

D. Service – Nearest facility carrying 120 volts secondary and controlled by individual photoelectric control devices. All services shall be underground.

18.25.008 TREE TRIMMING AND REMOVAL

A. General. Any tree trimming work that involves the public right of way, including staging, shall be required to obtain a Public Works permit and shall comply with all general conditions contained herein.

18.25.009 RESERVED

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189.25.010 RESERVOIR AND PUMP STATION FACILITIES

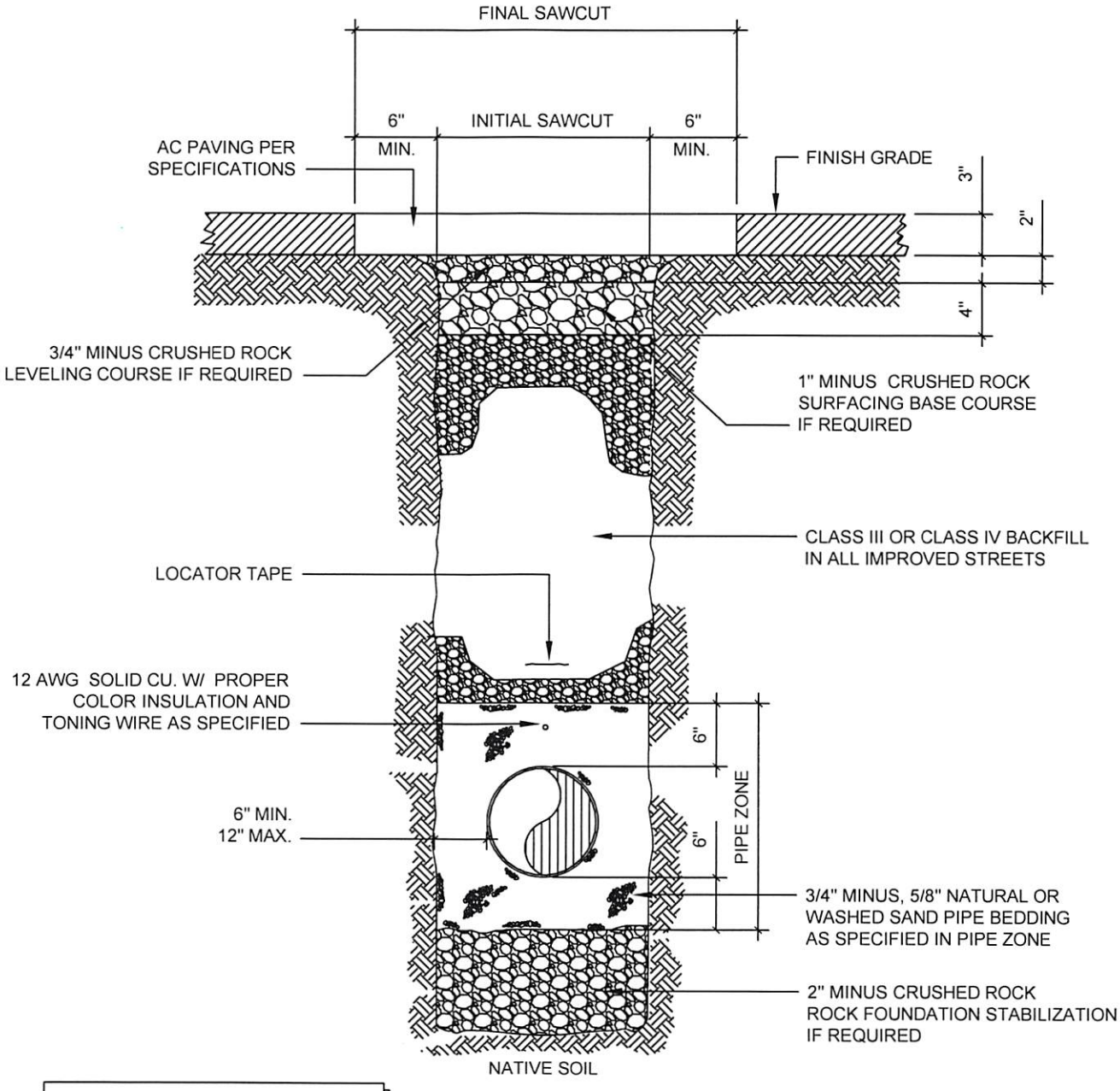
A. Paint and Colors

1. Roof is weathered wood.
2. Forest Green for Reservoirs and Pump Stations.

18.25.011 PARKS AND RECREATION FACILITIES - RESERVED

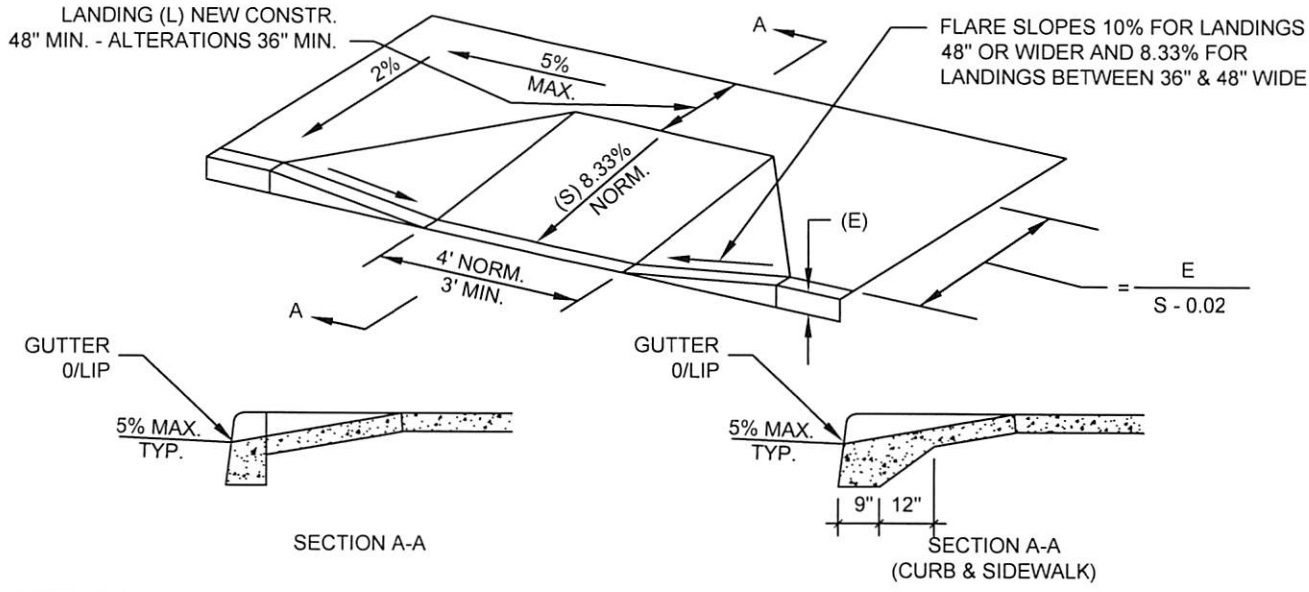
END OF DIVISION

T. PATCH



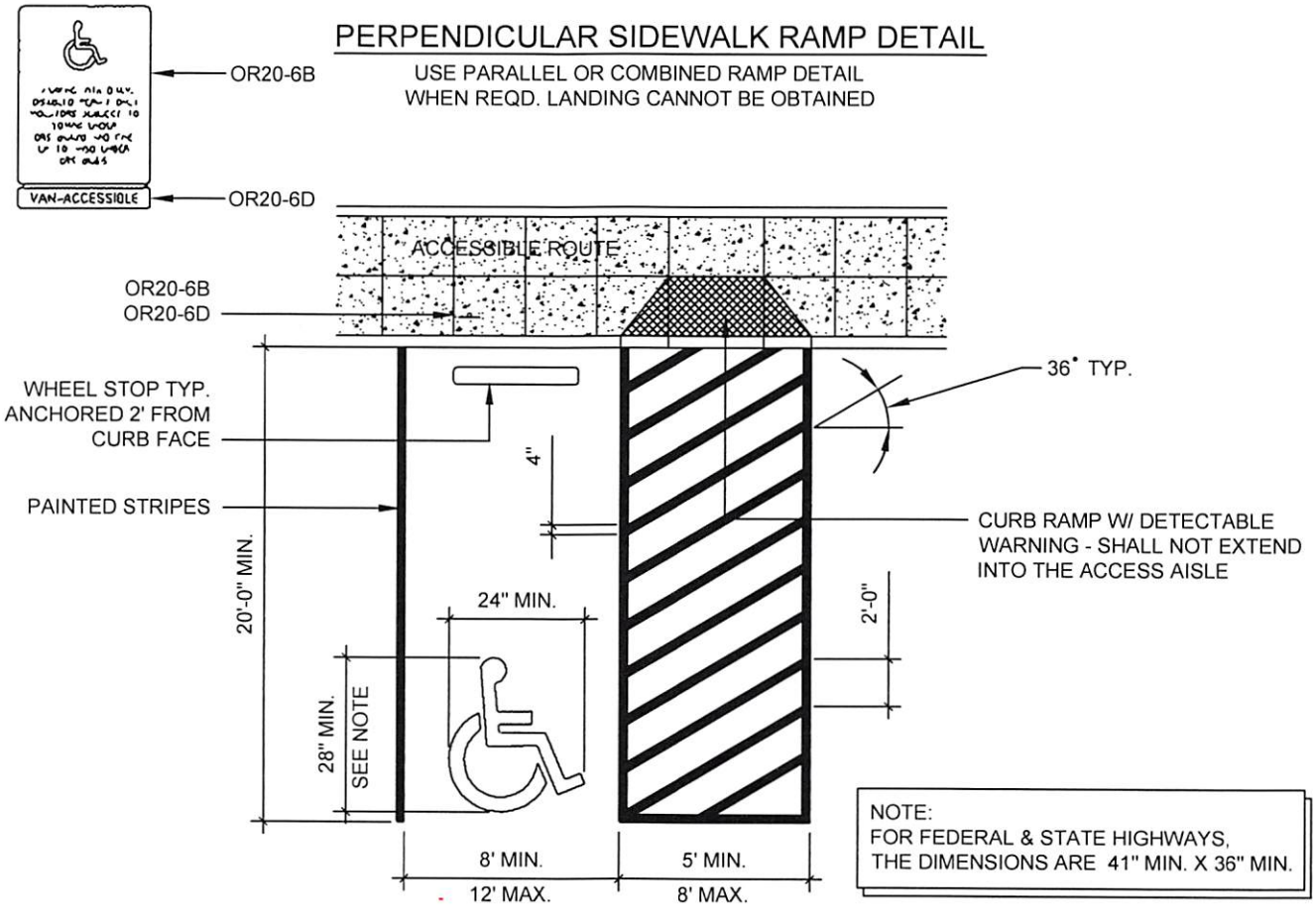
NOTE:
TRENCH LINES LOCATED OUTSIDE IMPROVED (PAVED) ROADWAY WILL BACKFILL WITH NATIVE MATERIAL TO MATCH EXISTING GRADE

	CITY OF BROOKINGS - STANDARD DETAIL	
	TYPICAL TRENCH DETAIL	3.10
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



PERPENDICULAR SIDEWALK RAMP DETAIL

USE PARALLEL OR COMBINED RAMP DETAIL
WHEN REQD. LANDING CANNOT BE OBTAINED

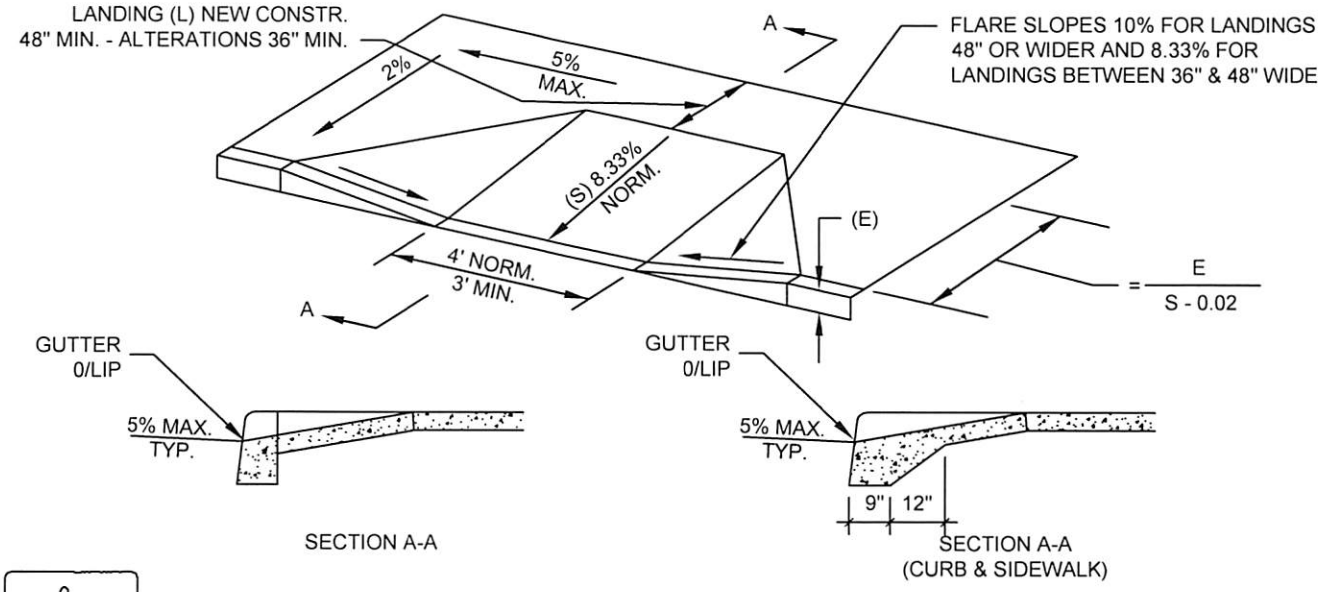


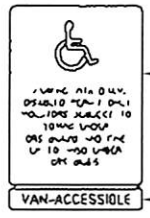
NOTE:
FOR FEDERAL & STATE HIGHWAYS,
THE DIMENSIONS ARE 41" MIN. X 36" MIN.

WHITE STRIPING AND PAVEMENT STENCIL REQUIRED

STROKE WIDTH ON SYMBOL IS 3" MINIMUM
BLUE BACKGROUND AND BLUE PAINTED CURB OPTIONAL

	CITY OF BROOKINGS - STANDARD DETAIL	
	ADA SINGLE PARKING SPACE	3.15
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



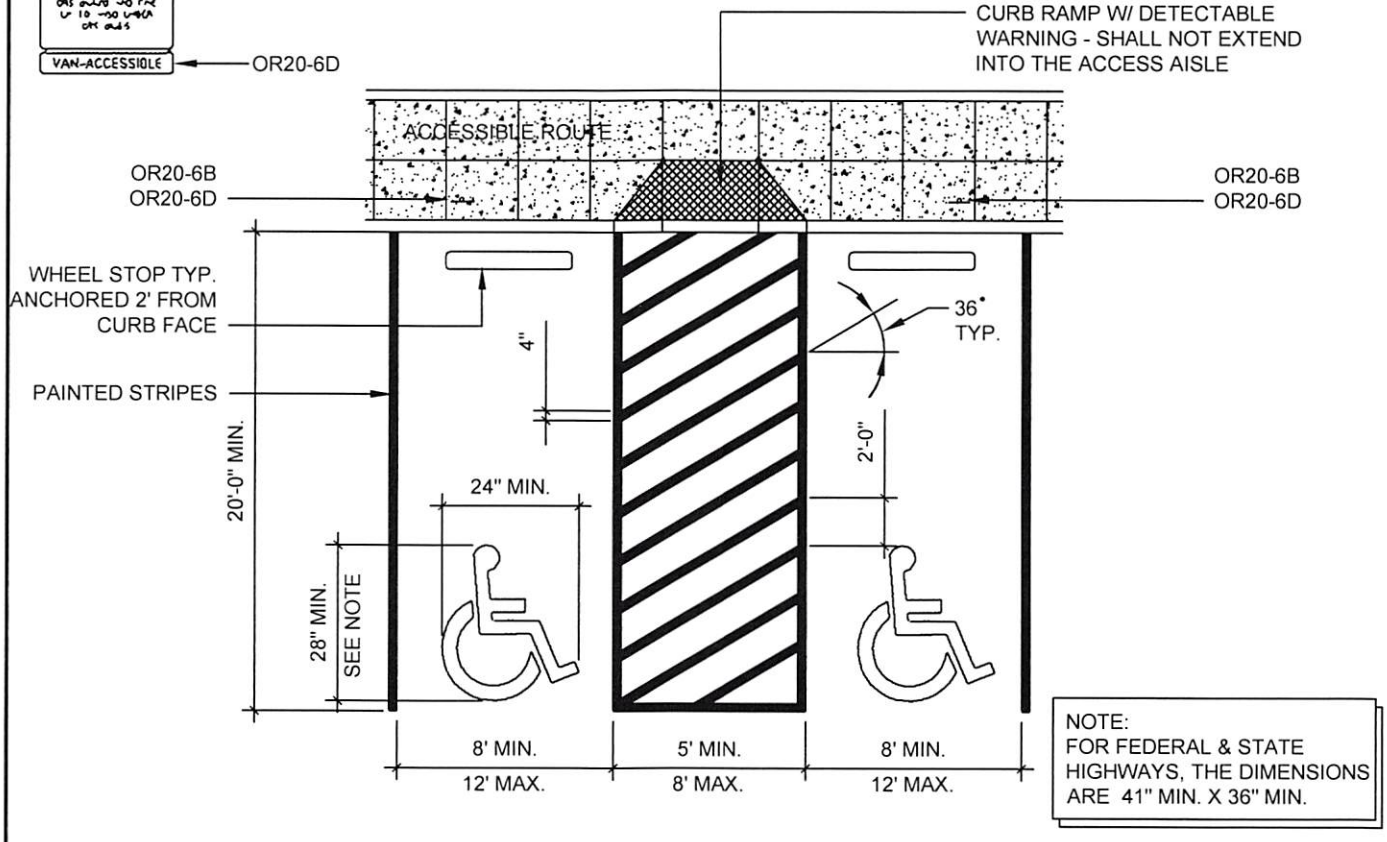


OR20-6B

OR20-6D

PERPENDICULAR SIDEWALK RAMP DETAIL

USE PARALLEL OR COMBINED RAMP DETAIL
WHEN REQD. LANDING CANNOT BE OBTAINED

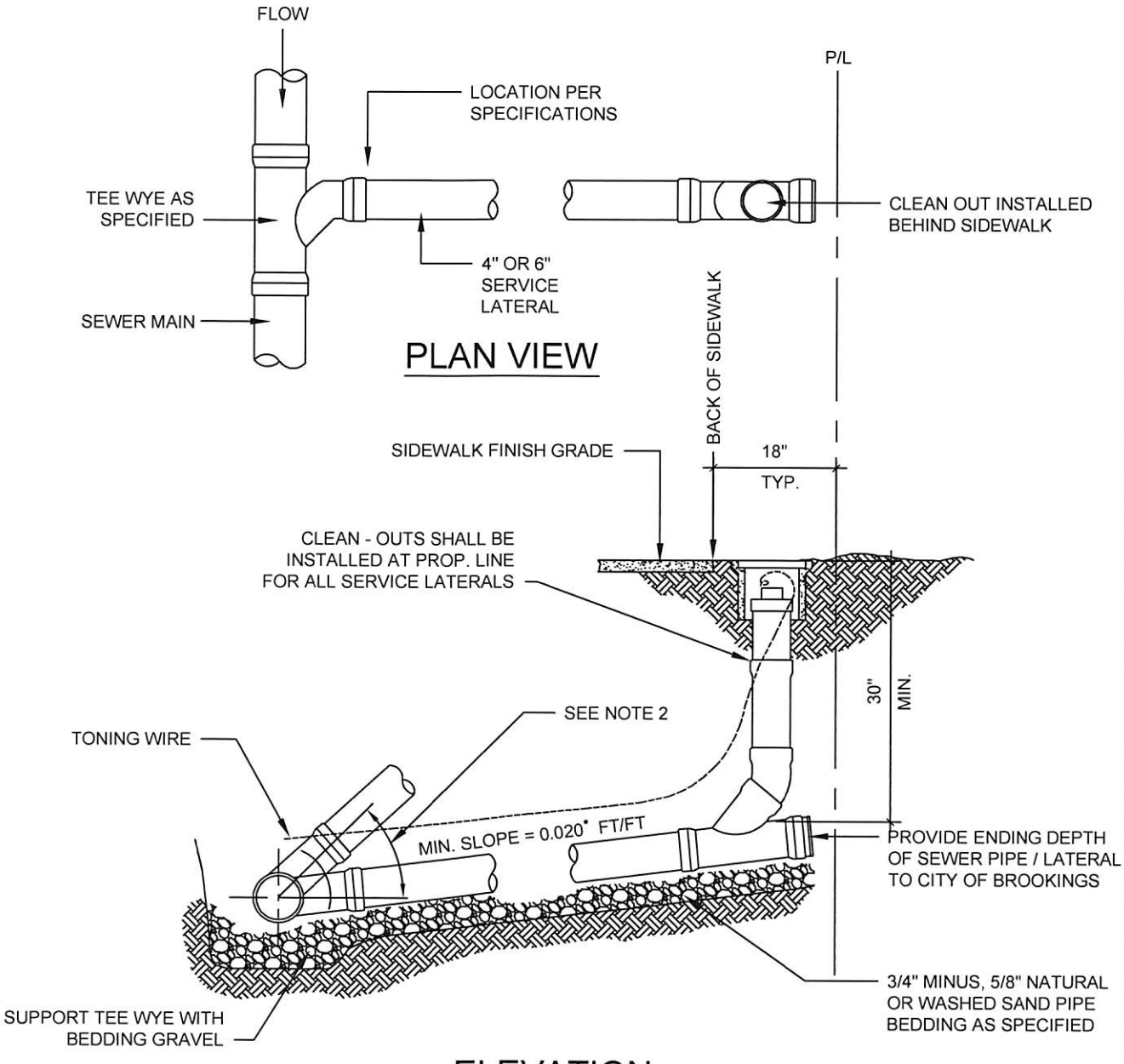


NOTE:
FOR FEDERAL & STATE
HIGHWAYS, THE DIMENSIONS
ARE 41" MIN. X 36" MIN.

