

CITY OF PROSSER



DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS

FEBRUARY 2018

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INDEX

CHAPTER 1 - GENERAL	1-1
1. ENACTING AUTHORITY	1-1
2. PURPOSE.....	1-1
3. STATE ENVIRONMENT POLICY ACT (SEPA).....	1-1
4. CONFLICTING PROVISIONS	1-1
5. SEVERANCE	1-1
6. PROCESS.....	1-1
7. ENGINEERING DESIGN PLAN REQUIREMENTS	1-2
8. PLAN REVIEW AND INSPECTION FEE	1-2
9. RECORD DRAWINGS	1-3
10. TRANSFER OF OWNERSHIP	1-3
11. EASEMENTS	1-3
12. UTILITIES	1-3
CHAPTER 2 - GENERAL PLAN REQUIREMENTS	2-1
GENERAL PLAN FORMAT	2-1
WATER SYSTEM PLAN REQUIREMENTS	2-2
SANITARY SEWER SYSTEM PLAN REQUIREMENTS	2-2
STORMWATER SYSTEM PLAN REQUIREMENTS	2-3
STREET PLAN REQUIREMENTS.....	2-4
CHAPTER 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS	3-1
FORWARD.....	3-1
GENERAL.....	3-1
1-01 DEFINITIONS AND TERMS	3-2
1-05 CONTROL OF WORK.....	3-4
1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC	3-7
1-08 PROSECUTION AND PROGRESS	3-10
1-10 TEMPORARY TRAFFIC CONTROL.....	3-11
CHAPTER 4 - WATER SYSTEM IMPROVEMENTS.....	4-1
GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS.....	4-1
SPECIAL PROVISIONS FOR WATER SYSTEM IMPROVEMENTS	4-3
7-09 WATER MAINS	4-3
7-12 VALVES FOR WATER MAINS	4-6
7-14 HYDRANTS	4-7
7-15 SERVICE CONNECTIONS.....	4-8
CHAPTER 5 - SANITARY SEWER SYSTEM IMPROVEMENTS.....	5-1
GENERAL REQUIREMENTS FOR SANITARY SEWER SYSTEM IMPROVEMENTS.....	5-1
SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS	5-2
7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS.....	5-2
7-08 GENERAL PIPE INSTALLATION REQUIREMENTS	5-4
7-17 SANITARY SEWERS.....	5-5
7-18 SIDE SEWERS	5-5
CHAPTER 6 - STORMWATER IMPROVEMENTS	6-1
GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS	6-1
DESIGN CRITERIA.....	6-2
DESIGN STORMS	6-2
HYDROLOGIC ANALYSIS.....	6-3
TREATMENT BMP SIZING.....	6-4
FLOW CONTROL	6-4
STREET DRAINAGE	6-5
SPECIAL PROVISIONS FOR STORMWATER IMPROVEMENTS	6-5

7-02 CULVERTS6-5
7-04 STORM SEWERS.....6-6
7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS.....6-7
7-08 GENERAL PIPE INSTALLATION REQUIREMENTS6-8
CHAPTER 7 - STREET IMPROVEMENTS7-1
 GENERAL REQUIREMENTS FOR STREET IMPROVEMENTS7-1
 TRAFFIC STUDIES.....7-1
 STREET REQUIREMENTS7-1
 SPECIAL PROVISIONS FOR STREET IMPROVEMENTS.....7-3
 2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP7-3
 2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS7-3
 2-03 ROADWAY EXCAVATION AND EMBANKMENT.....7-4
 2-07 WATERING7-5
 4-04 BALLAST AND CRUSHED SURFACING7-5
 5-04 HOT MIX ASPHALT7-6
 8-04 CURBS, GUTTERS, AND SPILLWAYS.....7-9
 8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES.....7-10
 8-14 CEMENT CONCRETE SIDEWALKS7-10
 8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND ELECTRICAL.....7-10
 8-21 PERMANENT SIGNING.....7-13
 8-22 PAVEMENT MARKING.....7-13
 8-30 CONTROLLED DENSITY FILL (NEW SECTION)7-14

APPENDIX A – STANDARD DETAILS

CHAPTER 1 - GENERAL

1. ENACTING AUTHORITY

These Design and Construction Standards and Specifications are enacted by the City of Prosser, in accordance with state law, to protect and preserve the public health, safety, and general welfare.

2. PURPOSE

The purpose of these Design and Construction Standards is to provide consistent requirements, standards, and specifications for the design and construction of public works infrastructure improvements by the City and by private developers.

3. STATE ENVIRONMENT POLICY ACT (SEPA)

These Design and Construction Standards will not affect any considerations involving issues under the State Environmental Policy Act (SEPA). The City's responsible official will continue to make all necessary SEPA decisions when individual proposals are submitted. A blank SEPA checklist can be found at: <http://www.ecy.wa.gov/programs/sea/sepa/forms.htm>.

4. CONFLICTING PROVISIONS

The standards, procedures, and requirements of these Design and Construction Standards are the minimum necessary to promote the health, safety, and welfare of the residents of the City of Prosser. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Design and Construction Standards conflict with one another, or if a provision of these Design and Construction Standards conflicts with the provision of the City Code or another Ordinance of the City, the most restrictive provision or the provision imposing the highest standard shall prevail.

5. SEVERANCE

If any section, sentence, clause or phrase of these Standards and Specifications should be held invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this document.

6. PROCESS

Design Phase

Any person, firm, or corporation (the "Developer") whom intends to plat land in accordance with the City of Prosser Municipal Code and/or construct a public works improvement shall apply for the appropriate project permits with the City. The request by the Developer shall include the permit application, a map showing the area to be served, the number and type of proposed units, or the type and size of the proposed facility, and a general layout of the development.

Upon receipt of the public works infrastructure design requirements from the City, the Developer shall employ a Consulting Engineer licensed by the State of Washington to prepare plans and specifications for the public works improvements in accordance with these Design and Construction Standards and the Prosser Municipal Code. The Developer or its Consulting Engineer shall submit three (3) paper sets of plans and specifications for review by all City Departments and the City Engineer.

Should the Developer request a variance from these Construction Standards, a Variance Application shall be submitted by the Developer to the City Planner, with justification for variance. The variance request will be reviewed by the Planning Commission and a recommendation will be made to the City Administrator who will deny or approve the variance.

The City shall review the initial submittal and indicate corrections or additions or request additional information and return one "red-lined" set to the Developer. The Developer shall make the required corrections and resubmit two (2) paper sets of revised plans and specifications for review by all City Departments and the City Engineer.

When it has been determined the plans and specifications indicate compliance with City of Prosser Design and Construction Standards, the Developer shall submit to the City the original plan tracings and specifications for final approval. The cover sheet of the original plans shall contain an "APPROVED FOR CONSTRUCTION BY THE CITY OF PROSSER" signature block as specified in CHAPTER 2, Section 2. The City Engineer will sign the plans. Such approved plans and specifications shall not be changed, modified, or altered without authorization from the City Engineer. The Developer shall provide the City with a minimum of three (3) copies of the approved plan set and specifications for use by City Inspectors and City Departments as required.

Upon payment of the plan review fee by the Developer to the City, the approved original plans and specifications will be returned to the Developer, as discussed in CHAPTER 1, Section 8.

Construction Phase

No construction work shall begin before the approval of the plans by the City. Before the Developer's Contractor commences any work, he shall be required to attend a Preconstruction Conference with the City Public Works Department, the City Engineer, and utility companies as determined by the City of Prosser. The Contractor will submit his Certificate of Insurance and construction schedule at this meeting. Construction may proceed, per the approved schedule, following the completion of the Preconstruction Conference, provided all the necessary documentation has been submitted and approved.

It is the responsibility of the Developer to ensure that the construction is in conformance with the approved plans and specifications. The Developer is ultimately responsible for the work that is done. The City shall be notified not less than three working days before construction is to start.

All construction shall be inspected by the City of Prosser or its authorized agent. The Contractor shall give ten (10) days minimum notice to the Public Works Director prior to the start of any construction activities.

7. ENGINEERING DESIGN PLAN REQUIREMENTS

All plans, specifications, engineering calculations, diagrams, details, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington (Consultant), in accordance with CHAPTER 2.

8. PLAN REVIEW AND INSPECTION FEE

Plan review and inspection fees are hereby established to defray the administrative expense of plan review and inspection costs incurred by the City of Prosser and shall be consistent with Prosser Municipal Code (PMC) Chapter 20.10, and current fee schedule adopted by ordinance.

The plan review and inspection fee shall be the total actual costs incurred by the City of Prosser, its agents, employees, and elected or appointed officials, for review and approval of the plans and specifications and for inspection of construction of the public works improvements. The fee shall include, but not be limited to, initial plan review, subsequent meetings with the Developer, explanations to the Developer's engineering consultant, reviews of revised plans, construction inspection, re-inspections, and a final inspection prior to the expiration of the maintenance period.

The plan review and inspection fee shall be paid by the Developer in full prior to the City issuing a Certificate of Occupancy or final acceptance of the public works improvements.

9. RECORD DRAWINGS

The Developer's Consulting Engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the City of Prosser, one (1) set of reproducible Record Drawings and two (2) copies prepared by the Developer's Engineer clearly marked "Record Drawings" shall be delivered to the Public Works Director for review and acceptance. Additionally, an electronic PDF file of the Record Drawings shall be transmitted to the City prior to final acceptance.

10. TRANSFER OF OWNERSHIP

Acceptance of public improvements and transfer of ownership shall be as determined by PMC Chapter 17.22.070.

11. EASEMENTS

Public utility easements shall be established for the location of new and future public improvements serving new land divisions and land developments. Easements shall also be granted across the front of new lots and existing lots to provide future utility access as required.

All easements required shall be prepared by the Developer on the proper form and format for recording at the Benton County Auditor's Office. The easement legal description shall be prepared by a land surveyor licensed in the State of Washington. The executed and notarized easement document shall be submitted to the City for recording.

Ten (10) foot wide utility easements shall be dedicated along the front of each lot in subdivisions and short subdivisions in accordance with PMC 17.16.040. Easements for new and/or future utility lines shall be a minimum of sixteen (16) feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

Utility easements shall be continuous and aligned from block to block within a subdivision and with easements in adjoining subdivisions to facilitate the extension and future extension of public utilities.

12. UTILITIES

All utilities shall be placed underground and installed at a depth of not less than 3 feet, or as specified in applicable Construction Standards sections. Exceptions may be requested, but only permitted with written approval from the Public Works Director and City Engineer.

CHAPTER 2 - GENERAL PLAN REQUIREMENTS

All plans, details, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington.

GENERAL PLAN FORMAT

1. Plan sheets and profile sheets or combined plan and profile sheets and detail sheets shall be on a sheet size of 24" x 36" or 22" x 34", and available via electronic PDF files.
2. The Cover sheet shall contain the following:
 - a. Name, address, and phone number of the owner/developer;
 - b. Name, address, and phone number and stamp of the Civil Engineer preparing the plans (Consultant);
 - c. "APPROVED FOR CONSTRUCTION BY THE CITY OF PROSSER" with signature block for City final approval of the plans;
 - d. Vicinity map showing the project site location;
 - e. An overall site plan with contours;
 - f. Sheet Index;
 - g. Applicable project information; and
 - h. The utility locate call # 811.
3. Each sheet shall contain the following project information:
 - a. Project title and City project number, work order number, or LID number, if appropriate;
 - b. Quarter section, Section - Township – Range;
 - c. Sheet title;
 - d. Page (of page) numbering;
 - e. Revision block; and
 - f. Subdivision or short plat name.
4. All plan sheets must have a NORTH arrow preferably pointing to the top of the sheet or to the left and must indicate the drawing scale. All engineering plans must be drawn to an appropriate engineer's scale. For profiles, the vertical scale shall be 1"=2', 1"=5' or 1"=10'. The horizontal scale shall be the same for both plan and profile and shall normally be 1" = 20'. Plan and profile stationing shall generally read left to right.
5. The Vertical Datum for all plan submittals must be based on the City of Prosser datum. The benchmark used shall be referenced on the plans. An assumed datum will not be accepted.
6. Existing features and topography within the project construction limits must be shown on the plans. This shall include existing road width and surfacing, utility poles, existing underground utilities and surface appurtenances, significant trees, landscaping, and other elements that may affect design/construction.
7. Plan sheets shall indicate all adjacent property lines, right-of-way lines, and easements.
8. Plan sheets shall show all horizontal survey control as required to properly locate and tie the improvements in horizontal location.

WATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 4 for specific design requirements.

1. Show all existing and proposed water system features if known, including but not limited to:
 - a. Water mains;
 - b. Water valves;
 - c. Water meters;
 - d. Water service lines;
 - e. Fire hydrants;
 - f. Blow offs;
 - g. Air and vacuum release valve assemblies;
 - h. Pressure reducing valves;
 - i. Fire sprinkler system lines;
 - j. Double check valves;
 - k. Post indicator valves; and
 - l. Thrust blocking.
2. Indicate all easements required for the water main extensions and future extensions.
3. Show the water system and the sanitary sewer system on the same plan and profile view for verification of minimum separation requirements. The design information for each system may be on individual drawings for that system.
4. Show the length, size, and pipe type for all main extensions, fire sprinkler system services, and domestic services where applicable.
5. Identify all joint connections; provide detail of all non-standard joints.
6. Show by station or dimension the location of all fire hydrants, tees, crosses, and services relative to centerline or property lines.
7. A profile view shall be shown for all City water main extensions, aligned if practical with the plan view. Clearly indicate the horizontal and vertical scales.
8. Show the minimum cover and minimum separation on each sheet.
9. In the profile view, show all utilities crossing the proposed water main.

SANITARY SEWER SYSTEM PLAN REQUIREMENTS

See CHAPTER 5 for specific design requirements.

1. Show all existing and proposed sanitary sewer system features including, but not limited to, the following:
 - a. Sewer mains, gravity and force mains;
 - b. Side service, proposed locations;
 - c. Manholes;
 - d. Clean outs; and
 - e. Pump stations.

2. Indicate all easements required for the sanitary sewer main extensions and laterals.
3. Provide an overall site plan of development with contours, to show that all lots/parcels will be served by the proposed sewer system at design depth for all new development.
4. Show the sanitary sewer system and water system on the same plan and profile for verification of minimum separation requirements. The design information for each may be on individual drawings for that system. Provide a profile for each sewer main extension.
5. Slope, length, size, and pipe type shall be indicated for all lines and side sewers. Pipe length shall be measured from centerline of manholes.
6. Provide a profile for each sanitary sewer main extension. Clearly indicate the vertical and horizontal scale. Show the profile on the same sheet with, and aligned underneath, the plan view as practical.
7. The plan and profile must show the location of all existing and proposed gas, water, irrigation, storm drain, and other utility lines and crossings.
8. Show all vertical data in the profile view and all horizontal data in the plan view. It is not desirable to repeat the vertical data in the plan view unless it does not show in a profile.
9. Each manhole shall be uniquely numbered and shall be stationed off of a referenced centerline. Indicate rim and invert elevations in and out at all manholes. Indicate the length of each side sewer stub, the centerline stationing for each side sewer, and the size.

STORMWATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 6 for specific design requirements.

1. Show all existing features if known and all proposed storm sewer (drain) system features, including but not limited to:
 - a. Storm drain mains and lines;
 - b. Catch basins;
 - c. Inlets;
 - d. Drywells;
 - e. Infiltration trenches;
 - f. Retention systems;
 - g. Biofiltration swales;
 - h. Culverts;
 - i. Streams;
 - j. Ditches;
 - k. Natural drainage swales;
 - l. Headwalls;
 - m. Oil/water separator assembly; and
 - n. Other requirements of the Department of Ecology's Stormwater Management Manual for Eastern Washington.
2. Indicate all easements required for the storm drainage system.
3. The plans shall clearly indicate the location of the storm drainage items stationed from a referenced centerline.

4. Show all horizontal measurements and control in the plan view.
5. Show slope, length, size, and pipe material for all storm drain mains and lines.
6. All catch basins and inlets shall be uniquely numbered and shall be clearly labeled. Stationing and offsets shall be indicated from referenced centerline. Show all proposed storm drain features within the right of way in a profile.
7. Indicate all grate, rim, and invert elevations in the profile view.
8. Provide stormwater runoff and drainage facilities sizing calculations as described in CHAPTER 6.

STREET PLAN REQUIREMENTS

See CHAPTER 7 for specific design requirements.

1. Show all existing and proposed roadway improvements, including but not limited to:
 - a. Pavement and edge of pavement;
 - b. Concrete curb and gutter;
 - c. Sidewalk(s);
 - d. Utilities (manholes, utility poles, pedestals, valves, water meters, etc.);
 - e. Sidewalk ramps;
 - f. Signs and Barricades;
 - g. Driveways;
 - h. Rockery or retaining walls;
 - i. Mailboxes;
 - j. Monuments;
 - k. Streetlights, conduits, junction boxes, and service cabinet; and
 - l. Compliance with ADA requirements.
2. Show all Right of Way (R/W) lines, centerlines, and roadway widths for all rights of way.
3. Clearly differentiate between areas of existing pavement, areas of new pavement, and areas to be overlaid.
4. Provide a roadway cross section or typical section of all rights of way indicating right of way width, centerline, pavement width, super-elevation or crown, sidewalk, street lights, curb and gutter, pavement, and base thickness of proposed section.
5. Provide a Plan and Profile of all new public roadways or extensions of existing roadways. Provide topography within the R/W including utilities. Indicate all horizontal and vertical curve data, percent of grade, bearings, centerline stationing every 50 feet, finish grade elevations, and existing ground line. The profile of the existing centerline ground should extend a minimum of 100 feet before the beginning and at the end of the proposed improvements to show the gradient blend.
6. Align the profile view with the plan view, if practical. Clearly indicate the horizontal and the vertical scale.

7. Clearly label all profiles with respective street names and plan sheet reference numbers if drawn on separate sheets.
8. For developments where road work is required on an existing street, development plans are required to include cross section of the existing street and spot elevations at proposed intersections and appurtenances to the project.

CHAPTER 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS

FORWARD

The City of Prosser has adopted the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* (Standard Specifications) prepared by the Washington State Department of Transportation (WSDOT), and the American Public Works Association (APWA) General Special Provisions (GSP's) for Division One General Requirements as the standard specifications governing all design and construction of public works improvements by the City and by private developers.

All references hereinafter made to the "Standard Specifications" shall refer to the latest edition of the Standard Specifications described above. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these requirements as if they were actually set forth herein.

The Standard Specifications, General and Project Special Provisions, and City Standard Details contained in these Design and Construction Standards shall apply in their entirety to all City of Prosser public works projects. These Design and Construction Standards have been prepared to form a compiled document intended to assist and inform developers, consultants, and contractors of the construction requirements to be used on proposed public works improvements.

The Standard Specifications, General and Project Special Provisions, and City Standard Details shall periodically be amended, revised, and updated. It shall be the responsibility of each user of this information to verify that he has the latest revisions prior to submitting any work covered by these specifications and details.

Developers and contractors are encouraged to contact the City of Prosser Public Works Department to obtain a copy of these standards.

GENERAL

All work shall be done in accordance with the approved Plans, the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation, amendments to the Standard Specifications, referenced codes and organizations, and these Special Provisions.

The American Public Works Association (APWA) General Special Provisions (G.S.P.'s) to Division One of the WSDOT Standard Specifications shall amend Division One of the *Standard Specifications for Road, Bridge, and Municipal Construction*. These GSP's are available at www.wsdot.wa.gov/partners/apwa/.

All materials incorporated into a proposed public works improvements project shall meet the requirements of Division 9 of the Standard Specifications or City of Prosser Design and Construction Standards as shown in the Standard Details and Special Provisions.

Any Public Works facility improvements or components that are not specifically addressed in these Design and Construction Standards shall be designed by a licensed professional engineer in the State of Washington and provided to the City for review and approval consideration by all City Departments and the City Engineer.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions

The terms defined in Section 1-01.3 of the Standard Specifications shall be further described by the following:

Consultant:	Means an engineer licensed in the State of Washington, employed by the Developer to design the improvement and prepare plans and specifications, perform construction staking, or similar services.
Construction Documents:	Means the project plans, specifications, and special provisions prepared by the Developer's Consultant for the public works improvements contemplated and approved by the City.
City:	Means the City of Prosser, a municipal corporation, as represented by its authorized officials, employees or agents.
Contractor:	Means the person or firm employed by the Developer or under Contract with the City to do the construction of the public works improvements.
Developer:	Means the person or firm constructing the new development and engaging the services of and employing consultants, and/or contractors and paying for the design and construction of the public works improvements to be transferred to the City.
Drawings:	Means the construction plans prepared by the Developer's Consultant for the public works improvements contemplated. The terms "Construction Documents," "Contract Documents," "Plans," "Engineer's Plans," "Engineer's Drawings," "Working Drawings," and "Project Manual" are synonymous.
Engineer:	Means the appointed City Engineer for the City of Prosser or his/her duly authorized agent or representative.
Owner:	Means the City of Prosser acting through its legally established officials, boards, commissions, etc., as represented by its authorized officers, employees, or agents.
Public Works Director:	Means the appointed official for the City, responsible for managing the Department of Public Works.
Standard Plans and Details:	Means the WSDOT Standard Plans and the specific drawings adopted by the City of Prosser and revised from time to time which show frequently recurring components of work which have been standardized for use.
Standard Specifications:	The latest edition of <i>Standard Specifications for Road, Bridge, and Municipal Construction</i> prepared by the Washington State Department of Transportation, and amendments, and the APWA GSP's for Division One that are, by this reference, made part of the Contract Documents. Except as may be amended, modified, or

supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these Construction Documents as if they were actually set forth herein.

Special Provisions: The Special Provisions supplement or modify the Standard Specifications and supersede any conflicting provisions of the *Standard Specifications for Road, Bridge, and Municipal Construction* and the appended amendments to the Standard Specifications and are made a part of a Construction Document.

Should any conflicts be encountered, the following inter-relationships shall govern: The Special Provisions shall supersede the APWA GSP's, which shall supersede the WSDOT Amendments, which shall supersede the Standard Specifications.

1-04 SCOPE OF THE WORK

1-04.4 Changes

Supplement this section with the following:

No changes in the work covered by the approved Construction Documents shall be made without having prior written approval of the Developer and the City.

1-04.11 Final Cleanup

Delete this section and replace it with the following:

The Contractor shall perform final cleanup as provided in this section to the Developer's and City's satisfaction. The date of completion will not be established until this is done. The material sites and all ground the Contractor occupied to do the work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, temporary structures, equipment, and debris, and
2. Deposit in embankments, or remove from the project, all unneeded, oversized rock left from grading, surfacing, or paving.

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the City or Developer, partial clean-up should be done prior to either major cleanup or final inspection.

1-04.12 Waste Site (New Section)

The following new section shall be added to the Standard Specifications:

Where there is additional waste excavation in excess of that needed for the project and in excess of that needed for compliance with requests of the Developer or City, the Contractor shall secure and operate his own waste site at his own expense. The Contractor shall also be required to secure and operate his own waste site at his own expense for the disposal of all unsuitable material, asphalt, concrete, debris, waste material, and any other objectionable material which is directed to waste.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

1-05 CONTROL OF WORK

1-05.1 Authority of the Engineer

Supplement this section with the following:

Unless otherwise expressly provided in the approved Construction Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant and the City's right to reject the means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the approved Construction Documents. Approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Construction Documents; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.3(1) Project Record Drawings (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor shall maintain a neatly marked, full-size set of record drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

Drawings shall be subject to the inspection of the Developer and the City at all times. Prior to acceptance of the work, the Contractor shall deliver to the Developer one set of neatly marked as-built drawings showing the information required above. The Developer shall prepare and deliver to the City of Prosser the reproducible Record Drawings, copies, and PDF in accordance with Section 9 of CHAPTER 1.

1-05.5 Construction Staking (New Section)

The following new section shall be added to the Standard Specifications:

The Consultant retained by the Developer will establish the line and grade of proposed construction by offset stakes. The Consultant will establish the centerline for minor structures and establish bench marks at convenient locations for use by the Contractor. The Contractor shall establish grades from the Consultant's stakes at suitable intervals in accordance with good practice and acceptable to the City. Where new construction adjoins existing construction, the Contractor shall make such adjustments in grade as are necessary.

1-05.6(1) Testing (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor/Developer shall be responsible for scheduling and paying for all material and compaction testing required by these Design and Construction Standards for new public works Improvements. All testing services shall be performed by an independent,

certified testing firm and/or laboratory meeting the approval of the City and/or City Engineer. The Contractor shall submit information relating to the qualifications of the proposed testing firm to the City for review and approval prior to the preconstruction conference. The testing firm shall provide copies of all test results to the City within 24 hours after completion of any test. Test reports shall become the property of the City. Testing frequencies listed below may be modified to assure compliance with the Specifications.

Trench Backfill

Copies of moisture-density curves for each type of material encountered and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency and at depths sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for each 100 linear feet of mainline pipeline trench and one (1) test for each street crossing. At alternating 100-foot locations along the main trench line, tests shall be taken at 1-foot, 2-foot, and 3-foot depths below finish grade.

The City or City Engineer may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required trench backfill densities.

All trenches shall be backfilled and compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

Roadway Subgrade (Embankment and Excavation Sections)

Copies of the moisture density curves for each type of material encountered and copies of all test results shall be provided to the City or City Engineer as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of subgrade.

The City or City Engineer may request additional tests be performed at the Contractor's expense, if test results do not meet the required subgrade densities. Subgrade compaction shall be as specified for Roadway Embankment in Section 2-03.3(14)C, Method C, compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

Ballast and Crushed Surfacing

Copies of the moisture density curves and gradation for each type of material incorporated into the project and copies of all test results shall be provided to the City or City Engineer as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of ballast or crushed surfacing.

The City or City Engineer may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of ballast and crushed surfacing shall be as specified in Section 4-04.3(5).

Asphalt Pavement

Copies of the reference maximum density test for each class of Hot Mix Asphalt pavement and copies of all test results shall be provided to the City or City Engineer as construction progresses.

Density tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of asphalt concrete pavement.

The City or City Engineer may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of Hot Mix Asphalt pavement shall be as specified in Section 5-04.3(10)B.

Cement Concrete Curb, Gutter, and Sidewalk

A copy of the cement concrete design mix or certification from the concrete supplier that the concrete provided has been prepared to the strength requirement as specified elsewhere in these specifications.

Concrete strength cylinders shall be taken and tested for each truck load of concrete delivered to the job. All testing procedures shall be conducted in accordance with applicable Sections of Division 6-02 of the Standard Specifications.

Copies of all test results shall be provided to the City or City Engineer as construction progresses.