WHITE STRIPING AND PAVEMENT STENCIL REQUIRED

STROKE WIDTH ON SYMBOL IS 3" MINIMUM
BLUE BACKGROUND AND BLUE PAINTED CURB OPTIONAL

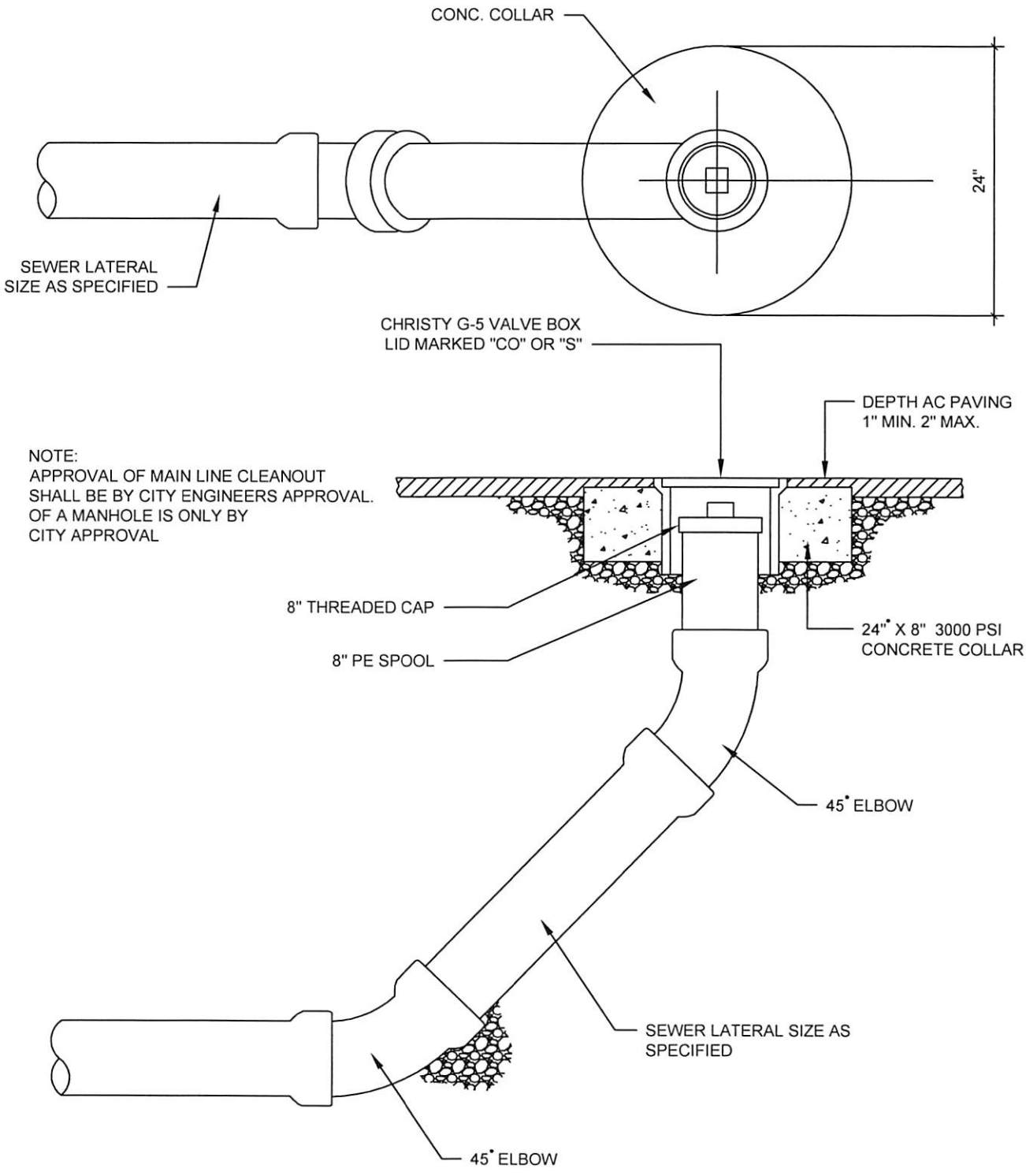
	CITY OF BROOKINGS - STANDARD DETAIL	
	ADA DOUBLE PARKING SPACE	3.16
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



NOTES:

1) MINIMUM DEPTH AT RIGHT-OF-WAY OR PROPERTY LINE SHALL BE 30 INCHES
2) LAY SERVICE LATERAL AT MAX. 45° FROM HORIZONTAL TO ACHIEVE REQUIRED DEPTH AT PROPERTY LINE WHEN MINIMUM SLOPE RESULTS IN EXCESSIVE DEPTH.
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH GREEN INSULATION WITH 18" TAG END IN CLEAN OUT BOX
4) IF LOCATED IN DRIVEWAY APPROACHES USE CHRISTY F08C LID
5) ALL LOCATIONS OF SERVICE LINES SHALL BE NOTED ON NEW CURB WITH A MARK "S".
6) NO CURB WEEP HOLES SHALL BE LOCATED WITHIN 18" OF THE CLEAN OUT BOX.

	CITY OF BROOKINGS - STANDARD DETAIL	
	SEWER SERVICE LATERAL	4.11
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



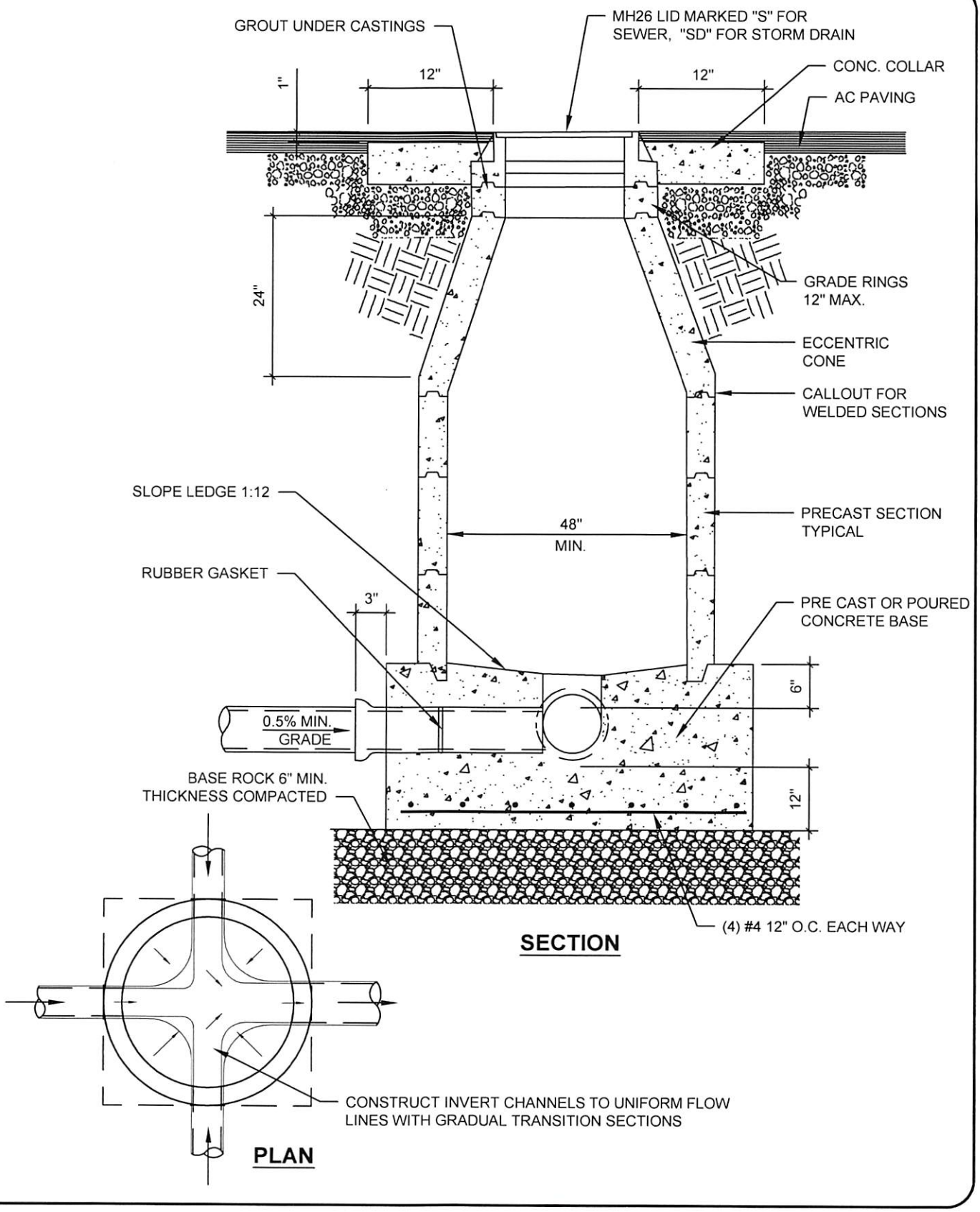
CITY OF BROOKINGS - STANDARD DETAIL

MAINLINE CLEANOUT

4.12

APPROVED BY RESOLUTION 14-R-1024

DATE: 3/29/17



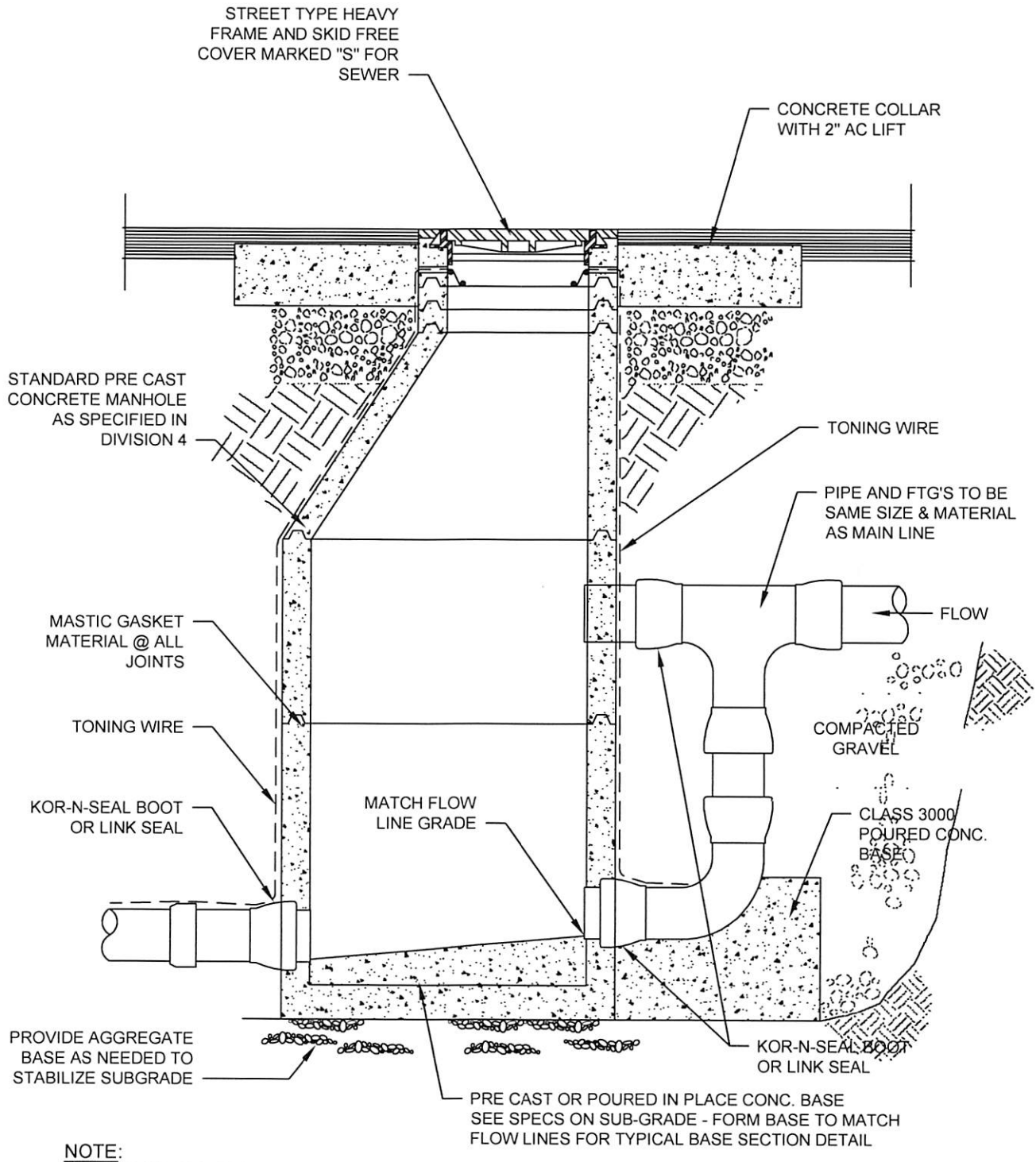
CITY OF BROOKINGS - STANDARD DETAIL

STANDARD MANHOLE - CONCENTRIC

4.13

APPROVED BY RESOLUTION 14-R-1024

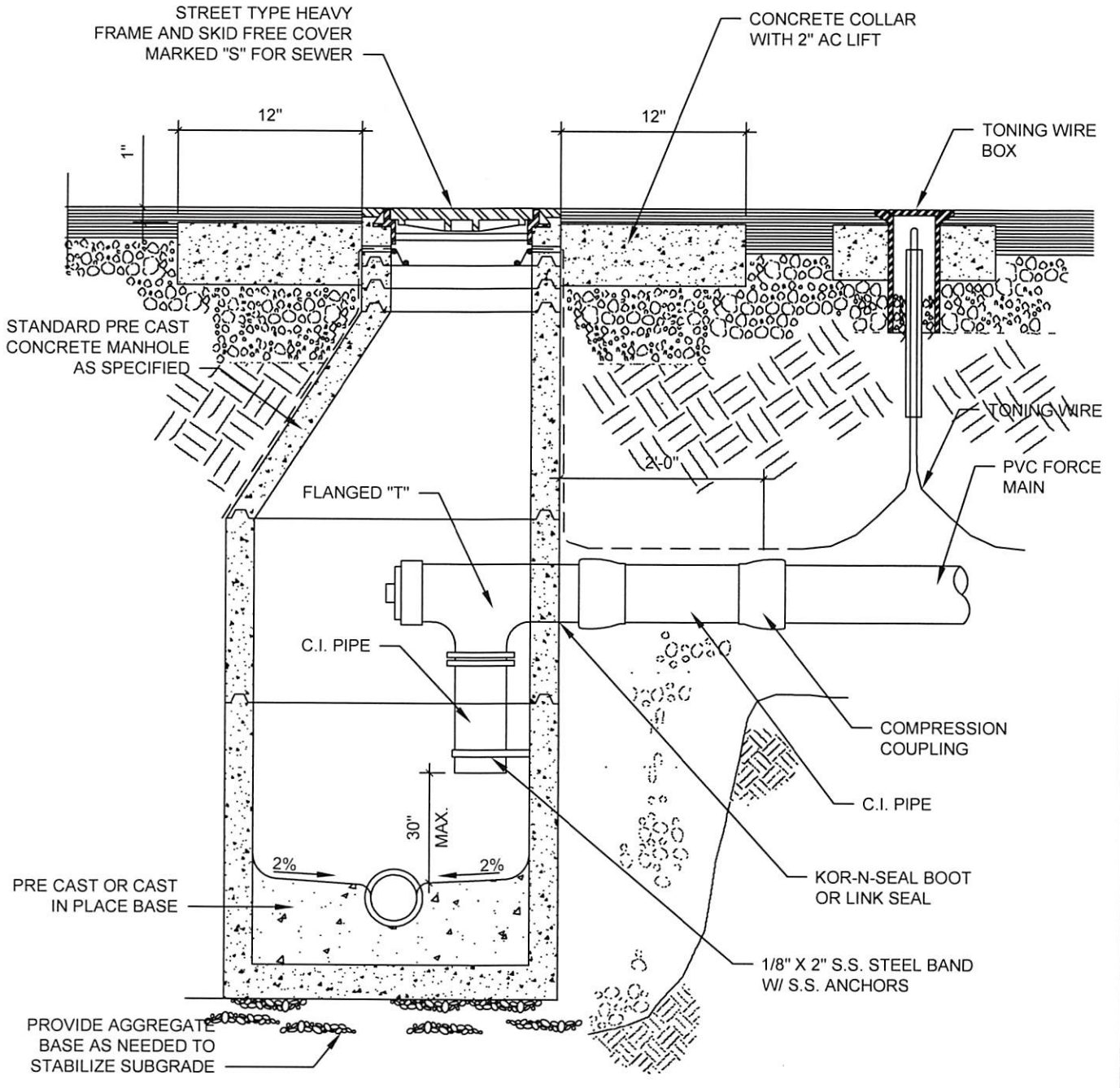
DATE: 3/29/17



NOTE:

1. STUBS TO MANHOLE MUST BE "KOR-N-SEAL" BOOTS OR CORE DRILL W/LINKSEAL AND GROUTED WATERTIGHT.
2. NEED TO INSTALL GREEN CARSONITE STAKE WHEN MANHOLE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S

CITY OF BROOKINGS - STANDARD DETAIL		
OUTER DROP MANHOLE		4.14
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17	



NOTE:

1. STUBS TO MANHOLE MUST BE "KOR-N-SEAL" BOOTS OR CORE DRILL W/LINKSEAL AND GROUTED WATERTIGHT.
2. NEED TO INSTALL GREEN CARSONITE STAKE WHEN MANHOLE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S
3. FOR POURED IN PLACE BASE SEE 4.13

CITY OF BROOKINGS - STANDARD DETAIL		
INNER DROP MANHOLE		**4.15**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17	

NOTES:

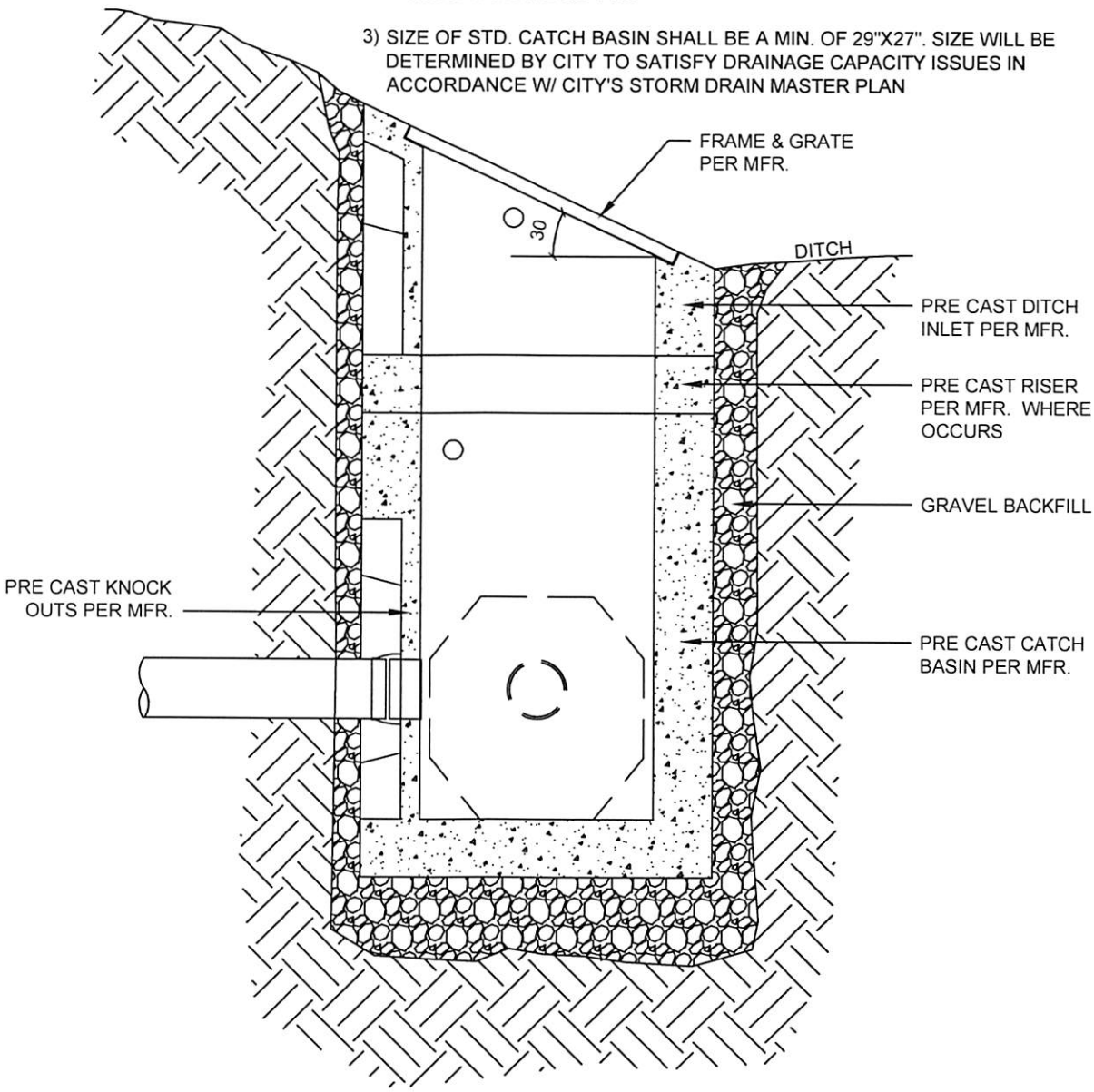
1) PREFABRICATED UNITS FROM ADVANTAGE PRE CAST OR APPROVED OTHER

   ADVANTAGE PRE CAST
   1302 CANDLEWOOD DR NORTH
   KEIZER, OREGON 97303

2) CATCH BASIN, FRAME, AND GRATES SHALL MEET H20 LOADING. & BIKE FRIENDLY

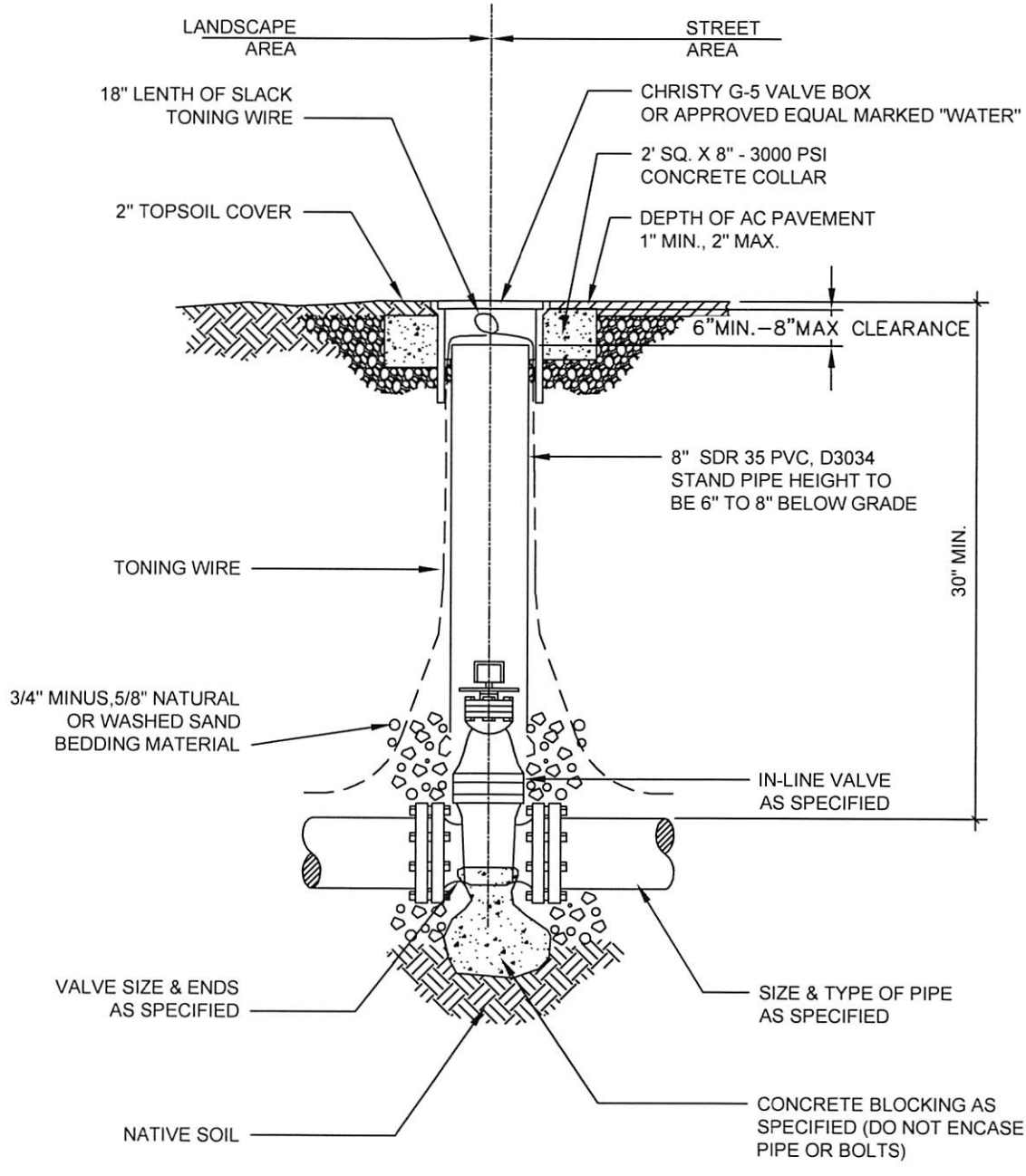
   DITCH INLET GRATE: 1/4" F.B.
   C.O. SALEM GRATE: 1/4" F.B. GALVANIZED
   O.D.O.T. GRATE 5/8" F.B.