1-05.8 Means and Methods (New Section)

The following new section shall be added to the Standard Specifications:

Unless otherwise expressly provided in the Contract Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant's or City's right to reject means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the Contract. The Consultant's or City's approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Contract; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.10 Guarantees

Delete this section and replace it with the following:

If, within two years (2) after the date of final inspection, defective and unauthorized materials or work is discovered, the Developer/Contractor shall promptly, upon written request, return and in accordance with the instructions either correct such work, or if such work has been rejected, remove it from the Project Site and replace it with non-defective and authorized work, all without cost to the City. If the Contractor does not promptly comply with the written request to correct defective and unauthorized work, or if an emergency exists, the City reserves the right to have defective and unauthorized work corrected or rejected, removed, and replaced pursuant to the provisions of Section 1-05.7 of the Standard Specifications.

The Contractor agrees the above two-year limitation shall not exclude nor diminish any rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after two years.

The Developer shall submit a surety bond or other security satisfactory to the City for maintenance of the improvements in accordance with PMC 12.08.050 and 17.22.080.

1-05.16 Water and Power (New Section)

The following new section shall be added to the Standard Specifications:

Water Supply: Water for use on the projects may be obtained/purchased from the City of Prosser and the Contractor shall arrange for and convey the water from the nearest convenient hydrant or other source at his own expense, including backflow protection. The hydrants shall be used in accordance with the City of Prosser Water Department regulations.

The City reserves the right to deny the use of fire hydrants where deemed inappropriate by the City.

Power Supply: The Developer shall make necessary arrangements and shall bear the costs for power necessary for the performance of the work.

1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

Amend the second sentence of the first paragraph to read:

The Contractor/Developer shall indemnify and save harmless the City of Prosser (including any agents, officers, employees, and representatives) against any claims that may arise because the Contractor (or any employee of the Contractor or subcontractor or materialman) violated a legal requirement.

1-07.5(3) State Department of Ecology

Add the following:

9. Comply with the requirements and special general conditions of the *Construction Stormwater General Permit* issued by the Washington State Department of Ecology to the Developer/Contractor for this project.

1-07.5(4) Air Quality

Supplement this section with the following:

The Contractor shall comply with the environmental provisions of local air pollution authorities, Benton County Clean Air Authority.

A method of dust control during construction shall be submitted to, and approved by, the Benton County Clean Air Authority. A written copy of their approval shall be submitted to the Public Works Director prior to commencement of construction. The Contractor/Developer shall designate a project coordinator for contact during construction regarding alleged air quality violations and other complaints.

1-07.13 Contractor's Responsibility for Work

1-07.13(1) General

Supplement this section with the following:

The Contractor is responsible for constructing and completing all work included in the approved Construction Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Prosser, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

The Developer shall be responsible for the satisfactory operation and condition of all public improvements for a period of two (2) years following final inspection and City acceptance in accordance with the Prosser Municipal Code 17.22.080.

1-07.17 Utilities and Similar Facilities

Supplement this section with the following:

It shall be the Contractor's responsibility to investigate and verify the presence and location of all utilities prior to construction.

The Contractor/Developer shall call for field location, not less than two nor more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities, unless otherwise agreed upon by the parties involved. A business day is defined as any day other than Saturday, Sunday, or a legal local, state,

or federal holiday. The phone number for the Northwest Utility Notification Center for Prosser is 811. If no one-number locator service is available, notice shall be provided individually by the Contractor to those owners known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor/Developer is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor/Developer incurred as a result of this law shall be at the Contractor's/Developer's expense.

No excavation shall begin until all known facilities, in the vicinity of the excavation area, have been located and marked.

1-07.18 Public Liability and Property Damage Insurance

Supplement this section with the following:

The Contractor shall obtain and maintain in full force and effect during the duration of this Contract public liability and property damage insurance in accordance with this section and as modified herein.

Prior to start of construction, the Contractor/Developer shall furnish the City of Prosser a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name **the City of Prosser, its employees, agents, elected and appointed officials, engineering consultant, and all subcontractors** as "additional insureds" and shall stipulate that the policies named thereon cannot be canceled unless at least forty-five (45) days written notice has been given to the City of Prosser. The certificate shall not contain the following or similar wording regarding cancellation notification: **"Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives."**

1-07.23 Public Convenience and Safety

Supplement this section with the following:

All signs, barricades, traffic control devices, and labor for traffic control required by construction activities for the control of traffic shall be supplied, placed, and maintained by the Contractor. This shall apply to detours and traffic control both within and outside the limits of the project.

All work shall be done under a plan which shall have the approval of the City of Prosser and create a minimum of interruption or inconvenience to pedestrian and vehicular traffic. All arrangements to care for such traffic will be the Contractor's responsibility and shall be made at his expense. All work shall be carried out with due regard for public safety. Open trenches shall be provided with proper barricades and steel plates, and at night they shall be distinctly indicated by adequately placed lights. At entrances to business properties and other private roads, driveways, bridges, or other such means as to provide access shall be provided by the Contractor. The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open for business.

Upon failure of the Contractor to immediately provide and maintain adequate suitable barricades, lights and detour signs, when ordered to do so, the City shall be at liberty, without further notice to the Contractor or the Surety, to provide the same and request

payment for providing proper barricades, lights, and signs, and the City assumes no liability connected therewith.

Any traffic restriction must have prior approval of the City of Prosser. Appropriate traffic control measures and signing are required during such temporary road closures.

It shall be the responsibility of the Contractor to secure the City's approval for any desired road closure and associated traffic control plan including detours. Following approval, the Contractor shall notify the Developer and City of Prosser at least 10 calendar days prior to closing any street. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.

1-07.28 Safety Standards (New Section)

The following new section shall be added to the Standard Specifications:

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The City of Prosser or Developer shall have the authority at all times to issue a stop work order at no penalty if, in their opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the City or Developer for the identification of any or all unsafe conditions.

1-07.29 Notifying Property Owners (New Section)

The following new section shall be added to the Standard Specifications:

When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 72 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.

1-08 PROSECUTION AND PROGRESS

1-08.3 Progress Schedule

Supplement this section with the following:

Prior to the commencement of any work, a preconstruction conference shall be held. The Contractor or Developer shall contact the City of Prosser and set a date and time for the meeting. It shall be the responsibility of the Contractor/Developer to notify and invite all parties having an interest in the project to the meeting, including the major subcontractors, Fire Department, and Irrigation Districts, and private utilities.

At this conference all points of the approved Plans and Specifications will be open to discussion including scope, order and coordination of work, equipment lead time required, means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the work are fully understood.

The Contractor shall prepare and submit to the City and Developer at the Preconstruction Conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Copies (2 prints or 1 reproducible) of newly updated Schedules shall be forwarded to the City, as directed, immediately upon preparation.

1-10 TEMPORARY TRAFFIC CONTROL

Supplement this section with the following:

The provisions of the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)* for Streets and Highways and amendments thereto published by the U.S. Department of Transportation, Federal Highway Administration, and WSDOT by this reference are made a part of these Documents.

1-10.2(2) Traffic Control Plans

Delete the entire section and replace with the following:

The Contractor shall prepare a signing plan showing the necessary Class A and B construction signing, barricades, and traffic control devices required for the project and submit it to the City for review by the Public Works Director or his designee, no later than the preconstruction conference date. When the Class B signing for a particular area will be provided as detailed on one or more of the figures included in the MUTCD without modification, the Contractor may reference the applicable MUTCD figure at the appropriate location on the Plan. When this procedure is used, variable distances such as minimum length of taper must be specified by the Contractor.

The signing plan prepared by the Contractor shall provide for adequate warning within the limits of the project and on all streets, alleys, and driveways entering the project, so that approaching traffic may turn left or right onto existing undisturbed streets before reaching the project. The Plan shall be prepared to create a minimum of inconvenience for pedestrian and vehicle traffic.

All modifications to the accepted signing plans shall be reviewed by the City.

1-10.3(3)A Construction Signs

The first sentence of the first paragraph is revised to read:

All signs, barricades, flashers, cones, traffic safety drums, barricades, and other traffic control devices required by the approved traffic control plan(s), as well as any other appropriate signs prescribed by the City or County, shall be furnished and maintained by the Contractor.

Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately spaced lights.

CHAPTER 4 - WATER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS

All extensions and additions to the City of Prosser's domestic water system shall conform to the Design and Construction Standards of the City of Prosser and the Washington State Department of Health (DOH) as follows:

All new lots and developments shall be served by a public domestic water supply line to be maintained by the City of Prosser and located adjacent to the lot or development site. The water supply line shall be capable of providing sufficient flow and pressure to satisfy the fire flow and domestic service requirements of the proposed lots and development requirements.

Water lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Water System Plan.

All new public domestic water mains shall be a minimum diameter of 8 inches. Fire hydrant runs less than 50 feet from the water main to the fire hydrant shall be a minimum diameter of 6 inches. However, if a hydrant run has the potential to serve as a future water main extension as determined by the Public Works Director, the hydrant run shall be 8 inches in diameter.

New water mains shall be designed with a cover depth of 48 inches. When this standard depth is unachievable due to existing conflicts, a minimum depth of 42 inches and a maximum of 60 inches shall be acceptable.

New water mains shall be located in existing or proposed streets within City right-of-way and shall be offset from the street centerline, not located within a vehicle wheel path.

Larger public water mains may be required depending upon fire flow requirements as determined by any of the following: The City of Prosser's Public Works Director, Fire Chief, and City Engineer.

Water main oversizing, above that required for the particular development being submitted, may be required by the City of Prosser to be installed for future extension. The cost of the materials only for said oversizing shall be reimbursed to the Developer by the City. The Developer shall submit actual material invoices showing the actual cost of the materials furnished and the cost of the same materials of the size required for the development.

All domestic water mains shall be looped, where possible. Temporary dead-end mains over 300 feet in length will only be allowed where future water main looping via public right of way will be assured. No permanent dead-end water mains will be allowed to be part of the City of Prosser's public water system. Permanent dead-end water mains may become private water mains owned and maintained by the Developer. All dead-end water mains shall be isolated from the public water main with a reduced pressure double check valve assembly and vault furnished and installed by the Developer to City of Prosser standards for cross-connection control.

Maximum valve spacing in public water mains will be 750 linear feet. Valves will be furnished and installed on all legs of new water main intersections. Valve operating nut extensions approved by the City will be required on valves where the operating nut is deeper than 36 inches below finished grade.

All new water service lines shall be a minimum of 1" diameter. Minimum water meter sizes shall be 3/4-inch diameter, and shall be furnished and installed by the Contractor. Water meters shall be a minimum of 5/8-inch diameter with 3/4-inch diameter threads. Water system connection fees include the cost of the physical water meter and installation of the meter by the City. Excluding the water meter, the Contractor shall furnish and install all water service components from the water main to the property line including service saddle, corporation stop, service tap, service pipe, meter stop, meter setter assembly, meter box, and customer piping beyond the meter, all at the Developer's expense. Only one meter shall be served from each main tap. All service taps shall be made under the supervision of the Public Works Director or his designee.

All live taps of water mains shall be performed in accordance with Section 7-12.3 of these Construction Standards using a full circle stainless steel tapping sleeve with gate valve, and paid for by the Developer. No cut-in tees will be allowed.

Minimum 2-inch air and vacuum release valves shall be furnished and installed at high points along the water main, as determined during the plan review process. A blow-off assembly (or fire hydrant) shall be furnished and installed at low points along the water main, as determined during the plan review process.

Maximum spacing of fire hydrants shall be 400 feet. Additional hydrants may be required to protect structures as determined by the local fire authority. Additional fire hydrants required on a site may require a looped, on-site water main. Easements will be provided for all on-site, public, looped water mains, in accordance with CHAPTER 1, Section 11.

All double detector check valve assemblies shall conform to City of Prosser standards. Initial and annual testing will be required as required by WAC 246-290-490. All backflow prevention assemblies shall be approved on the latest version of USC Foundation List of Approved Backflow Prevention Assemblies. Testing requirements shall be in accordance with WAC 246-290-490.

Water and sewer mains shall be separated in accordance with Section C1-9.1 of the *Criteria for Sewage Works Design, August 2008*, by the Washington State Department of Ecology.

The design of water mains and appurtenances is subject to review and approval consideration by the City of Prosser Public Works Director and City Engineer. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of water lines and appurtenances for the health, safety, and protection of the general public.

Irrigation Systems

All new subdivisions and developments shall be served by a separate irrigation water distribution system with minimum 1" diameter service for each lot, regardless if irrigation service is immediately available. The irrigation system shall be designed by a professional engineer and constructed in accordance with City of Prosser Construction Standards. All

irrigation mains shall be a minimum diameter of four (4) inches and upsized as necessary to provide system pressure of at least 40 psi. All irrigation pipelines under roadways shall meet the requirements of Section 9-30.1(5)A (AWWA C900 or C905). Pipelines outside of the roadway limits shall meet the requirements of Section 9-15.1(2) (ASTM 2241, 200 psi, SDR21). All irrigation pipe shall be installed with a minimum cover of 30 inches, pipe zone bedding and backfill per Standard Detail W-1, and with purple tracer wire and a 3-inch wide detectable magnetic marking tape twelve (12) inches above the pipe. In the event irrigation water is unavailable in the vicinity of the subdivision or development, the irrigation system shall be tested, sealed, and buried with ends clearly marked to facilitate a connection when irrigation water is available in the future.

If the irrigation point of connection has inadequate pressure, the Developer will be responsible for designing and constructing a two-pump filtered irrigation pump station to serve the entire development. The pump station shall be designed by a Civil Engineer licensed in the State of Washington. The irrigation water system and all components shall be part of the design plans for review by the City Engineer.

Irrigation services which must use the City's domestic water system (irrigation water unavailable) shall require a City permit and be installed with a USC-approved, double check valve assembly. All double detector check valve assemblies shall conform to City of Prosser standards. Initial and annual testing will be required. In addition, testing shall be completed following any repairs, relocations, and/or reinstallations. The assembly owner shall be notified prior to the annual testing date. It is then the assembly owner's responsibility to acquire the services of a certified organization to perform the test. If the test indicates the assembly must be repaired, a record of the repair work and a satisfactory test report shall be provided to the City of Prosser. Annual testing shall be completed prior to any repair work or flushing of the relief valve to determine operating status. Failure to test and maintain assemblies is grounds for termination of water service.

SPECIAL PROVISIONS FOR WATER SYSTEM IMPROVEMENTS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works water system improvements within the City of Prosser.

7-09 WATER MAINS

7-09.2 Materials

Pipe for main line approved for use shall be as follows:

Pipe for Main Line:

Ductile Iron Pipe
Polyvinyl Chloride (PVC) Pressure Pipe

Supplement this section with the following:

Ductile Iron Pipe: Ductile iron pipe shall conform to the requirements of Section 9-30.1(1) of the Standard Specifications, except that it shall be Standard Thickness Class 52. Joints shall be rubber gasket, push-on type (Tyton Joint). Fittings shall be mechanical joint or flanged, as shown on the Plans, and shall conform to Section 9-30.2(1) of the Standard Specifications.

Polyvinyl Chloride (PVC) Pressure Pipe: PVC pipe shall conform to the requirements of Section 9-30.1(5)A. Fittings shall be the same as specified for Ductile Iron pipe. PVC pipe must be provided with detectable marking tape, see Section 7-11.3(10), and with size 12 Blue plastic coated solid copper tracer wire on the top of the pipe, attached every ten feet.

Fittings for Main Lines:

Connection Couplings: Couplings for Ductile Iron or PVC pipe, either transition or straight couplings, shall be compression type flexible couplings conforming to Section 9-30.2(7) of the Standard Specifications.

Aggregates:

Gravel Backfill for Pipe Zone (including Bedding): Imported pipe zone material for flexible pipes shall be Crushed Surfacing Top Course meeting the requirements of section 9-03.9(3) and shall be placed and compacted in layers as designated by the City. Pipe zone material for rigid pipes shall be Crushed Surfacing Base Course meeting the requirements of Section 9-03.9(3).

Trench Backfill: All longitudinal water main trenches (parallel to curb) shall be backfilled full depth above the pipe zone with native material (free of organic material, wood, rocks, or pavement chunks larger than 6-inches in maximum dimension), unless otherwise directed by the City of Prosser. Street crossing trenches and other locations as directed by the City of Prosser shall be backfilled full depth with imported select backfill. Imported select backfill shall be crushed surfacing base course, placed and compacted in layers.

7-09.3 Construction Requirements

7-09.3(5) Grade and Alignment

Replace the first sentence of the third paragraph with the following:

New water mains shall be designed with a cover depth of 48 inches. When this standard depth is unachievable due to existing conflicts, a minimum depth of 42 inches and a maximum of 60 inches shall be acceptable.

7-09.3(9) Bedding the Pipe

Supplement this section with the following:

All construction work shall be inspected by the City or its authorized representative before pipe installation and backfilling. Imported pipe zone bedding/backfill for pipes shall be in accordance with Section 7-09.2 above, placed and compacted per the Standard Specifications and Standard Details. Bedding shall be placed under all pipe.

7-09.3(10) Backfilling Trenches

Supplement this section with the following:

Street crossing trenches, and other locations as directed, shall have the trench backfilled full depth with Imported Select Backfill. The Public Works Director may require the use of

Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

7-09.3(11) Compaction of Backfill

Delete the first paragraph and supplement this section with the following:

Mechanical compaction shall be required for all trenches. The Developer/Contractor shall be responsible for scheduling and paying for all testing required.

The density of the compacted material shall be at least 95% of the maximum density as determined by ASTM D 698 Tests (Standard Proctor). Density tests shall be taken at various depths in the trench, consistent with Section 1-05.6(1) in CHAPTER 3. All costs associated with testing shall be the responsibility of the Contractor. Placement of courses of aggregate shall not proceed until density requirements have been met.

The first 500 feet of trench backfill operations shall be considered a test section for the Contractor to demonstrate his backfilling and compaction techniques. The Contractor shall notify the City at least 3 working days prior to beginning trench excavation and backfill operations. The Contractor shall arrange for in-place density tests to be taken on the completed test section in accordance with the above requirements. No further trenching will be allowed until the specified density is achieved in the test section. Passing in-place density tests in the test section will not relieve the Contractor from achieving the specified densities throughout the project.

7-09.3(12)A Locating Wire (New Section)

The following new section shall be added to the Standard Specifications:

A continuous solid copper locating wire shall be placed along the top of all water and irrigation pipe. This wire shall be secured to the top of the pipe at maximum 10-foot intervals using 6-inch strips of 2-inch wide duct tape. All splices shall be tied, electrically continuous, and made waterproof. Access to terminal ends of the locating wire shall be made at locating wire boxes, per the details shown on the Drawings. The result of this installation shall be a continuous wire circuit electrically isolated from ground. The Contractor shall be responsible for testing continuity and for testing isolation from ground in the wire after all work has been completed on the test section. The Contractor is advised to do intermediate testing on his own after backfilling operations and prior to surface restoration work to be sure continuity is maintained. If there is a break or defect in the wire, it shall be the Contractor's responsibility to locate and repair the defect. The continuity of the location wire shall be tested from one test load point to the next by use of a temporary wire laid between test points in-line with an ohmmeter. Resistance shall be measured with an approved ohmmeter that has been properly calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms per 500 feet of location wire being tested. Isolation from ground shall be measured with a megohmmeter and shall be a minimum of 20 megohms for any section of location wire tested. The City shall witness the acceptance test.

7-09.3(19)A Connections to Existing Mains

Supplement this section with the following:

New water mains shall be tested, flushed, and disinfected per applicable DOH requirements with passing results, prior to making connection to existing main and being placed into operation. At least one set of samples for bacteriological testing shall be collected from every 1,200 feet of new water main, plus one set from the end of the line and at least one set from each branch in accordance with AWWA C651 standards. Additional testing locations may be required at the discretion of the City.

No existing line valves shall be closed without permission by the Public Works Director or Water Department Supervisor. In no case shall any existing water main valve be closed for a period of greater than eight (8) hours.

7-09.3(23) Hydrostatic Pressure Test

Replace the first sentence with the following:

All water mains and appurtenances shall be tested under a hydrostatic pressure of 185 psi for a fifteen (15) minute period.

7-12 VALVES FOR WATER MAINS

7-12.2 Materials

Supplement this section with the following:

Gate Valves: All valves sizes 3-inch through 10-inch shall be gate valves manufactured in the U.S. and shall conform to the latest revision of AWWA Resilient Seated Gate Valves Standard C509 and AWWA C104. Valves shall be Mueller, Dresser, M&H, Clow, or equal.

All gate valves shall have non-rising stems, open counterclockwise, and shall be provided with a 2-inch square AWWA operating nut. Gate valves 4-inch and larger shall have mechanical joint connections. Stuffing box shall be O-ring type.

Butterfly Valves: All valves sizes 12 inches and larger shall be butterfly valves manufactured in the U.S. and suitable for direct burial and shall be rubber seated and conform to the latest revision of AWWA Standard C504 Class 150B and C104. Valves shall be Pratt, Mueller, M&H, Clow, or equal.

Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counterclockwise and shall be provided with a 2-inch square AWWA operating nut.

Valves shall have mechanical joint connections and shall be of the same size as the line on which they are located. Valve shafts shall be a one-piece unit extending full size through the valve disc and valve bearings, with minimum shaft diameter as specified in AWWA C 504 Class 150B.

Tapping Sleeve and Valve Assemblies: Tapping sleeves shall be full circle, Romac Stainless Steel Tapping Sleeve (SST) with Ductile Iron Flanged Outlet, or approved equal, conforming to the latest AWWA Standard C223.

Valve Boxes shall be two-piece adjustable. The top section shall be similar to Olympic Model 931, or approved equal, 15 or 18 inches high. The bottom section shall be Olympic Model 931, or equal, 36 inches high. Extension sections shall be Olympic Model 931R-12, or equal, 12 inches high. Valve stem extensions shall be provided per Section 9-30.3(6), where necessary. The valve box cover (drop lid) shall be Tyler Union 145301 or approved equal.

7-12.3 Construction Requirements

Supplement this section with the following:

Tapping Sleeve and Valve Assemblies: The Contractor or Subcontractor completing the work shall have at least five (5) years' experience with a minimum of ten (10) water main taps of pipes with diameters equal to or larger than specified in this project. Contractor shall notify City at least 72 hours prior to all proposed taps and provide work experience references if requested. Work to complete the tap shall not commence without City's written approval. If the Contractor or Subcontractor does not have sufficient experience in the sole opinion of the City, a qualified Subcontractor as approved by the City, shall be used to complete the tap at no additional cost.

Valves: Upon completion of all work in connection with this Contract, the Developer/Contractor shall contact the City of Prosser Public Works for opening water valves. Valves shall only be operated by City Public Works staff.

Valve Boxes: Valve boxes should be set to position during backfilling operations, so they will be in a vertically centered alignment to the valve operating stem. The top of the box will be at final grade.

The Contractor shall adjust all water valve boxes to the final grade of the surrounding area including new concrete sidewalk, asphalt paving, gravel surfacing, or topsoil surfacing, in accordance with the details shown on the Drawings. Valve box upper section shall be rotated such that valve box cover recessed lid tabs are parallel with pipe alignment.

The Contractor shall keep the valve boxes free from debris caused by the construction activities. All valve boxes will be inspected during final walk-thru to verify that the valve box is plumb and that the valve wrench can be placed on the operating nut.

7-14 HYDRANTS

7-14.2 Materials

Supplement this section with the following:

The City of Prosser accepts fire hydrants of the following manufacturers, providing the hydrants conform to the City's technical specifications for fire hydrants:

Mueller Super Centurion
M&H 129S
Clow Medallion

All hydrants shall have a Main Valve Opening (MVO) of 5-1/4" and one port with a 4" Storz Quick Coupling and two (2) 2-1/2" diameter ports. Threads on all ports shall be National Standard Thread.

7-14.3(1) Setting Hydrants

Delete the first and second paragraphs and replace with the following:

The hydrant shoe shall be set to the correct elevation on a concrete block base 12" x 12" x 6" thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.50 cubic yards of washed drain rock ranging in size from 3/4" to 1-1/2", to allow free drainage of the hydrant. The drain rock shall be completely surrounded with construction geotextile fabric.

The Contractor shall be responsible for verifying the hydrant flange elevations and shall provide additional depth-of-bury hydrants to achieve a flange elevation of 3" above the back of curb, sidewalk, or finished grade, as shown on the City's Standard Detail.

Fire hydrants shall be painted with two coats of high visibility yellow paint.

7-14.3(2) Hydrant Connections

Replace this section with the following:

Hydrant runs of less than 50 feet shall be connected to the main with 6-inch minimum diameter water main. Each hydrant lateral shall include an auxiliary gate valve and valve box.

7-14.3(2)A Hydrant Restraints

Replace this section with the following:

All hydrants shall be securely connected to the water main as shown on the City's Standard Detail.

7-14.3(2)C Hydrant Guard Posts

Replace this section with the following:

If determined necessary by the City Water Superintendent, four (4) 6-inch diameter Sch. 40 steel guard posts shall be installed at hydrant location. Hydrant guard posts shall be painted the same color as the hydrants.

7-15 SERVICE CONNECTIONS

7-15.1 Description

Replace this section with the following:

This work consists of the relocation of existing water meters and water meter boxes, where necessary, and the installation of new saddles, corporation stops, service pipe, water meter boxes, meter setters, and meter stops as shown on the Plans. The Contractor shall furnish and install all water service components from the water main to the property line

including service saddle, corporation stop, service tap, service pipe, meter stop, meter setter assembly, meter box, and customer piping beyond the meter, all at the Developer's expense.

7-15.2 Materials

Supplement this section with the following:

Saddles: New service saddles shall be Romac Style 202NS or approved equal nylon coated saddle with double stainless-steel straps.

Corporation Stops: New corporation stops shall be Ford ball valve, Type FB1000, for service line size.

Service Pipe: New service pipe shall be CTS Cross-linked Polyethylene (PEX) tubing meeting the requirements of ASTM F876/F877 and ANSI/NSF Standard 14/61 or approved equal. Polyethylene (PE) tubing is not permitted.

Meter Valve: New meter valve shall be angle key meter valve, Ford type BA43, 1" service line size, NON-360° rotation.

Check Valve: New check valve (customer side of meter) shall be angle check valve, Ford type HA34, 1" service line size.

Meter Boxes: New meter boxes shall be Brooks No. 37 (for ¾" and 1" meters) with cast iron cover, and No. 67 (for 1.5" and larger meters) with steel cover and reader door.

Pipe Bedding and Backfill: Pipe bedding and select backfill shall be utilized for trench backfill as directed by the City in accordance with Section 7-09.2 of the Special Provisions.

7-15.3 Construction Requirements

Supplement this section with the following:

The Contractor shall set the water meter box to the finished grade of the area. The Contractor will be required to reset the meter box if it is not at finished grade at the completion of the project. The completed water service shall be tested at system operating pressure by the Contractor and must show no signs of leakage.

Future water services shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finish surface and a 2"x4"x48" treated Marker post painted blue.

The fresh concrete curb above all water service lines shall be stamped on the top with a 2" high "W".

CHAPTER 5 - SANITARY SEWER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

All extensions and additions to the City's sanitary sewer system shall conform to the Design and Construction Standards of the City of Prosser, the Washington State Department of Ecology, and be designed by a licensed professional Engineer as follows:

Sewer lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's General Sewer Plan, including alignments, sizes, and depths necessary to serve future areas within the Urban Growth Area (UGA) boundary.

Sewer lines shall be located in streets to serve abutting properties. Lines located in streets will be offset from the street centerline and not located within a vehicle wheel path. When necessary, sewer lines may be located within public easements. Sewer lines located in easements shall generally be located in the center of the easement, but may, with the approval of the Public Works Director, be offset to accommodate the installation of other utilities or to satisfy special circumstances.

The minimum size for public sewer lines is eight (8) inches in diameter. The developer's sewer system must provide capacity for the proposed development but must also provide capacity for future extensions consistent with the General Sewer Plan. Sewer line oversizing for future extension may be required by the City. The City will reimburse the Developer the cost of the sewer pipe oversizing only based on invoices for the actual pipe cost.

Sewer lines shall be terminated with a manhole. In special circumstances, a flush-end (cleanout) may be installed on the end of a sewer main extension, provided the end is no further than 150 feet from the last manhole and the sewer main line and grade will permit further extension.

Manholes shall be installed at intervals of no greater than 350 feet and at all vertical and horizontal angle points in the sewer main.

Each building containing sanitary sewer facilities shall be served by a separate private side sewer line. Branched side sewers serving multiple buildings and properties shall not be permitted. A single side sewer serving multi-unit buildings is permitted.

Side sewers shall be installed in accordance with these Construction Standards and as shown on the City Standard Details.

Sewer lines shall be designed for gravity flow operation and in accordance with the General Sewer Plan. Lift stations and force mains shall be limited to those locations and circumstances where they are consistent with the General Sewer Plan and are the only viable solution to serve the proposed development and other properties in the vicinity. Lift stations and force mains shall be designed by a Professional Civil Engineer licensed in the State of Washington in accordance with the direction and requirements given by the City Engineer.

The design of sewer lines and appurtenances is subject to review and approval by the City of Prosser Public Works Director and City Engineer. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of sewer lines and appurtenances for the health, safety, and protection of the general public.

SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works sewer system improvements within the City of Prosser.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Supplement this section with the following:

Sanitary sewer manholes shall be gasketed and constructed of 48-inch or larger diameter reinforced precast concrete manhole sections in conformance with the requirements of this Section. The base and first barrel section shall be precast monolithically with preformed channels.

Joints in the manhole sections shall be watertight and shall be a rubber ring compression joint complying with ASTM C443, a flexible, plastic gasket, or approved equal.

Manhole frames and covers shall be manufactured in the United States and be cast iron with a combined weight of not less than 400 pounds and have a clear opening of 24 inches. The frames and covers shall be the manufacturer's stock pattern capable of withstanding, with appropriate margin of safety, an H20 loading. Covers shall have a 1-inch hole only, unless otherwise noted, and the top shall be flat with a non-skid pattern and marked "SEWER." The contact surfaces of the frames and covers shall be machine finished to a common plane or have other adequate provision to prevent rocking.

7-05.3 Construction Requirements

Supplement this section with the following:

The design and construction of all manholes shall provide for a 0.10-foot vertical drop through the manhole.

Manhole coupling adaptors may be precast in the manhole to accept PVC pipe, provided diameters match. No field grouting of pipe into manholes will be allowed. Pipe connections at manholes must be gasketed and must be flexible. "A-Lok" gasket system or approved equal may be used as an alternate to the manhole coupling adapter.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each

structure shall be relocated from references previously established by the Contractor. All existing manhole castings shall be replaced with new castings when making adjustment.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed, and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 1 ½ inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA Cl. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

Utility appurtenances outside paved areas shall be adjusted to match the finish grade of the area surrounding the structure and shall include a concrete collar extending one foot in all directions beyond the cover. The utility cover shall be cleaned of all concrete prior to acceptance.

7-05.3(2) Abandon Existing Manholes

Replace the entire section with the following:

Where shown on the Plans, existing sanitary sewer manholes shall be abandoned in place after the new sanitary sewer collection system is in place and all side sewers have been transferred to the new sanitary sewer pipeline.

At least the top 3 feet of each manhole, or the top conical section in precast concrete manholes, shall be removed, including the cast iron ring and cover and concrete pad, if any. Debris resulting from breaking of the upper portion of the manhole may be mixed with backfill subject to the approval of the City Engineer. Ring and cover shall become the property of the City and all other surplus material shall be disposed of by the Developer's Contractor.

The existing pipe openings shall be plugged watertight with Class 3000 concrete and the manhole bottom slabs shall be broken to promote drainage. The remaining manhole structure shall be backfilled with granular material conforming to Section 9-03.9(3) Crushed Surfacing Base Course. Place backfill in uniform layers and compact to 95% maximum dry density, as determined by ASTM D 698 (Standard Proctor).

Excavations resulting from manhole abandonment shall be backfilled with suitable, job-excavated material to top of subgrade. Compact to 95% maximum dry density as determined by ASTM D 698 (Standard Proctor). Restore surface to the condition existing prior to excavation with native material, gravel surfacing, or asphalt concrete pavement, as shown for trench repair on the Plans.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Supplement this section with the following:

At least 48 hours notice shall be given to the City Public Works Department prior to backfilling to allow inspection. Inspection shall be consistent with PMC 17.22.070. Copies of all compaction test results shall be furnished to the City no later than the following day.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 811.

7-08.3(1)C Bedding the Pipe

Supplement this section with the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(2)B Pipe Laying - General

Supplement this section with the following:

6-inch wide magnetic detectable marking tape as detailed in the Standard Detail SS-5 shall be installed over all sewer pipe lines. The tape shall be placed approximately three feet above the top of the pipe and shall extend its full length. The horizontal location of the tape shall vary no more than one foot from the centerline alignment of the pipe. Detectable marker tape shall meet the requirements of Section 9-15.18 of the Standard Specifications.

7-08.3(3) Backfilling

Supplement this section with the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

7-17 SANITARY SEWERS

7-17.1 Description

Supplement this section with the following:

The term "sewer(s)" and "sanitary sewer(s)" shall mean the same.

7-17.2 Materials

Pipe approved for use shall be as follows:

PVC Sanitary Sewer Pipe (Gravity): Polyvinyl Chloride Pipe with flexible gasketed joints shall conform to the requirements of Section 9-05.12(1) of the Standard Specifications (ASTM D3034, DR 35 for pipe sizes up to 15 inches in diameter). When restrained pipe is required, Ford 1300 mechanical pipe restraints or equal shall be used.

PVC fittings for PVC sewer pipe such as tees, wyes, elbows, plugs, caps, etc., shall be flexible gasket joint fittings acceptable for use and connection to PVC sewer pipe.

Detectable Marker Tape: Marker tape shall be a detectable type and shall be marked "SEWER," and shall conform to Section 9-15.18 of the Standard Specifications.

7-17.3 Construction Requirements

7-17.3(2)A General

Delete the first paragraph and replace it with the following:

All sewer pipes and appurtenances shall be cleaned and tested after backfilling. Both infiltration (if applicable) and exfiltration testing of the gravity sewer pipeline will be required. Deflection testing of the pipeline will also be required, 15 days after completion of backfill and compaction. All testing shall be witnessed by the City.

7-18 SIDE SEWERS

7-18.3 Construction Requirements

7-18.3(1) General

Supplement this section with the following:

Side sewers shall be constructed in accordance with the City's Standard Detail and with a minimum of 60 inches of cover. This provision may be waived by the Public Works Director under special circumstances; however, under no circumstances shall the side sewer be laid with less than 18 inches of cover.

Side sewers shall be a minimum of four (4) inches in diameter. Larger sizes, if required, will be approved by the Public Works Director on a case-by-case basis.

Future side sewer services shall be marked with an 18" long section of #4 rebar buried vertically, with the top set 6" below the finish surface and a 2" x 4" x 48" treated marker post painted green.

The fresh concrete curb above all side sewer laterals shall be stamped on the top with a 2" high "S".

CHAPTER 6 - STORMWATER IMPROVEMENTS

GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS

All extensions and improvements to the City of Prosser's storm sewer (storm drain) system shall conform to the following design standards and requirements of the City. Private systems, where required by applicable provisions of the Prosser Municipal Code, shall also comply with these requirements.

All new storm drainage facilities, public or private, shall be designed by a Professional Engineer licensed in the State of Washington. Complete stormwater runoff and drainage facilities sizing calculations shall be submitted to the City Public Works Director and City Engineer for review and comment. Storm sewer facilities and pipelines shall be designed to meet a minimum 25-year storm criteria, and both the long-duration and short-duration storms shall be considered in the design.

All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (Ecology) *Stormwater Management Manual for Eastern Washington* (SWMMEW).

All storm runoff occurring on all new lots and developments (private property) shall be retained and disposed of on-site. No storm runoff will be permitted to enter public property or the public storm drainage system. The property owner shall maintain all stormwater Best Management Practices (BMPs) that are installed on private property.

Storm runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All infiltration trenches shall be wrapped in underground drainage moderate survivability, non-woven, Class B.

All storm sewer designs for new public streets shall be based upon an engineering analysis that considers total drainage areas, runoff rates, pipe and inlet capacities, treatment capacity, and any other factors pertinent to the design.

All subsurface infiltration facilities used for the treatment and disposal of stormwater shall meet the requirements of and be registered with the Ecology Underground Injection Control (UIC) program. UIC registration forms shall be completed by the Developer's Engineer and shall be supplied to the City with the record drawings.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

Small private developments may be designed to accommodate 1.3 inches of precipitation (10-year, 24-hour storm) over the on-site impervious surfaces. Small developments are defined to be 5,000 square feet or less of impervious surface area. Impervious surfaces must be clearly noted and shown on the project site plan.

DESIGN CRITERIA

The SWMMEW allows different methodologies to apply design storms to stormwater facility design. For purposes of consistency, specific design storm amounts of precipitation are provided below and summarized in Table 6-1. Precipitation amounts are taken from the figures and calculation methods provided in the SWMMEW. Once the rainfall amount is known, hydrographic methods are used to determine the rate and volume of runoff from the selected design storm, and to mathematically route a storm through proposed facilities. Hydrographic methods are discussed below along with their application to different design conditions in Prosser.

DESIGN STORMS

Design storms are used to establish the amount of precipitation to be used in calculating the runoff from a parcel or basin. Based on rainfall records and methods outlined in the SWMMEW, the storm events described below are applicable to Prosser.

Water Quality 3-Hour Storm – 0.26 inches of precipitation. This short-duration water quality storm event is intended to provide treatment for the “first flush” events and is representative of a summer thundershower. The “first flush” can be thought of as the first amount of water that enters the system during a storm, which typically contains the highest concentration of pollutants such as roadway grit, dust and oils.

Water Quality 24-Hour Storm – 0.53 inches of precipitation. This 24-hour water quality storm event is intended to provide treatment for the “first flush” events.

2-Year, 24-Hour Storm – 0.8 inches of precipitation. This 24-hour storm has a two-year return frequency, or a 50 percent chance of occurring in any one year. Designing to the 2-year storm is considered necessary for control of nuisance water. The 2-year storm also has other applications for the design of stormwater detention and water quality treatment facilities.

10-Year, 24-Hour Storm – 1.3 inches of precipitation. This 24-hour storm has a 10-year return frequency, or a 10 percent chance of occurring in any one year. Historically, storm drain facilities were designed to carry flows from this storm, but it was found that in Eastern Washington, stormwater facilities were better protected if they were designed to carry flows from the summer thunderstorm, which has greater rainfall intensity over a shorter period of time.

25-Year, 3-Hour Storm (Regional Short-Duration Storm) – 0.92 inches of precipitation. This short-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. This unique storm is representative of the summer thunderstorm where a significant amount of rainfall occurs over a 3-hour period and should be used for design of flow-based stormwater BMPs.

25-year, 72-Hour Storm (Regional Long-Duration Storm) – 1.6 inches of precipitation (uses 25-year, 24-hour storm intensity). This long-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. Volume-based BMPs should be designed for this 72-hour, long-duration storm. The intensity of this storm is lower since the rainfall occurs more slowly over an extended time within the 72-hour period. Therefore, the runoff rate is lower, but the volume is greater than the 3-hour storm.

50-Year, 24-hour, Storm – 1.8 inches of precipitation. This 24-hour storm has a 50-year return frequency, or a 2 percent chance of occurring in any one year. Minor ponding is acceptable during this event, as long as the streets remain passable, and buildings are not flooded.

100-Year, 24-Hour Storm – 2.0 inches of precipitation. This 24-hour storm has a 100-year return frequency, or a 1 percent chance of occurring in any one year. Major structures and critical facilities should be protected from damage by flows from this storm.

TABLE 6-1 PRECIPITATION EVENT INFORMATION	
Storm Event	Precipitation (Inches)
6-Month, 3-Hour Storm Event	0.26
6-Month, 24-Hour Storm Event	0.53
2-Year, 24-Hour Storm Event	0.8
10-Year, 24-hour Storm Event	1.3
25-Year, 3-Hour Storm Event	0.92
25-Year, 24-Hour Storm Event	1.6
50-Year, 24-Hour Storm Event	1.8
100-Year, 24-Hour Storm Event	2.0
Source: <i>Stormwater Management Manual for Eastern Washington</i> , Ecology, Sep. 2004 Note: 24-hour precipitation amounts have been adjusted for use in the long-duration regional storm distribution.	

HYDROLOGIC ANALYSIS

Hydrologic analysis determines the amount of runoff from a given storm for a given drainage area. Available methods range from simple calculations such as the Rational Method to complex computer models, requiring significant data input and knowledge of hydrologic effects.

The following hydrographic methods are considered acceptable for the watersheds within Prosser and its urban growth area.

- The Santa Barbara Urban Hydrograph (SBUH) method may be used for all analyses regardless of the size of the drainage area. Input parameters shall be as described by Ecology or WSDOT for the design storms described above. Other computer models may also be used with prior approval by the City.
- For drainage areas less than or equal to 20 acres, the rational formula and modified rational method, as described in older WSDOT and Soil Conservation Service publications, may be used for flow-rate-based applications. Inputs shall be as described in those publications, or other engineering texts. The SCS Unit Hydrograph Method may also be used.
- For drainage areas greater than 20 acres, and when it is necessary to route flows through detention facilities, the SCS Unit Hydrograph Method may be used. Inputs shall be as described in WSDOT and Soil Conservation Service publications, or other engineering texts.

The SBUH method uses a hyetograph to depict the intensity (amount) of rainfall versus time. A hyetograph may also be required for routing design storms through some BMPs. Design storm hyetographs applicable to Prosser stormwater facilities are as follows:

- Water Quality Volume-Based Treatment BMPs – 24-hour SCS Type 1A storm with a 6-month return frequency.
- Water Quality Flow-Rate-Based Treatment BMPs – 3-hour short-duration storm with a 6-month return frequency.
- Volume-Based BMPs – 72-hour Regional Long-Duration Storm with a 25-year return frequency. Storm intensity is based on the 25-year, 24-hour storm event.
- Flow-Rate-Based BMPs – 3-hour short-duration storm with a 25-year return frequency as described in the SWMMEW.
- Critical facilities required to carry 50- and 100-year storms – 24-hour SCS Type II storm.

TREATMENT BMP SIZING

The City of Prosser is located in Ecology's Region 2 of Eastern Washington. Therefore, all calculations shall be based on Region 2 methods recommended in the Ecology's SWMMEW for the sizing of stormwater BMPs. The following are design guidelines for volume-based treatment BMPs and flow-rate-based treatment BMPs.

Volume-based treatment BMPs are sized the same whether they are located upstream or downstream of a detention facility. The volume of runoff predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type 1A storm with a 6-month return frequency (the 0.53-inch water quality design storm). The BMP will be sized to treat this amount of water and will also be sized to pass the 25-year short-duration storm, either through or around the BMP, without damaging the BMP or dislodging pollutants from within it.

Flow-rate-based treatment BMPs are sized differently depending on whether they are located upstream or downstream from a detention facility. If the BMP is located upstream of a detention facility, or if there is no detention facility, the runoff flow rate predicted for the proposed developed condition of a site will be calculated using the 3-hour short-duration storm with a 6-month return frequency (the 0.26-inch water quality design storm). See Chapter 7 of the SWMMEW for design parameters. If the BMP is located downstream of a detention facility, it must be sized for the full 2-year release rate of the detention facility.

FLOW CONTROL

The criteria listed below shall apply to control of stormwater runoff flow and the designated design storms shall apply:

- Storm sewer facilities and pipelines shall be designed to carry at a minimum the 25-year short-duration design storm described in the SWMMEW (0.92 inches of precipitation). Depending on the size of the basin, time of concentration and infiltration rates, some infiltration facilities shall be designed using the 25-year, 24-hour storm (1.6 inches of precipitation, SCS Type 1A). The design storm warranting the largest storm sewer facility size shall be the controlling storm. At the City's discretion, if the facilities are critical to public health and safety, or significant property damage could occur, they shall be designed to successfully pass the 50-year or 100-year storm.
- Retention and detention basins shall be designed based on the 25-year, 72-hour long-duration storm (1.6 inches of precipitation, Regional Long-Duration). A secondary outlet

or emergency spillway shall be provided to pass the 100-year storm (2.0 inches of precipitation, SCS Type II) without damage to the facility.

STREET DRAINAGE

Streets represent a large portion of the impervious area within a community. They can be used to convey a significant amount of stormwater; however, they must remain passable during storm events. To that end, streets may be used to convey local runoff to inlets, but stormwater must be removed at specific intervals in order to prevent excessive flooding.

Stormwater runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All storm sewer designs for new public streets shall be based upon an engineering analysis which considers total drainage areas, runoff rates, pipe and inlet capacities, and any other factors pertinent to the design.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

SPECIAL PROVISIONS FOR STORMWATER IMPROVEMENTS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works storm sewer or drainage improvements within the City of Prosser.

7-02 CULVERTS

7-02.2 Materials

Add the following:

Culvert pipe approved for use on a City project shall be as follows:

Aluminum Culvert Pipe: Aluminum Culvert Pipe shall meet the requirements of Section 9-05.5 of the Standard Specifications.

Steel Culvert Pipe: Steel Culvert Pipe shall meet the requirements of Section 9-05.4 of the Standard Specifications.

Corrugated Polyethylene Culvert Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.19 of the Standard Specifications.

7-04 STORM SEWERS

7-04.1 Description

Supplement this section with the following:

The term “storm drain(s)” shall mean the same as storm sewer(s).

7-04.2 Materials

Supplement this section with the following:

The storm sewer (drain) pipe approved for use shall be as follows:

15-INCH THROUGH 36-INCH PIPE

Aluminum Storm Sewer Pipe: All Aluminum Storm Sewer pipe shall meet the requirements specified in Section 9-05.11 of the Standard Specifications and shall be 16 gauge with helical corrugations. A protective coating shall not be required. All corrugated metal pipe joints shall be flexible using rubber gasket joints. Gaskets shall be made of 3/8-inch thick by 12-inch minimum width closed cell synthetic sponge rubber, per ASTM D 1056, Grade SCE-43, fabricated in the form of a cylinder with a diameter of approximately 10 percent less than the nominal pipe size. The gasket shall be centered under the band and lapped an equal distance on the ends of the adjoining pipe sections. Coupling bands shall be used and shall conform to the provisions of Section 9-05.11(1) of the Standard Specifications. Coupling bands shall be made by the same manufacturer as the pipe and shall be made of the same base material as the pipe which it connects.

Corrugated Polyethylene Storm Sewer Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.20 of the Standard Specifications.

8/10/12-INCH STORM DRAIN PIPE

Solid Wall PVC Storm Sewer Pipe
Corrugated Polyethylene Storm Sewer Pipe
High-Density Polyethylene (HDPE) Pipe
Polypropylene Storm Sewer Pipe

Where specified on the Plans, storm drain pipe shall be PVC pressure pipe conforming to the requirements of Section 9-30.1(5)A and Ductile Iron conforming to the requirements of Section 9-30.1(1).

UNDERDRAIN INFILTRATION SYSTEM MATERIALS

Pipe: Perforated Corrugated Polyethylene Underdrain (CPEP) pipe, couplings, and fittings shall comply with all the requirements of Section 9-05.2(8) of the Standard Specifications.

Drain Rock: Drain rock for use as backfill for the perforated underdrain pipe in the infiltration trench system shall be clean coarse aggregate conforming to the

requirements of Gravel Backfill for Drywells, as specified in Section 9-03.12(5) of the Standard Specifications.

Construction Geotextile: Geotextile fabric for underground infiltration systems shall be moderate survivability, non-woven, Class B as specified in Section 9-33.2(1).

7-04.3(1) Cleaning and Testing

7-04.3(1)A General

Supplement this section with the following:

No infiltration or exfiltration test will be required for storm drain pipe.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Section 7-05.2 of the Standard Specifications shall be revised as follows:

Drain Rock: Backfill for drywells shall be Gravel Backfill for Drywells as specified in Section 9-03.12(5) of the Standard Specifications.

Manhole Metal Castings: All cast iron frames and covers shall be as specified in Section 9-05.15(1) of the Standard Specifications and manufactured in the United States. All cast iron frames and covers to be used on this project shall be of the type, weight, and size approved by the City of Prosser, and shall be furnished by the Contractor. Covers for storm drain shall be stamped "STORM" or "DRAIN."

Precast Concrete Catch Basin: Catch basins shall be WSDOT Type 1, 1L, or 2 and constructed as shown on the City Standard Details.

Catch Basin Metal Castings: All frames and grates shall be capable of withstanding, with a reasonable margin of safety, a concentrated load of 20,000 pounds and shall be as specified in Section 9-05.15(2) of the Standard Specifications and WSDOT Standard Plan B-30.30-01 or B-30.40-01. The grate shall be ductile iron and "bicycle safe." The contact surfaces of the frame and grate shall be machine finished to a common plane and shall be so cast as to prevent rocking.

Precast Concrete Pretreatment Manhole: Where required by the SWMMEW, stormwater pretreatment manholes shall be approved by the Washington State Department of Ecology (Ecology) with a General Use Level Designation (GULD), capable of 50% removal of fine (50 micron mean size) and 80% removal of coarse (125 micron mean size) total suspended solids (TSS) for influent concentrations greater than 100 mg/L, but less than 200 mg/L, as required by DOE.

Pretreatment manholes shall be constructed of pre-cast concrete manhole sections, flat top slab, and adjustment sections (similar to WSDOT Catch Basin Type 2, Standard Plan B-10.20-01), with cast iron covers as described above. The pretreatment insert shall be constructed of fiberglass and/or steel materials that are corrosion resistant. Manhole safety steps shall be provided as shown on the Plans and the pretreatment insert shall act as a platform for maintenance purposes.

Approved pretreatment manholes include Contech CDS, Stormceptor, Hydro International Downstream Defender, and Aqua-Swirl Concentrator.

The pretreatment manhole shall be capable of handling the specified water quality flows and shall incorporate a bypass within the unit to handle the specified peak flows. The pretreatment manhole shall be capable of incorporating multiple inlets/outlets, with the inlet and outlet pipes at 90 degrees to each other. Access to pretreatment insert ports and openings for maintenance shall be achieved through the cast iron cover(s).

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each structure shall be relocated from references previously established by the Contractor.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed, and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA Cl. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Add the following:

At least 48 hours notice shall be given to the City Public Works Department prior to backfilling to allow inspection. Inspection shall be consistent with PMC 17.22.070.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 811.

7-08.3(1)C Bedding the Pipe

Add the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(3) Backfilling

Add the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

CHAPTER 7 - STREET IMPROVEMENTS

GENERAL REQUIREMENTS FOR STREET IMPROVEMENTS

All new street design and construction must conform to these Design and Construction Standards of the City of Prosser, the Prosser Municipal Code, and the latest edition of the Standard Specifications.

TRAFFIC STUDIES

In order to provide sufficient information to assess a development's impact on the transportation system and level of service, the Public Works Director or City Engineer may require a traffic study to be completed by the Developer at the Developer's expense. This decision will be based upon the size of the proposed development, existing roadway condition, existing and expected traffic volumes, accident history, expressed community concern, and other factors relating to transportation. Traffic studies shall be conducted under the direction of a Traffic Engineer or Civil Engineer licensed in the State of Washington and possessing special training and experience in traffic engineering. The level of detail and scope of the traffic study may vary with the size, complexity, and location of the proposed development. A traffic study shall, at a minimum, be a thorough review of the immediate and long-range effects of the proposed development on the City's transportation system. Guidelines for the traffic study shall be reviewed by the Public Works Director and City Engineer on a project basis. ADT and peak hour volumes for the development shall be estimated using the trip generators found in the latest edition of the Trip Generation Manual published by ITE. When a traffic signal is warranted the preferred intersection control type is a roundabout. When a roundabout is not selected as the preferred control type in a traffic study, justification shall be provided for alternative decisions.

STREET REQUIREMENTS

Major Collector streets (Secondary Arterial) serve as the high-volume corridors that connect the major traffic generators and shall be designed with a minimum one hundred (100) foot-wide Right of Way and forty-four (44) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of fifty (50) feet and the street centerline radius shall be designed to a minimum 40 mph design speed or as approved by the Public Works Director and City Engineer. Both Arterial and Collector streets shall be designed for a WB-50 vehicle and HS-25 loadings.

Minor Collector streets shall be designed with a minimum one hundred (100) foot-wide right of way and a forty (40) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of thirty-five (35) feet and the street centerline radius shall be designed to a minimum 35 mph design speed or as approved by the Public Works Director and City Engineer.

Local Access (Residential) streets shall be designed with a minimum fifty (50) foot-wide right of way and thirty-three (33) foot-wide roadway surface curb to curb. Face of curb radius at intersection shall be a minimum of twenty-five (25) feet and street centerline radius shall be designed to a minimum of 30 mph design speed or as approved by the Public Works Director and City Engineer.

The maximum length of a cul-de-sac street shall be 600 feet measured along the street centerline from the nearest street intersection to the throat of the cul-de-sac. Where it is not feasible to construct a cul-de-sac turnaround as determined by the City Engineer, the City may allow the use

of an “L” or “Hammerhead” turnaround upon approval by the Public Works Director and City Engineer. The minimum cul-de-sac right-of-way is a radius of 55 feet and a curb radius of 45 feet.

A subdivision of 15 or more lots shall have two or more access points. Street intersection angles shall not be less than 80 degrees. Offset street intersections shall not be less than 200 feet for arterial and collector streets and 100 feet for local access streets. A tangent at least 200 feet long shall be introduced between reverse curves on collectors and arterials.