3) SIZE OF STD. CATCH BASIN SHALL BE A MIN. OF 29"X27". SIZE WILL BE DETERMINED BY CITY TO SATISFY DRAINAGE CAPACITY ISSUES IN ACCORDANCE W/ CITY'S STORM DRAIN MASTER PLAN



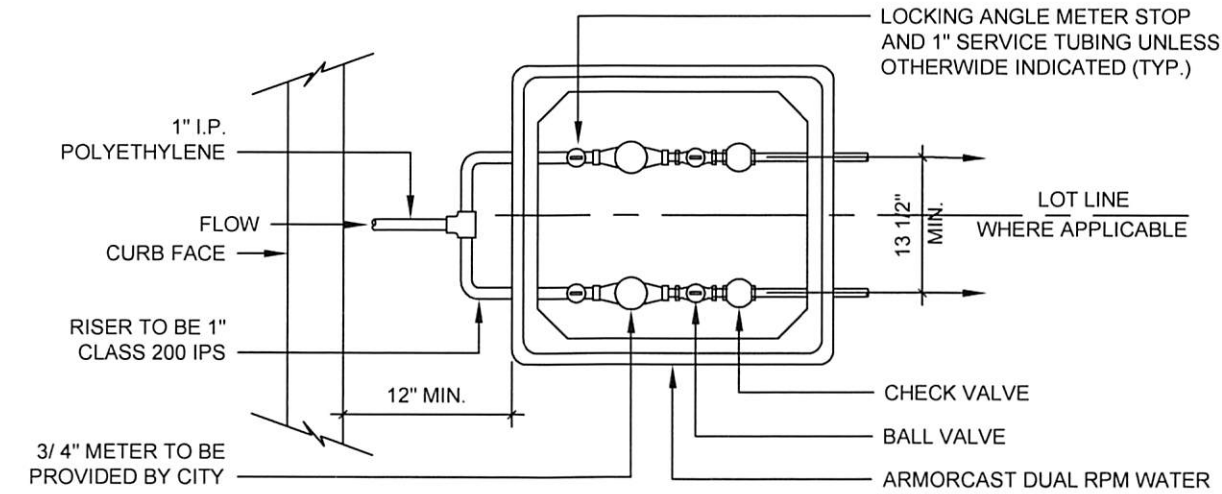
SECTION

	CITY OF BROOKINGS - STANDARD DETAIL	
	DITCH INLET	4.21
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



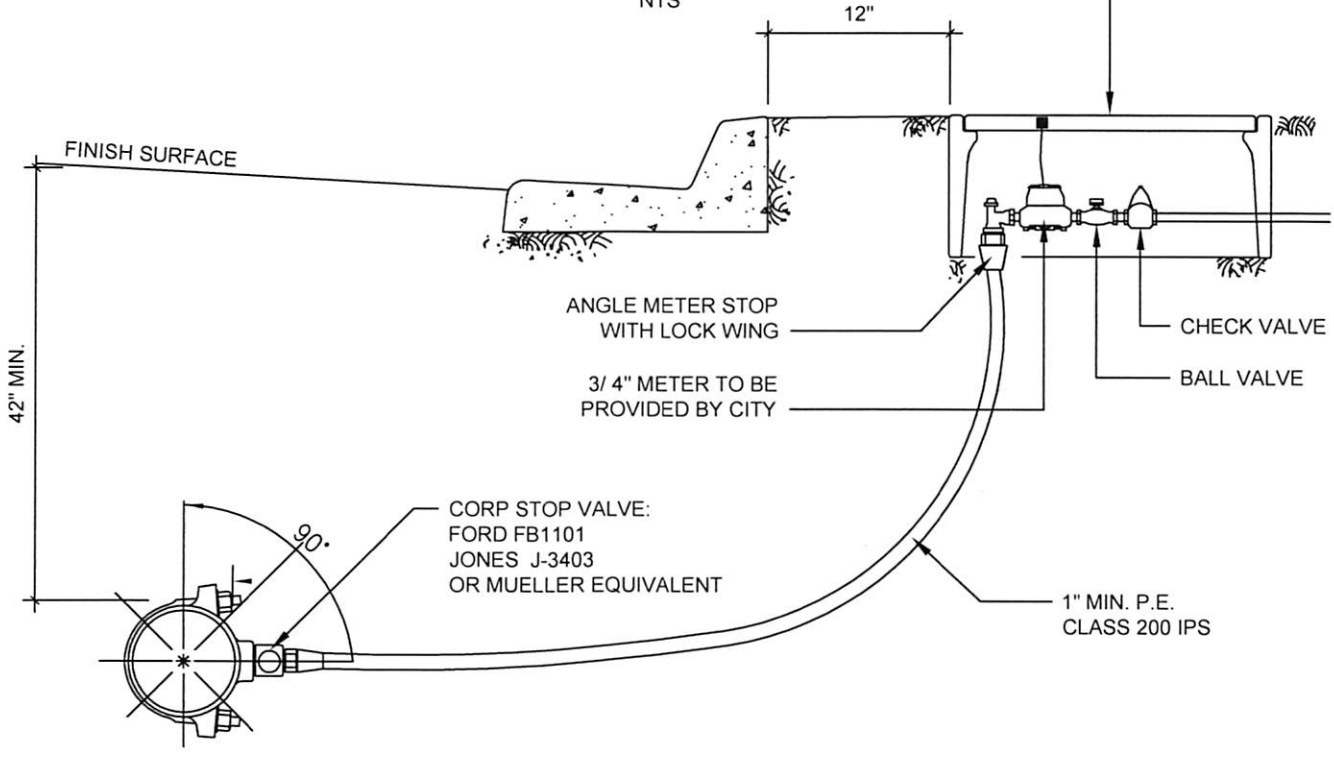
NOTE:
1. VALVE STEM EXTENSION NECESSARY IF GRADE TO TOP OF VALVE NUT IS GREATER THAN 3'-0".
2. MAY USE VC212 SELF CENTERING VALVE STAND PIPE SETTER FOR 8' SDR 3034.
3. BLUE CARSONITE STAKE REQUIRED WHEN VALVE IS OUTSIDE CITY RIGHT OF WAY IN VEGETATED AREA'S.

	CITY OF BROOKINGS - STANDARD DETAIL	
	TYPICAL POTABLE WATER VALVE BOX	4.31
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



DOUBLE SERVICE PLAN

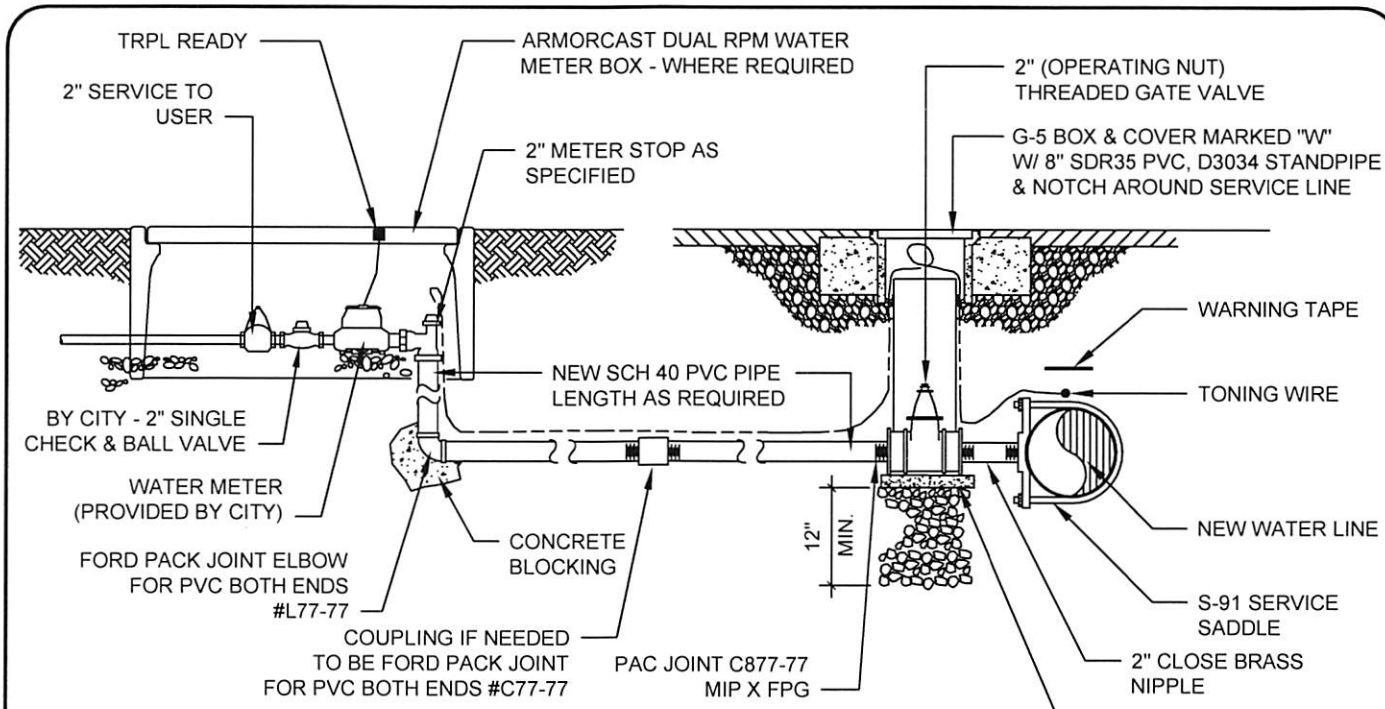
NTS



NOTES:

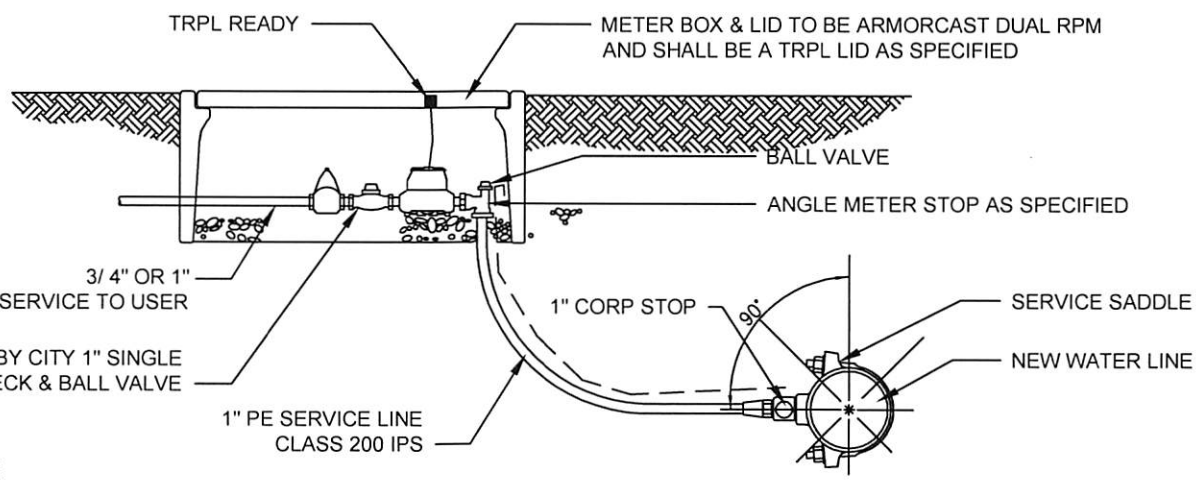
1. NEW SERVICES WILL NOT BE SPLICED WHEN DAMAGED, SERVICE WILL BE RENEWED.
2. SINGLE SERVICES ARE SIMILAR, UNLESS OTHERWISE INDICATED.
3. CITY APPROVED CROSS-CONNECTION CONTROL DEVICES REQUIRED ON ALL NEW AND RENEWED COMMERCIAL, INDUSTRIAL, IRRIGATION AND PARTICULAR RESIDENTIAL WATER SERVICES, REGARDLESS OF SIZE.
4. CONTRACTOR TO PROVIDE AND INSTALL #12 GA. BLUE COATED TRACER WIRE ON ALL P.E. SERVICES.
5. METER BOXES NOT TO BE INSTALLED IN DRIVEWAYS PER BROOKINGS MUNICIPAL CODE (BMC)

BROOKINGS	CITY OF BROOKINGS - STANDARD DETAIL	
	1" or 3/4" METER MANIFOLD	4.32
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



NOTES:
1) PVC-C900 MAINS REQUIRES O.D. CONTROLLED SADDLES.
2) USE FORD PACK JOINT COUPLINGS MALE I.P. X PVC COMPRESSION AT TAPPING VALVE PVC 90° BEND & ANGLE METER STOP. (NO PVC MALE OR FEMALE ADAPTERS)
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION.

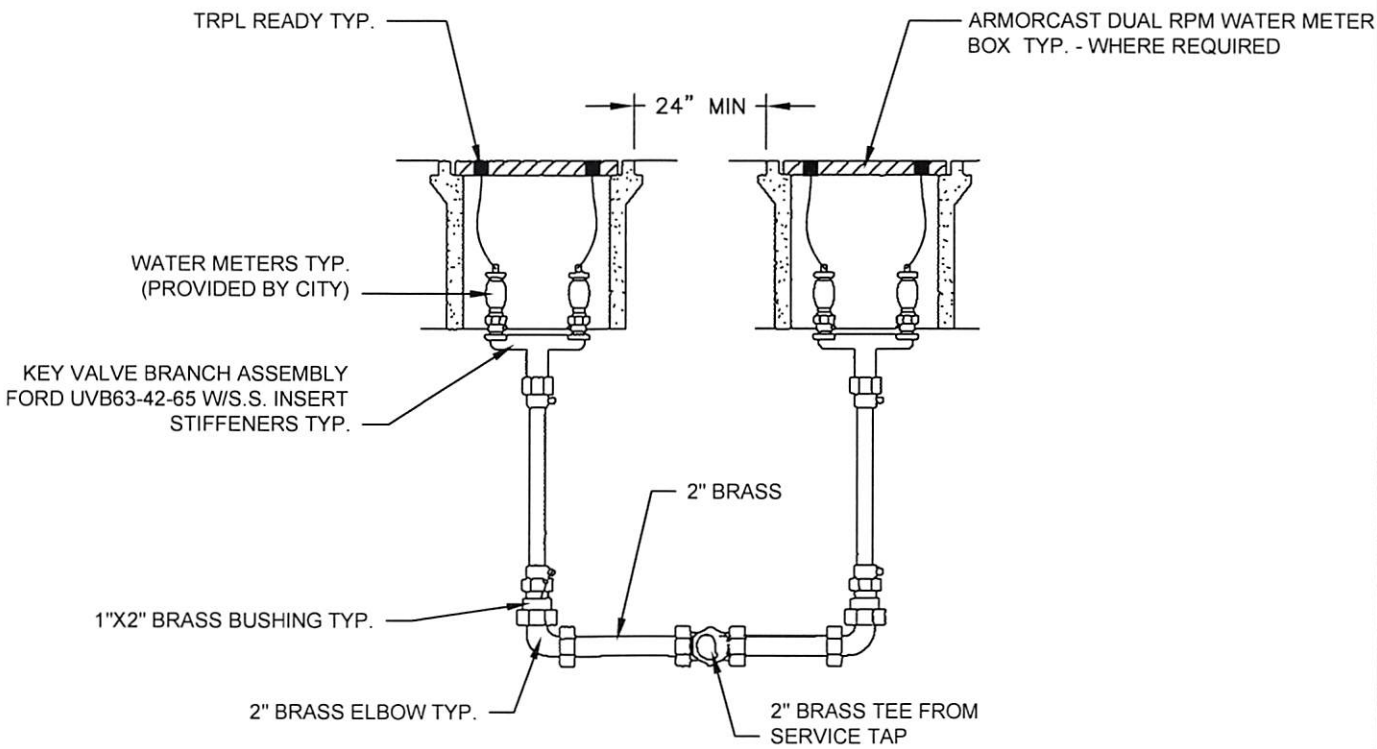
TYPICAL 2" WATER SERVICE



NOTES:
1) PVC-C900 MAINS REQUIRES O.D. CONTROLLED SADDLES.
2) USE FORD PACK JOINT COUPLINGS MALE I.P. X PE COMPRESSION AT TAPPING VALVE, AND AT CONNECTION TO ANGLE METER STOP. (NO PVC MALE OR FEMALE ADAPTERS)
3) NO. 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION.
4) P.E. SERVICE TO BE TAPPED 90° OFF OF MAINLINE EITHER 3 OR 9 O'CLOCK POSITION UNLESS APPROVED BY CITY
5) WHEN INSTALLING 3/4" METER USE FORD A24 METER BUSHING FOR 1" ANGLE METER STOP. MAY INSTALL WYE BRANCH FOR 5/8" X 3/4" METERS UPON CITY APPROVAL.

TYPICAL 1" WATER SERVICE

	CITY OF BROOKINGS - STANDARD DETAIL	
	1" & 2" WATER SERVICE	**4.33**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



2" MANIFOLD SECTION

SEE DETAIL 4.33 FOR SERVICE TAP DETAILS

NOTES:

1. ALL LOCATIONS OF SERVICE LATERALS 3/4"-2" SHALL BE NOTED ON THE CURB WITH A MARKED "W" INSTALLED IN THE CURB.
2. #12 AWG SOLID CORE TONING WIRE AND TAPE.
3. USE FORD PACK JOINT COUPLINGS MALE I.P. x PVC COMPRESSION @ 2" TAPPING VALVE AND AT CONNECTION TO METER MANIFOLD ASSEMBLY.
4. USE FORD 1" MALE IP x PE ADAPTER #C86-44 WITH S.S. INSERT FOR DUAL SERVICE.
5. AMOUNT OF METERS ON ASSEMBLY DETERMINED BY PROJECT ENGINEER'S FLOW CALCULATIONS.
6. ALL METER BOX COVERS MUST BE "TRPL" READY.
7. BRASS MUST BE LEAD FREE AFTER JANUARY 1, 2014

- NO 12 AWG TONING WIRE SOLID COPPER WITH BLUE INSULATION

2" MANIFOLD ASSEMBLY FOR EVEN AMOUNT OF 5/8" OR 3/4" WATER METERS

METER ASSEMBLY:

NO MORE THAN 4 TOTAL 5/ 8 INCH METERS PER 2 INCH MANIFOLD. ADDITIONAL METERS WILL REQUIRE NEW CONNECTIONS OR DIFFERENT SIZED METER MUST HAVE ENGINEERED FLOW CALCULATIONS

	CITY OF BROOKINGS - STANDARD DETAIL	
	2" MANIFOLD FOR UP TO 4 - 5/8" METERS	**4.33a**
	APPROVED BY RESOLUTION 14-R-1024 / DATE: 3/29/17	