Street grades shall be kept to a maximum of six (6) percent for Major Collectors, eight (8) percent for Minor Collectors, and twelve (12) percent for Local Access streets. The minimum grade for all streets shall be five-tenths (0.5) percent. Vertical curves shall be designed when the grade difference is greater than two (2) percent.

Cement concrete barrier curb and gutter and sidewalks shall be installed along both sides of all new streets, unless otherwise approved by the City of Prosser and City Engineer. Cement concrete rolled curb is allowable for local access streets in subdivisions, except for the curb return and 30 feet beyond at an intersection radius where the curb shall be full height (barrier). There shall be a 10-foot long transition from the full height curb to the rolled curb. Water services and side sewer lateral bury locations shall be stamped into the concrete as specified in Section 7-15.3 and 7-18.3 respectively.

Driveways shall be located on the lowest classification of roadway abutting the development. Driveways accessing onto arterial streets are discouraged and shall be limited. Driveway widths and locations are limited to one per lot as approved by the Public Works Director. A “Corner” lot driveway shall be located as far as possible from the street intersection (50 feet minimum).

A street light shall be installed at each street intersection, at mid-block, no more than two hundred (200) feet apart, and at cul-de-sac ends. Street lights shall meet the design and placement requirements of these Design and Construction Standards, for approval consideration by the City Public Works Director and local electric utility.

In all new developments, monuments with cover caps and cases shall be installed at the centerline of street intersections, angle point and points of curves, and at other locations as determined by the Public Works Director.

Traffic control signs, posts, and sleeves shall be provided and installed by the developer in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and City Design and Construction Standards. Signalized intersections shall be in accordance with the MUTCD including pedestrian audible and visual countdown displays.

Private streets may be used as sole access to new lots and development and for internal circulation within manufactured home parks and residential planned developments. Private streets shall be constructed in conformance with current City of Prosser Municipal Code standards and shall be constructed with curbs, sidewalks, and street lighting and shall otherwise conform to the standards for public streets. Private streets will not be maintained by the City of Prosser.

SPECIAL PROVISIONS FOR STREET IMPROVEMENTS

The following sections of the Standard Specifications have been amended or supplemented as described below.

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.1 Description

Supplement this section with the following:

All work beyond the right-of-way line shall be coordinated with affected property owner(s) per Section 1-07.24 Rights of Way.

The Contractor shall temporarily remove and later replace to its original condition or relocate nearby as directed, all mail boxes, small trees, shrubs, street signs and posts, culverts, irrigation facilities, concrete or rock walls, or other similar obstructions which lie in or near the line of work and are not intended for removal. Should any damage be incurred, the cost of replacement or repair shall be borne by the Contractor.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

2-02.3(2) Removal of Bridges, Box Culverts, and Other Drainage Structures

Supplement this section with the following:

Where structures or installations of concrete, brick, blocks, etc., interfere with the construction, they shall be removed, and any pipe openings shall be properly plugged watertight with Class 3000 concrete, or with mortar and masonry, blocks, or brick. The removal and plugging of pipes shall be considered as incidental to the construction.

Where the structures are removed, the voids shall be backfilled with suitable, job-excavated material and compacted, and such work shall be considered as incidental to the removal work. If the City determines the job-excavated material to be unsuitable for backfill, the Contractor shall place ballast or crushed surfacing material as directed by the City.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

Supplement this section with the following:

Where shown on the Plans or as directed by the City, the Contractor shall be required to remove existing pavement, sidewalks, curbs, etc., which are outside the right-of-way line and are required to be removed for construction of the improvements.

In those areas where asphalt pavement removal is required, the Contractor shall, prior to excavation, score the edge of the asphalt concrete pavement with an approved pavement cutter such as a concrete saw. During the course of the work, the Contractor shall take precautions to preserve the integrity of this neat, clean pavement edge. Should the pavement edge be damaged prior to asphalt concrete paving activities, the Contractor

shall be required to trim the edge with an approved pavement cutter as directed by the City immediately prior to paving.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.1 Description

Supplement this section with the following:

Street excavation shall consist of removing the existing material of whatever nature encountered to the subgrade elevation and shaping the subgrade to conform to the cross-section shown on the Plans or as staked in the field.

Where directed by the Consultant, the Contractor shall excavate beyond the right-of-way in order to adequately slope adjacent properties.

The Contractor shall use caution while performing roadway excavation. Heavy, rubber-tired equipment, particularly front-end loaders, shall limit their travel over a single area as much as possible. Trucks shall observe a 10-mph speed limit when traveling over exposed subgrade areas.

The Contracting Agency will reference all known existing monuments or markers relating to subdivisions, plats, roads, street centerline intersections, etc. The Contractor shall take special care to protect these monuments or markers and also the reference points. In the event the Contractor is negligent in preserving such monuments and markers, the points will be reset by a licensed surveyor at the Contractor's expense.

2-03.3 Construction Requirements

2-03.3(3) Excavation Below Subgrade

Supplement this section with the following:

At the direction of the Consultant, areas within the street subgrade which exhibit instability due to high moisture content shall be:

1. Aerated and allowed to dry,
2. Over-excavated and backfilled with ballast, or crushed surfacing base course. The contractor may be instructed to install construction geotextile for soil stabilization in the excavation,
3. Or a combination of any of the above.

2-03.3(7) Disposal of Surplus Materials

2-03.3(7)A General

Supplement this section with the following:

Excavated material shall be bladed or hauled to fill low sections within the project area, except for sod or extraneous material, which shall be hauled to waste. A waste site will not be provided by the City for disposal of unsuitable material, asphalt, concrete, debris,

waste material, or any other objectionable material which is directed to waste by the Consultant.

Suitable materials from the excavations shall be used in the embankments. Unsuitable material or soft spots shall be removed from the roadway and replaced with suitable material and compacted as for embankments. Topsoil shall be saved to use for backfill adjacent to the new improvements. If additional topsoil is required, it shall be provided in accordance with Section 8-01 of these Special Provisions.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

2-03.3(14)C Compacting Earth Embankments

All embankment construction shall be compacted by Method "C" as specified in the above section.

2-03.3(14)D Compaction and Moisture Control Tests

Delete this section and replace it with the following:

Compaction shall be 95% of maximum density as determined by ASTM D 698 (Standard Proctor). The Contractor shall notify the City when ready for in-place subgrade density tests and the materials testing firm will be on the site. Placement of courses of aggregate shall not proceed until density requirements are met. The Developer/Contractor shall be responsible for scheduling and paying for all testing. All costs associated with failed tests/testing shall be the responsibility of the Contractor.

2-07 WATERING

2-07.1 Description

Supplement this section with the following:

The Contractor shall be solely responsible for dust control on the Developer's project and shall protect motoring public, adjacent homes and businesses, orchards, crops, and school yards from damage due to dust, by whatever means necessary. The Contractor shall be responsible for any claims for damages and shall protect the City, Yakima County, and Consultant from any and all such claims.

When directed by the City, the Contractor shall provide water for dust control within two hours of such order and have equipment and manpower available at all times, including weekends and holidays to respond to orders for dust control measures.

4-04 BALLAST AND CRUSHED SURFACING

4-04.3 Construction Requirements

4-04.3(5) Shaping and Compaction

Supplement this section with the following:

The Contractor shall notify the City when he is ready for in-place ballast, base course, or top course density tests, and the materials testing firm will be on the site. Placement of

successive courses of aggregate or asphalt concrete shall not proceed until density requirements are met. The Developer/Contractor shall be responsible for scheduling and paying for all testing. All costs associated with failed tests/testing shall be the responsibility of the Contractor.

5-04 HOT MIX ASPHALT

5-04.1 Description

Supplement this section with the following:

Asphalt concrete surfaces shall be so constructed that the finished pavement will conform to the cross-section, line, and grade as shown on the Plans and in accordance with the referenced Standard Specifications.

5-04.2 Materials

Supplement this section with the following:

The class of hot mix asphalt shall be: HMA Class 1/2"
The grade of asphalt binder shall be: PG 64-28

5-04.2(1) How to Get an HMA Mix Design on the QPL

Supplement this section with the following:

Delete the reference to Statistical Evaluation in Table 1. Nonstatistical Evaluation or Visual Evaluation will be the basis for acceptance.

Mix designs for HMA accepted by Nonstatistical evaluation shall:

- Be submitted to the Project Engineer on WSDOT Form 350-042
- Have the aggregate structure and asphalt binder content determined in accordance with WSDOT Standard Operating Procedure 732 and meet the requirements of Sections 9-03.8(2) and 9-03.8(6).
- Have anti-strip requirements, if any, for the proposed mix design determined in accordance with WSDOT Test Method T 718 or based on historic anti-strip and aggregate source compatibility from WSDOT lab testing. Anti-strip evaluation of HMA mix designs utilized that include RAP will be completed without the inclusion of the RAP.

The Contractor may submit for acceptance an approved WSDOT mix design for the class of HMA specified in the contract if the mix design is listed on the Qualified Products List (QPL), having been approved within the previous 24-month period using aggregate and asphalt binder from the same sources. The Contractor shall provide the mix design to the Engineer at least fifteen (15) working days prior to any paving.

The Contractor shall be responsible for verification of the mix design.

5-04.3 Construction Requirements

5-04.3(2) Hauling Equipment

Supplement this section with the following:

Sufficient numbers of trucks shall be provided by the Contractor to assure a continuous paving operation at proper HMA mix temperatures. Paving operations shall not proceed until hauling equipment sufficient to assure continuous operations is provided.

5-04.3(3)C Pavers

Supplement this section with the following:

The HMA paver that is utilized on this project shall be capable of spreading and finishing courses of HMA plant mix material in a width from centerline of the roadway to the edge of the roadway or gutter in a single pass (up to 22-foot width).

5-04.3(5)E Pavement Repair

Supplement this section with the following:

After the completion of trench and patch repairs, the Contractor shall seal all joints with CSS-1 and concrete sand.

5-04.3(9) HMA Mixture Acceptance

Delete the reference to Statistical Evaluation in Table 7 and replace it with Nonstatistical Evaluation.

5-04.3(9)D Mixture Acceptance – Visual Evaluation

Replace all references to “Visual Evaluation” with “Nonstatistical Evaluation, Visual Evaluation or Commercial Evaluation”.

Supplement this section with the following:

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: Sidewalks, road approaches, ditches, slopes, paths, trails, gores and other nonstructural applications as approved by the Engineer. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the Engineer.

Commercial HMA can be used for patching utility or conduit trenches less than 24 inches in width.

5-04.3(9)E Mixture Acceptance – Notification of Acceptance Test Results

Delete the first paragraph and replace it with the following:

Payment will be made on the basis of the unit contract price for HMA for all HMA accepted on the project. HMA not meeting the quality requirements of the Contract shall be rejected.

5-04.3(10) HMA Compaction Acceptance

Delete the reference to Statistical Evaluation of HMA in column 1 of Table 14. Replace it with Nonstatistical Evaluation or Visual Evaluation of HMA at the Engineer's discretion. Visual Evaluation will also remain in column 2 of Table 14.

5-04.3(10)A HMA Compaction – General Compaction Requirements

Supplement this section and with the following:

HMA used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having specified compacted course thickness greater than 0.10 foot, shall be compacted to a specified level relative density. The specified level of relative density shall be a minimum of 91.0% of the reference maximum density as determined by WSDOT for AASHTO T 209. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of HMA being placed. The specified level of density attained will be determined by five nuclear gauge tests taken in accordance with WAQTC FOP TM8 and WSDOT SOPT 729 on the day the mix is placed (after completion of the finish rolling) at locations determined by the stratified random sampling procedure conforming to WSDOT Test Method 716 within each density lot. The quantity represented by each density lot will be no greater than a single day's production or approximately 400 tons, whichever is less. The Engineer will furnish the Contractor with a copy of the results of all acceptance testing performed in the field within one working day.

In addition to the randomly selected locations for tests of density, the Engineer may also isolate from a normal lot any area that is suspected of being defective in relative density. Such isolated material will not include an original sample location. A minimum of five (5) randomly located density tests will be taken.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.

HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Project Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

5-04.3(11) Reject Work

Supplement this section with the following:

Delete all references to Combined Pay Factor (CPF). HMA not meeting the quality requirements of the City shall be rejected, including use of HMA CI. 3/8-Inch.

5-04.3(13) Surface Smoothness

Supplement this section with the following:

Where directed by the City, the Contractor shall feather the HMA pavement in a manner to produce a smooth-riding connection to the existing pavement.

HMA CI. 3/8-inch shall be utilized in the construction of the feathered connections to existing pavement.

5-04.3(19) Sealing of Pavement Surfaces

Revise the first sentence to read:

“The Contractor shall apply a fog seal to all travel lanes and allow it to cure prior to opening the lane to traffic, when the wearing course is placed after October 1 and before April 1. Fog Seal must be completely cured before pavement markings are applied.”

8-04 CURBS, GUTTERS, AND SPILLWAYS

8-04.3 Construction Requirements

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways

Supplement this section with the following:

Cement concrete traffic curb and gutter shall be as shown on the City's Standard Plans. Full Height or “Barrier” cement concrete traffic curb and gutter as shown shall be used on the roadway as shown on the Plans. Depressed or “Driveway” cement concrete traffic curb and gutter as shown shall be used at all driveway entrances and sidewalk ramp locations as shown on the Plans and as directed in the field by the City. Mountable or "Rolled" curb may be used on Local Access roadways and cul-de-sacs. Cement concrete curb and gutter which does not comply with the City's details shall be removed and replaced at the Contractor's expense.

A template shall be required to be placed at the back of curb for construction of driveway transitions from Barrier to Driveway or Rolled curb and gutter. The template shall extend from the bottom of curb to the top of the curb, and shall have a minimum length of 10 feet, with the 6-foot long transition centered in the template. The Contractor shall also be required to use a template at the back of Driveway/Depressed curb and gutter to ensure a straight and uniform back of curb in conformance with the Standard Plan.

The new concrete curb and gutter shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations.

First-class workmanship and finish will be required on all portions of concrete curb and gutter work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. The Contractor shall be required to construct a minimum 20 linear foot section of curb and gutter which demonstrates quality which is acceptable by the City. This “model” section will be referenced during construction for comparison to newly poured curb. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional curb and gutter shall be placed. Cement concrete curb and gutter which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce curb and gutter meeting the requirements of the Details and Specifications, no further curb and gutter construction will be allowed until corrections have been made to said equipment or methods.

8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES

8-06.3 Construction Requirements

Supplement this section with the following:

The concrete driveway entrance/sidewalk shall be six (6) inches in thickness.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.3 Construction Requirements

8-14.3(3) Placing and Finishing Concrete

Supplement this section with the following:

All sidewalks not located in driveway entrance areas shall be four (4) inches in thickness, except where noted below. All concrete approaches located behind a depressed curb and gutter section, at any driveway location, or rolled curb section shall be six (6) inches in thickness. Sidewalks shall be constructed before the final lift of HMA is placed.

Sidewalks shall be marked across the entire width every five (5) feet and with preformed asphalt impregnated joint fillers 3/8-inch thick every twenty (20) feet. Concrete sidewalk shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations. Failure to properly secure or seal the cement concrete sidewalk will require the Contractor to remove and replace the sidewalk section at his expense.

Sidewalk ramps shall be constructed as shown on the Plans in accordance with the Standard Plans or as shown otherwise in the Details.

First-class workmanship and finish will be required on all portions of cement concrete sidewalk work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional sidewalk shall be placed. Cement concrete sidewalk which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce sidewalk meeting the requirements of the Plans and Specifications, no further sidewalk construction will be allowed until corrections have been made to said equipment or methods.

8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND ELECTRICAL

8-20.2 Materials

Supplement this section with the following:

The provisions of Section 9-29 shall apply, except for the following modifications or additions:

Conduit: Below grade conduit shall be Schedule 40 PVC, conforming to NEMA TC 2. Rigid Steel Conduit and Fittings shall be used for all bends, entrances, and exits of pull boxes and

where required by code. Conduit bends shall have no less than 12-Inch radius. "Push-Penny" plugs shall be used at all terminations to keep conduits clean.

A 1/8-Inch braided nylon rope, 450 pounds minimum breaking strength, shall be installed in each conduit run with two (2) feet doubled back at each termination. When the conductors are pulled, a rope shall be re-pulled with the conductor and left for future use. Pull rope shall be installed in all spare conduits.

Light Standards: Poles and arms shall be hot-dipped galvanized over their entire surface per ASTM A-123. Anchor bolts, nuts, and washers shall be hot-dipped galvanized over their entire length per ASTM A-153. All poles, arms and accessories shall be furnished by the same manufacturer.

Luminaire poles shall provide a nominal mounting height of thirty-five (35) feet and have twelve (12) foot arms for Major and Minor Collectors, and eight (8) foot arms for Local Access roadways. Arms shall be attached to the poles using a bolted simplex mount and shall be Valmont DS-210, Union Metal 71049-B48, or Ameron Series N tapered luminaire arms, suitable for a 2-inch slip fit luminaire mount. The pole base shall be of the "fixed" type. Handholes shall be 4 inches by 6-1/2 inches, located 18 inches above the base, turned toward the street. A 1/2-inch NC ground stud shall be located inside the handhole. Light standards shall be designed to a minimum of 90 MPH wind velocity.

Accessories shall include anchor bolts (each with heavy hex nuts and washers) as sized by the manufacturer, bolt templates, full base covers, and removable pole end caps.

Luminaires: LED luminaires shall be CREE LED XSP2 Series, Version C, Horizontal Tenon, Type 3 Medium w/BLS Distribution (Arterials and Collectors), Type 2 Medium w/BLS Distribution (Local Access), standard 4000k, 139W, 120-277V, without individual photoelectric controls.

Electrical Service: Electrical service enclosures and equipment shall be approved by the serving electrical utility and the authority having jurisdiction.

8-20.3 Construction Requirements

8-20.3(1) General

Supplement this section with the following:

Prior to installation, the Contractor shall inform the City when the luminaire equipment has arrived on-site. The City will compare the supplied luminaire equipment to these Design and Construction Standards prior to installation and must be present during installation to check for socket settings and luminaire head orientation.

The Contractor is responsible for coordinating with the Department of Labor and Industries, serving electrical utility, and authority having jurisdiction for all required inspections and service.

8-20.3(2) Excavating and Backfill

Delete the first paragraph and replace it with the following:

The excavation required for the installation of conduit, cement concrete anchor bases, and pullboxes shall be performed in such a manner as to cause the least possible injury to streets, sidewalks, and other improvements. Anchor base excavation shall be augered or dug by hand with proper care to avoid damage to other utilities. Excavation shall not be performed until immediately prior to installation of conduit and/or structures. Backfilling shall be as shown on the Plans and shall conform to the provisions specified herein. Compaction of conduit trenches and structure backfill shall be accomplished by a method which will result in backfill compacted to at least 95 percent of maximum density.

8-20.3(4) Foundations

Supplement this section with the following:

The top six inches (anchor base) of the concrete foundation shall be formed and finished 24-inches square with 3/4-inch chamfer edges, and the top shall be at finish sidewalk grade. The anchor base shall be separated from adjacent concrete surfaces by means of expansion joints. Forms for the anchor bases shall be true to line and grade and the conduit ends and anchor bolts shall be held in proper position and height by means of a temporary template. After standards are plumbed, the Contractor shall grout between the base plate and anchor base as shown on the Plans.

8-20.3(5) Conduit

Supplement this section with the following:

The ends of conduits for future connection shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finished grade.

8-20.3(6) Junction Boxes, Cable Vaults, and Pull boxes

Replace the first paragraph with the following:

The terms "pullbox" and "junction box" are considered interchangeable.

Pullboxes shall be constructed as shown on the Plans and in accordance with Standard Plan J-40.10-03 Type 1. The pullboxes shall be installed true to line and grade. The pullboxes shall be placed where shown on Plans and shall be separated from other concrete surfaces by an expansion joint.

8-20.3(10) Service, Transformer, and Intelligent Transportation System (ITS) Cabinets

Supplement this section with the following:

A 120/240 V single phase electrical service shall be provided as determined by the City, Benton County PUD, or Benton REA as applicable. The Developer/Contractor shall coordinate the final location of the service with the local electrical utility company and City. A State electrical permit will be required for the service. All wiring and equipment shall be in conformance with the appropriate electrical codes. All of the work shall be coordinated by the

Developer and meet the requirements of the City, local electrical utility company, and the National Electric Code.

8-20.3(13)A Light Standards

Supplement this section with the following:

Light standards shall have base flanges requiring four (4) anchor bolts for connection to foundation. Anchor bolt covers shall be provided on all light standards.

8-21 PERMANENT SIGNING

8-21.2 Materials

Supplement this section with the following:

High intensity reflective background sheeting material shall be used on all signs.

Sign posts for permanent traffic control signing shall be 2"x2" 12-gauge perforated galvanized steel tubing. Socket sleeves for the sign post shall be 2-1/4"x 2-1/4"x30" 12-gauge perforated galvanized steel tubing.

8-21.3 Construction Requirements

Supplement this section with the following:

Socket sleeves for sign posts shall be set in 12" diameter x 18" deep base of class 3000 cement concrete at finish grade so that erected signs will be plumb with roadway/sidewalk. The Contractor shall correct any misaligned socket sleeves at his own expense.

8-22 PAVEMENT MARKING

8-22.1 Description

Supplement this section with the following:

This work includes temporary pavement markings as determined by the Public Works Director.

8-22.2 Materials

Supplement this section with the following:

Crosswalk and stop line markings shall be plastic type B (125 mil. thickness). Centerline(s), lane line(s), and parking markings shall be painted, two (2) coats.

8-30 CONTROLLED DENSITY FILL (NEW SECTION)

The following new section shall be added to the Standard Specifications:

8-30.1 General

Controlled Density Fill (CDF) may be required for street crossings by the Public Works Director. It shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing material which will result in a hardened, dense, non-settling fill.

8-30.2 Materials

Materials shall meet the requirements of the following Sections of the Standard Specifications:

Portland Cement	9-01 Type II
Fly Ash	Class F or C
Aggregates	9-03.1
Water	9-25
Admixtures	9-23.6

8-30.3 Construction Requirements

8-30.3(1) Construction Materials

The CDF shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures which has been batched and mixed in accordance with Section 6-02.3 of the Standard Specifications.

The following table provides a guideline for proportioning the Controlled Density Fill for this project. The final mix provided by the Contractor shall result in a material which is excavatable by machine with a maximum unconfined compressive strength of 300 psi.

Water	50 gals per cubic yard
Cement	50 lbs per cubic yard
Fly Ash	250 lbs per cubic yard
Aggregate	3,200 lbs per cubic yard

The above table provides a guideline for the CDF mixture. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. Actual amounts may vary from those shown as approved by the City or approved mix data from similar projects which provided proper strength, workability, consistency, and density.

8-30.3(7) Placing Controlled Density Fill

The floatable CDF shall be placed in the trench area where directed by the City and brought up uniformly to the top of the pipe zone backfill as shown on the Plans. In the cases where existing concrete slabs have been undermined by excavation, the Contractor shall ensure that the CDF is flowed completely under the slab.

Mixing and placing may be started if weather conditions are favorable, when the temperature is at least 34°F and rising. At the time of placement, CDF must have a temperature of at least 40°F. Mixing and placing shall stop when the temperature is 38°F and falling. Each filling stage shall be as continuous an operation as practicable. CDF shall not be placed on frozen ground.

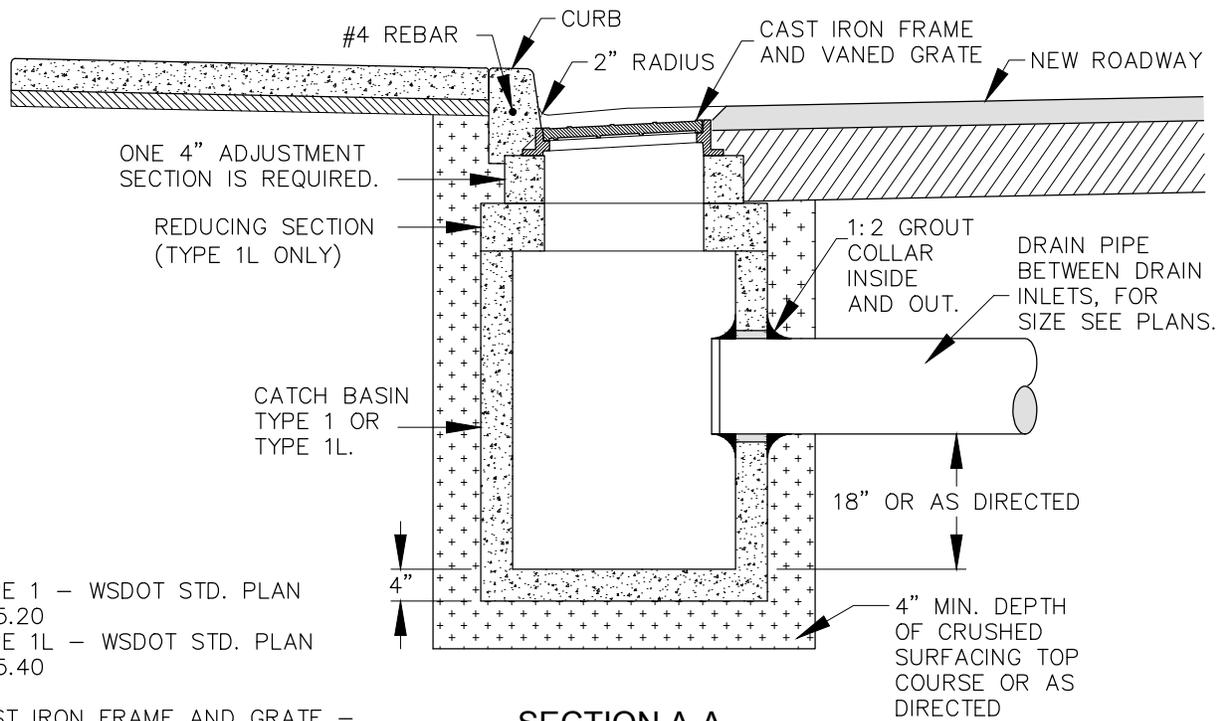
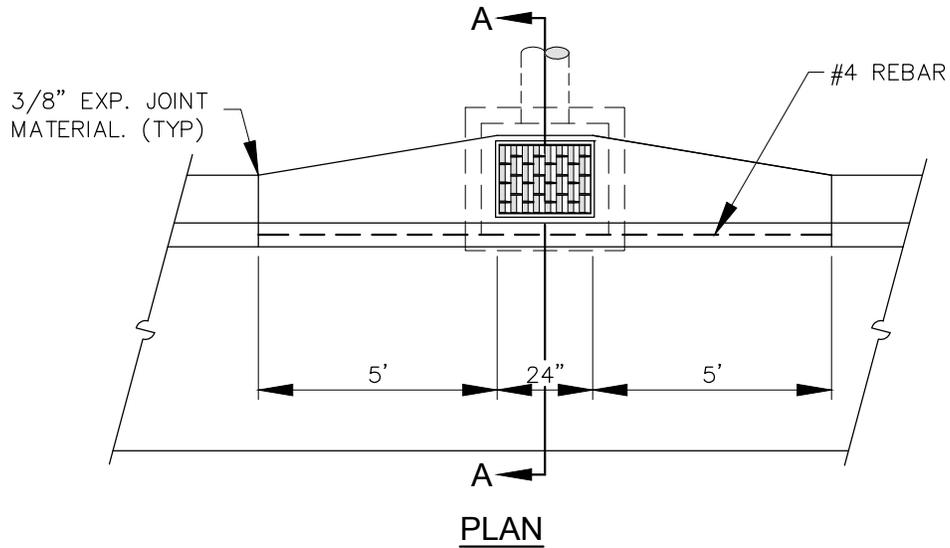
The trench section to be filled with CDF shall be contained at either end of trench section by bulkhead or earth fill.