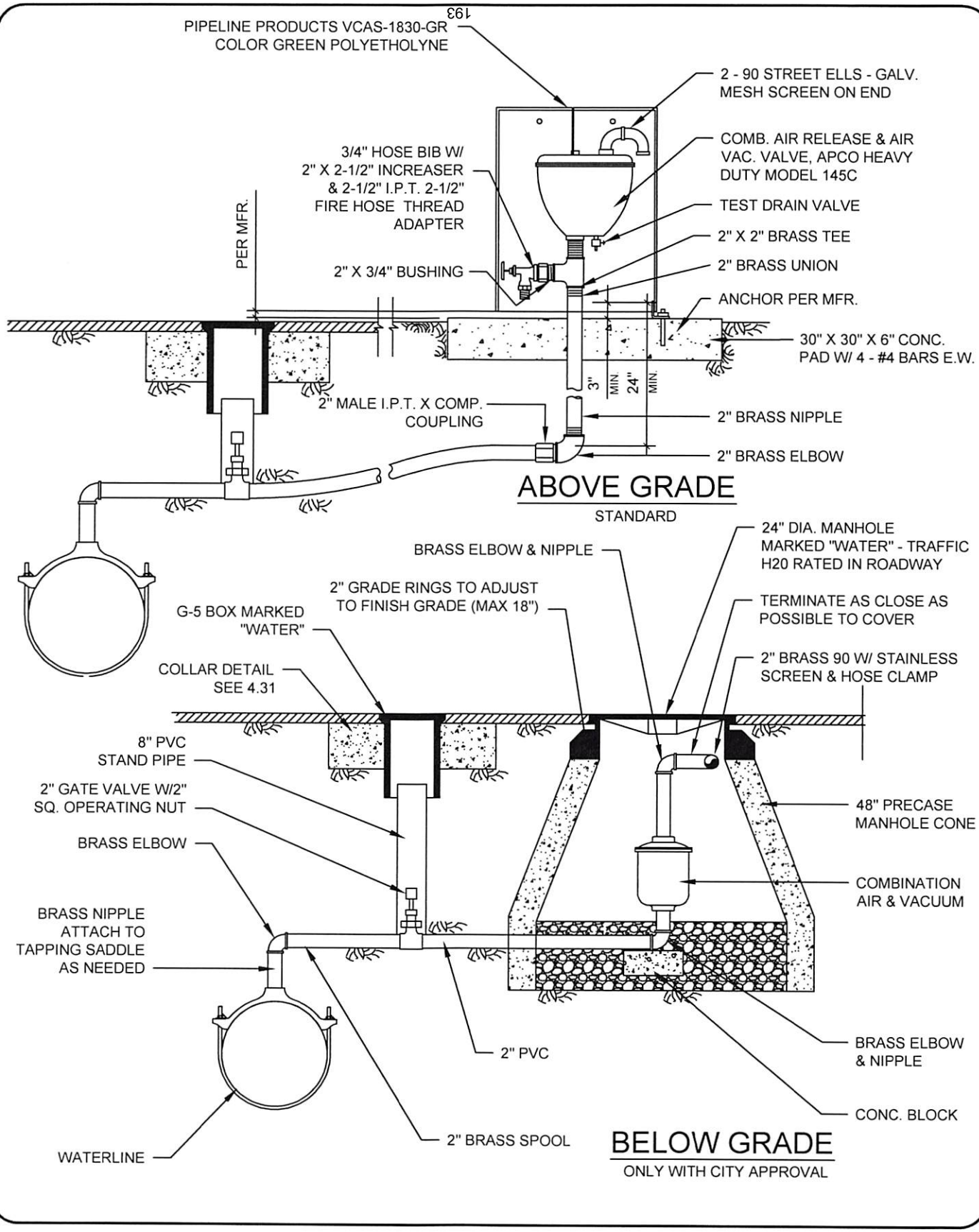
CITY OF BROOKINGS - STANDARD DETAIL

2" WATER BLOW OFF ASSEMBLY

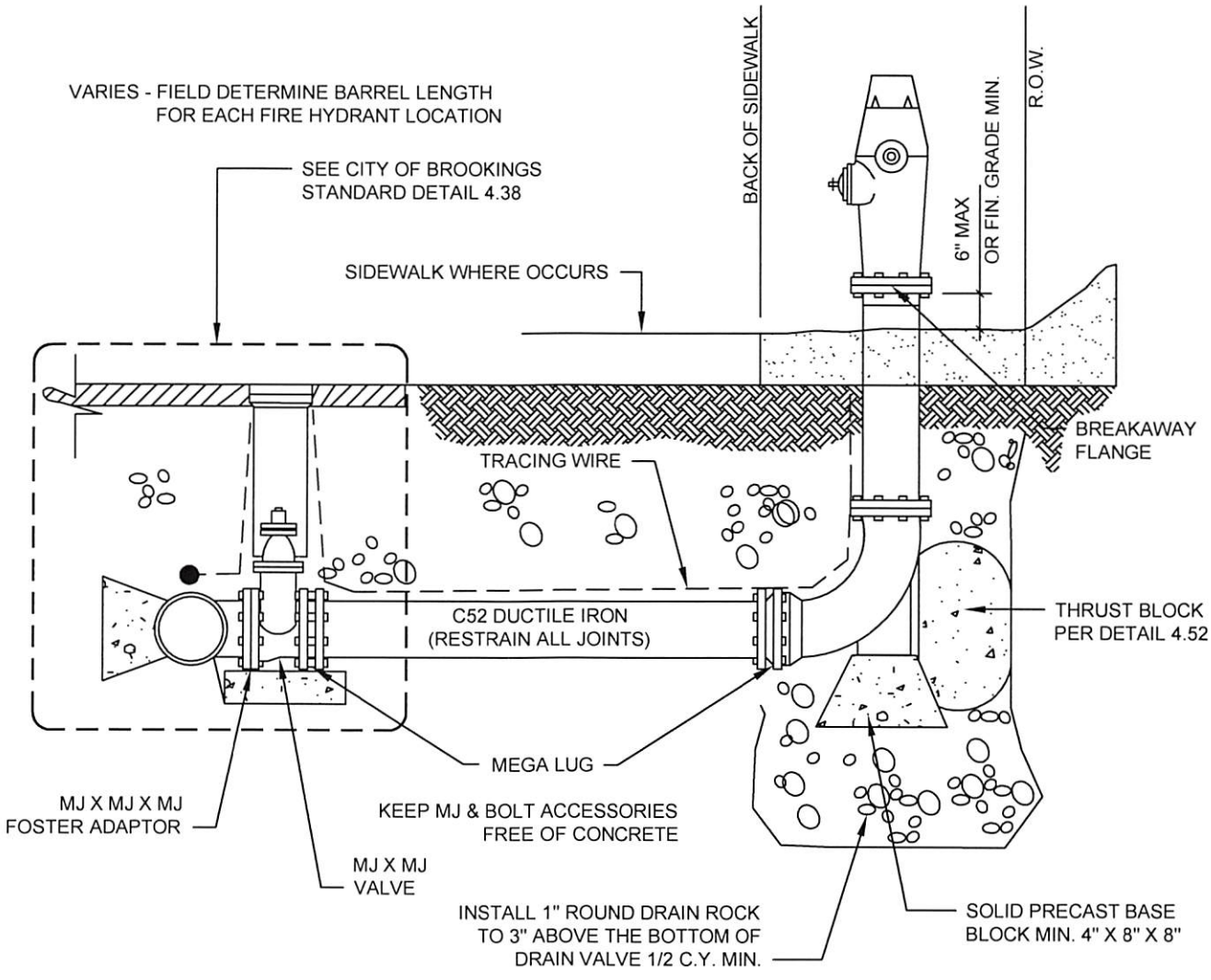
4.34

APPROVED BY RESOLUTION 14-R-1024

DATE: 3/29/17



	CITY OF BROOKINGS - STANDARD DETAIL	
	1" & 2" COMBINATION AIR & VACUUM RELIEF	**4.36**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



NOTES

1) RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINT FITTINGS, "MEGA LUG"

2) THERE SHALL BE A MINIMUM OF 36" HORIZONTAL CLEARANCE AROUND HYDRANT.

3) FIRE HYDRANTS SHALL BE PLACED TO PROVIDE A MINIMUM OF 5' CLEARANCE FROM DRIVEWAYS, POLES, AND OTHER OBSTRUCTIONS.

4) WHEN PLACED ADJACENT TO CURB, HYDRANT PORT SHALL BE 24" FROM FACE OF CURB & MAINTAIN ADA SIDE WALK WIDTHS.

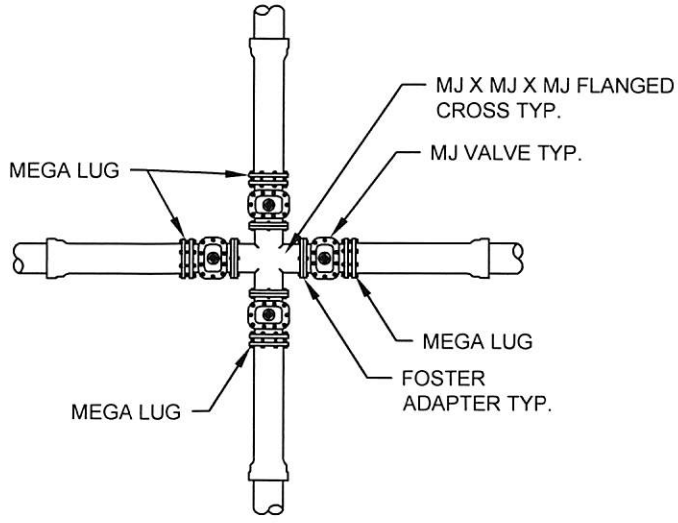
5) CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AS PER THRUST BLOCK STANDARD DRAWING 4.52. DO NOT BLOCK DRAIN HOLES & COVER MJ GLANDS & ACCESSORIES.

6) EXTENSIONS REQUIRED FOR HYDRANT SYSTEMS SHALL BE INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS.

7) HYDRANT PUMPER PORT SHALL FACE DIRECTION OF ACCESS.

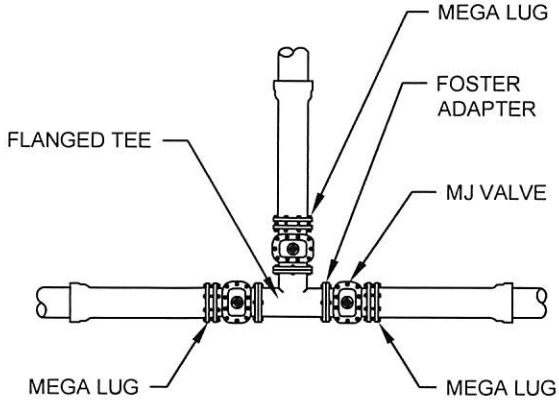
8) INSTALL BOLLARDS (DETAIL 5.18) WHERE NEEDED TO PROTECT FROM COLLISION

	CITY OF BROOKINGS - STANDARD DETAIL	
	FIRE HYDRANT ASSEMBLY	**4.37**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



CROSS - TYPICAL CONNECTIONS

NTS



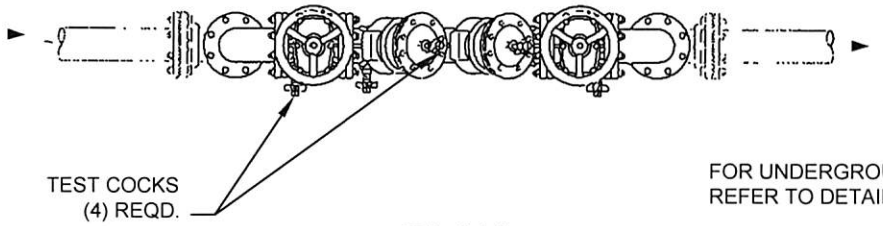
TEE - TYPICAL CONNECTIONS

NTS

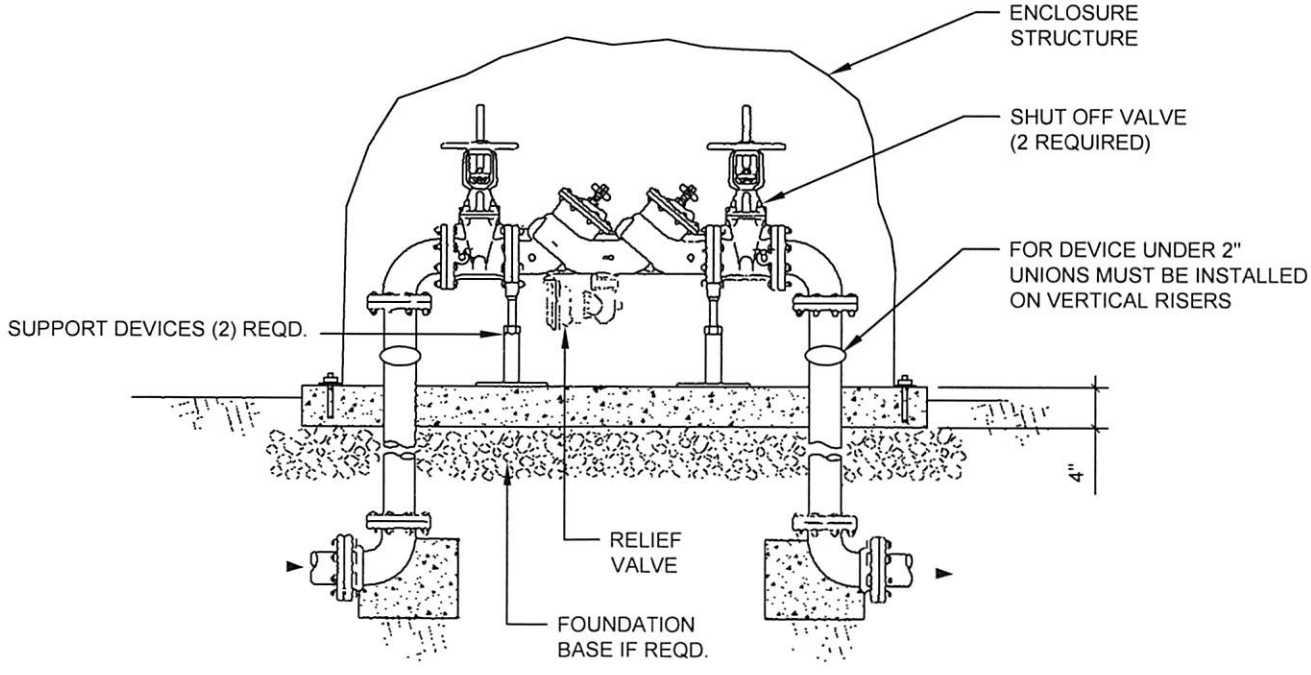
NOTES:

1. VALVES SHALL GENERALLY BE LOCATED ON EACH BRANCH OF WATER MAIN INTERSECTIONS. WHERE RELATIVELY SHORT LINES (LESS THAN 500 FEET IN LENGTH) ARE INVOLVED, ONE OF THE TWO VALVES BETWEEN INTERSECTIONS MAY BE OMITTED.
2. WATER MAINS IN PUBLIC STREETS SHALL BE LOCATED PARALLEL TO AND 5 FEET NORTH OR WEST OF STREET CENTERLINES WHENEVER POSSIBLE.
3. SEE DETAIL 4.40 FOR CUT IN CONSTRUCTION DETAIL
4. VALVES SHALL BE C509 DOMESTIC DUCTILE IRON ONLY. VALVES SHALL BE FUSION EPOXY COATED WITH STAINLESS TRIM. CROSSES AND TEES ARE TO BE C153 DOMESTIC DUCTILE IRON WITH FUSION EPOXY COATING ONLY.

CITY OF BROOKINGS - STANDARD DETAIL	
WATER MAIN CONNECTION AT INTERSECTIONS	**4.39**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



PLAN



SECTION

NOTES:
BACKFLOW PREVENTION ASSEMBLIES -

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. SHALL ALWAYS BE INSTALLED HORIZONTALLY, NEVER VERTICALLY, UNLESS THEY ARE SPECIFICALLY APPROVED FOR VERTICAL INSTALLATION.

C. SHALL ALWAYS BE INSTALLED ABOVE THE 100 YEAR (1%) FLOOD LEVEL UNLESS APPROVED BY THE CITY.

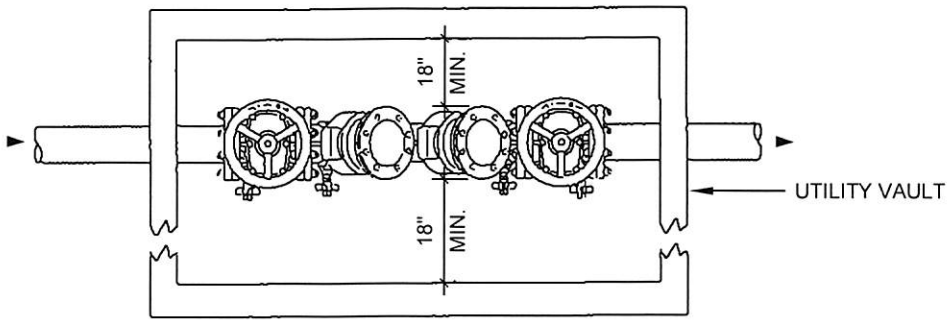
D. SHALL NEVER HAVE EXTENDED OR PLUGGED RELIEF VALVES

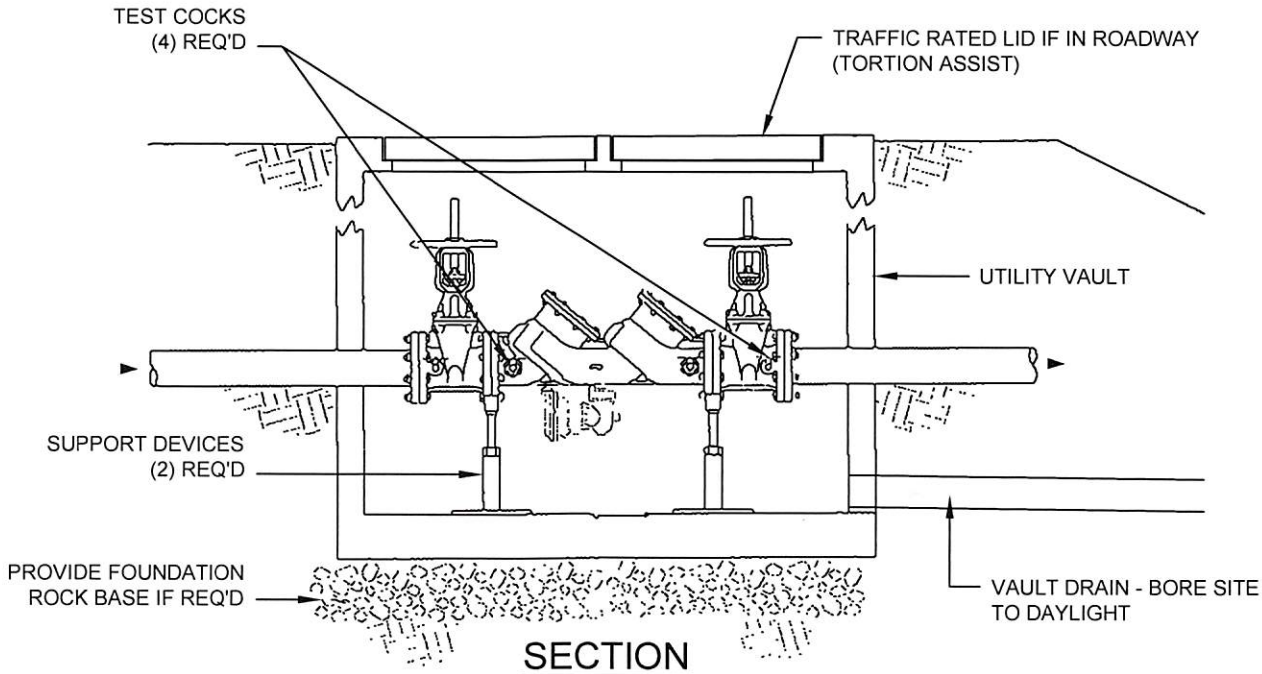
E. SHALL BE PROTECTED FROM FREEZING WHEN NECESSARY

F. SHALL BE PROVIDED WITH AN APPROVED AIR GAP DRAIN.

G. MAY BE INSTALLED WITH REDUCED CLEARANCES IF THE PIPES ARE 2 INCHES IN DIAMETER OR SMALLER, PROVIDED THAT THEY ARE ACCESSIBLE FOR THE TESTING AND REPAIRING, AND APPROVED BY THE CITY.

	CITY OF BROOKINGS - STANDARD DETAIL	
	RP OR DC STANDARD BACKFLOW ASSEMBLY ABOVE GROUND	**4.41**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17





SECTION

NOTES:
BACKFLOW PREVENTION ASSEMBLIES

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. SHALL CONFORM TO BOTTOM AND SIDE CLEARANCES WHEN THE BACKFLOW ASSEMBLY IS INSTALLED INSIDE A VAULT.

C. MAY BE INSTALLED VERTICALLY AS WELL AS HORIZONTALLY PROVIDED THE ASSEMBLY IS SPECIFICALLY LISTED FOR THAT ORIENTATION IN THE DEPARTMENTS APPROVED BACKFLOW PREVENTION ASSEMBLY LIST.

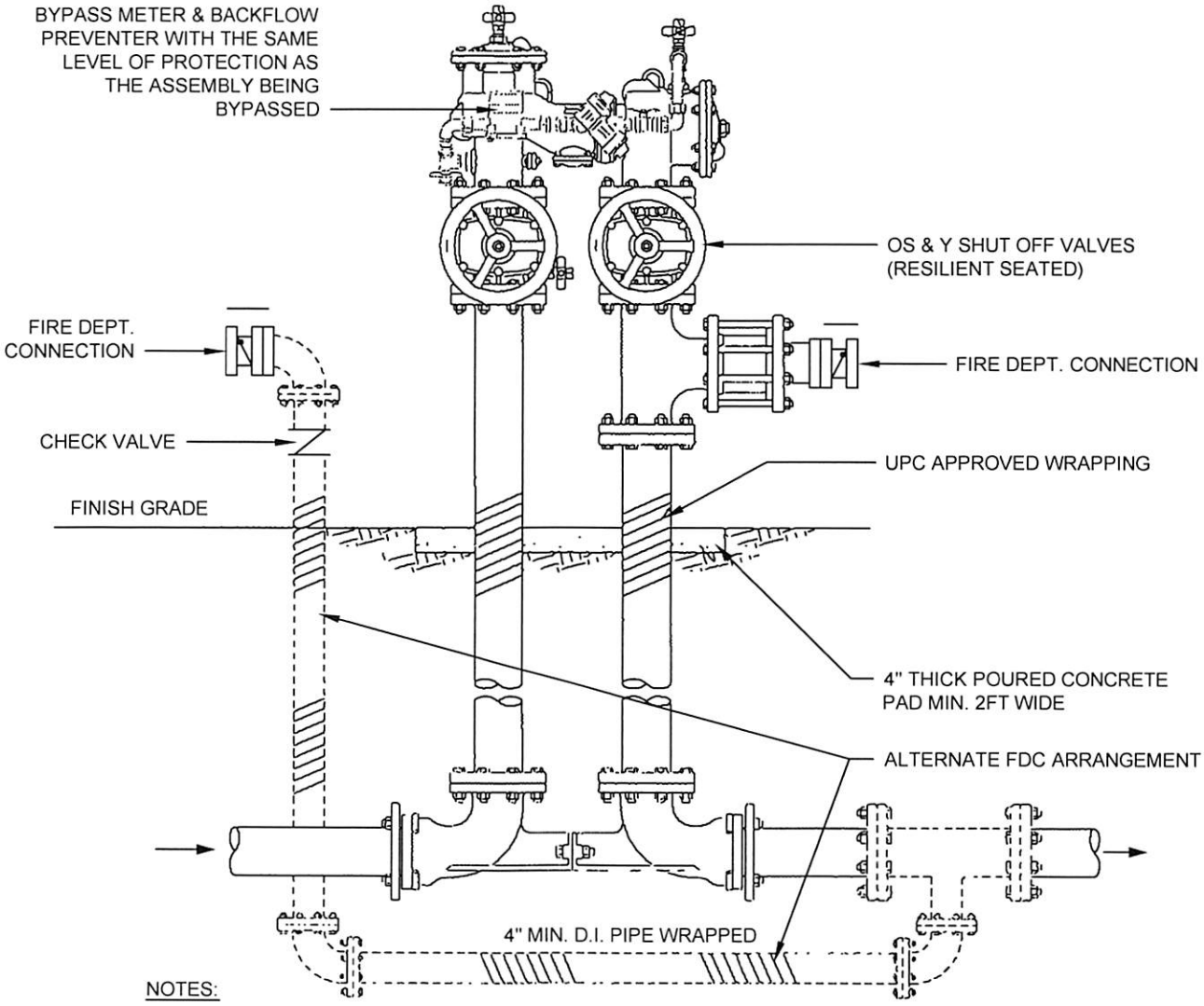
D. PROVIDE THAT WATER-TIGHT FITTED PLUGS OR CAPS ARE INSTALLED IN/ ON EACH TEST PORT, AND THE ASSEMBLY SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION.

E. SHALL NOT BE INSTALLED AT A HEIGHT GREATER THAN 5 FEET UNLESS THERE IS A PERMANENTLY INSTALLED PLATFORM MEETING OREGON OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OR-OSHA) STANDARDS TO FACILITATE SERVICING THE ASSEMBLY.

F. MAY BE INSTALLED WITH REDUCED CLEARANCES IN THE PIPES ARE 2 INCHES IN DIAMETER OR SMALLER, PROVIDED THAT THEY ARE ACCESSIBLE FOR TESTING AND REPAIRING, AND APPROVED BY THE CITY.

G. VAULT WITH RP REQUIRES 4 INCHES PVC DRAIN SITED TO DAYLIGHT FOR FREE DRAINAGE.

CITY OF BROOKINGS - STANDARD DETAIL		
DOUBLE CHECK OR RP BELOW GROUND VAULT		**4.42**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17	



NOTES:

A. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE ON THE APPROVED LIST OF THE UNIVERSITY OF OREGON FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.

B. FIRE DEPARTMENT CONNECTION TO REMAIN VISIBLE AND ACCESSIBLE. PAINT SAFETY YELLOW.

C. D.I. PIPE TO BE PROTECTED WRAP CA-1200. POLYGUARD CA-14 MASTIC OR APPROVED EQUAL.

D. ALL CONNECTIONS TO BE FLANGED.

E. ALL TRIM HARDWARE TO BE BRASS OR BRONZE.

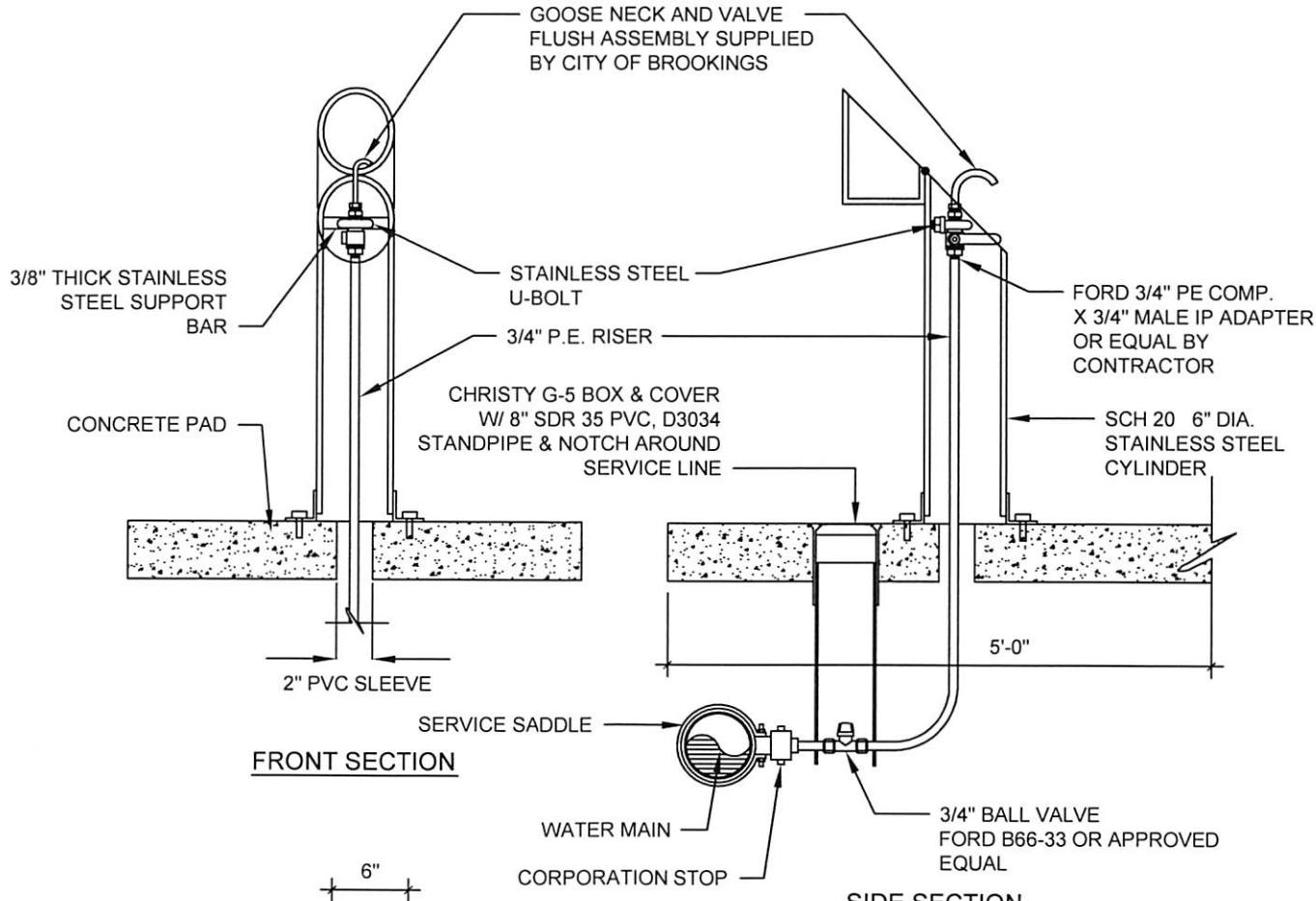
F. METER TO BE CUBIC FT. REGISTRATION.

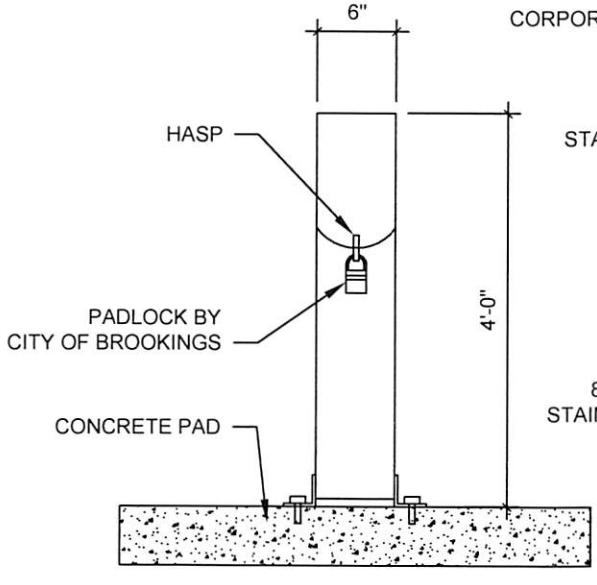
G. MASTIC ALL BOLTS/NUTS OR USE STAINLESS STEEL COMPONENTS.

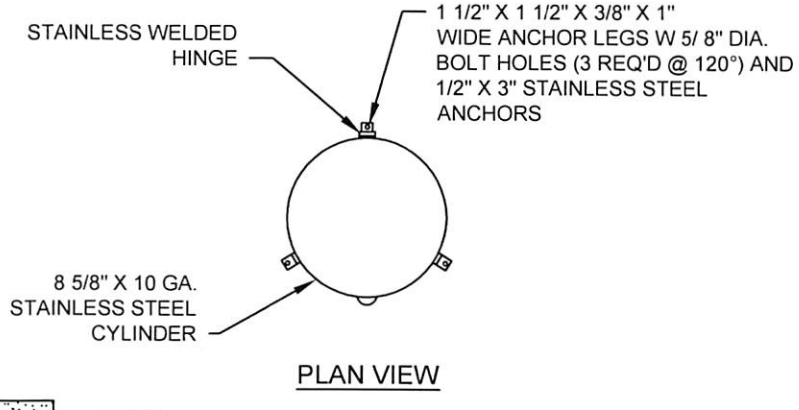
H. FIRE DEPT. CONNECTION TO BE LOCATED PER FIRE MARSHALL.

I. DCDA TO BE LOCATED WITH IN 10 FT. OF PROPERTY LINE.

CITY OF BROOKINGS - STANDARD DETAIL		4.44
FIRE SERVICE DOUBLE CHECK BACKFLOW ASSEMBLY		
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17	



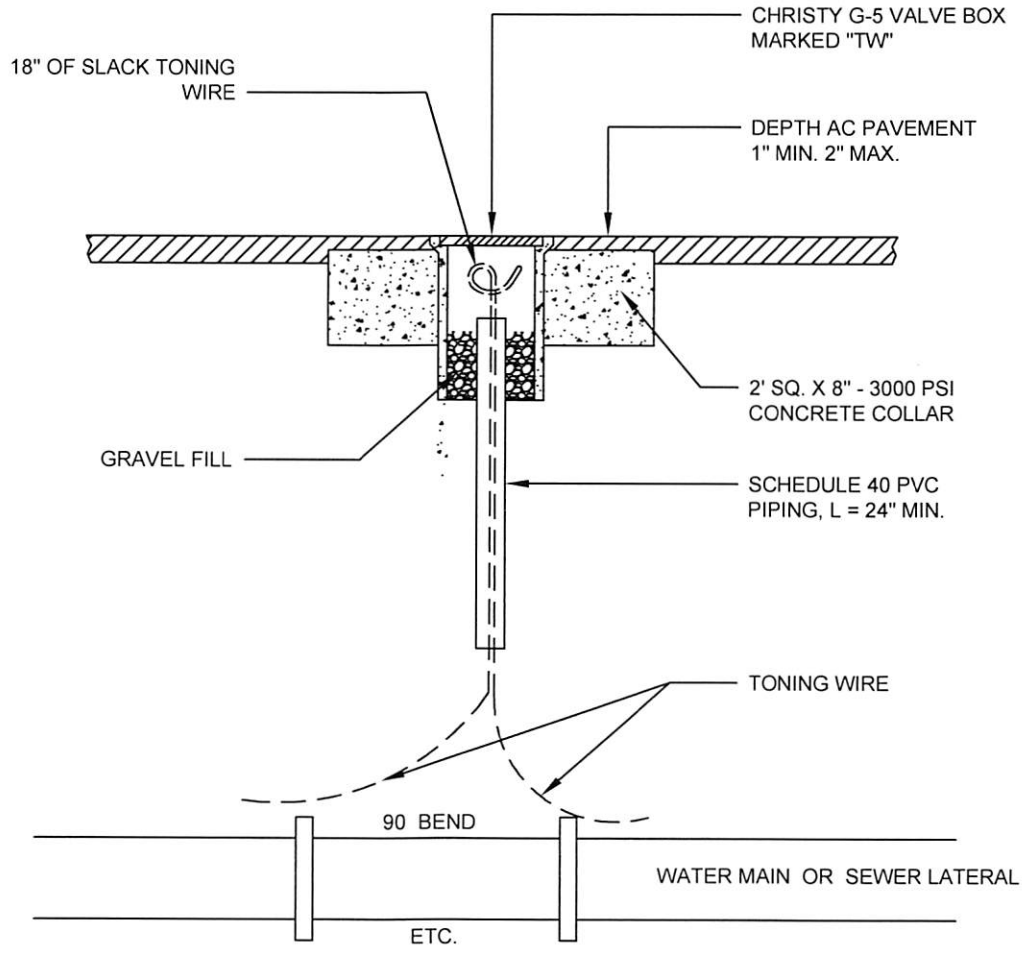




NOTES:
WATER SAMPLING STATION ENCLOSURE SHALL BE PIPELINE PRODUCTS (WTS-858-SS) OR CITY APPROVED EQUAL.

A. ALL STAINLESS STEAL SHALL BE 316

CITY OF BROOKINGS - STANDARD DETAIL	
WATER SAMPLING STATION	**4.46**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17

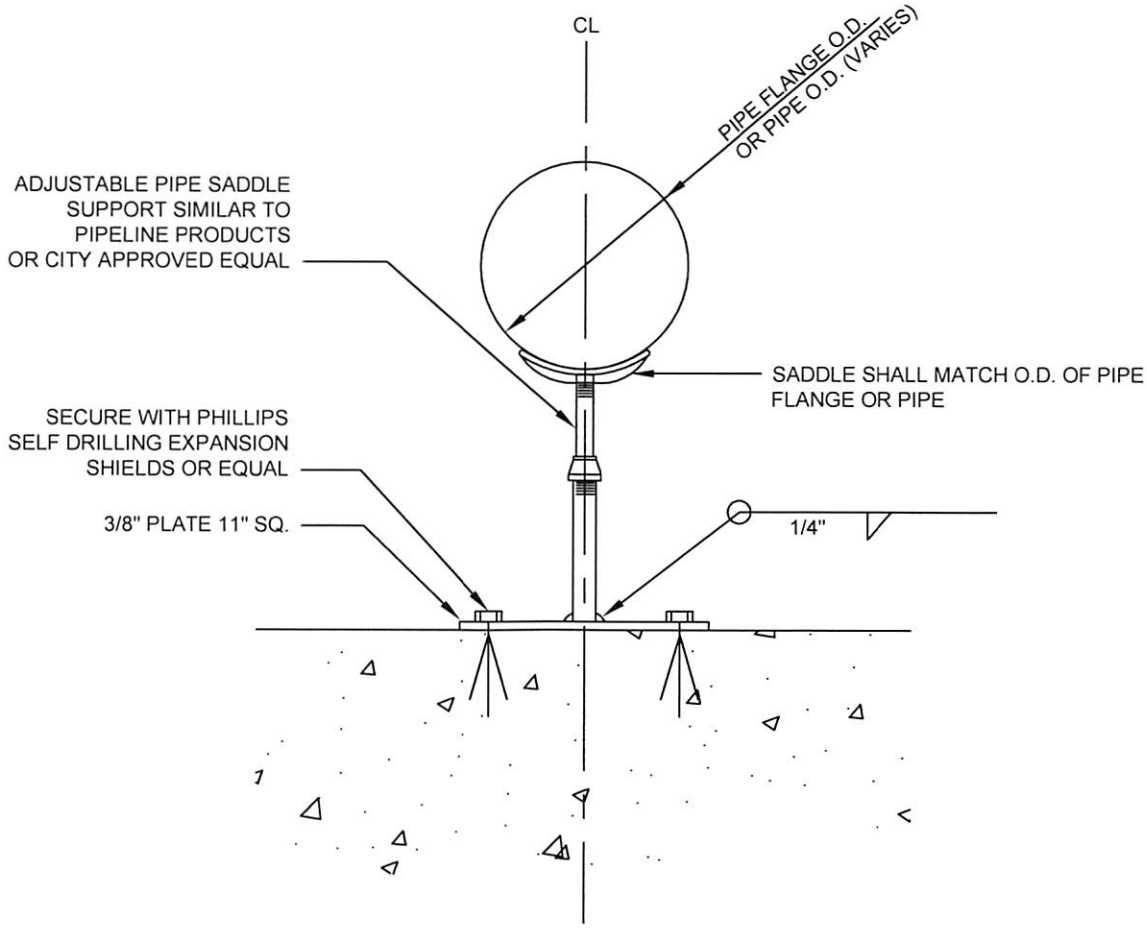


NOTES:

1) PLACE TONING WIRE BOX ABOVE NEW D.I.P. WATERLINE FITTING. TONING WIRE SHALL BE BROUGHT TO SURFACE INSIDE EACH TONING WIRE BOX LOCATED ABOVE D.I.P. FITTING.

2) WHEN WATER VALVES ARE NOT AVAILABLE FOR TONING WIRE STATIONS SURFACE TONING WIRE AT 500' SPACING.

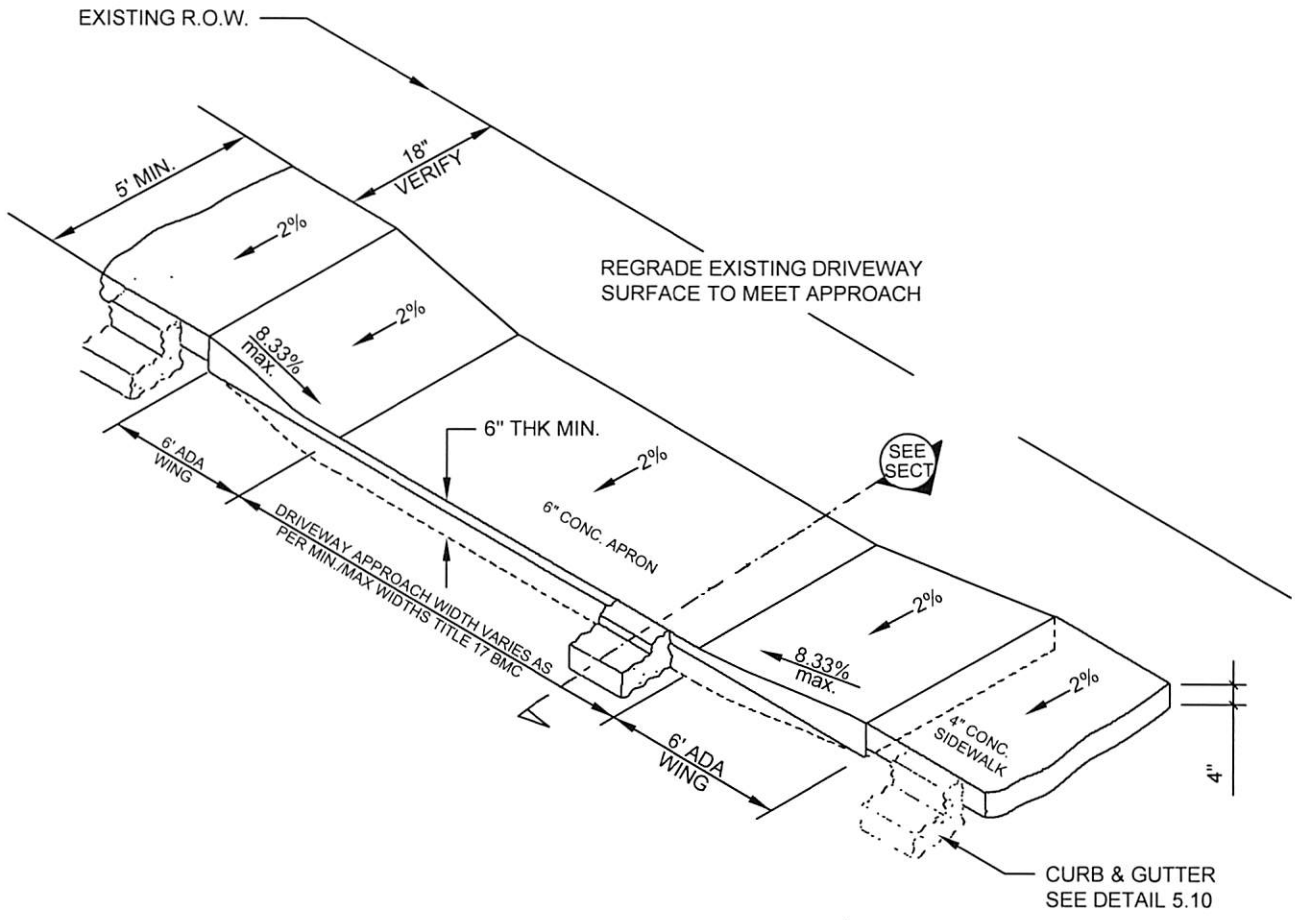
	CITY OF BROOKINGS - STANDARD DETAIL	
	TONING / LOCATING WIRE BOX	4.51
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17

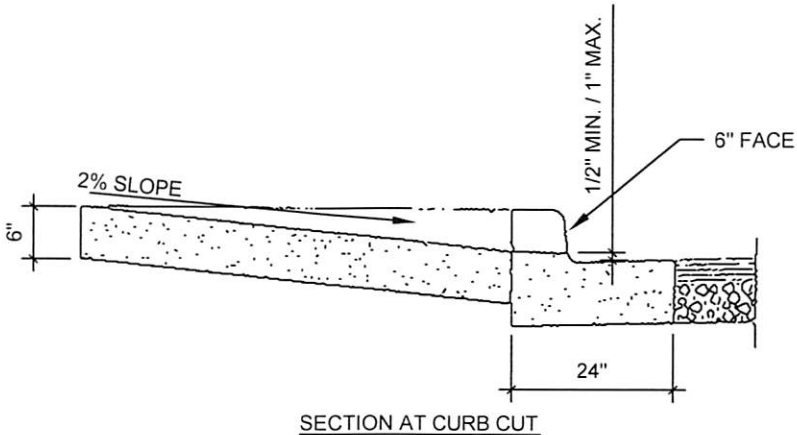


CITY OF BROOKINGS - STANDARD DETAIL	
PIPE SUPPORT DETAIL	**4.54**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17

	CITY OF BROOKINGS - STANDARD DETAIL	
	STANDARD CURB & GUTTER	5.10
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17

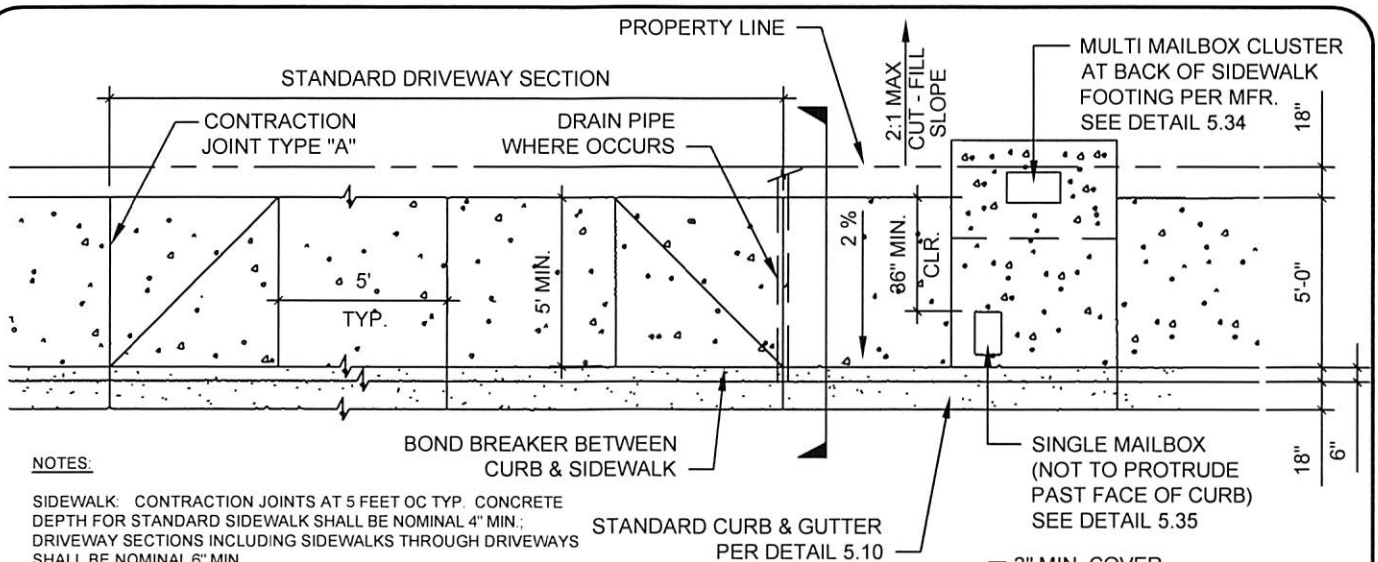
NOTE:
1. REFER TO DETAIL 5.13 FOR CONTRACTION JOINTS
2. MINIMUM DIMENSION STANDARDS NOTED
3. CONCRETE PER SPECIFICATIONS





SECTION AT CURB CUT

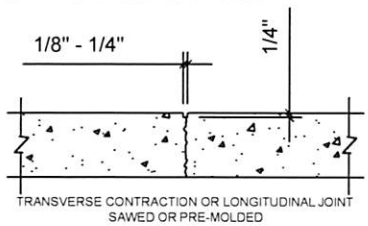
CITY OF BROOKINGS - STANDARD DETAIL		5.12
DRIVEWAY CURB CUT		
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17	



NOTES:

SIDEWALK: CONTRACTION JOINTS AT 5 FEET OC TYP. CONCRETE DEPTH FOR STANDARD SIDEWALK SHALL BE NOMINAL 4" MIN.; DRIVEWAY SECTIONS INCLUDING SIDEWALKS THROUGH DRIVEWAYS SHALL BE NOMINAL 6" MIN.