APPENDIX A

STANDARD DETAILS

PROSSER STANDARD DETAILS

D-1	Catch Basin Type 1/1L
D-2	Catch Basin Type 1/1L with Combination Inlet
D-3	Infiltration System
E-1	Conduit Trench Section
E-2	Conduit Entrance at Junction Box
E-3	Street Light
E-4	Local Access Decorative Light Fixture
E-5	Collector Decorate Light Fixture
SS-1	Storm/Sewer Pipe Trench Section
SS-2	Manhole Type 1
SS-3	Manhole Safety Step
SS-4	Drop Connection
SS-5	Manhole Adjustment
SS-6	Sanitary Sewer Cleanout
SS-7	Side Sewer Connection
SS-8	Shallow Manhole Type 3
ST-1	Typical Major Collector Roadway Section
ST-2	Typical Collector Roadway Section
ST-3	Typical Local Access (Residential) Roadway Section
ST-4	Concrete Curb and Gutter
ST-5	Concrete Sidewalk Sections
ST-6	Concrete Sidewalk Ramp
ST-7	Sidewalk Jointing
ST-8	Asphalt Sidewalk Ramp
ST-9	Residential Driveway Approach
ST-10	Commercial Driveway Approach
ST-11	Trench Surfacing Repair
ST-12	Monument
ST-13	Cul-de-Sac Layout
ST-14	Permanent Bollard
ST-15	Corner Lot Vision Clearance
ST-16	Traffic Bulb Out
ST-17	Railroad Crossing Channelization
ST-18A	Mid-block Crossing Refuge Island
ST-18B	Mid-block Crossing Choke
ST-19	Bus Turnout
W-1	Water Main Trench Section
W-2	Fire Hydrant Assembly
W-3	Water Valve Box
W-4	Air Release/Vacuum Valve Assembly
W-5	Blow-Off Assembly
W-6	Concrete Thrust Blocking
W-7	3/4"-2" Double Check Valve
W-8A	3/4" or 1" Water Service
W-8B	1-1/2" or 2" Water Service
W-9	Hydrant Guard Posts and Concrete Pad
W-10A & 10B	3", 4", & 6" Meter Installation
W-11	DCVA Installation 1/2" to 2"
W-12	DCVA & DCDA Dual Installation Larger than 2"
W-13	RPBA Installation of 3/4" to 2"
W-14	RPDA & RPBA Installation Larger Than 2"



TYPE 1 - WSDOT STD. PLAN B-5.20
 TYPE 1L - WSDOT STD. PLAN B-5.40

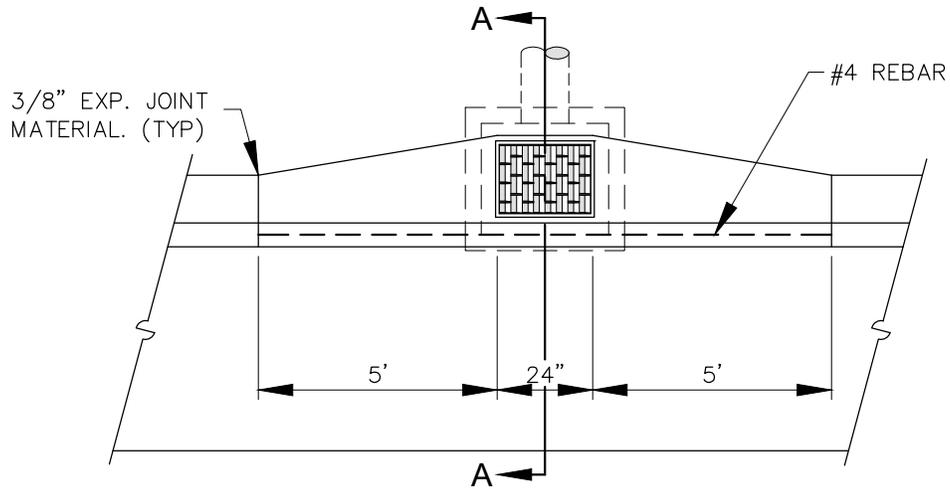
CAST IRON FRAME AND GRATE - WSDOT STD. PLAN B-30.30

CATCH BASIN TYPE 1/1L
 NOT TO SCALE

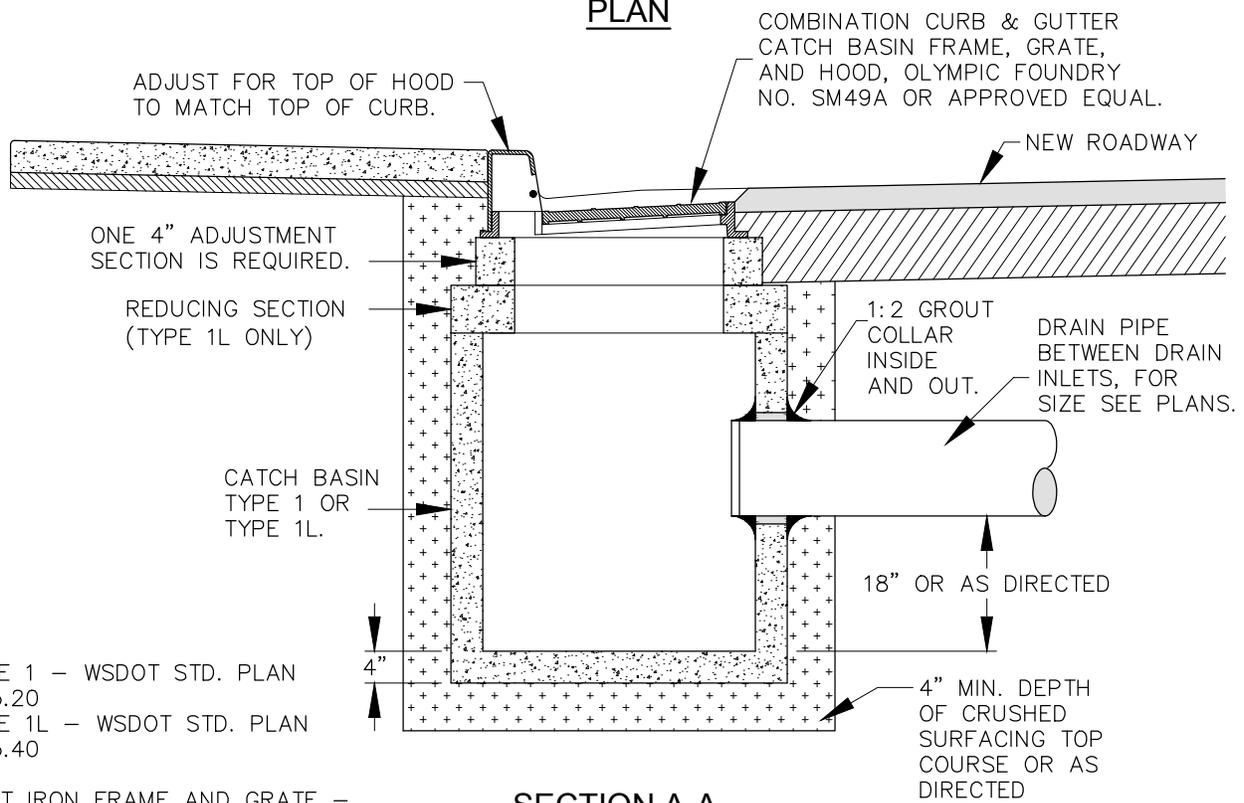
NOTE:
 ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



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Revision	Date	Description	Appr



PLAN



SECTION A-A

TYPE 1 – WSDOT STD. PLAN B-5.20
 TYPE 1L – WSDOT STD. PLAN B-5.40

CAST IRON FRAME AND GRATE – WSDOT STD. PLAN B-30.30

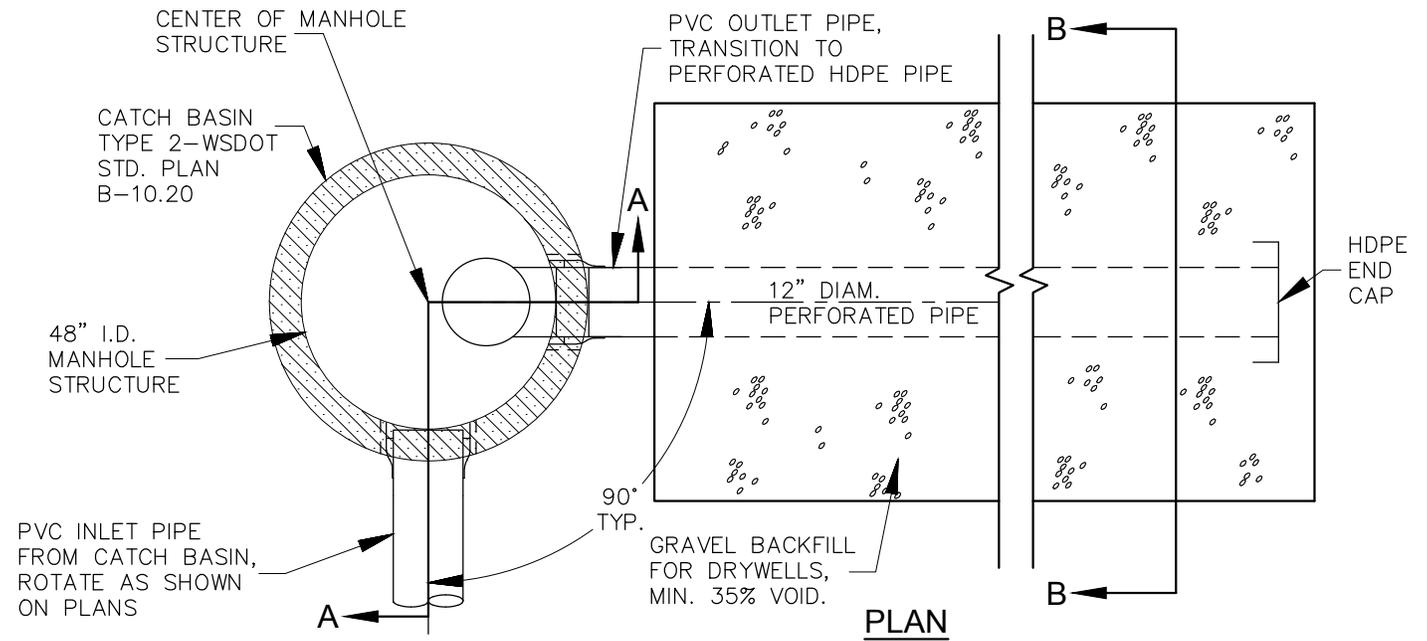
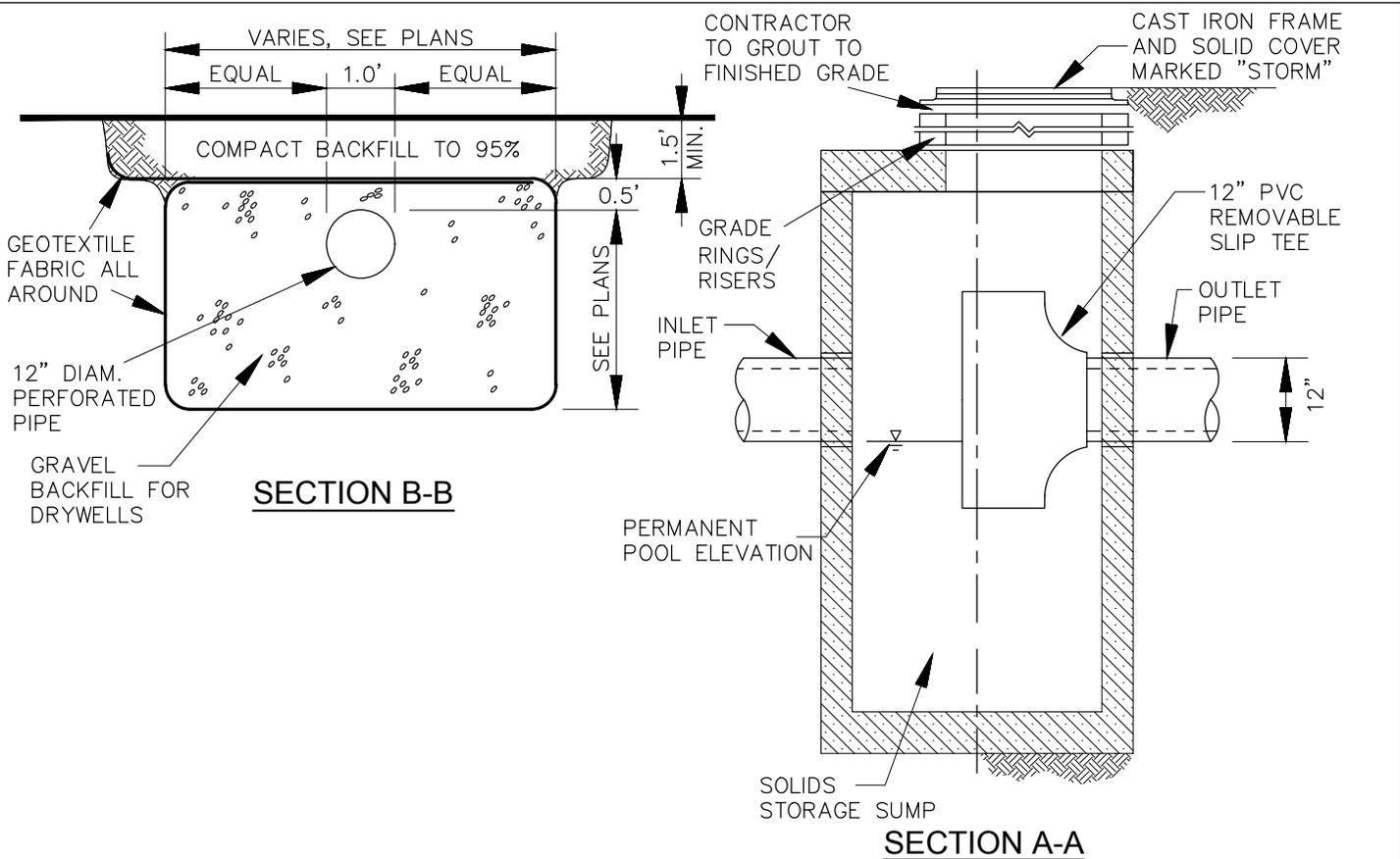
CATCH BASIN TYPE 1/1L WITH COMBINATION INLET

NOT TO SCALE

NOTE:
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Revision	Date	Description	Appr



INFILTRATION SYSTEM

NOT TO SCALE

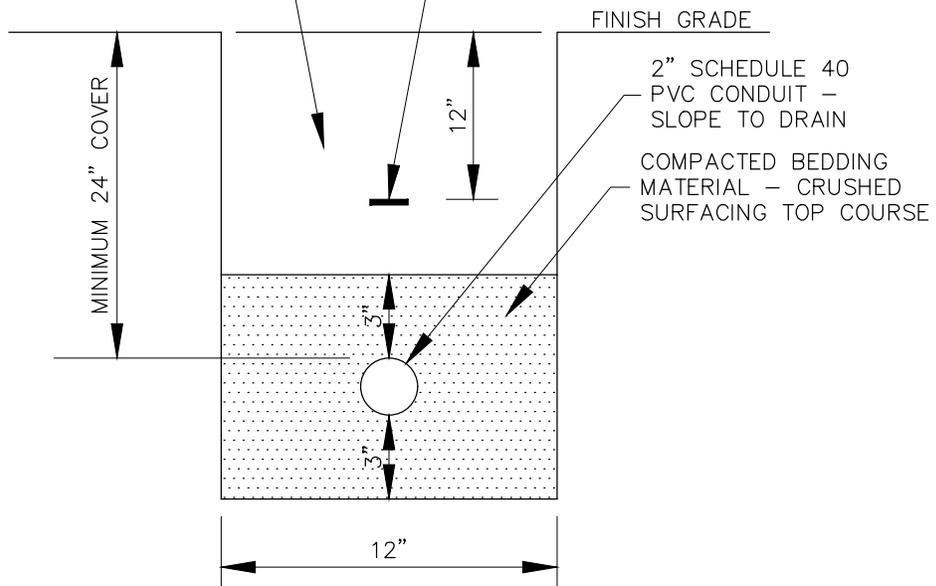
NOTE:
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 APPROVED BY THE DIRECTOR OF
 PUBLIC WORKS, SHALL BE USED.



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CAREFULLY PLACED AND COMPACTED NATIVE MATERIAL. ROADWAY AND COMMERCIAL DRIVEWAY CROSSINGS SHALL BE SELECT BACKFILL OR AS DIRECTED BY PUBLIC WORKS DIRECTOR. NO UNSUITABLE MATERIAL TO BE USED FOR BACKFILL.

3" WIDE DETECTABLE MARKING TAPE PER SECTION 9-15.18



NOTE:
ALL CONDUIT RUNS CROSSING ROADWAYS SHALL INCLUDE A 2" SPARE CONDUIT INSTALLED PARALLEL TO THE MAIN RUN, COMPLETE WITH PULL CORDS AND CAPS.

CONDUIT TRENCH SECTION

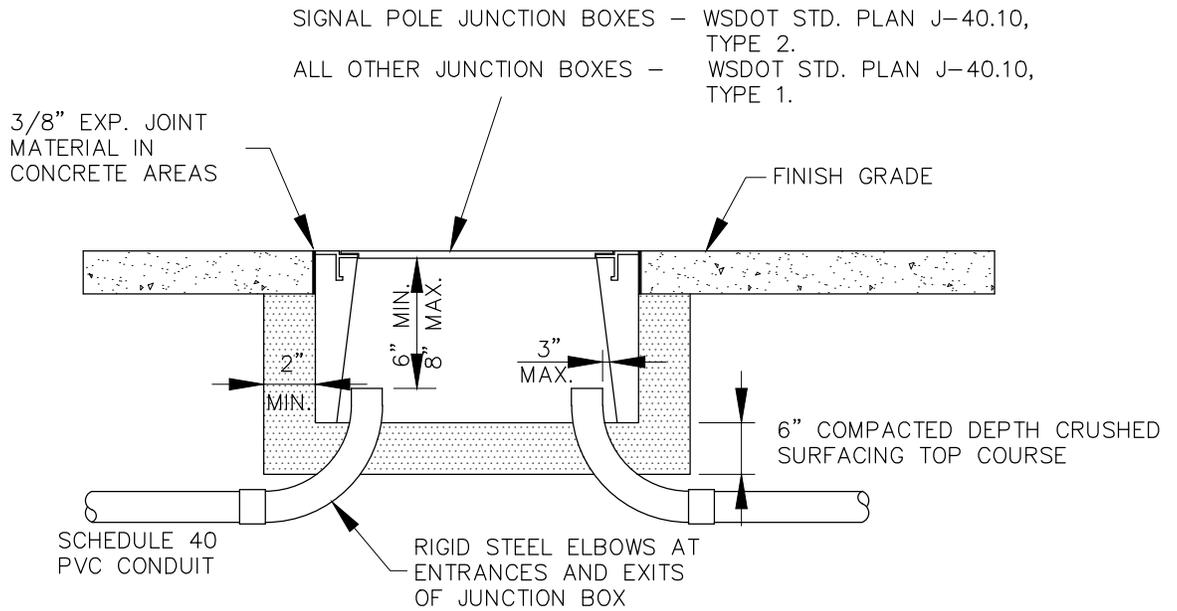
NOT TO SCALE

NOTE:
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NOTE:
 GROUND ROD FOR PVC CONDUIT
 OR NO. 8 AWG BONDING JUMPER
 FOR METAL CONDUIT (RIGID)
 REQUIRED AT EACH JUNCTION BOX.
 SEE PLANS FOR CONDUIT TYPE.



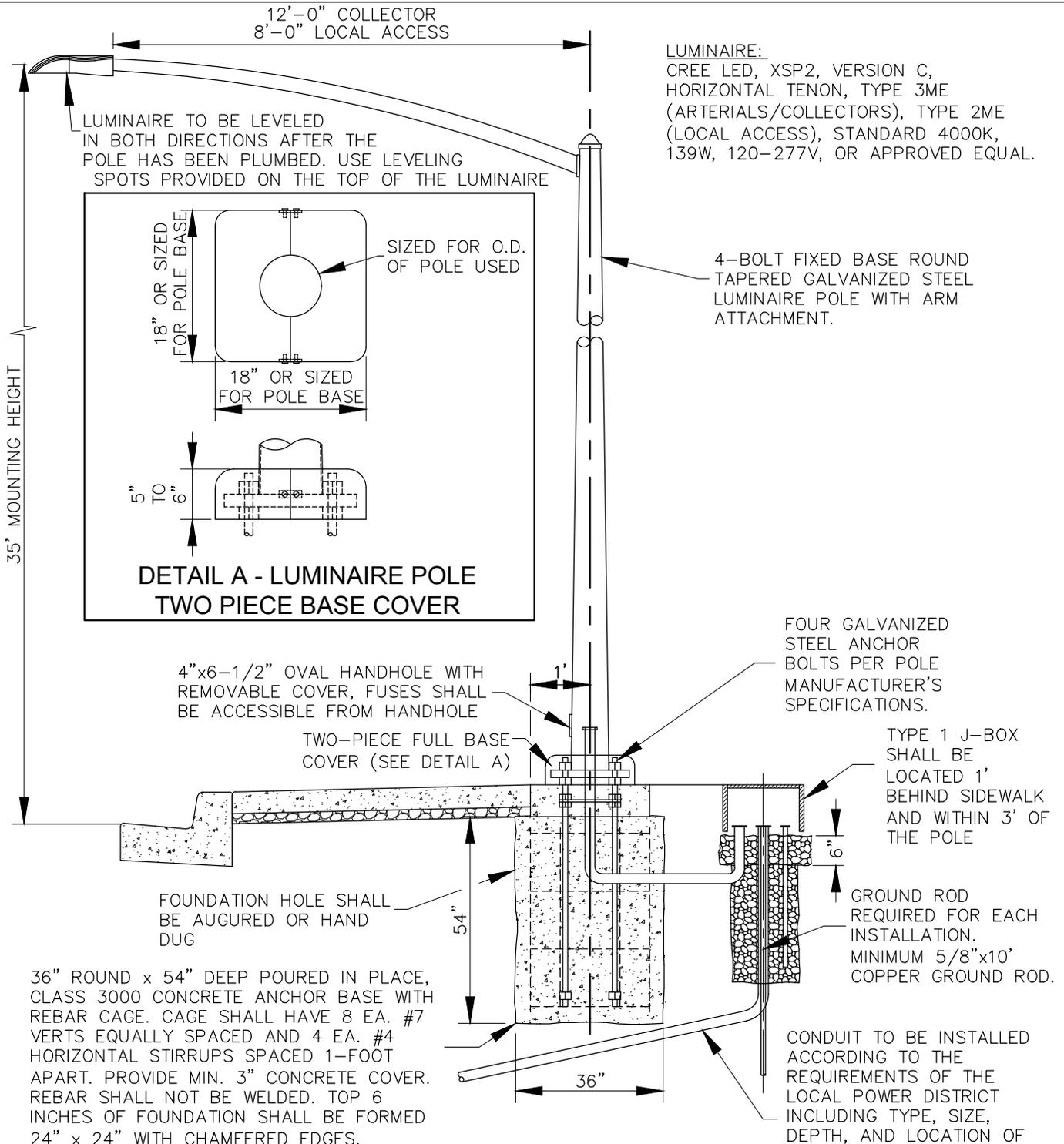
CONDUIT ENTRANCE AT JUNCTION BOX

NOT TO SCALE

NOTE:
 ONLY THE LATEST DETAIL, AS
 APPROVED BY THE DIRECTOR OF
 PUBLIC WORKS, SHALL BE USED.