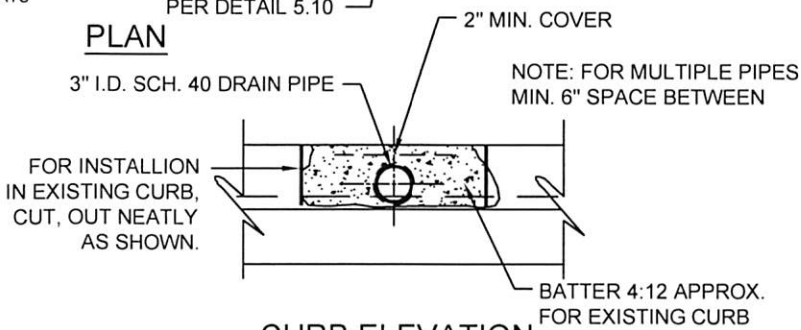
CURB: CONTRACTION JOINTS AT 15 FEET



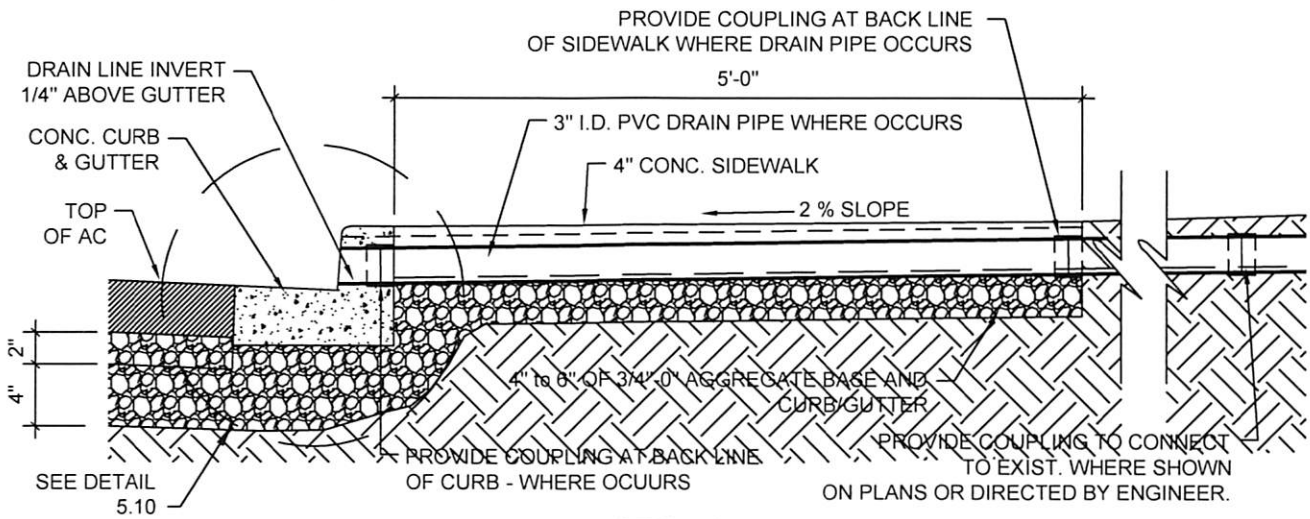
JOINT TYPE A

CONTROL (CONTRACTION) JOINTS

PLAN



CURB ELEVATION



SECTION

NOTE:

1. (2) DRAINS PER LOT MAXIMUM. NO DRAIN TO BE INSTALLED WITHIN DRIVEWAY AREA OR WITHIN 1 FT. OF WATER METER BOX OR SEWER CLEANOUT.
2. WHERE LOCATIONS PERMIT A CONTRACTION JOINT CENTERED OVER TOP OF PIPE MAY BE USED IN LIEU OF MESH. PRIOR APPROVAL BY CITY ENGINEER REQ'D.

* 3. IF ROLLED CURB USE 6' SIDEWALK

CITY OF BROOKINGS - STANDARD DETAIL	
CURB & SIDEWALK PLAN	**5.13**
APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17

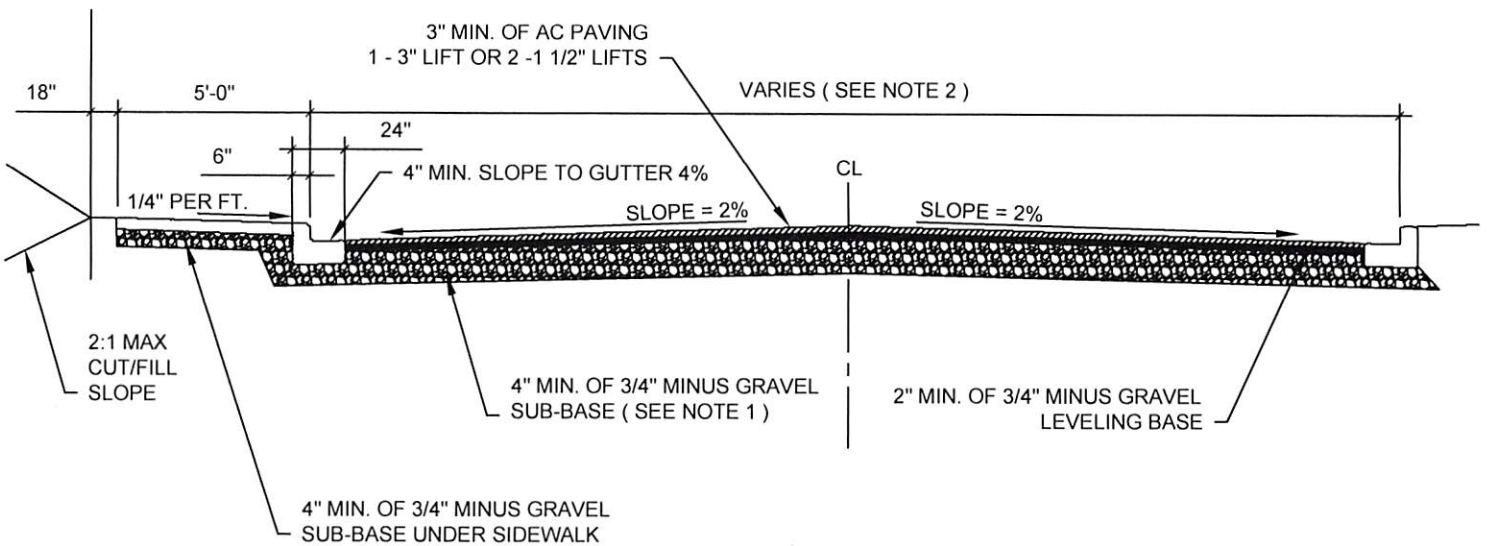
CITY OF BROOKINGS - STANDARD DETAIL

TYPICAL STREET SECTION

APPROVED BY RESOLUTION 14-R-1024
205

DATE: 3/29/17

5.14

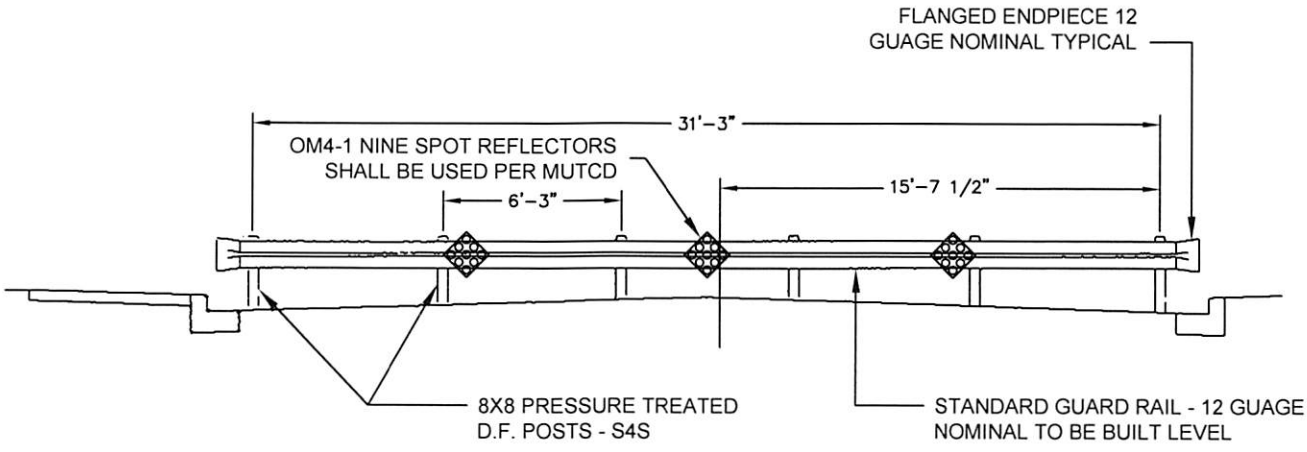


SECTION

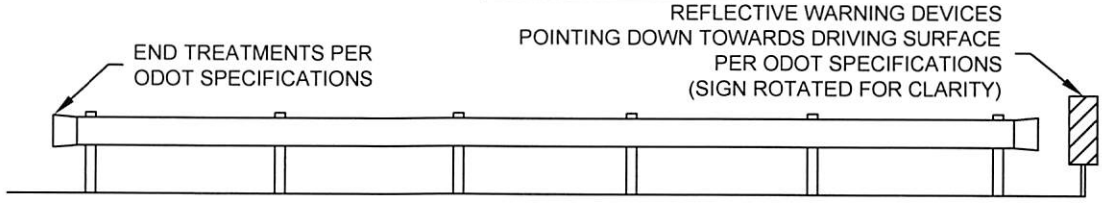
NOTE:

1. ACTUAL BASE REQUIREMENTS MAY BE ALTERED BY CITY DUE TO PARTICULAR SITE CHARACTERISTICS

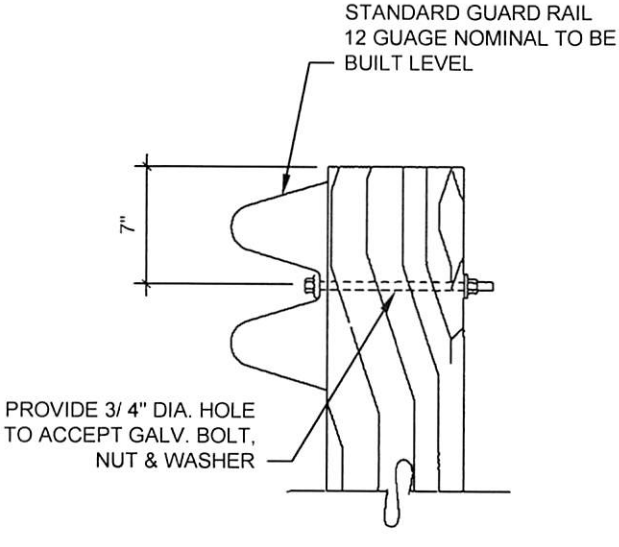
2. WIDTH TO BE IN ACCORDANCE WITH CITY OF BROOKINGS SUBDIVISION ORDINANCE



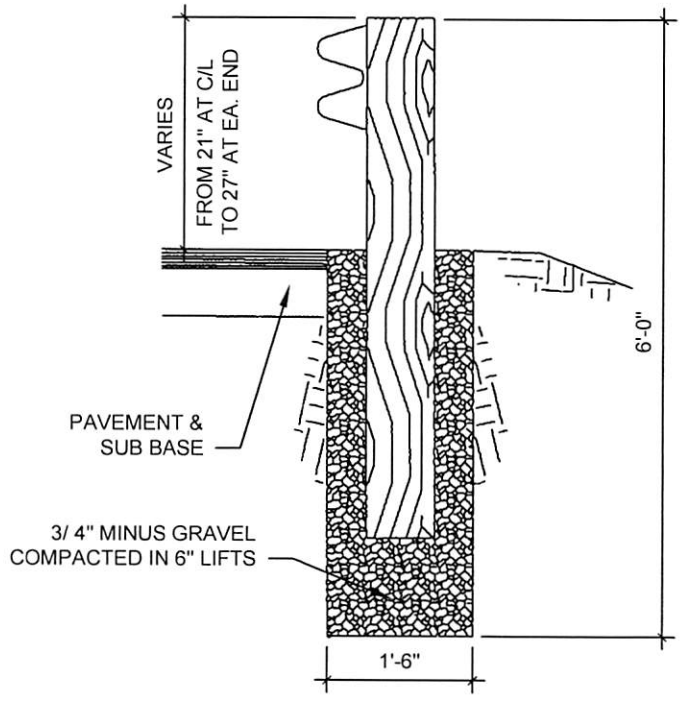
END OF STREET



SIDE OF STREET



ASSEMBLY DETAIL



SECTION

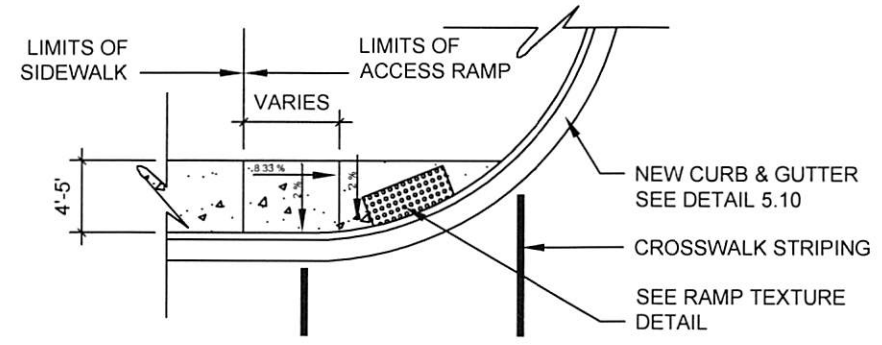
CITY OF BROOKINGS - STANDARD DETAIL

GUARD RAIL BARRIER

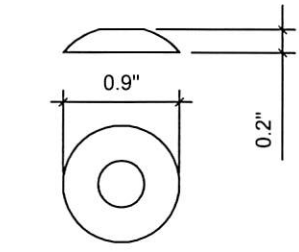
5.16

APPROVED BY RESOLUTION 14-R-1024

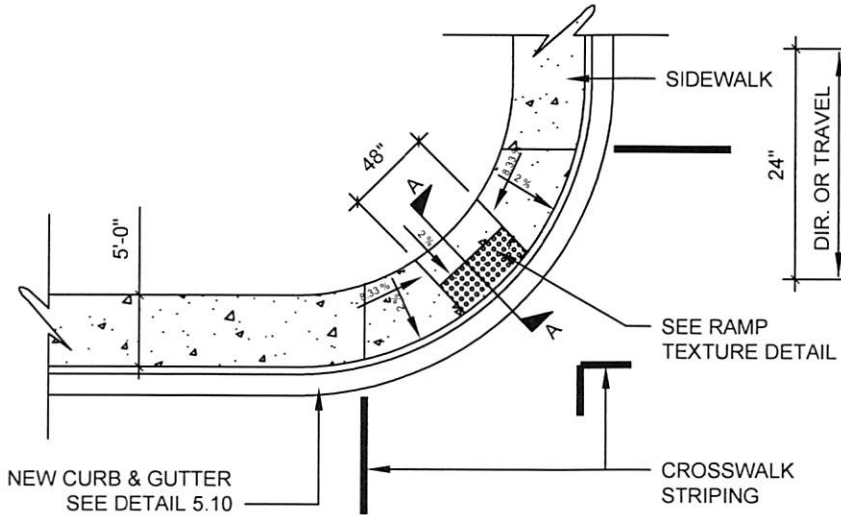
DATE: 3/29/17



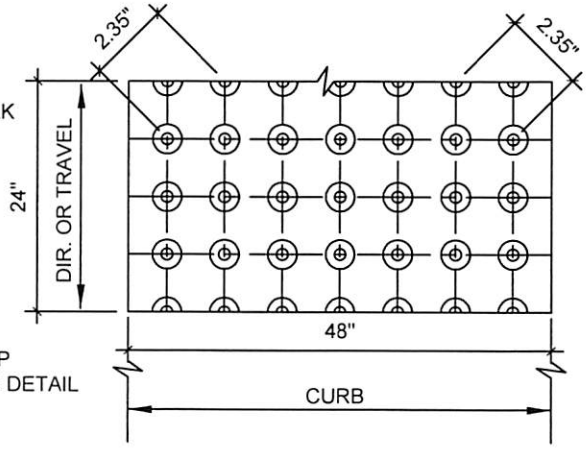
TYPE I SIDWALK ACCESS RAMP



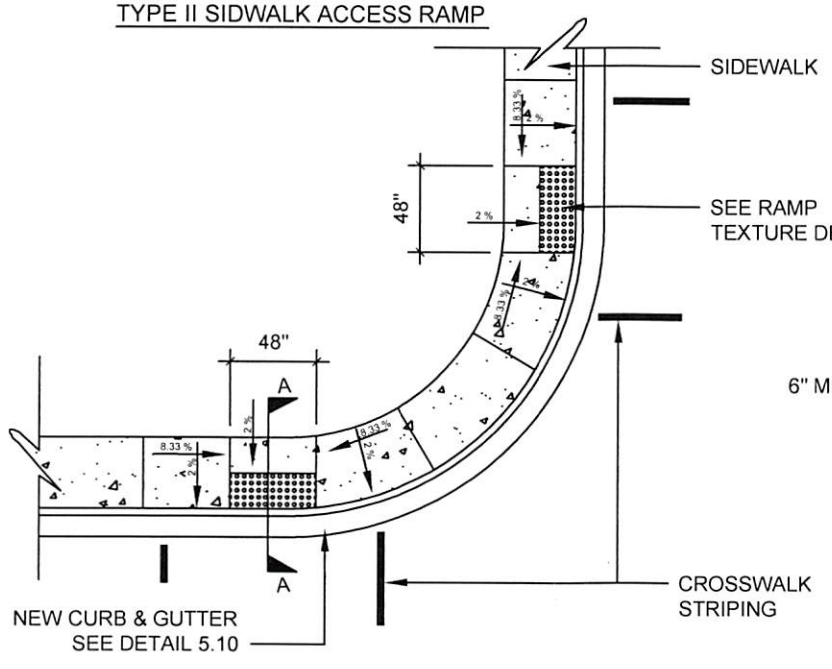
TRUNCATED DOME DETAIL



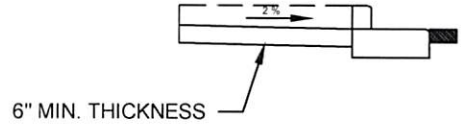
TYPE II SIDWALK ACCESS RAMP



ACCESS RAMP TEXTURE PATTERN DETAIL



TYPE III SIDWALK ACCESS RAMP



SECTION A-A

NOTES:

1) TRUNCATED DOMES SHALL BE ADA COMPLIANT TRAFFIC RATED PANELS

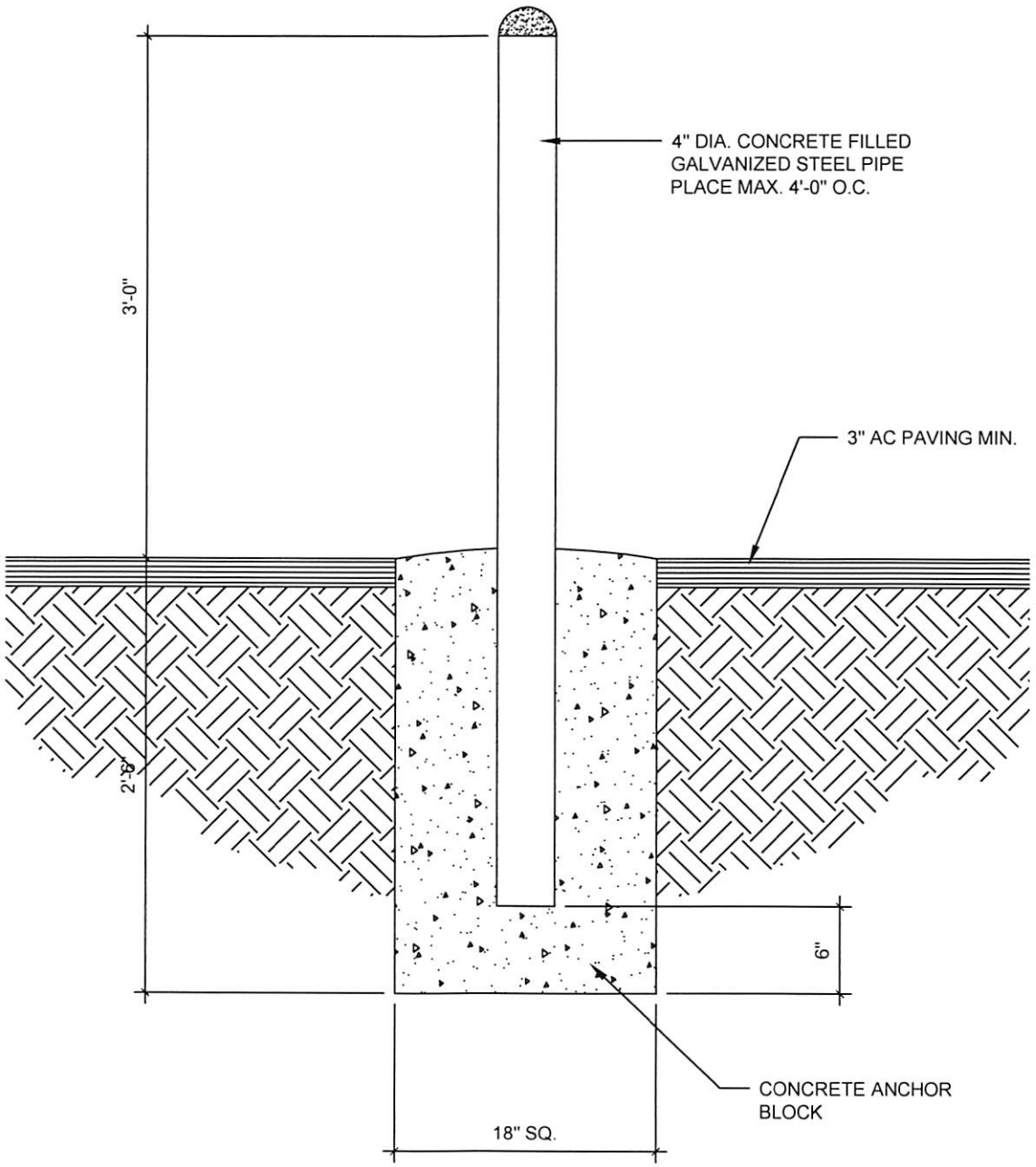
CITY OF BROOKINGS - STANDARD DETAIL

SIDEWALK ACCESS RAMP DETAILS

5.17

APPROVED BY RESOLUTION 14-R-1024

DATE: 3/29/17



CITY OF BROOKINGS - STANDARD DETAIL

GUARD POST

5.18

APPROVED BY RESOLUTION 14-R-1024

DATE: 3/29/17

ALL SIGNS ARE TO BE DIAMOND GRADE, REFLECTIVE SHEATHING. STREET NAME SIGNS ARE TO BE EXTRUDED DOUBLE SIDED.