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TYPICAL SECTION

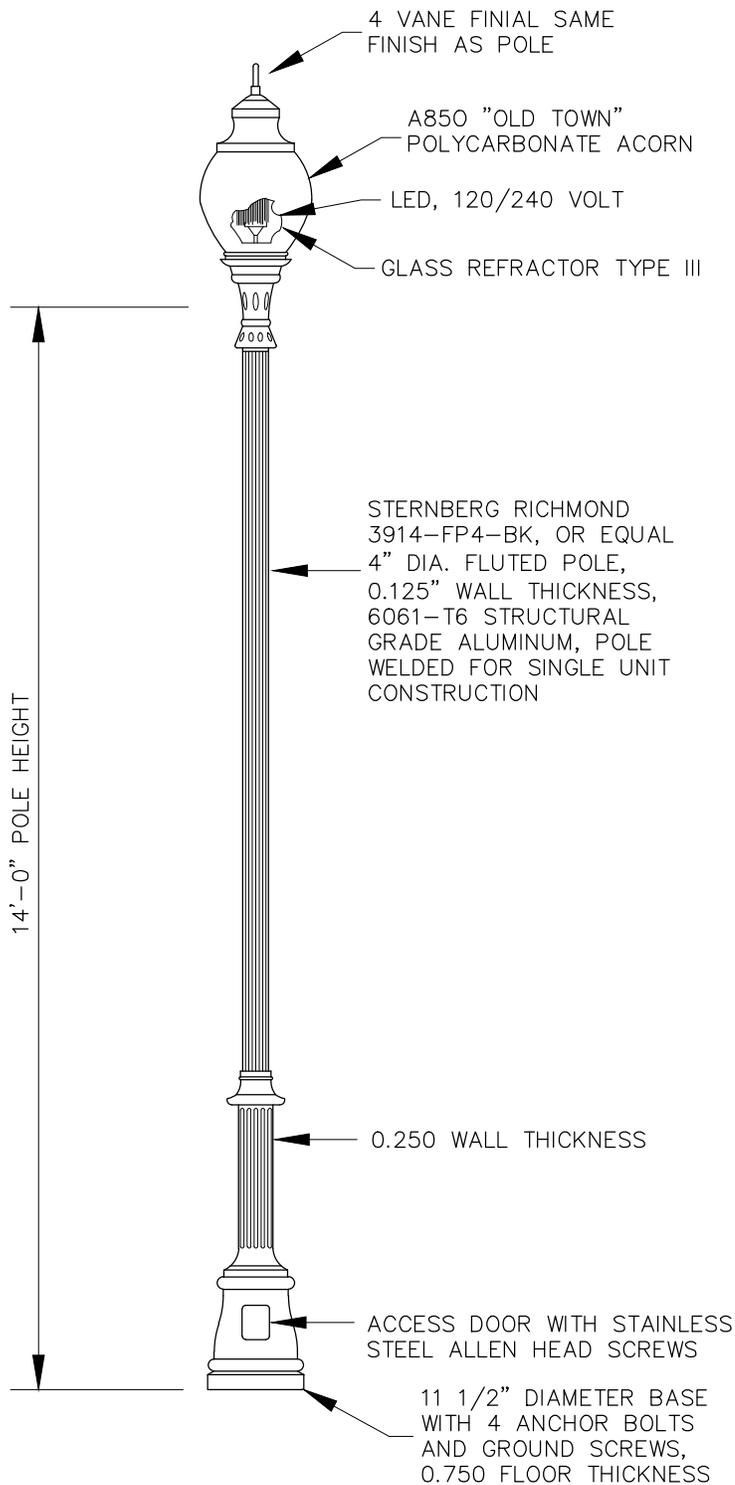
STREET LIGHT

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



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Revision	Date	Description	Appr



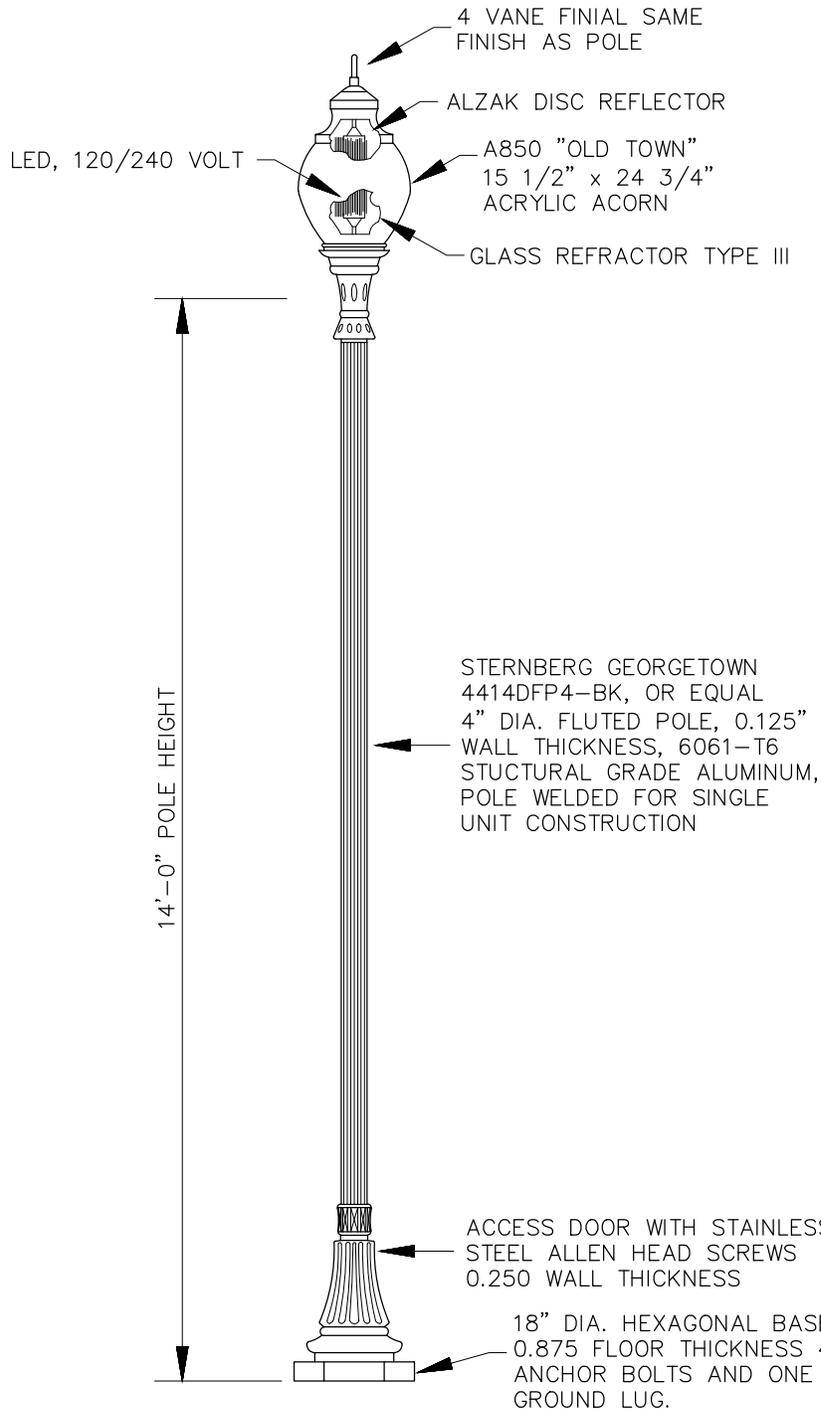
LOCAL ACCESS DECORATIVE LIGHT FIXTURE

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



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ORIG.	12/17		



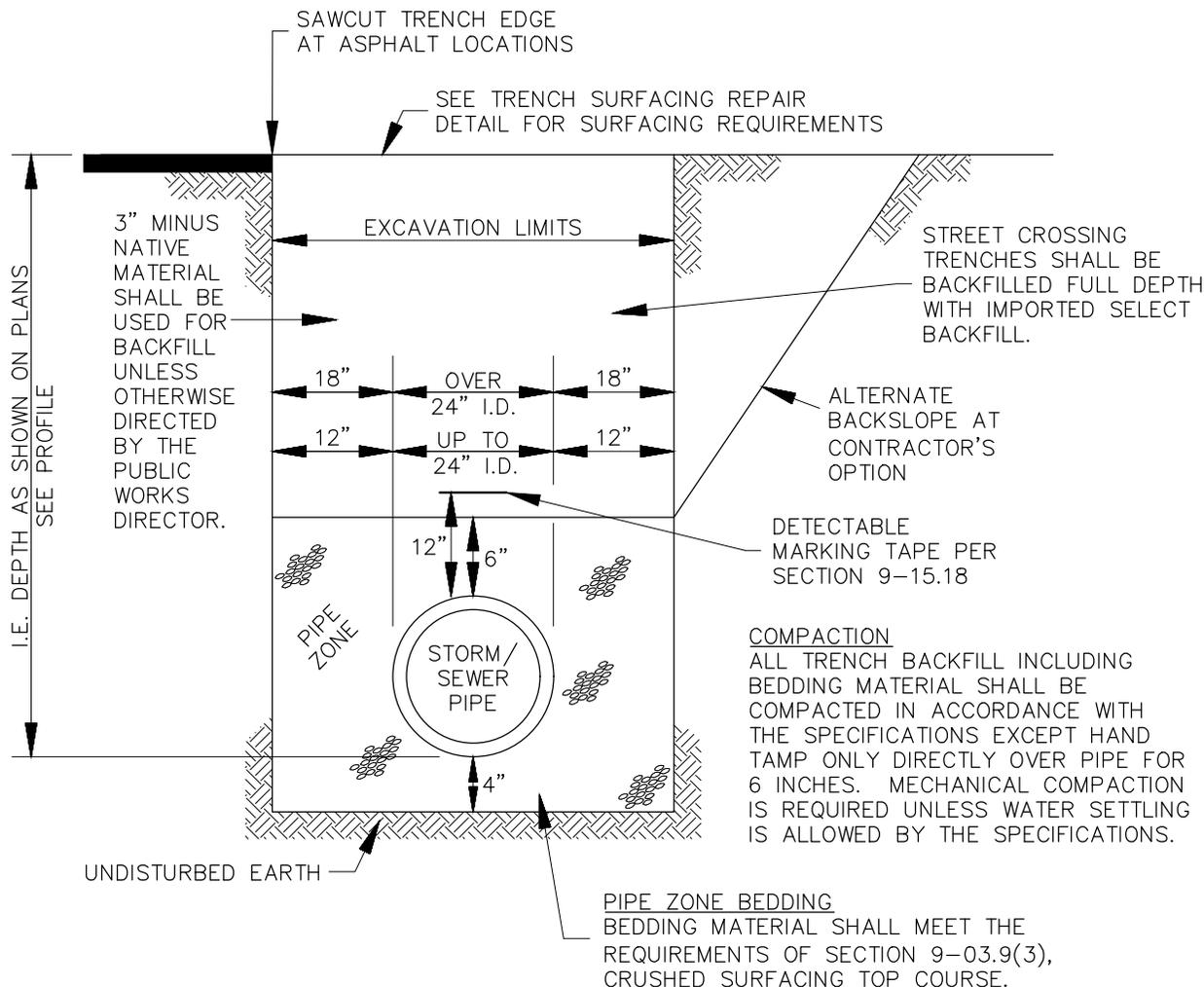
COLLECTOR DECORATIVE LIGHT FIXTURE

NOT TO SCALE

NOTE:
 ONLY THE LATEST DETAIL, AS
 APPROVED BY THE DIRECTOR OF
 PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
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NOTES:

1. FOR 4" AND 6" SIDE SEWERS, INSTALL IMPORTED PIPE ZONE BEDDING A MINIMUM OF 3" THICK ON ALL SIDES OF PIPE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

STORM/SEWER PIPE TRENCH SECTION

NOT TO SCALE

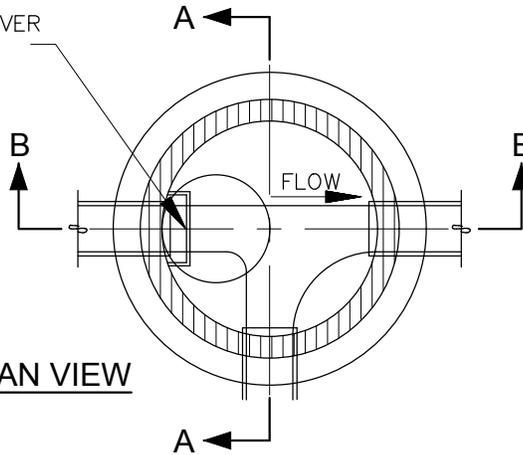
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



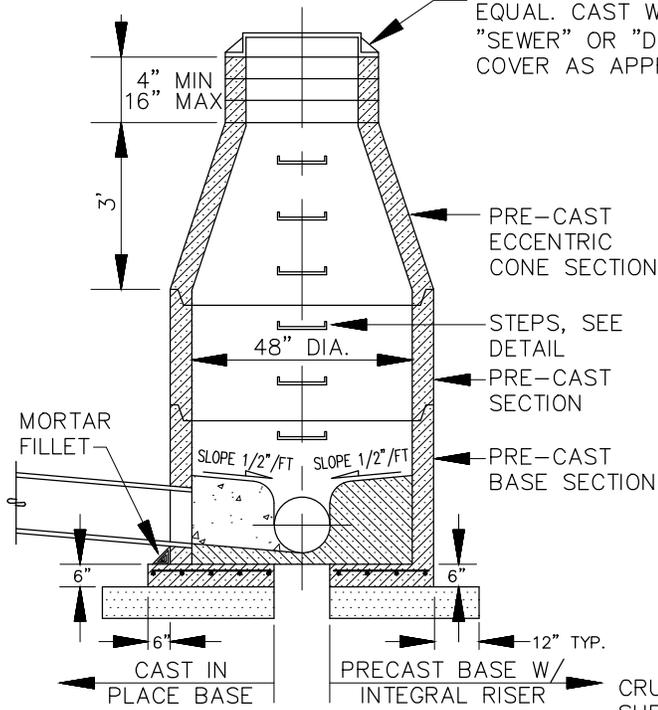
ORIG.	12/17		
Revision	Date	Description	Appr

CENTER STEPS OVER
UPSTREAM PIPE

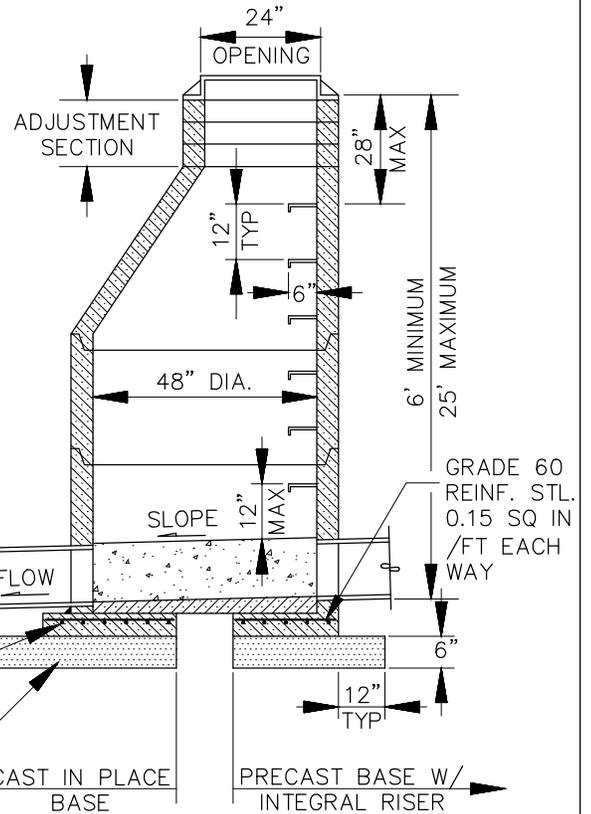
PLAN VIEW



CAST IRON FRAME &
COVER OLYMPIC FOUNDRY,
UNIT MH41, OR APPROVED
EQUAL. CAST WORD
"SEWER" OR "DRAIN" IN
COVER AS APPROPRIATE.



SECTION A-A



SECTION B-B

0.10' MIN. DROP IN ALL CHANNELS
ACROSS ALL MANHOLES

GRADE 60
REINF. STL.
0.23 SQ IN
/FT EACH
WAY
CRUSHED
SURFACING
TOP COURSE,
COMPACT TO
95% MAXIMUM
DENSITY

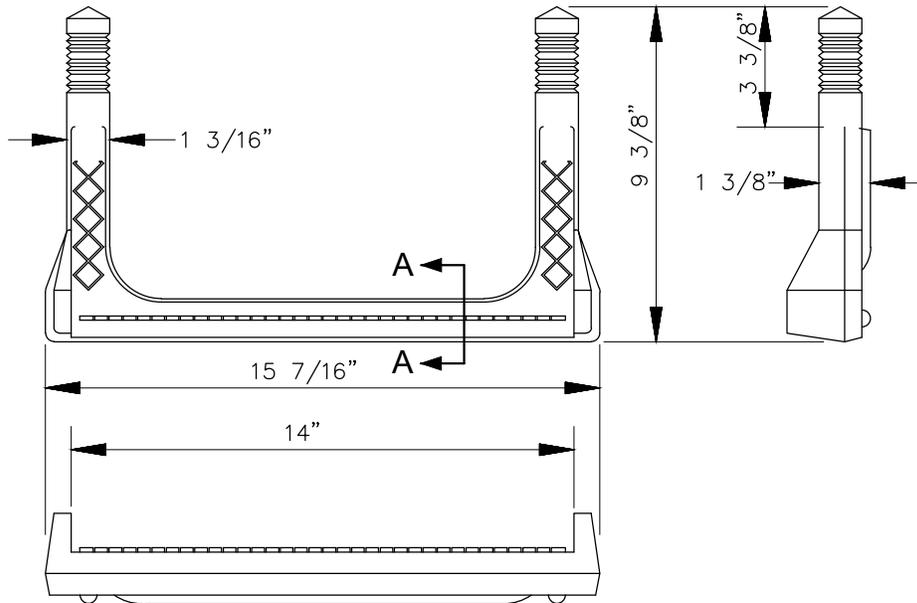
MANHOLE TYPE 1

NOT TO SCALE

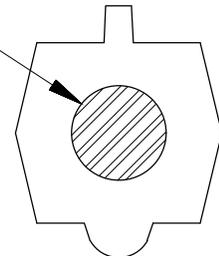
NOTE:
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APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.



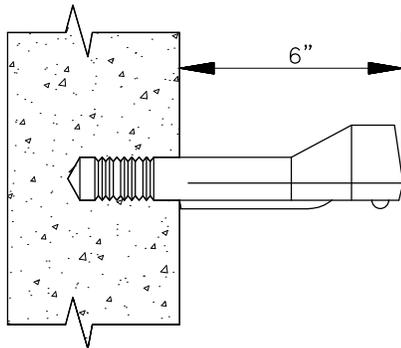
ORIG.	12/17		
Revision	Date	Description	Appr



COPOLYMER
POLYPROPYLENE
PLASTIC COATED 1/2"
GRADE 60 STEEL
REINFORCEMENT



SECTION A-A



NOTE:
MANHOLE STEPS SHALL BE COPOLYMER
POLYPROPYLENE PLASTIC COATED 1/2"
GRADE 60 STEEL REINFORCEMENT, MODEL
PS2-PF, AS MANUFACTURED BY M.A.
INDUSTRIES INC., OR APPROVED EQUAL

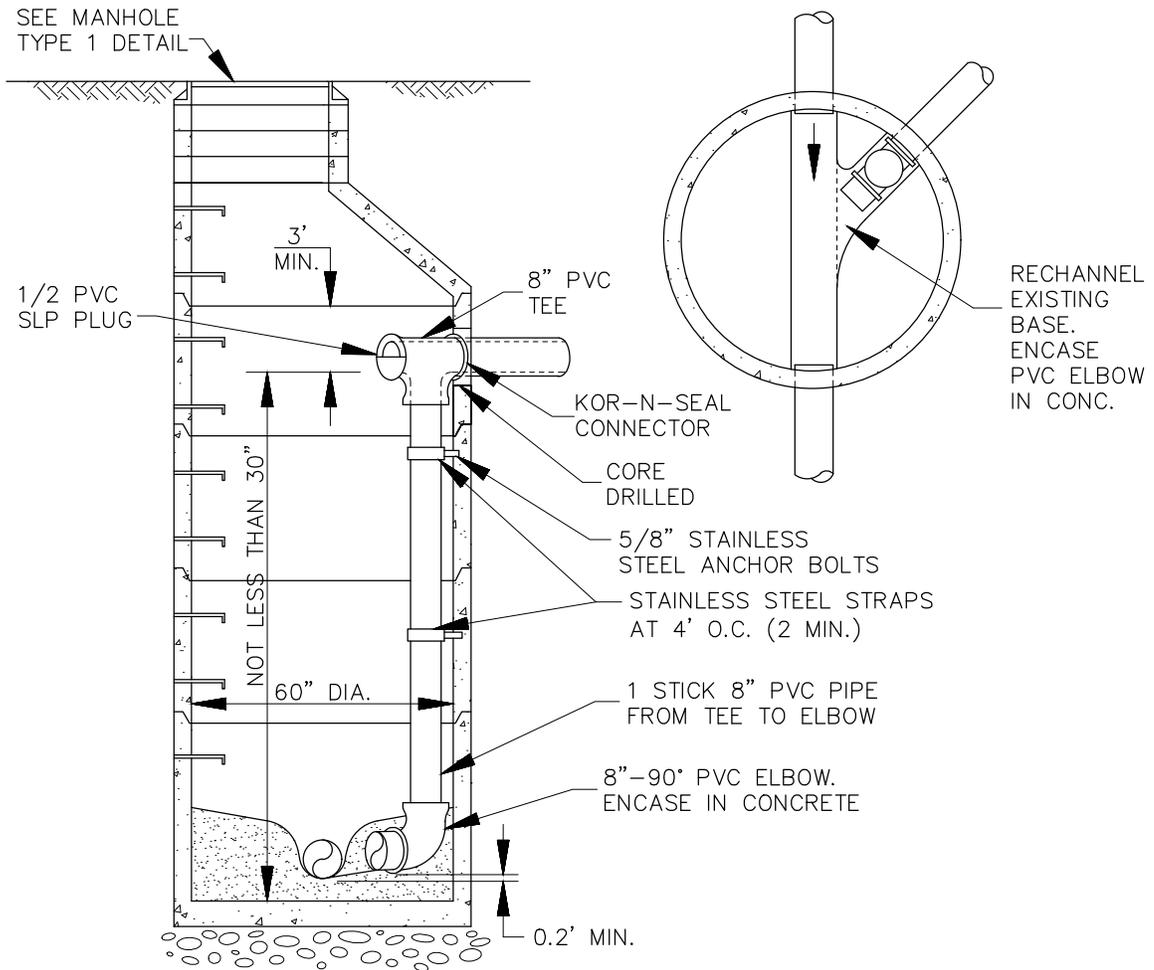
MANHOLE SAFETY STEP

NOT TO SCALE

NOTE:
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APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr



NOTES:

1. DROP TEE TO BE INSTALLED MINIMUM OF 3' BELOW CONE SECTION.
2. DROP MANHOLE SHALL BE INSTALLED ONLY WHERE APPROVED BY THE CITY.

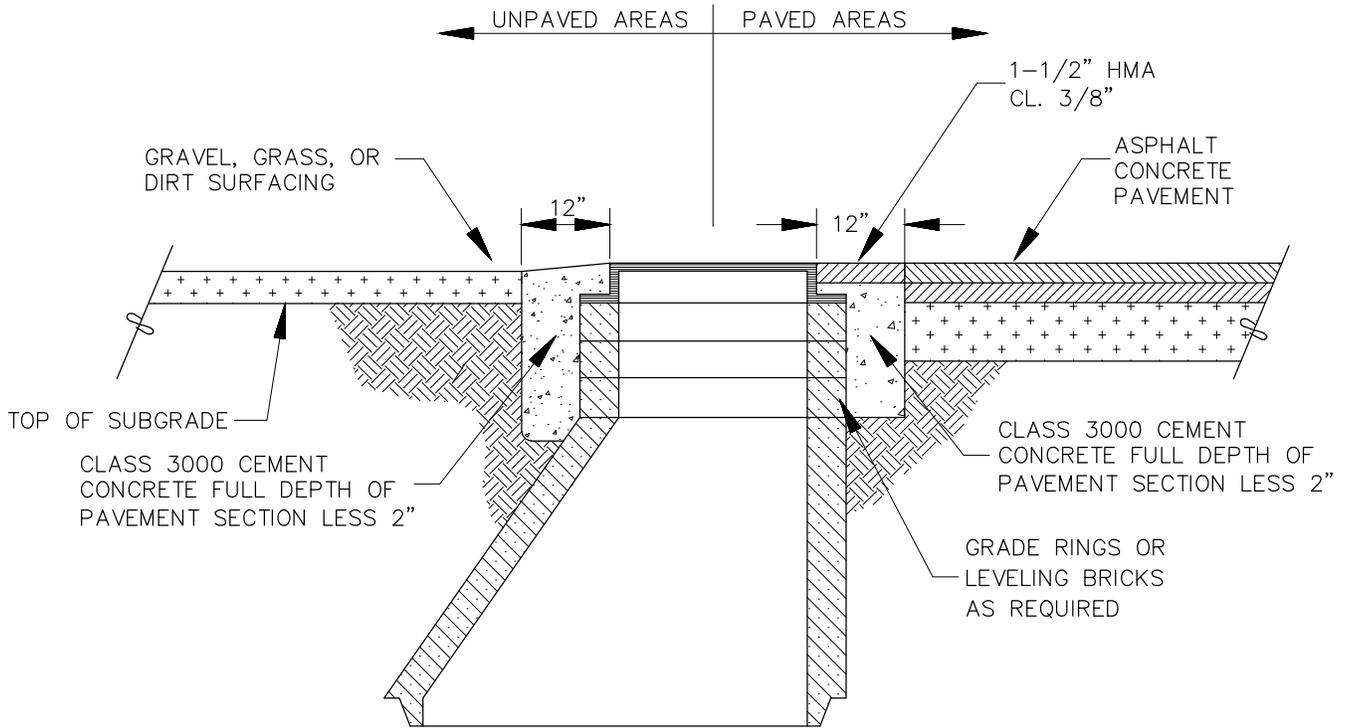
DROP MANHOLE CONNECTION

NOT TO SCALE

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



NOTES:

1. MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PLACEMENT OF THE FINAL LIFT OF ASPHALT PAVEMENT.
2. GRADE RINGS AND/OR LEVELING BRICKS SHALL BE GROUTED IN PLACE AND BE WATER TIGHT.
3. IN UNPAVED AREAS, PROVIDE CEMENT CONCRETE RING AROUND TOP OF MANHOLE. SET MANHOLE FRAME FLUSH W/ FINISHED GRADE AND SLOPE CONCRETE OUTWARD AT 1/4"/FT.

MANHOLE ADJUSTMENT

NOT TO SCALE

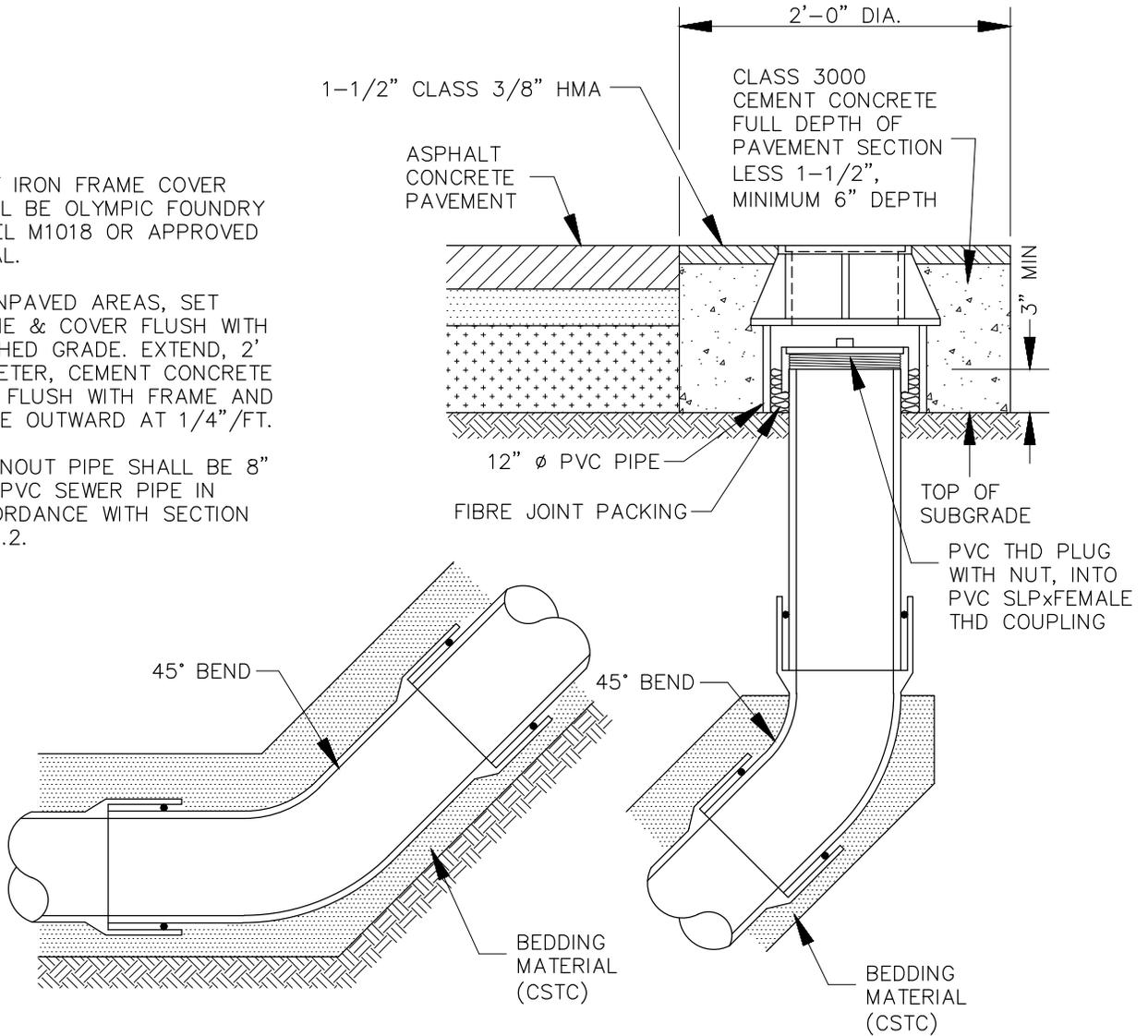
NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr

NOTES:

1. CAST IRON FRAME COVER SHALL BE OLYMPIC FOUNDRY MODEL M1018 OR APPROVED EQUAL.
2. IN UNPAVED AREAS, SET FRAME & COVER FLUSH WITH FINISHED GRADE. EXTEND, 2' DIAMETER, CEMENT CONCRETE RING FLUSH WITH FRAME AND SLOPE OUTWARD AT 1/4"/FT.
3. CLEANOUT PIPE SHALL BE 8" DIA. PVC SEWER PIPE IN ACCORDANCE WITH SECTION 7-17.2.



SANITARY SEWER CLEANOUT

NOT TO SCALE

NOTE:

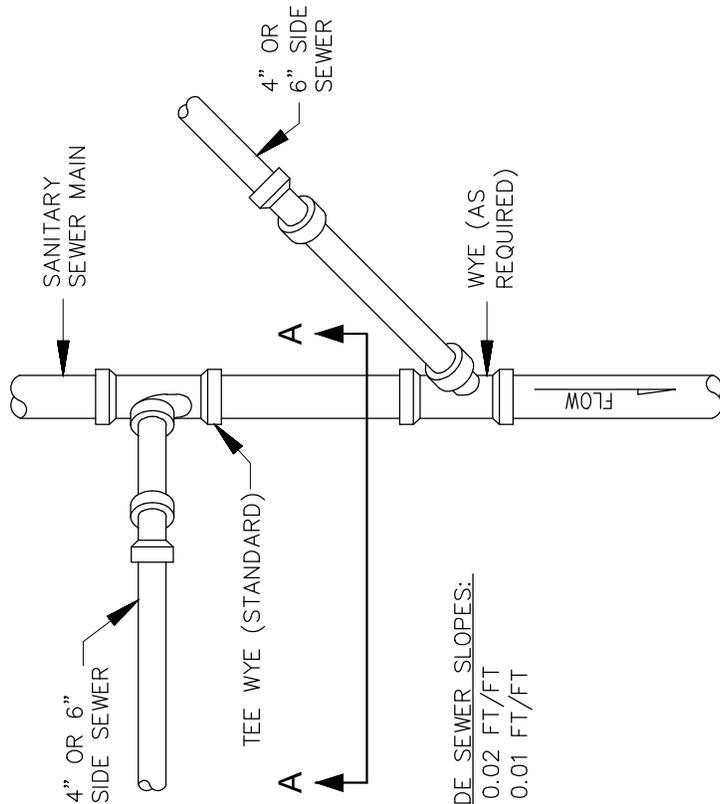
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr

NOTES:

1. SERVICE CONNECTIONS 8" OR LARGER MUST BE MADE AT MANHOLE.
2. IF 5' MAXIMUM SLOPED DISTANCE IS INSUFFICIENT FOR SIDE SEWER CONNECTION, INSTALL SIDE SEWER RISER PER DETAIL.
3. ROTATE SANITARY SEWER MAIN TEE WYE OR WYE 45° UPWARD.
4. TEE WYES OR WYES SHALL BE INSTALLED IN NEW SANITARY SEWER MAINS. WHEN INSTALLING SIDE SEWERS IN EXISTING MAINS, CONNECTION SHALL BE MADE BY MACHINE MADE TAP AND APPROVED SADDLE.
5. WHERE DEPTH IS INSUFFICIENT TO ALLOW CONNECTION AS SHOWN, CONNECT SERVICE AS DIRECTED BY ENGINEER.
6. ALL SIDE SEWER MATERIALS SHALL BE PVC SEWER PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS.
7. THE CITY OF PROSSER'S OWNERSHIP ENDS AT THE SEWER MAIN. THE SIDE SEWER SHALL BE OWNED AND MAINTAINED BY THE SERVING PROPERTY OWNER.

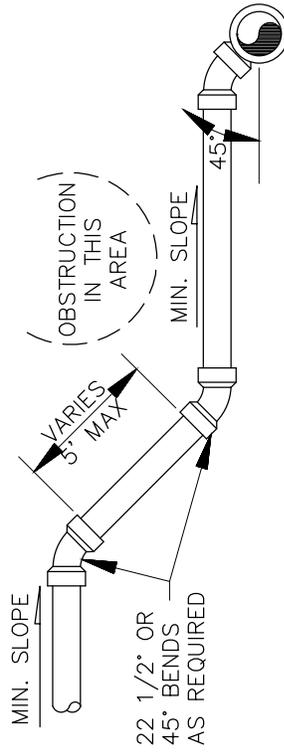
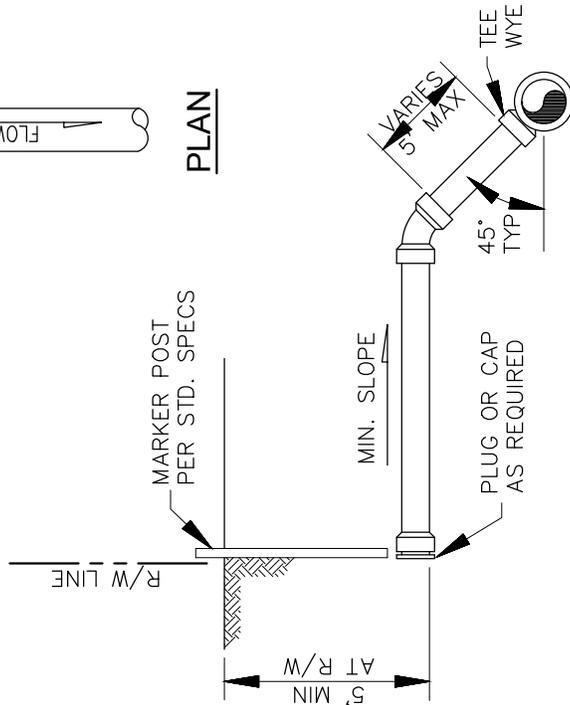


MINIMUM SIDE SEWER SLOPES:

4" PIPE = 0.02 FT/FT

6" PIPE = 0.01 FT/FT

PLAN



SECTION A-A

SIDE SEWER CONNECTION

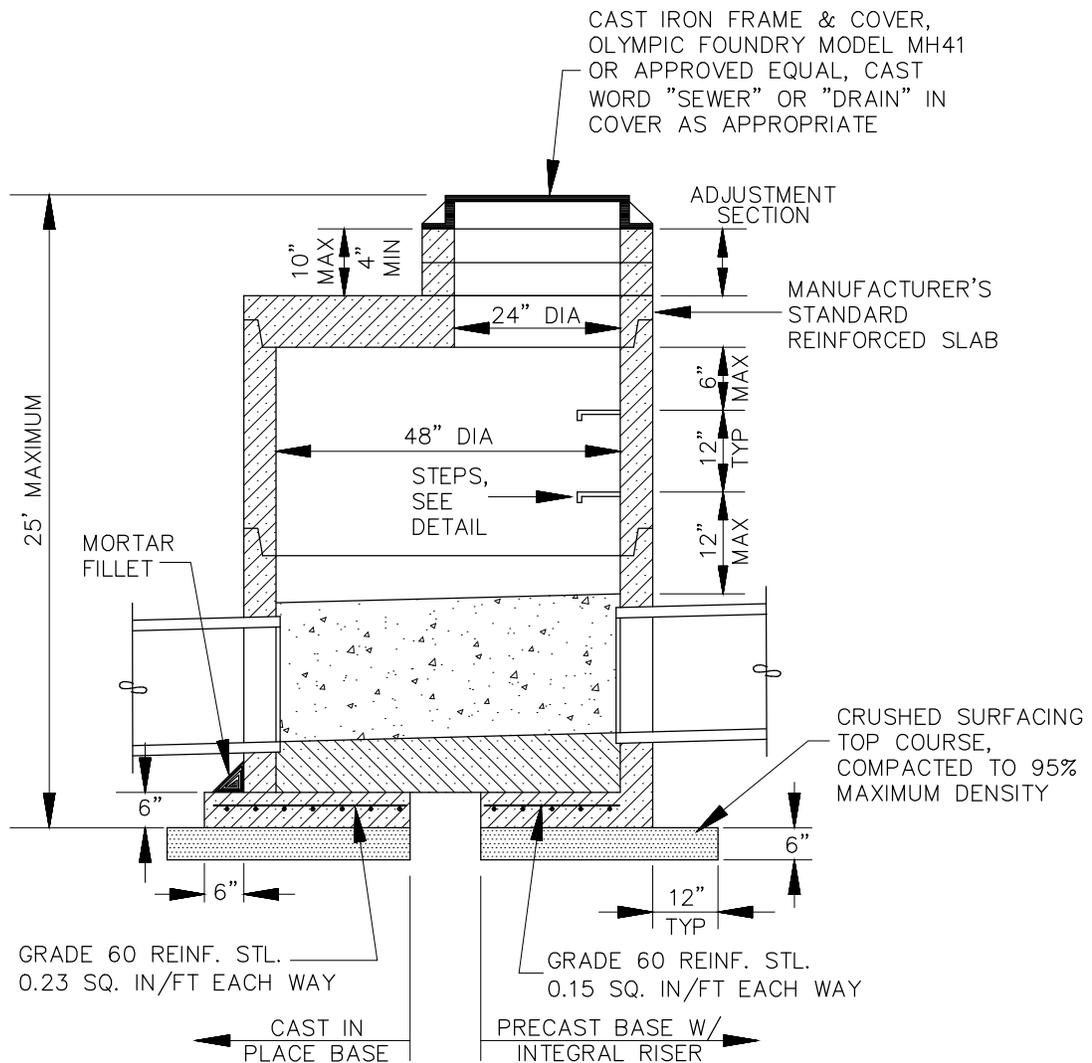
NOT TO SCALE

CONNECTION AT OBSTRUCTION

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



SHALLOW MANHOLE TYPE 3

NOT TO SCALE

NOTE:
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PUBLIC WORKS, SHALL BE USED.

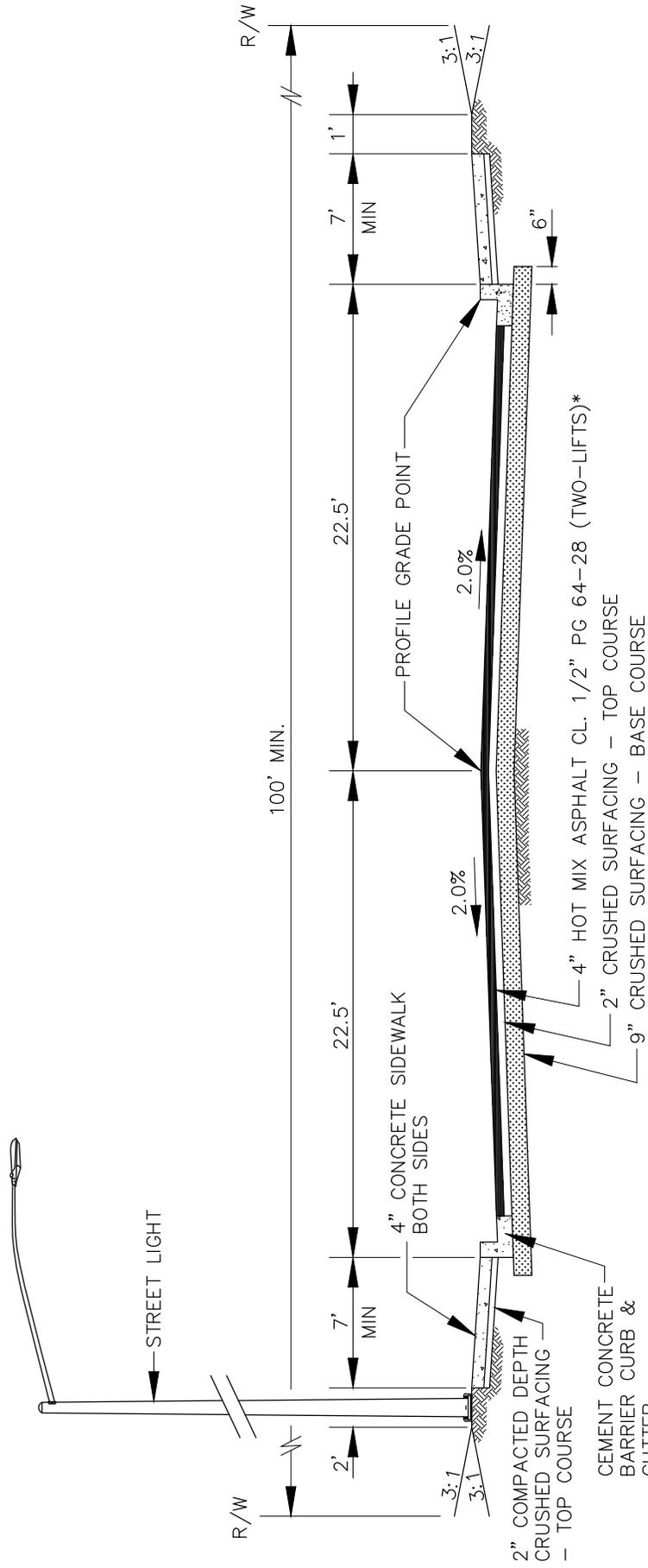


ORIG.	12/17		
Revision	Date	Description	Appr

CITY OF PROSSER-STANDARD DETAIL

SHALLOW MANHOLE TYPE 3

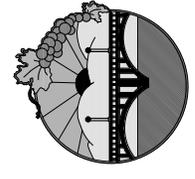
SS-8



- NOTES:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
 2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
 3. CONCRETE SIDEWALK TO BE:
6" THICK AT DRIVEWAYS,
4" THICK ALL OTHER LOCATIONS.
 4. WIDTH SHOWN IS MINIMUM FOR MAJOR COLLECTOR. WIDER ROADWAY MAY BE REQUIRED.

* 6" HMA (TWO LIFTS) ON DESIGNATED TRUCK ROUTES

- LANES:
- 1 - 12' TWO WAY LEFT TURN (TWLT) LANE
 - 2 - 11' TRAVEL LANES
 - 2 - 5' BIKE LANES (INCLUDES GUTTER)



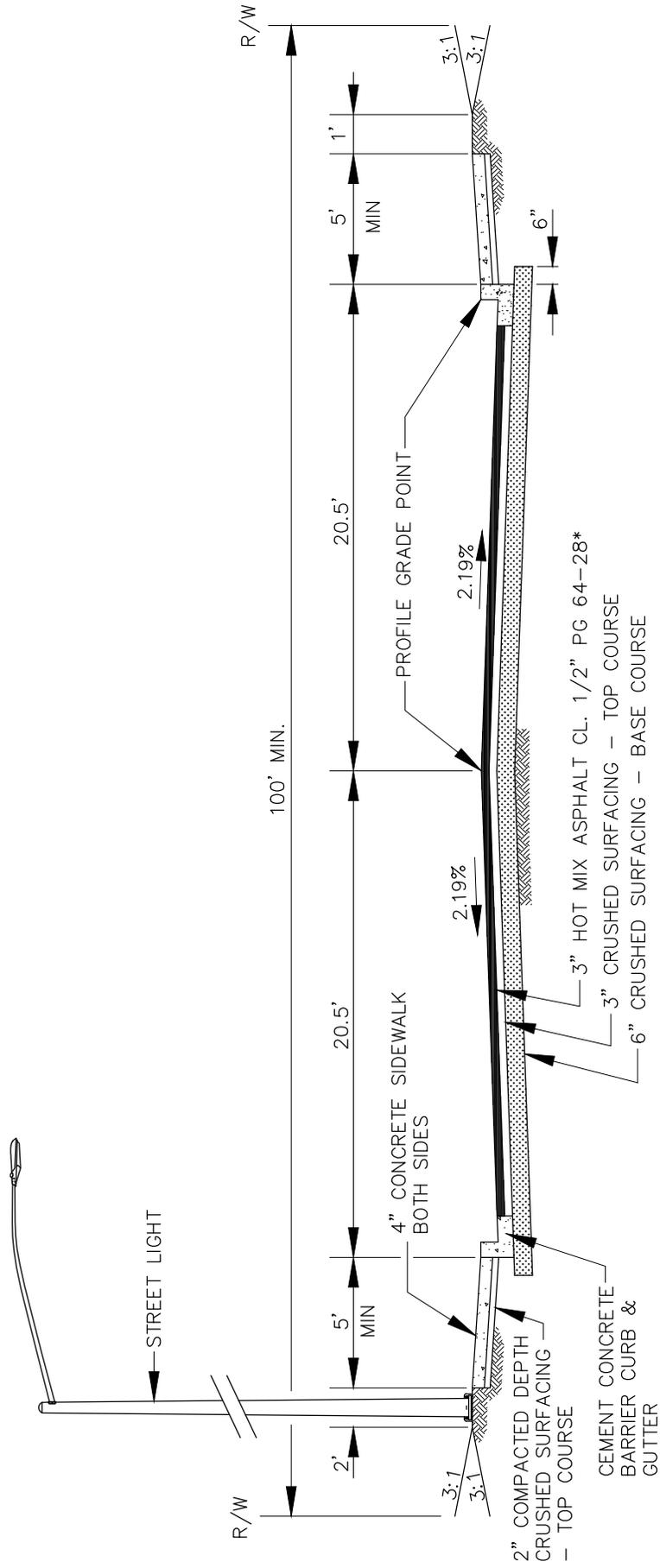
NOTE:
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ORIG.	12/17	Date	Description	Appr
Revision				

CITY OF PROSSER-STANDARD DETAIL

TYPICAL MAJOR COLLECTOR ROADWAY SECTION

ST-1

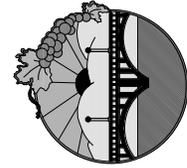


LANES:
 2 - 12' TRAVEL LANES
 2 - 8' PARALLEL PARKING LANES (INCLUDES GUTTER)

* 6" HMA (TWO LIFTS) ON DESIGNATED TRUCK ROUTES

- NOTES:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
 2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
 3. CONCRETE SIDEWALK TO BE:
 6" THICK AT DRIVEWAYS,
 4" THICK ALL OTHER LOCATIONS.

NOTE:
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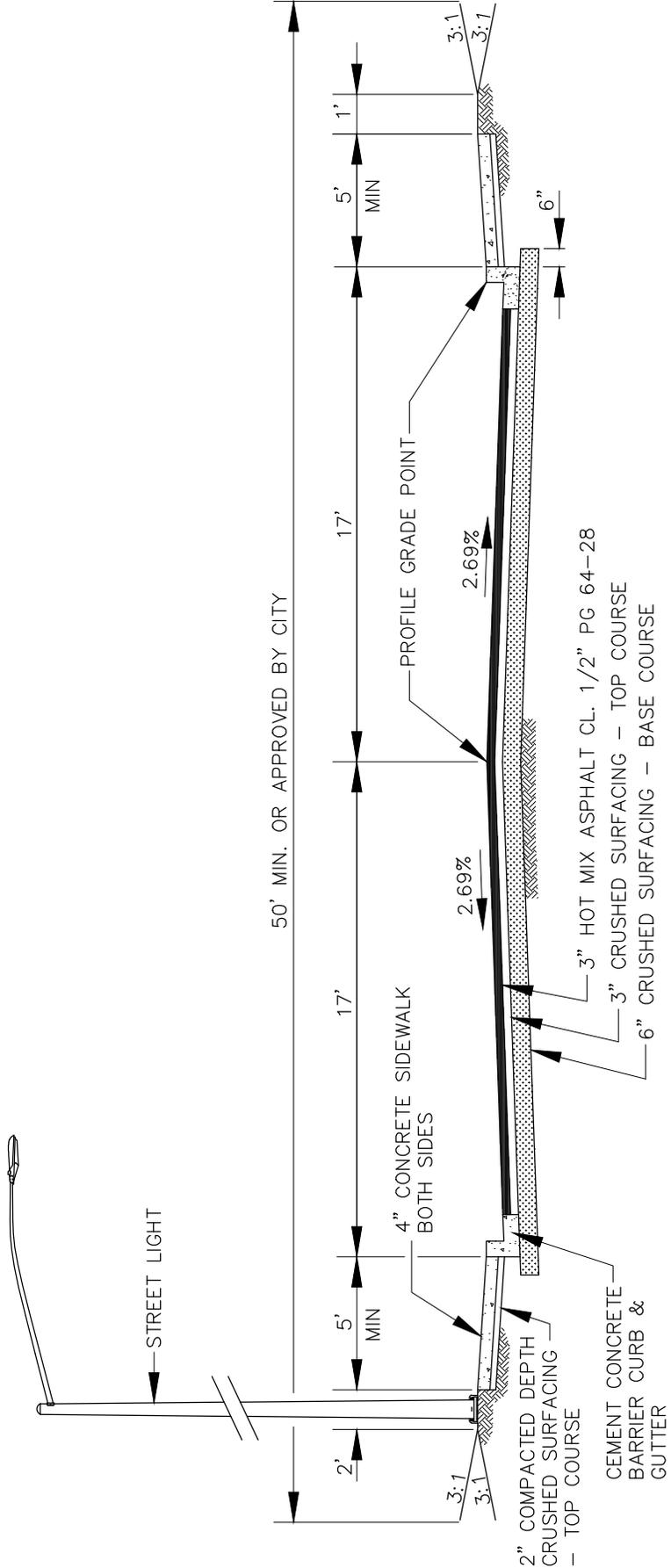


ORIG.	12/17	Date	Description	Appr
Revision				

CITY OF PROSSER-STANDARD DETAIL

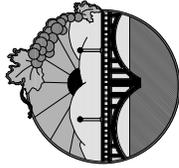
TYPICAL COLLECTOR ROADWAY SECTION

ST-2



- NOTES:**
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
 2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
 3. CONCRETE SIDEWALK TO BE:
6" THICK AT DRIVEWAYS,
4" THICK ALL OTHER LOCATIONS.
 4. IF ROLLED CURB AND GUTTER IS APPROVED, SIDEWALK SHALL BE 6" THICK.

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

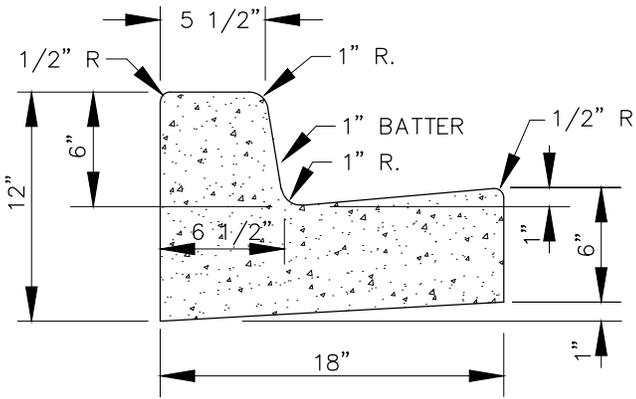


ORIG.	12/17	Date	Description	Appr
Revision				

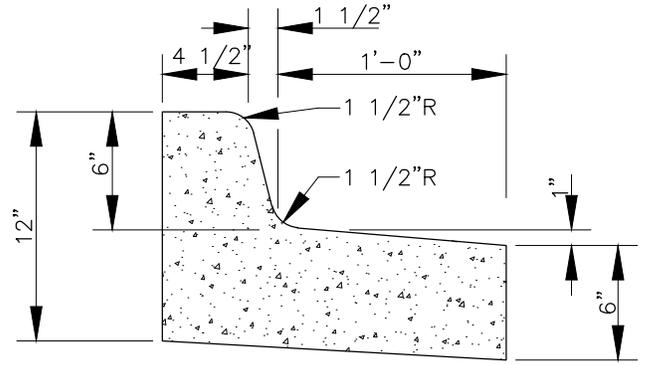
CITY OF PROSSER-STANDARD DETAIL

TYPICAL LOCAL ACCESS (RESIDENTIAL) ROADWAY SECTION

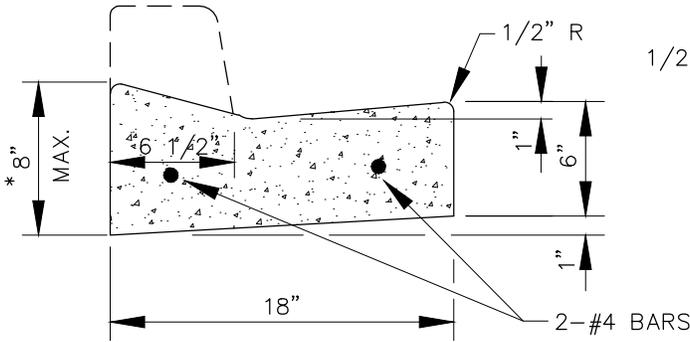
ST-3



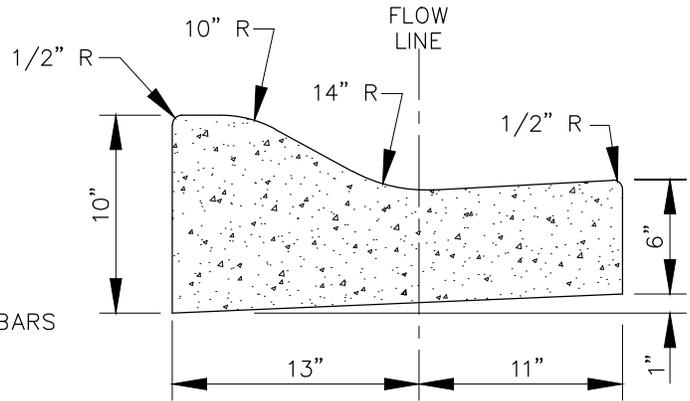
FULL HEIGHT - BARRIER



CONCRETE SPILL CURB



DEPRESSED - DRIVEWAYS



ROLLED CURB

NOTE:

*AS DIRECTED BY ENGINEER. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB. SHALL BE FLUSH WITH NO LIP AT CURB RAMPS.