NO PARKING THIS SIDE OF STREET
RED ON WHITE BACKGROUND
12" x 18"

STOP SIGN STANDARD 24" x 24"

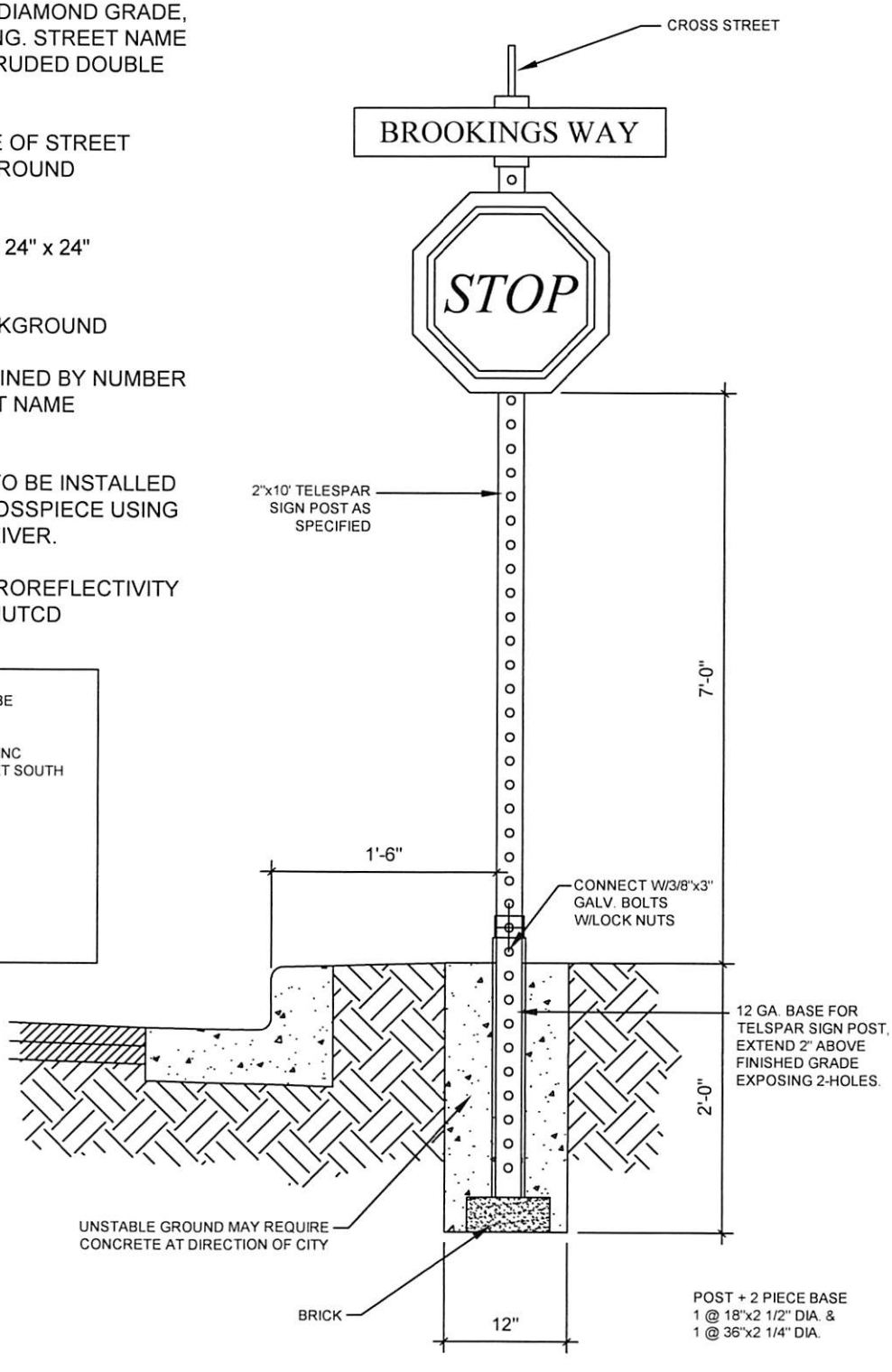
STREET NAME SIGN
WHITE ON GREEN BACKGROUND
4" LETTERING ON 6"
SIGN-LENGTH DETERMINED BY NUMBER OF LETTERS IN STREET NAME
ON EXTRUDED BLADE

STREET NAME SIGNS TO BE INSTALLED W/2" CAP. AND 90Ø CROSSPIECE USING 5 1/4" EXTRUDED RECEIVER.

MUST COMPLY W/ RETROREFLECTIVITY REQUIREMENTS PER MUTCD

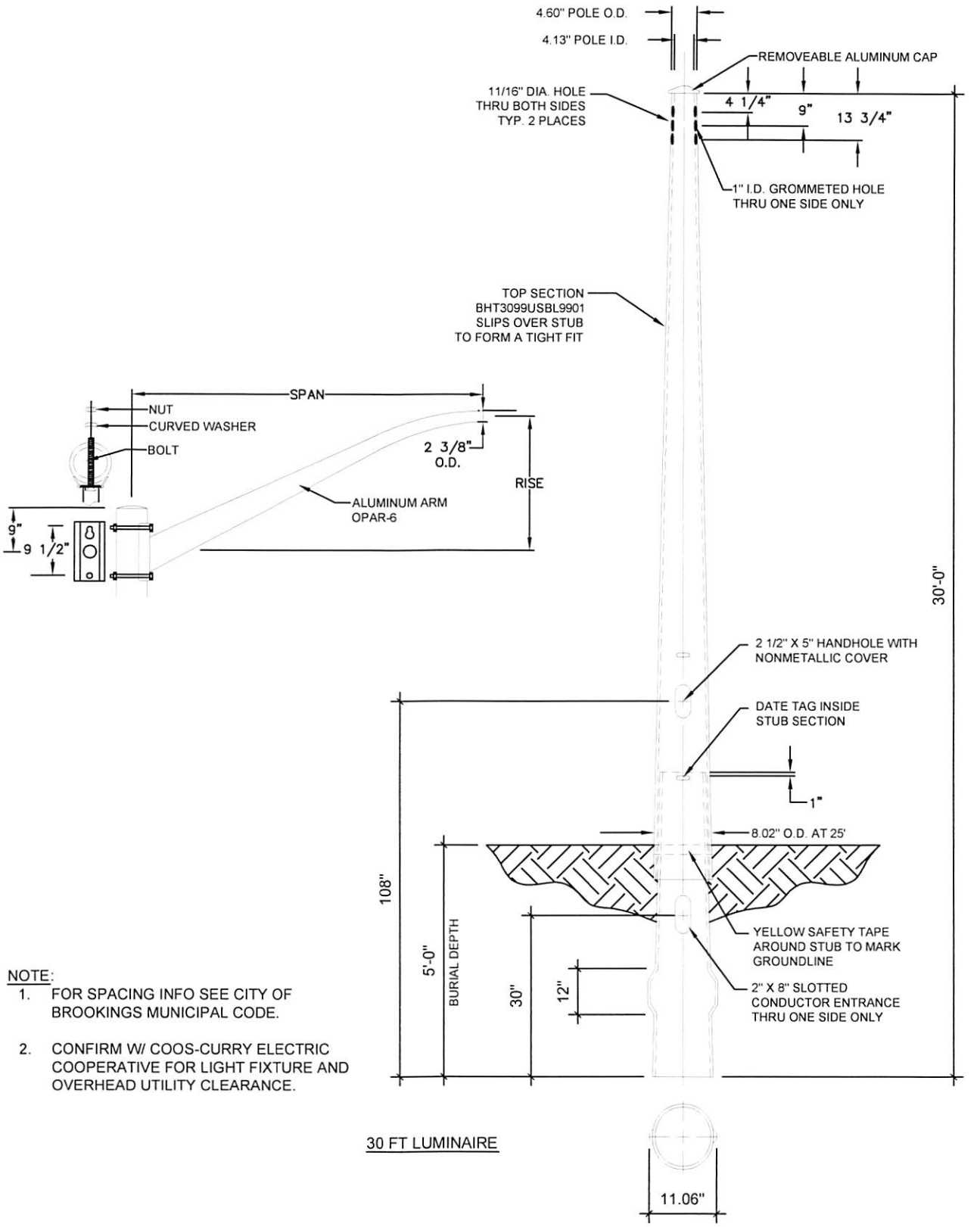
STREET SIGNS CAN BE ORDERED FROM:

ZUMAR INDUSTRIES INC
12015 STEELE STREET SOUTH
TACOMA, WA 98448
PHONE 253-536-7740
FAX 253-536-8680
ZUMAR.COM



NOTE:
1. NEW PROJECTS REQUIRE EXTRA SET OF STREET SIGNS FOR PUBLIC WORKS
2. ALL HOLES & BOTTOM OF TELSPAR POST BASE MUST BE TAPED OFF TO PREVENT CONCRETE FROM BLOCKING HOLES.

	CITY OF BROOKINGS - STANDARD DETAIL	
	SIGN POST INSTALLATION	**5.20**
	APPROVED BY RESOLUTION 14-R-1024	DATE: 3/29/17



NOTE:

1. FOR SPACING INFO SEE CITY OF BROOKINGS MUNICIPAL CODE.
2. CONFIRM W/ COOS-CURRY ELECTRIC COOPERATIVE FOR LIGHT FIXTURE AND OVERHEAD UTILITY CLEARANCE.

30 FT LUMINAIRE

CITY OF BROOKINGS - STANDARD DETAIL

STANDARD STREET LIGHT

5.30

APPROVED BY RESOLUTION 14-R-1024

DATE: 3/29/17

CITY OF BROOKINGS

COUNCIL WORKSHOP REPORT

Meeting Date: April 3, 2017

Originating Dept: City Manager

Signature (submitted by)

City Manager Approval

Subject: Franchise Fees

Financial Impact:
Potential additional General Fund revenue of $215,000 – 420,000 annually.

Background/Discussion:
During a recent Budget Committee meeting Staff raised the prospect of restructuring the manner in which a Franchise Fee is paid to the City by Coos Curry Electric Cooperative.

Along with property tax and business license, Franchise Fees are among the most common sources of local government revenue in Oregon. In 2015-16, the City collected $106,409 in Franchise Fee revenue.

Franchise Fees are charged as part of an agreement between local governments and utilities that use public rights-of-way. These agreements ensure that companies receiving special use of rights-of-way are paying fees to reimburse local governments for use of public services. Franchise agreements outline the terms under which utility companies use city rights-of-way, including compensation requirements. Franchise fees are typically calculated on a percentage of the revenues derived from sales of the utility company to customers within the City.

Franchise Fees are most commonly associated with public utilities that use the public streets and rights-of-way to conduct their business. Under the terms of franchise agreements, these utilities have the authority to erect and maintain distribution poles and underground facilities along sidewalks and roadsides; excavate into City streets to install and maintain facilities; and operate sometimes heavy construction or maintenance equipment on City streets. Essentially, for these utilities, their place of business is the public right-of-way. Waste collection services are also often subject to a franchise for the use of public streets by collection trucks and placement of collection containers.

In Brookings, the following entities have franchise agreements with the City:

Curry Transfer and Recycling
Charter Communications
Frontier Communications
Mettel Communications
LS Networks
Ringcentral Inc.
Coos Curry Electric Cooperative

Charter Communications pays a Franchise Fee of 5.0 per cent, the maximum allowed by law, while telecommunications companies pay a rate of 7.0 per cent, also the maximum allowed by law.

The City increased the Franchise Fee for Frontier Communications from 3.3 per cent to 7.0 per cent in 2012. Under State Law, the maximum rate for telecommunications companies is 7.0 per cent.

COOS CURRY ELECTRIC COOPERATIVE

The City entered into the current agreement with Coos Curry Electric Cooperative (CCEC) in 1953. At that time, the City and CCEC entered into what amounts to a barter agreement with respect to the Franchise Fee. Instead of collecting a monetary fee, the consideration is that CCEC provides street lighting within the City at no cost. With the exception of the green light poles in the downtown area, CCEC owns the street lights and provides the maintenance and electricity at no cost to the City. Additional street lights are provided by CCEC based upon population growth, or if the City agrees to pay for additional lights above the number established through the franchise agreement lighting/population formula. Only cities served by CCEC have this type of in lieu arrangement.

According to CCEC General Manager Roger Meader, the CCEC cost of providing street lighting to the City of Brookings is approximately $89,000 annually. By comparison, the amount of revenue that would be generated by each one per cent (1.0 %) of a Franchise Fee would be an estimated $87,000. Thus, CCEC is paying a Franchise Fee of about one per cent. A 5.0 per cent CCEC Franchise Fee would generate an estimated net new revenue to the General Fund of $346,000 ($87,000 x 5 - $89,000). At 3.5 per cent, the amount of net new revenue would be $215,500. The City would pay CCEC for the cost of street lighting from this new revenue. CCEC has netted out the revenue that would be generated by applying the Franchise Fee to City accounts.

According to the 2011 League of Oregon Cities survey on electric service franchise fees 36.5 per cent of responding cities levy a Franchise Fee of 5.0 per cent and 36.5 per cent of responding cities levy a Franchise Fee of 3.5 per cent. The next most frequent rate was 7.0 per cent, levied by 13.3 per cent of responding cities. Other rates levied by one or two cities range from 1.5 per cent to 10 per cent. Electric cooperatives are paying 3.0-5.0 per cent. Staff recommended a change in the manner of collecting the CCEC Franchise Fee in 2012 by establishing rate of 2.0 per cent, increasing to 3.5 per cent in 2014-15 and 5.0 per cent in 2016-17. The City Council did not proceed at the time as 1) CCEC management indicated they could not isolate City customers from all other customers to apply and determine the amount of fee, and 2) CCEC management indicated that they would increase electricity rates for City customers and show the increase as a City fee on electric utility customer bills. Item #1 has now reportedly been resolved.

Oregon Administrative Regulations, 860-022-0040, allows a city to levy an electric utility franchise fee of up to 3.5 per cent without having the fee separately listed on the electric utility bill. There is no statutory limit on the overall amount of franchise fee.

Changing the Franchise Fee from the current in lieu form to a cash amount would require the consent of CCEC. Meader has indicated that there would be some cost to CCEC associated with reprogramming software for which they would expect to be reimbursed.

CURRY TRANSFER AND RECYCLING

The City collects a Franchise Fee from Curry Transfer and Recycling (CTR) of one-half of one percent of their basic solid waste collection service. This is the lowest rate in the State. By example, Brookings collects $9,237 in Franchise Fees from CTR while a city of like size...Seaside...collected $45,063 in 2011 with a rate of 3.0 per cent. A franchise fee of 3.5 per cent would generate about $55,000 annually...similar to Seaside...while a fee of 5.0 per cent would generate about $83,000 annually.

LEAGUE OF CITIES REPORT

The last comprehensive study of Franchise Fees conducted by the League of Oregon Cities was in 2011. Attached are some excerpts.

OTHER CONSIDERATIONS

Factors to consider in establishing a Franchise Fee include:

- The impact of the fee on the consumer.
- The City's financial needs and how Franchise Fees fit into an overall stable funding source matrix.
- Business equity. Utilities predominantly operate on public property and therefore contribute less in property tax than other commercial enterprises. Consideration should also be given to the franchise rate paid in other communities where the franchise provides the same services.
- Value of using public property/right of way as a conveyance for their services.
- Value of being a sole-source provider. Essentially, the franchise becomes the only provider of its service to the community thereby gaining a "captive market." In the case of CCEC, it is an exclusive franchise, whereas Charter Communications and Frontier Communications franchises are non-exclusive. The CTR franchise is also exclusive.

RECOMMENDATION

Staff recommends that the City contact Coos Curry Electric Cooperative and Curry Transfer and Recycling to initiate discussion concerning adjusting franchise fees as discussed above.

ATTACHMENTS

a. Excerpts from 2011 Franchise Fee study
b. News article from Daily Astorian

TABLE 5: ELECTRIC FRANCHISE AGREEMENTS

City	Electric Provider	Fee/Tax	
		Rate	Revenue FY2010-11
Adams	Pacific Power	6.5%	Not Available
Amity	Portland General Electric	3.5%	$33,175
Ashland	City of Ashland	10%	$1,231,778
Astoria	Pacific Power	3.5%	$288,696
Athena	Pacific Power	3.5%	$28,713
Aurora	Portland General Electric	3.5%	$24,028
Baker City	Oregon Trail Electric Consumers Co-op	5%	$332,532
Bandon[1]	City of Bandon	10%	$215,664
Banks[2]	Portland General Electric	8.5%	$80,517
Bay City	Tillamook People's Utility District	2%	$22,726
Beaverton	Portland General Electric	3.5%	$2,553,465
Bend	Pacific Power	5%	$3,029,470
	Central Electric Co-op	5%	$175,550
Boardman	Umatilla Electric Co-op	3.5%	$65,315
Brownsville	Pacific Power	5%	$43,951
Cannon Beach	Pacific Power	3.5%	$81,180
Clatskanie	Clatskanie People's Utility District	5%	$51,685
Columbia City	Columbia River People's Utility District	5%	$46,731
Coos Bay	Pacific Power	7%	$1,092,655
Coquille	Pacific Power	5%	$152,176
Cornelius	Portland General Electric	3.5%	$206,721
Corvallis	Consumers Power	5%	$173,336
	Pacific Power	5%	$2,058,959
Cottage Grove	Pacific Power	3.5%	$215,191
	Emerald People's Utility District	3.5%	$26,140
Culver	Pacific Power	3.5%	$39,272
Dallas	Pacific Power	7%	$615,000
Damascus	Portland General Electric	3.5%	$219,167
Dayton	Portland General Electric	3.5%	$54,954
Depoe Bay	Central Lincoln People's Utility District	3.5%	$41,183
Dufur	Wasco County People's Utility District	3.5%	$14,000
Dundee	Portland General Electric	3.5%	$64,063
Eagle Point	Pacific Power	5%	$230,278
Echo	Pacific Power	3.5%	$16,931
Elgin	Oregon Trail Electric Consumers Co-op, Inc.	4.5%	$40,536
Estacada	Portland General Electric	3.5%	$98,200
Eugene	EWEB	6%	Not Available
Fairview	Portland General Electric	5%	$317,600
Falls City	Pacific Power	6%	$40,333

[1] This fee rate is for a privilege tax.

[2] The 8.5% fee is comprised of a 5% franchise fee and 3.5% privilege tax.

City	Electric Provider	Fee/Tax	
		Rate	Revenue FY2010-11
Florence[3]	Central Lincoln People's Utility District	5%	$387,975
Fossil	Columbia Basin Electric	4%	$16,374
Gates	Pacific Power	7%	$9,000
Grants Pass[4]	Pacific Power	5%	$1,436,468
Halfway	Idaho Power	3.5%	$11,332
Halsey	Pacific Power	3.5%	$9,900
Happy Valley[5]	Portland General Electric	5%	$332,913
Harrisburg	Pacific Power	5.5%	$95,000
Hermiston	Umatilla Electric Co-op	3%	$175,752
Hillsboro	Portland General Electric	3.5%	$5,082,557
Hines	Oregon Trail Electric Consumers Co-op, Inc.	5%	$52,490
Hood River[6]	Pacific Power	5%	$360,796
Hubbard	Portland General Electric	Not Available	$86,114
Independence	Pacific Power	5%	$209,146
	Monmouth Power & Light	5%	$24,389
Jacksonville	Pacific Power	3.5%	$7,126
Jefferson	Pacific Power	7%	$97,108
John Day	Oregon Trail Electric Consumers Co-op, Inc.	5%	$76,450
Jordan Valley	Idaho Power	3%	$7,424
Joseph	Pacific Power	3.5%	$41,190
Junction City	Pacific Power	1.5%	$160,837
Keizer	Salem Electric	5%	$247,171
	Portland General Electric	5%	$709,741
Klamath Falls	Pacific Power	7%	$943,208
La Grande	Oregon Trail Electric Consumers Co-op, Inc.	5%	$387,075
Lafayette	Portland General Electric	3.5%	$63,138
Lebanon[7]	Pacific Power	5.94%	$707,375
	Consumers Power	5.94%	$68,429
Lincoln City	Pacific Power	5%	$482,403
Lowell	Lane Electric	5%	$33,714
Lyons	Pacific Power	3.5%	$28,719
Madras	Pacific Power	7%	$405,256
Manzanita	Tillamook People's Utility District	5%	$63,006
Maupin	Wasco Electric Co-op, Inc.	3%	$16,645
Milwaukie[8]	Portland General Electric	5%	$725,447
Myrtle Creek	Pacific Power	7%	$150,592
Myrtle Point	Pacific Power	5%	$88,407

[3] The fee rate is comprised of .75% of 1% of the gross industrial revenue plus 5% of all other revenues.

[4] The fee rate is for a privilege tax.

[5] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

[6] The fee is for a privilege tax.

[7] The 5.94% fee charged to Pacific Power is comprised of a 2.44% franchise fee and 3.5% privilege tax.

[8] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

City	Electric Provider	Fee/Tax	
		Rate	Revenue FY2010-11
Nehalem	Tillamook People's Utility District	5%	$12,544
Newberg[9]	Portland General Electric	5%	$794,976
North Bend	Pacific Power	7%	$632,591
North Powder	Oregon Trail Electric Consumers Co-op, Inc.	3%	$8,434
Oakridge	Lane Electric Co-op	5%	$128,141
Ontario	Idaho Power	7%	$1,000,000
Oregon City	Portland General Electric	3.5%	$695,177
Philomath	Pacific Power	7%	$190,153
	Consumers Power	7%	$42,376
Phoenix	Pacific Power	5%	$152,734
Portland	Pacific Power	5%	$7,243,122
	Portland General Electric	5%	$20,182,836
Redmond	Pacific Power	7%	$1,120,751
	Central Electric Co-Op	5%	$126,017
Reedsport	Central Lincoln People's Utility District	Not Available	$111,000
Rivergrove	Portland General Electric	Not Available	$6,089
Rogue River	Pacific Power	5%	$97,289
Roseburg	Pacific Power	7%	$1,475,771
Salem	Salem Electric	5%	$794,599
	Portland General Electric	5%	$5,429,528
Sandy	Portland General Electric	3.5%	$217,014
Seaside	Pacific Power	3.5%	$240,117
Shady Cove	Pacific Power	7%	$168,531
Sheridan	Portland General Electric	3.5%	$120,900
Sherwood	Portland General Electric	3.5%	$370,830
Silverton	Portland General Electric	3.5%	$232,926
Sodaville	Consumers Power	5%	$8,145
St. Helens[10]	Columbia River People's Utility District	5%/1%	$316,770
	Portland General Electric	3.5%	$1,148
Stayton	Pacific Power	5%	$370,876
Sutherlin	Pacific Power	3.5%	$186,418
	Douglas Electric	3.5%	$16,755
Sweet Home	Pacific Power	5%	$24,450
Tangent	Pacific Power	5%	$53,156
The Dalles	Northern Wasco Co. People's Utility District	3%	$692,512
Tigard	Portland General Electric	3.5%	$1,555,359
Toledo	Central Lincoln People's Utility District	3.5%	Not Available
Troutdale[11]	Portland General Electric	5%	$575,901
Tualatin	Portland General Electric	3.5%	$1,107,132
Turner	Portland General Electric	3.5%	$38,151

[9] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

[10] Columbia River franchise fee is 5% for users less then 1,000 kw, 1% for customers greater than 1,000 kw.

[11] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

City	Electric Provider	Fee/Tax	
		Rate	Revenue FY2010-11
Umatilla	Pacific Power	3.5%	$117,441
	Umatilla Electric Co-op	5%	$24,410
Vale	Idaho Power	3.5%	$72,171
Veneta	Lane Electric	5%	$30,203
	Emerald People's Utility District	5%	$105,327
Vernonia	West Oregon Electric	5%	$83,535
Wallowa	Pacific Power	3.5%	$27,000
Waterloo	Pacific Power	7%	$12,772
West Linn[12]	Portland General Electric	5%	$677,701
Willamina	Portland General Electric	3.5%	$51,680
Wilsonville	Portland General Electric	5%	$868,746
Winston	Pacific Power	5%	$137,734
Wood Village[13]	Portland General Electric	5%	$164,545
Woodburn[14]	Portland General Electric	5%	$874,725
Yachats	Central Lincoln People's Utility District	3.5%	$36,535

[12] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

[13] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

[14] The 5% fee is comprised of a 3.5% franchise fee and 1.5% privilege tax.

TABLE 7: SOLID WASTE FRANCHISE AGREEMENTS

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Adams	Humbert Refuse & Recycling	Franchise Fee	2%	$486
Amity	Western Oregon Waste	Franchise Fee	5%	$4,170
Ashland	Ashland Sanitary Services	Franchise Fee	5%	$135,553
Astoria	Western Oregon Waste	Franchise Fee	10%	$286,344
Athena[1]	Humbert Refuse & Recycling	Franchise Fee	2%	$2,340
Aurora	Allied Waste Service	Franchise Fee	5%	$7,676
Baker City	Baker Sanitary Service Inc.	Franchise Fee	5%	$42,707
Bandon	Bandon Disposal	Franchise Fee	5%	$32,026
Banks	Swatco Garbage	Franchise Fee	3%	$7,102
Bay City	R. Sanitary Service	Franchise Fee	2%	$2,869
Beaverton	Aloha Garbage	Franchise Fee	4% Residential 5% Commercial	$10,855
	Alwin/Biomed of Oregon	Franchise Fee	4% Residential 5% Commercial	$4,310
	Garbarino Disposal	Franchise Fee	4% Residential 5% Commercial	$20,243
	Pride Disposal	Franchise Fee	4% Residential 5% Commercial	$486
	Valley Garbage and Recycling	Franchise Fee	4% Residential 5% Commercial	$45,328
	Walker Garbage	Franchise Fee	4% Residential 5% Commercial	$12,464
	Waste Management	Franchise Fee	4% Residential 5% Commercial	$591,715
	West Slope Garbage	Franchise Fee	4% Residential 5% Commercial	$5,105
Bend	Bend Garbage Company	Franchise Fee	4%	$245,070
	Waste Connections Inc.	Franchise Fee	4%	$235,900

[1] The revenue total is for calendar year 2010.

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Brownsville[2]	Sweet Home Sanitation	In-Kind Service	N/A	N/A
Canby	Canby Disposal	Franchise Fee	5%	$60,000
Cannon Beach	Western Oregon Waste	Franchise Fee	20.11%	$19,144
Clatskanie	Clatskanie's Sanitary Service	Franchise Fee	5%	$15,774
Columbia City	Environmental Waste-Hudson Garbage Service	Franchise Fee	5%	$8,757
	Waste Management of Oregon	Franchise Fee	5%	$391
Coos Bay	Coos Bay Sanitary Service	Franchise Fee	5%	$75,496
	Les' Sanitary Services Inc.	Franchise Fee	5%	$68,689
Coquille	Wadsworth Garbage	Flat Rate	N/A	$1,500
Cornelius	Cornelius Disposal	Franchise Fee	4%	$28,076
Corvallis	Allied Waste	Franchise Fee	5%	$383,701
Cottage Grove	Cottage Grove Garbage Service	Franchise Fee	3.5%	$40,280
Dallas	Allied Waste (Dallas Disposal)	Franchise Fee	7%	$60,000
Damascus[3]	Hoodview Disposal & Recycling	Franchise Fee	5%	$0
	Waste Management	Franchise Fee	5%	$0
Dayton	Western Oregon Waste	Franchise Fee	3%	$4,653
Depoe Bay	North Lincoln Sanitary Service	Franchise Fee	5%	$7,516
Dundee	Waste Management	Franchise Fee	3%	$8,732
Eagle Point	Southern Oregon Sanitation	Franchise Fee	7%	$57,784
Echo	Sanitary Disposal	Franchise Fee	3%	$1,535
Elgin	City Garbage Service	Franchise Fee	3%	$4,323
Estacada	Dan Walker Disposal Service Inc.	Franchise Fee	5%	$22,075
	American Sanitary Service Inc.	Franchise Fee	5%	$1,772
Eugene	Licensed Haulers (the licenses are limited to a total of 8)	Licenses	2.5% Residential 6% Commercial minimum fee of $1,000	$612,841
Fairview	Twelve Mile Disposal	Franchise Fee	5%	$38,990
Falls City	Allied Waste	Franchise Fee	Not Available	$2,797

[2] The city receives various services in lieu of franchise fees.

[3] Voters removed the 5% franchise fee from telephone, cable and solid waste in 2008.

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Florence	Central Coast Disposal	Flat Rate	Flat fee + by units	$4,131
	County Transfer & Recycling	Flat Rate	Flat fee + by units	$4,866
Forest Grove	Waste Management	Franchise Fee	5%	$139,663
	Bio-Med	Franchise Fee	5%	$622
Grants Pass	Allied Waste	Franchise Fee	5%	$201,993
	Southern Oregon Sanitation	Franchise Fee	5%	$54,108
Halfway	LaRue Sanitary Services	Flat Rate	N/A	$720
Halsey	Sweet Home Sanitation	In-Kind Service	N/A	N/A
Harrisburg	Allied Waste	Franchise Fee	4.5%	$15,000
Hermiston[4]	Sanitary Disposal	Franchise Fee	2%	$227,104
Hillsboro	Aloha Garbage	Franchise Fee	3%	$21,048
	Cornelius Disposal	Franchise Fee	3%	$30,847
	Garbarino	Franchise Fee	3%	$84,538
	Hillsboro Garbage	Franchise Fee	3%	$220,536
	Valley West	Franchise Fee	3%	$53,030
	Washington County Drop Box	Franchise Fee	3%	$19,202
Hines	C & B Sanitary	Franchise Fee	3%	$2,977
Hood River	Waste Connections Inc.	Franchise Fee	5%	$43,005
Hubbard	Allied Waste	Franchise Fee	5%	$18,999
Independence	Brandt's Sanitary Service	Franchise Fee	7%	$58,136
Jacksonville	Rogue Disposal	Franchise Fee	6%	$1,997
Jefferson	Pacific Sanitation	Franchise Fee	2%	$7,287
John Day	Clark's Disposal Inc.	Franchise Fee	3%	$5,885
Joseph	Rahn's Sanitation	Not Available	Not Available	$250
Keizer	Valley Recycling & Disposal	Franchise Fee	5%	$85,480
	Loren's Sanitary Service	Franchise Fee	5%	$106,985
Klamath Falls	Waste Management	Franchise Fee	5%	$159,423
La Grande	City Garbage	Franchise Fee	3%	$50,527
Lafayette	Western Oregon Waste	Franchise Fee	3%	$7,933
Lebanon	Republic Services	Franchise Fee	4%	$84,686
Lincoln City	Dunn Leblanc Inc.	Franchise Fee	5%	$66,060

[4] This franchise agreement also includes a 11% billing and collection fee.

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Lowell	Star Garbage	Flat Rate	N/A	$300
	County Recycling and Transfer	Flat Rate	N/A	$300
Lyons	Pacific Sanitation	Franchise Fee	3%	$4,677
Madras	Madras Sanitary Service	Franchise Fee	5%	$57,114
Manzanita	Western Oregon Waste	Franchise Fee	5%	$9,042
Maupin	Mel's Sanitation Service	Franchise Fee	0%	$0
McMinnville	Western Oregon Waste	Franchise Fee	3%	$125,152
Milwaukie	Allied Waste	Franchise Fee	5%	$166,360
Monmouth	Brandt's Sanitary Service	Franchise Fee	7%	$62,181
Myrtle Point	J & L Sanitation	Flat Rate	N/A	$100
Nehalem	Western Oregon Waste	Franchise Fee	5%	$2,305
Newberg	Waste Management of Oregon	Franchise Fee	3%	$77,748
North Bend	North Bend Sanitation	Franchise Fee	5%	$92,172
Oakridge	Oakridge Sani-Haul	Franchise Fee	5%	$14,557
Ontario	Ontario Sanitary Service	Franchise Fee	5%	$80,000
Oregon City	B & B Leasing	Franchise Fee	4%	$181,071
Philomath	Allied Waste of Corvallis	Franchise Fee	5%	$26,293
Phoenix	Rogue Disposal	Franchise Fee	6%	$33,757
Portland	19 companies total	Franchise Fee	5%	$2,494,154
Reedsport	Southern Oregon Sanitation	Franchise Fee	Not Available	$7,000
Rivergrove	Allied Waste	Franchise Fee	Not Available	$106
Rogue River[5]	Southern Oregon Sanitation	In-Kind Service	N/A	N/A
Roseburg	Roseburg Disposal	Annual License	N/A	$30,000
Salem	BGL Suburban Garbage Service	Franchise Fee	5%	$80,955
	D&O Garbage Service	Franchise Fee	5%	$188,229
	Loren's Sanitary Service	Franchise Fee	5%	$20,082
	Pacific Sanitation	Franchise Fee	5%	$74,323
	Republic Services	Franchise Fee	5%	$629,671
	Valley Recycling & Disposal	Franchise Fee	5%	$77,608
Sandy	Hoodview Disposal & Recycling	Franchise Fee	3%	$37,791
Seaside	Western Oregon Waste	Franchise Fee	3%	$45,063

[5] The city receives services in-lieu-of a franchise fee.

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Shady Cove	Southern Oregon Sanitation	Franchise Fee	7%	$23,199
Sheridan	Western Oregon Waste-Recology	Franchise Fee	3%	$15,743
Sherwood	Pride Disposal	Franchise Fee	5%	$129,586
Silverton	Allied Waste	Franchise Fee	5%	$70,175
Sodaville	Allied Waste	Franchise Fee	4%	$1,120
Springfield	Sanipac	Franchise Fee	7%	$340,741
St. Helens	Waste Connections (Hudson)	Franchise Fee	5%	$55,303
	Waste Management (Transfer Station)	Franchise Fee	5%	$9,079
Stayton	Allied Waste	Franchise Fee	5%	$57,521
Sutherlin	Sutherlin Sanitary	Franchise Fee	3%	$13,800
Sweet Home	Waste Connections Inc.	Franchise Fee	3%	$30,000
Tangent	Allied Waste	Privilege Tax	7%	$13,061
The Dalles[6]	The Dalles Disposal	Franchise Fee	3%	$65,877
Tigard	Pride Disposal	Franchise Fee	4%	$285,594
	Waste Management	Franchise Fee	4%	$82,385
	Republic Services	Franchise Fee	4%	$984
Toledo	Dahl Disposal Services	Franchise Fee	5%	Not Available
Troutdale	Waste Management of Oregon	Franchise Fee	5%	$122,449
	Waste Management of Oregon	Privilege Tax	$65/ton	$56,310
Tualatin	Allied Waste	Franchise Fee	3%	$128,092
	Bio-Med	Franchise Fee	3%	$2,739
	Rossman Sanitary Service	Franchise Fee	3%	$9,026
Turner	Pacific Sanitation	Franchise Fee	3%	$7,409
Umatilla	Sanitary Disposal	Franchise Fee	5%	$23,350
Veneta	Sanipac	Franchise Fee	5%	$15,472
Waterloo	Albany/Lebanon Sanitation	Franchise Fee	4%	$450
West Linn	Waste of West Linn	Franchise Fee	5%	$103,189
Willamina	Western Oregon Waste	Franchise Fee	3%	$7,220
Wilsonville	United Disposal/Allied Waste	Franchise Fee	3%	$120,160
Winston	Winston Sanitary	Franchise Fee	3%	$4,678
Wood Village	Waste Management of Oregon	Franchise Fee	5%	$25,690

[6] The city also charges a fee of $100 per vehicle annually.

City	Garbage Provider	Fee/Tax		
		Type	Rate	Revenue FY2010-11
Woodburn	Allied Waste	Franchise Fee	3%	$169,330
Yachats	Dahl Disposal Services	Franchise Fee	3%	$6,953

TABLE 8: WATER FRANCHISE FEES/REVENUE

City	Water Utility	Fee/Tax	
		Rate	Revenue FY2010-11
Ashland	City of Ashland	8%	$419,978
Bandon[1]	City of Bandon	10%	$21,839
Bend	Avion Water Company	3%	$92,090
	Roats Water System	3%	$22,100
	City of Bend	3%	$414,370
Corvallis	Water Fund	5%	$388,276
Eagle Point	City of Eagle Point	5%	$64,803
Fairview	Rockwood Water PUD	5%	$4,550
Florence	Heceta Water District	5%	$1,170
La Grande	City of La Grande	5%	$111,157
Phoenix[2]	City of Phoenix Water	5%	$64,054
Portland	Portland Water Bureau	5%	$4,299,857
	Rockwood Water PUD	5%	$99,465
Roseburg	City of Roseburg	5%	$222,810
Sherwood	City of Sherwood	5%	$277,954
Tigard	City of Tigard	5%	$169,673
Wilsonville	City of Wilsonville	4%	$192,232

[1] The fee rate is for a privilege tax.

[2] The city decreased their fee rate from 10% to 5% in November 2010.

WASTEWATER FRANCHISE FEES/REVENUE

City	Wastewater Utility	Fee/Tax	
		Rate	Revenue FY2010-11
Ashland	City of Ashland	8%	$317,870
Bandon[3]	City of Bandon	10%	$35,489
Banks	Clean Water Services	4%	$14,465
Bend	City of Bend	3%	$403,290
Corvallis	Wastewater Utility	5%	$402,114
La Grande	City of La Grande	5%	$165,327
Phoenix[4]	Rogue Valley Sewer	5%	Not Available
Portland	Portland Bureau of Environmental Services	5%	$13,372,916
Roseburg	City of Roseburg	5%	$42,750
Sherwood	Clean Water Services	5%	$108,804
Tigard	City of Tigard	5%	$227,531
Wilsonville	City of Wilsonville	4%	$197,457

[3] The fee rate is for a privilege tax.

[4] This franchise is currently in litigation.

TABLE 10: IN-LIEU-OF FRANCHISE FEES/REVENUE

In-lieu-of Franchise Fees charged to Municipal Utilities and Districts

Electric Utilities

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Bandon	City Electric	6%	$313,333
Canby	Canby Utility	5%	$270,000
Eugene	City Electric Board	6%	Not Available
Forest Grove	City Electric	5%	$656,550
Hermiston	City Electric	5%	$366,595
McMinnville[1]	City Electric	3%-6%	$1,529,601
Monmouth	City Electric	3%	$163,029
Springfield	Springfield Utility Board	Volumetric	$1,804,922

[1] 3% for industrial and 6% for residential and commercial.

Sanitation Utilities

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Vale	City Garbage	Flat Rate	$10,000
Warrenton[2]	City Garbage	3%	$94,438

[2] The revenue total includes all fees (water, wastewater and sanitation).

Stormwater Utilities

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Beaverton	City Stormwater	5%	$222,047
Fairview	City Stormwater	6%	$29,419
Hillsboro	City Stormwater	3.5%	$123,130
Independence	City Stormwater	7%	$15,176
Keizer	City Stormwater	5%	$46,317
Lebanon	City Stormwater	5%	$12,334
Oregon City	City Stormwater	6%	$93,024
Springfield[3]	City Stormwater	3%	Fee will be collected in FY2012
Troutdale	City Stormwater	5%	$10,724

[3] This fee is a right of way fee.

Wastewater Utilities

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Amity	City Wastewater	5%	$15,000
Aumsville	City Wastewater	2%	Effective 7/1/11
Baker City	City Wastewater	5%	$50,589
Bandon	City Wastewater	6%	$44,403

Wastewater Utilities Continued

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Beaverton	City Wastewater	5%	$941,553
Columbia City	City Wastewater	5%	$14,260
Coquille	City Wastewater	5%	$49,101
Dallas	City Wastewater	18%	$550,000
Dundee	City Wastewater	5%	$34,801
Fairview	City Wastewater	6%	$110,800
Florence	City Wastewater	5%	$122,542
Forest Grove	City Wastewater	5%	$50,292
Grants Pass	City Wastewater	5%	$248,559
Hillsboro	City Wastewater	3.5%	$599,014
Independence	City Wastewater	7%	$70,816
John Day	City Wastewater	5%	$21,820
Keizer	City Wastewater	5%	$309,438
Lebanon	City Wastewater	5%	$190,778
Monmouth	City Wastewater	3%	$50,147
Myrtle Creek	City Wastewater	5%	$25,317
Newberg	City Wastewater	5%	$88,167
Oakridge	City Wastewater	5%	$26,000
Oregon City	City Wastewater	6%	$160,000
Redmond	City Wastewater	5%	$213,410
Salem	City Wastewater	5%	$1,568,514
Sisters	City Wastewater	5%	$34,700
Springfield[4]	City Wastewater	3%	Fee will be collected in FY2012
St. Helens	City Wastewater	7%	$228,919
Tangent	City Wastewater	7.5%	$14,960
Troutdale	City Wastewater	5%	$112,955
Ukiah	City Wastewater	Not Available	$66,330
Vale	City Wastewater	Flat Rate	$10,000
Warrenton[5]	City Wastewater	3%	$94,438

[4] This fee is a right of way fee.

[5] The revenue total includes all fees (water, wastewater and sanitation).

Water Utilities

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Amity	City Water	5%	$16,500
Aumsville	City Water	2%	Effective 7/1/11
Baker City	City Water	5%	$94,574
Bandon	City Water	6%	$28,689
Beaverton	City Water	5%	$440,534
Canby	Canby Utility	5%	$270,000
Columbia City	City Water	5%	$22,072

Water Utilities Continued

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Coquille	City Water	5%	$43,313
Dallas	City Water	20%	$425,000
Dundee	City Water	5%	$33,574
Fairview	City Water	6%	$72,740
Florence	City Water	5%	$75,444
Forest Grove	City Water	5%	$176,793
Grants Pass	City Water	5%	$205,000
Hillsboro	City Water	3.5%	$426,734
Independence	City Water	7%	$94,990
John Day	City Water	5%	$25,923
Keizer	City Water	5%	$123,864
Lebanon	City Water	5%	$151,230
Monmouth	City Water	3%	$32,914
Myrtle Creek	City Water	5%	$10,717
Newberg	City Water	5%	$74,500
Oakridge	City Water	5%	$36,250
Oregon City	City Water	6%	$297,823
Redmond	City Water	5%	$194,274
Salem	City Water	5%	$853,621
Sisters	City Water	5%	$23,250
Springfield	Eugene Water and Electric Board	3%	$526,482
St. Helens	City Water	7%	$152,062
Troutdale	City Water	5%	$71,013
Ukiah	City Water	Not Available	$26,000
Vale	City Water	Flat Rate	$10,000
Warrenton[6]	City Water	3%	$94,438

[6] The revenue total includes all fees (water, wastewater and sanitation).

Other Agreements

City	Municipal Utility or District	Fee/Tax	
		Rate	Revenue FY2010-11
Eugene	The city waived ROW fees for Level 3 and Wil-Tel telecom providers in exchange for fiber for 20 years.		
	The city waived ROW fees for the University of Oregon in exchange for tech services.		

THE DAILY ASTORIAN
THE COLUMBIA-PACIFIC REGION'S NEWS SOURCE SINCE 1873

Parks director makes pitch for utility fee to raise funds

The option to sell underused parks would still be on the table.

By **Erick Bengel** • **The Daily Astorian**
Published on March 24, 2017 9:17AM
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ERICK BENGEL/THE DAILY ASTORIAN
Astoria Parks and Recreation Director Angela Cosby gives a presentation on the department's budget during a City Council work session.

The Daily A
2015.

The city of Astoria may impose a utility fee on Pacific Power customers to boost the Parks and Recreation budget and help stabilize the department's operations.

At a City Council work session Thursday, Angela Cosby, the parks and recreation director, proposed the fee during a presentation that told the story of the parks budget — a story of department obligations gradually overwhelming its personnel and finances.

Cosby and several park staff members showed up with four small seesaws — representing aquatics, recreation, maintenance and administration — depicting how requirements came to outweigh resources as the department added services and programs, created and eliminated staff positions, while general fund transfers have stagnated or declined.

Under Cosby's proposal, nearly 5,000 utility customers would pay a fee of $5.92 a month, plus a monthly 51 cents for residential customers or 55 cents for commercial customers to their Recology bill for garbage services. The department expects to bring in slightly more than $350,000.

Parks and Rec has seven full-time employees that manage about 300 acres of parkland, nine miles of trails, 12 indoor facilities, and the department's recreation, aquatics and child care programs, according to the parks master plan.

The money would add to the department's existing revenue streams, which include general fund transfers and user fees. It would pay for — among other assets — an additional three full-time employees; increase wages for cashiers, child care providers and parks maintenance workers; and update the franchise agreement with Recology to include garbage, and possibly recycling services, within parks.

'Some urgency'

In recent years, "the number of facilities managed, our requirements, continued to go up, and resources continued to go down. The percent transfer from the general fund continued to decrease," Cosby said.

The overstretched funding and staffing levels have led to a high turnover rate in part-time employees and a few poorly maintained parks. The department may have to close down some sites "due to hazards," Cosby said.

"We have a responsibility to keep playgrounds and swingsets up to a certain par. Same with trails and our recreational space," Cosby said.

City Manager Brett Estes said, "There is some urgency, from the staff's perspective, to move forward on this."

He, Cosby and Finance Director Susan Brooks are building next fiscal year's budget. Details of the fee may not be decided on by then.

However, "the longer we prolong this, the more of an impact we could be having to our general fund," Estes said.

He and Cosby may bring the proposal before the council again at a work session within a month.

Councilors Cindy Price and Bruce Jones said they would favor a higher rate than the figure Cosby proposed — perhaps closer to $7 or $8 so that the city has money for more than just the basics, Price said.

Councilor Zetty Nemlowill suggested that perhaps the fee should be based on a percentage of ratepayers' power bills rather than levied as a flat rate.

Selling parks

The City Councilors agreed that a utility fee is a promising idea.

A utility fee, however, would not extinguish the question of whether the city should sell off the least-utilized parks, an idea unpopular among people surveyed during the master-planning process.

"I do think that the master plan strongly suggests something should be eliminated in order to continue to decrease the requirements on your resources," Price said.

Jones, mindful that future cost-cutting measures might be necessary, said he had trouble thinking of a service in the parks purview that he would want to remove.

"I'd rather get rid of a few properties, frankly," he said. "That, I know, would be very controversial, to sell a few parks that are the least utilized. We've seen how controversial it is. But I'd rather face that heat than cut out youth sports, for example."

The income generated from selling properties traditionally goes into the capital improvement fund, and can be spent on other departments. However, the council can decide — as Nemlowill said she would prefer — to designate the money for parks department use only.

Although Price said she could support the sale of underused parks, she would not want to lose a park from an area with relatively few parks, even if that park is not frequently used. Alderbrook Park at Lief Erikson Drive and 45th Street, is not heavily used, but it's the closest park to an area underserved by parks, Cosby said.

Burdens and responsibilities

Nemlowill, who sat on the citizens advisory committee that guided the master plan last year, championed a quality-over-quantity view.

"Parks and Rec is extremely important to the quality of life in Astoria," she said, "but we know that we can't do everything well."

Nemlowill said she supported easing the park staff's burden by transferring underused properties.

Tidal Rock Park at Commercial and 15th streets, for example, is "really a blight on downtown Astoria," she said.

"It's in an urban renewal district — and an urban renewal district's aim is to cure urban blight," she said. "And here we have a city-owned property, which is the dumpiest property on the block. It's unacceptable."

The problem is not that the parks staff isn't doing a good job, she said. "It's that they simply can't keep up and maintain that site. And it's a low-priority site, and so they spend more time at sites that get more used. So it doesn't make any sense to me that we have that in our parks system."

Nemlowill acknowledged that, since the property comes with deed restrictions, the city can't simply sell it.

She added that the city should find partners in the community that could take over some of the services the Parks and Recreation Department provides.

"If we're going to ask citizens to pay more money for parks, we need to show that we're being really responsible and also offloading some of our burdens and responsibilities at the same time," Nemlowill said.

CITY OF BROOKINGS

Council WORKSHOP Report

Workshop Date: 3 April 2017

Originating Dept: PWD

Signature (submitted by)

City Manager Approval

Subject: ADA ramp construction calendar year 2017

Recommendation: Construct Americans with Disabilities Act (ADA) compliant ramps in accordance with City policy for adding two ADA ramps per year.

Financial Impact:

Estimate $3,000 per ramp = $6,000

Funds for this work will be taken from the street budget.

Approved by Finance & Human Resources Director:

Background/Discussion:

The Brookings City Council requested identification of two ADA ramps to be installed during calendar year 2017.

Bill Hamilton helped Richard and I identify two corners on Oak Street where ADA ramps would be beneficial. The two ramps are on the east side of Oak Street at the intersection of Oak Street and Redwood Street.

The described ADA ramp locations are over and above new construction, removed and replaced ramps and other opportunities that may occur throughout the year for obtaining additional ADA capacity.

Policy Considerations:

ADA ramps are included in the Short Term (24 Months) Strategic Plan, Goal 2, Objective 5, Action Item 5.2

Attachment(s):

None