NOTE:

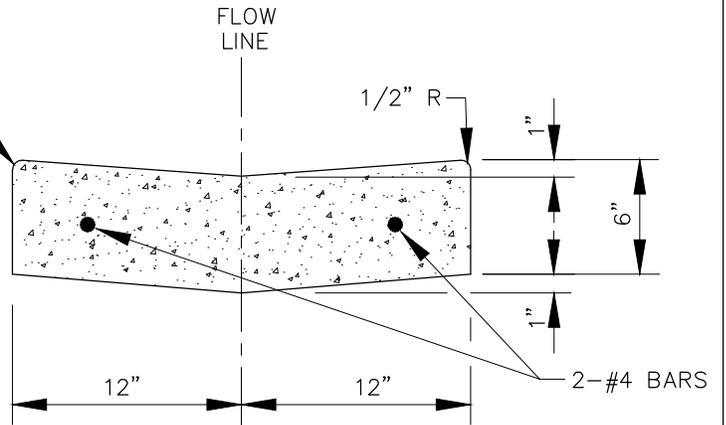
TOP OF CURB ELEVATION SHOWN IS TOP OF FULL HEIGHT CURB. SUBTRACT 0.17' FOR TOP OF ROLLED CURB.

NOTES:

1. 3/8" THICK MASTIC EXPANSION JOINT TO BE PLACED AT ALL POINTS OF TANGENCY.
2. FOR STATIONARY FORM CONSTRUCTION STANDARD PLATES AND HALF PLATES TO BE PLACED AT 10'-0" INTERVALS.
3. FOR SLIP-FORM CONSTRUCTION, PROVIDE FULL DEPTH JOINTS AT 10'-0" INTERVALS.
4. BACKFILL BEHIND CURB SHALL EXTEND FROM TOP OF CURB BACK TO A POINT AS DIRECTED BY THE PUBLIC WORKS DIRECTOR. THE TOP 4" OF BACKFILL OR EXISTING MATERIAL SHALL BE OF A FINE GRADED MATERIAL, SUITABLE FOR LAWNS, AND BE DAMPENED AND THEN BE MECHANICALLY COMPACTED TO OBTAIN A REASONABLE LEVEL OF COMPACTION.

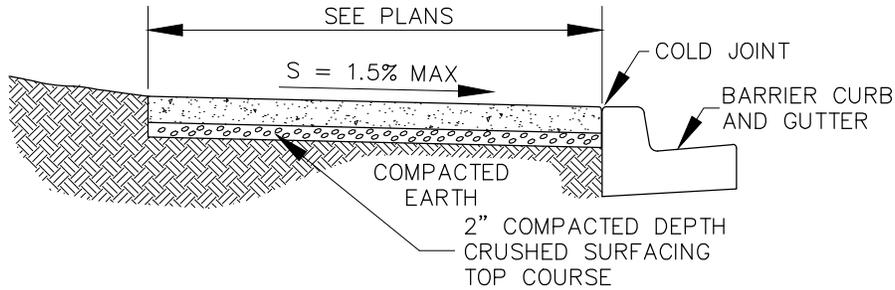
NOTE:

ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

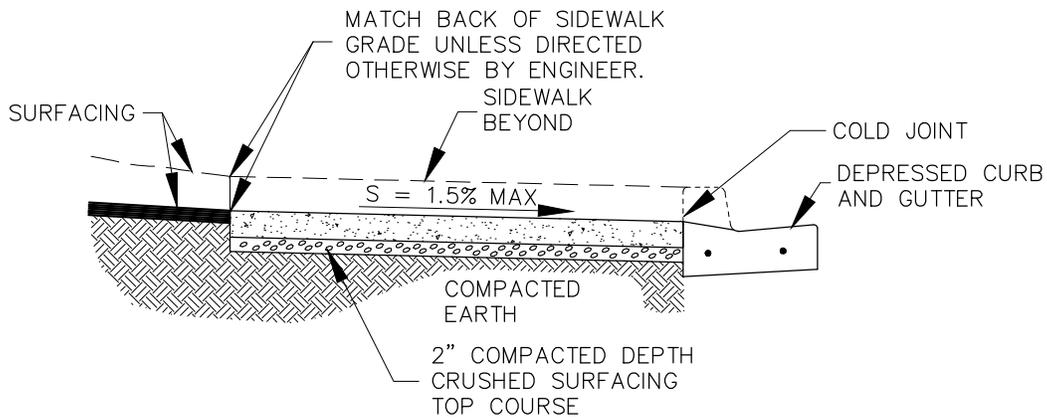


VALLEY GUTTER

Revision	Date	Description	Appr
ORIG.	12/17		



4" THICK SIDEWALK SECTION



6" THICK CONCRETE APPROACHES AT DRIVEWAYS

NOTES:

1. DRIVEWAYS SHALL MEET REQUIREMENTS OF SECTION 8-06.
2. DRIVEWAY CONCRETE SHALL DEVELOP 2,500 PSI STRENGTH IN 3 DAYS.

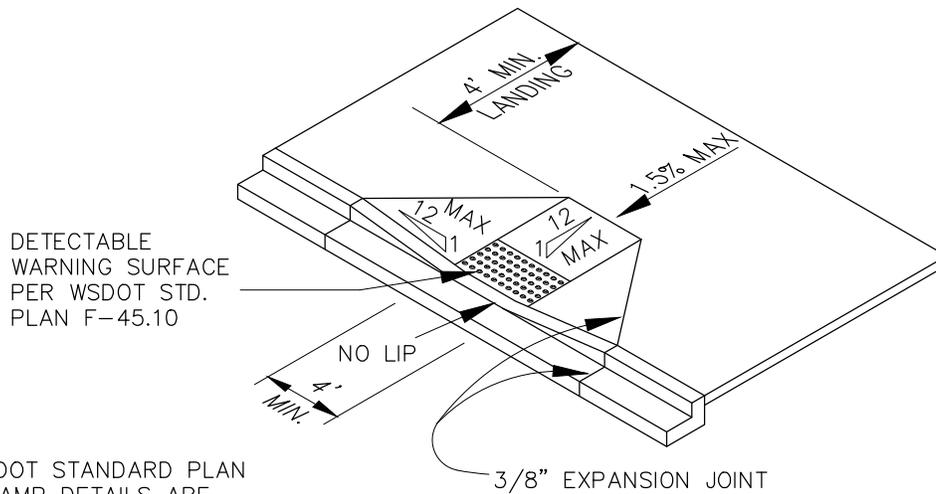
CONCRETE SIDEWALK SECTIONS

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



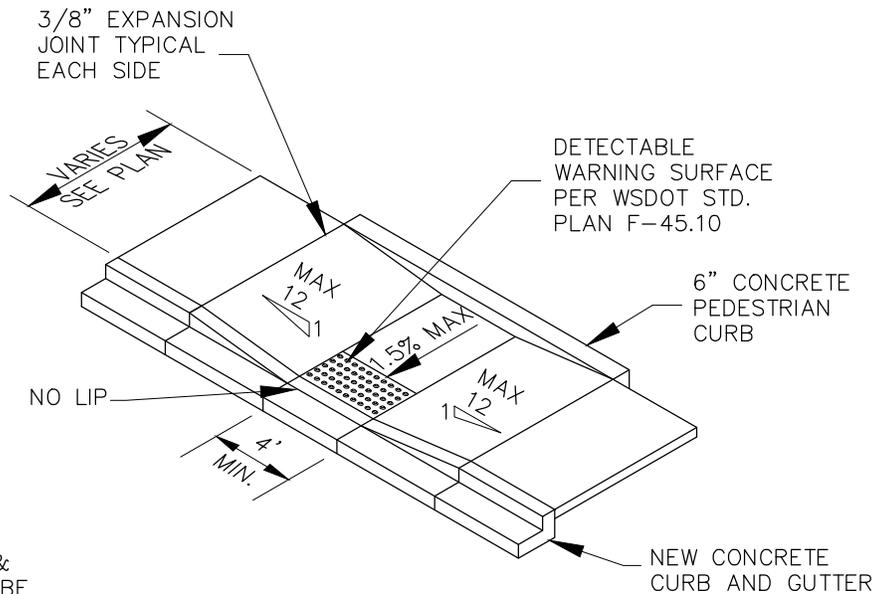
ORIG.	12/17		
Revision	Date	Description	Appr



DETECTABLE WARNING SURFACE PER WSDOT STD. PLAN F-45.10

NOTE:
ALL WSDOT STANDARD PLAN CURB RAMP DETAILS ARE ACCEPTABLE ALTERNATES.

STANDARD



NOTE:
CURB RAMPS SHALL NOT BE POURED INTEGRAL WITH SIDEWALK OR CURB & GUTTER, AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES BUT NOT AT THE END OF RAMP ADJACENT TO THE CURB.

ALTERNATE

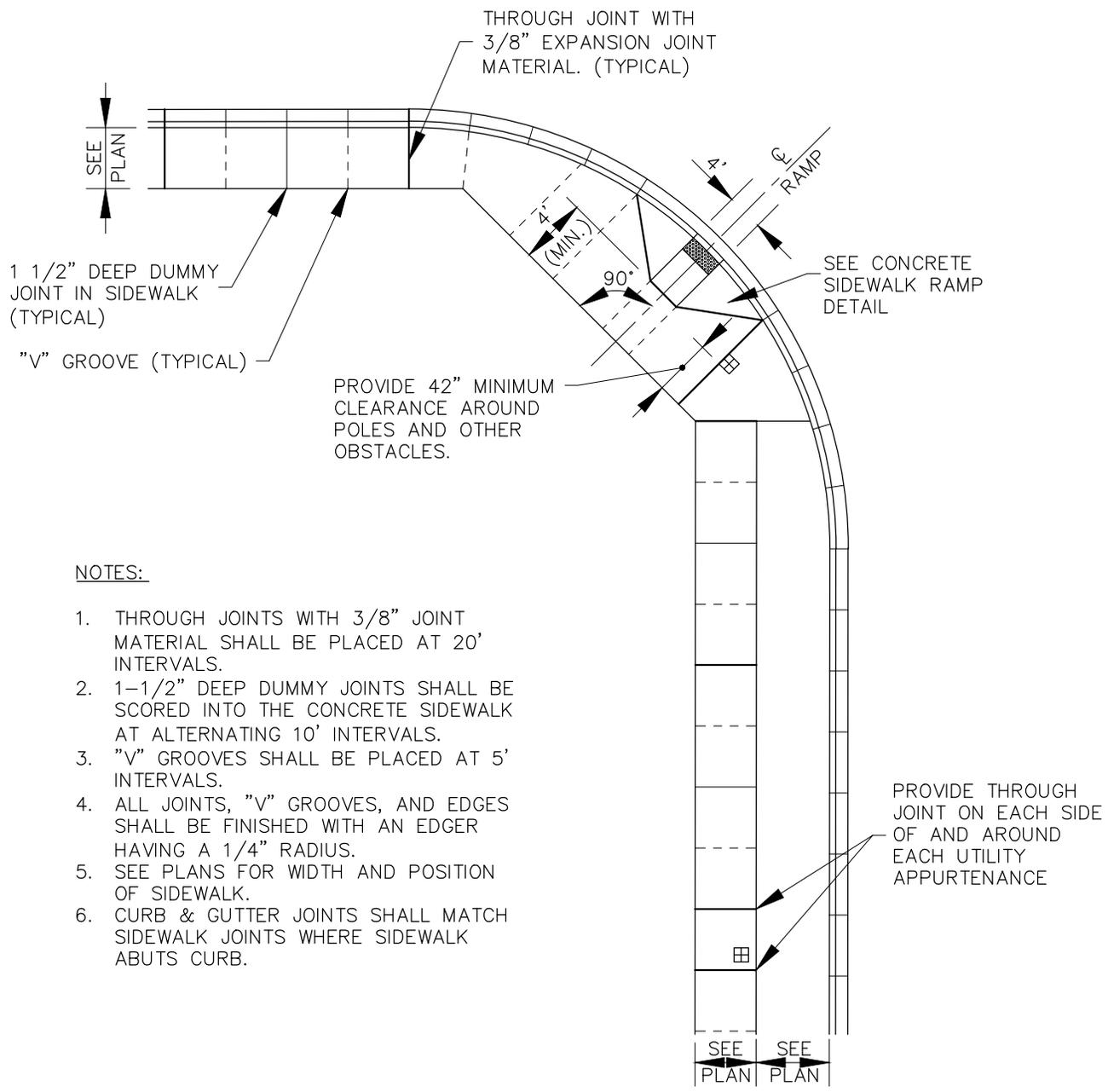
CONCRETE SIDEWALK RAMP

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr



NOTES:

1. THROUGH JOINTS WITH 3/8" JOINT MATERIAL SHALL BE PLACED AT 20' INTERVALS.
2. 1-1/2" DEEP DUMMY JOINTS SHALL BE SCORED INTO THE CONCRETE SIDEWALK AT ALTERNATING 10' INTERVALS.
3. "V" GROOVES SHALL BE PLACED AT 5' INTERVALS.
4. ALL JOINTS, "V" GROOVES, AND EDGES SHALL BE FINISHED WITH AN EDGER HAVING A 1/4" RADIUS.
5. SEE PLANS FOR WIDTH AND POSITION OF SIDEWALK.
6. CURB & GUTTER JOINTS SHALL MATCH SIDEWALK JOINTS WHERE SIDEWALK ABUTS CURB.

PROVIDE THROUGH JOINT ON EACH SIDE OF AND AROUND EACH UTILITY APPURTENANCE

SIDEWALK JOINTING

NOT TO SCALE

NOTE:
 ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

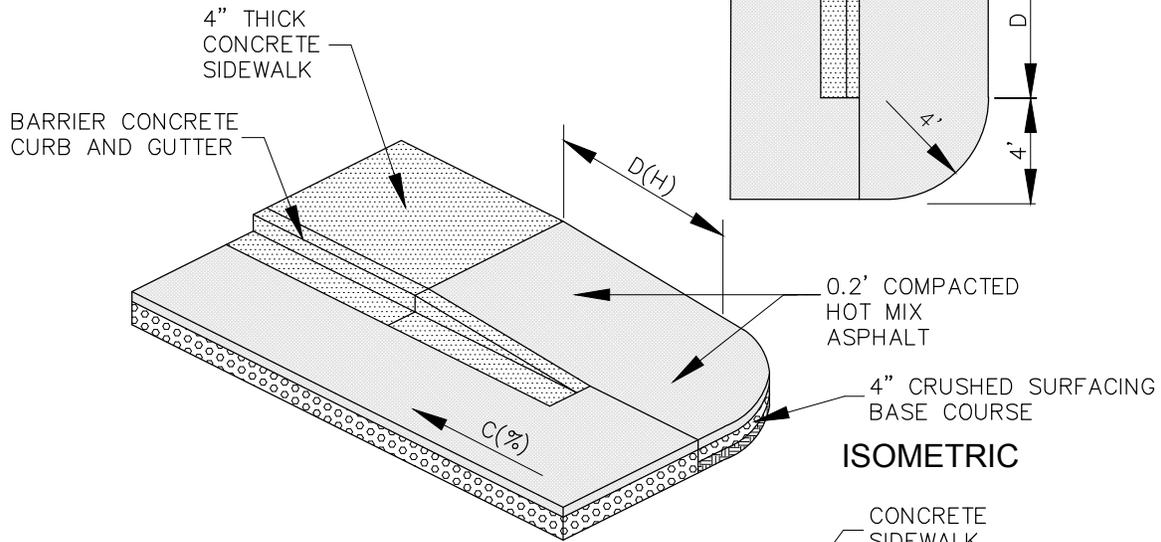
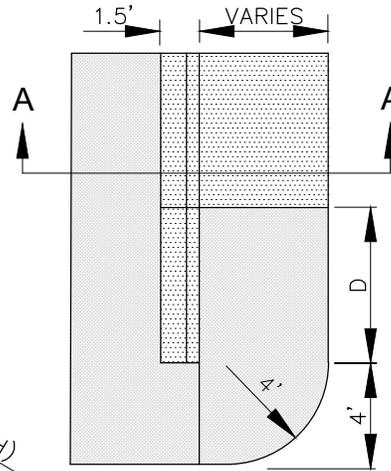


ORIG.	12/17		
Revision	Date	Description	Appr

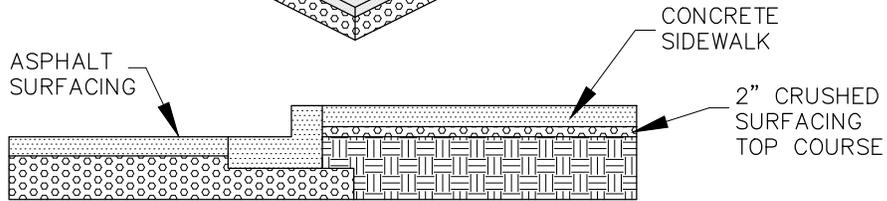
C = $\frac{1}{2}$ SLOPE APPROACHING RAMP, %

$$D = \frac{50}{(8.33 - C)}$$

PLAN



ISOMETRIC



SECTION A-A

NOTE:
ALL THICKNESSES ARE COMPACTED DEPTHS.

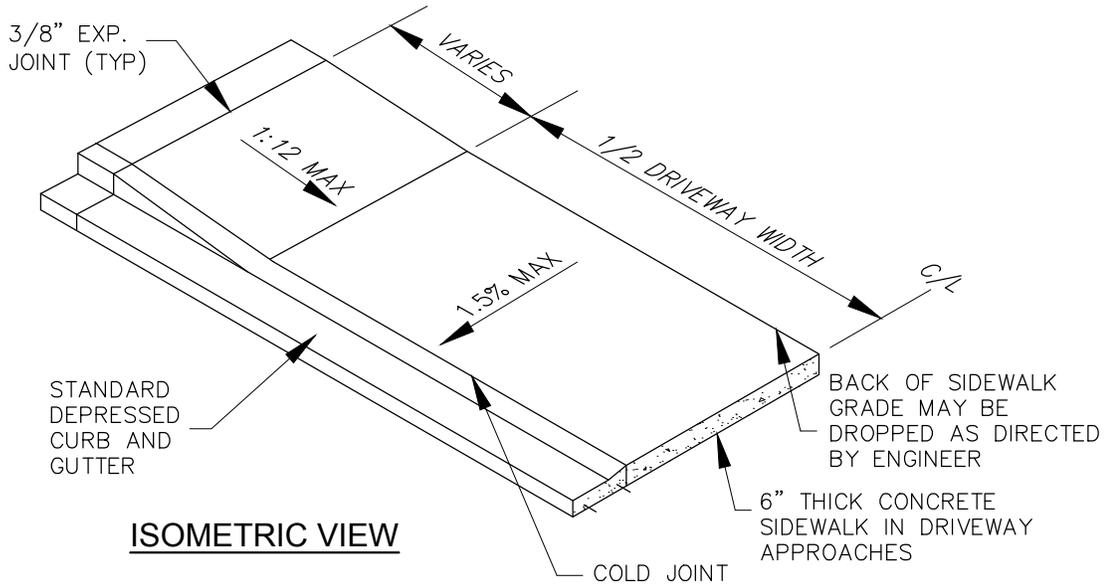
ASPHALT SIDEWALK RAMP

NOT TO SCALE

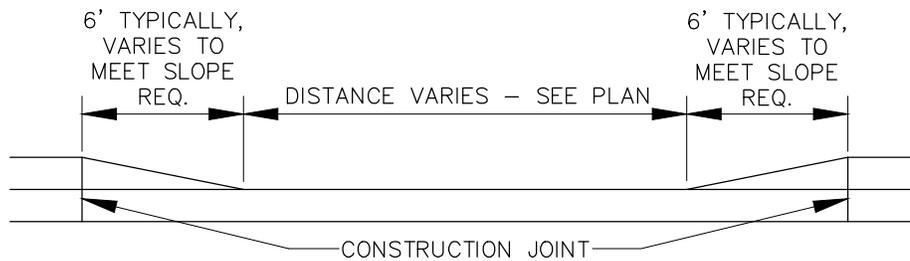
NOTE:
ONLY THE LATEST DETAIL, AS
APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr



ISOMETRIC VIEW



ELEVATION VIEW

NOTES:

1. REINFORCEMENT NOT SHOWN FOR CLARITY. EXTEND REINFORCEMENT THROUGH CONSTRUCTION JOINTS.
2. DRIVEWAYS ARE CONCRETE APPROACHES PER SECTION 8-06.
3. DRIVEWAY CONCRETE SHALL DEVELOP 2500 PSI STRENGTH IN 3 DAYS.

REFER TO PROSSER MUNICIPAL CODE CHAPTER 12.06 FOR DRIVEWAY WIDTHS; SINGLE 16' MAXIMUM AND DOUBLE 24' MAXIMUM.

A SAFETY ISLAND OF NOT LESS THAN SIX FEET OF FULL HEIGHT CURB SHALL IN ALL CASES BE PROVIDED BETWEEN DRIVEWAY APPROACHES AND A SAFETY ISLAND OF NOT LESS THAN TWENTY FEET OF FULL HEIGHT CURB SHALL IN ALL CASES BE PROVIDED BETWEEN DRIVEWAY APPROACHES SERVING ANY ONE PROPERTY FRONTAGE.

PROPERTY FRONTAGE INCLUDES APPROACH AREAS DIRECTLY IN FRONT OF PROPERTY OWNED OR UNDER THE CONTROL OF THE APPLICANT AND SUCH AREA AS MAY BE OPPOSITE ADJOINING PROPERTY WHICH IS USED FOR APPROACH PURPOSES BY RIGHT OF EASEMENT OR AGREEMENT WITH THE ADJOINING PROPERTY OWNER.

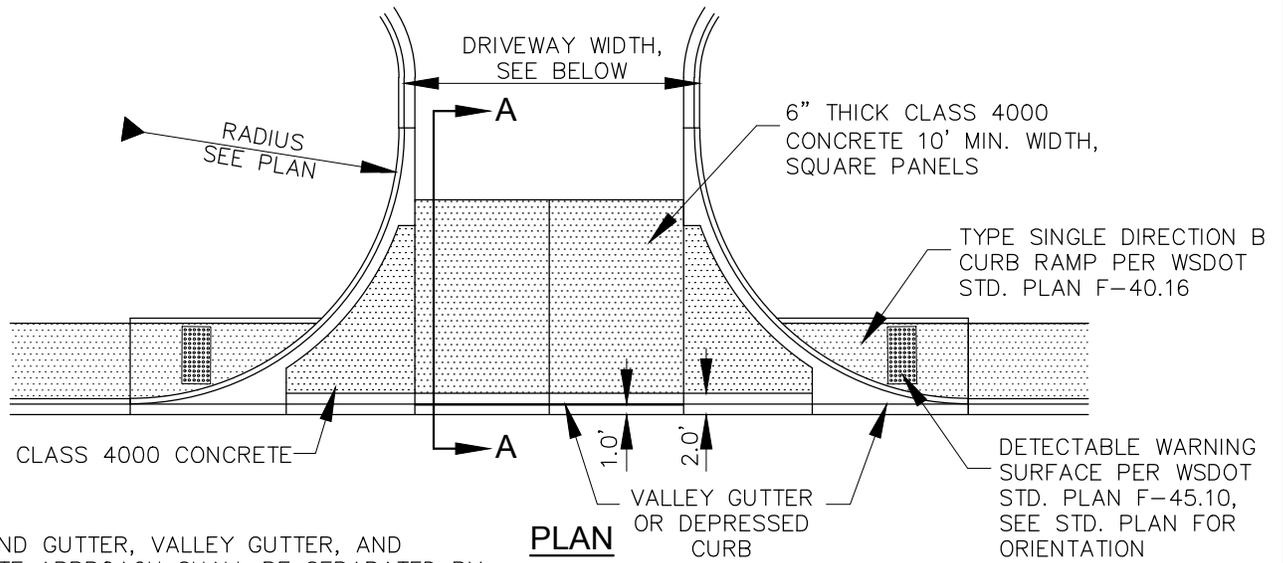
NO DRIVEWAY APPROACH SHALL PROJECT BEYOND THE EXTENSION OF THE SIDE PROPERTY LINE TO THE CURB, UNLESS THE OWNER OF THE ADJACENT PROPERTY IS A CO-SIGNER OF THE APPLICATION.

NOTE:

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ORIG.	12/17		
Revision	Date	Description	Appr

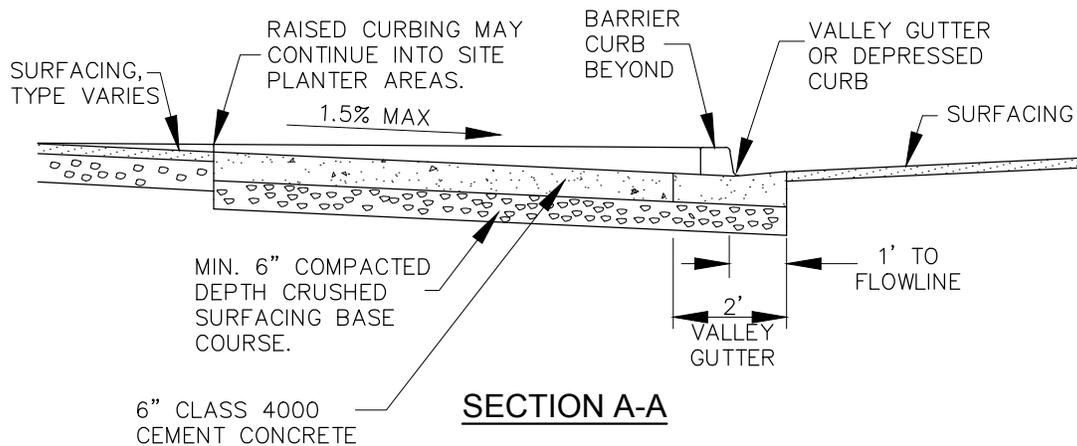


NOTE:
CURB AND GUTTER, VALLEY GUTTER, AND CONCRETE APPROACH SHALL BE SEPARATED BY EXPANSION JOINT OR SEPARATE POUR.

PLAN

REFER TO PROSSER MUNICIPAL CODE CHAPTER 12.06 FOR DRIVEWAY WIDTHS:
 30' MAX. (25 MPH OR LESS)
 35' * MAX. (25 TO 45 MPH)
 40' * MAX. (45 MPH OR MORE)

* SUBJECT TO APPROVAL OF CITY ENGINEER



SECTION A-A

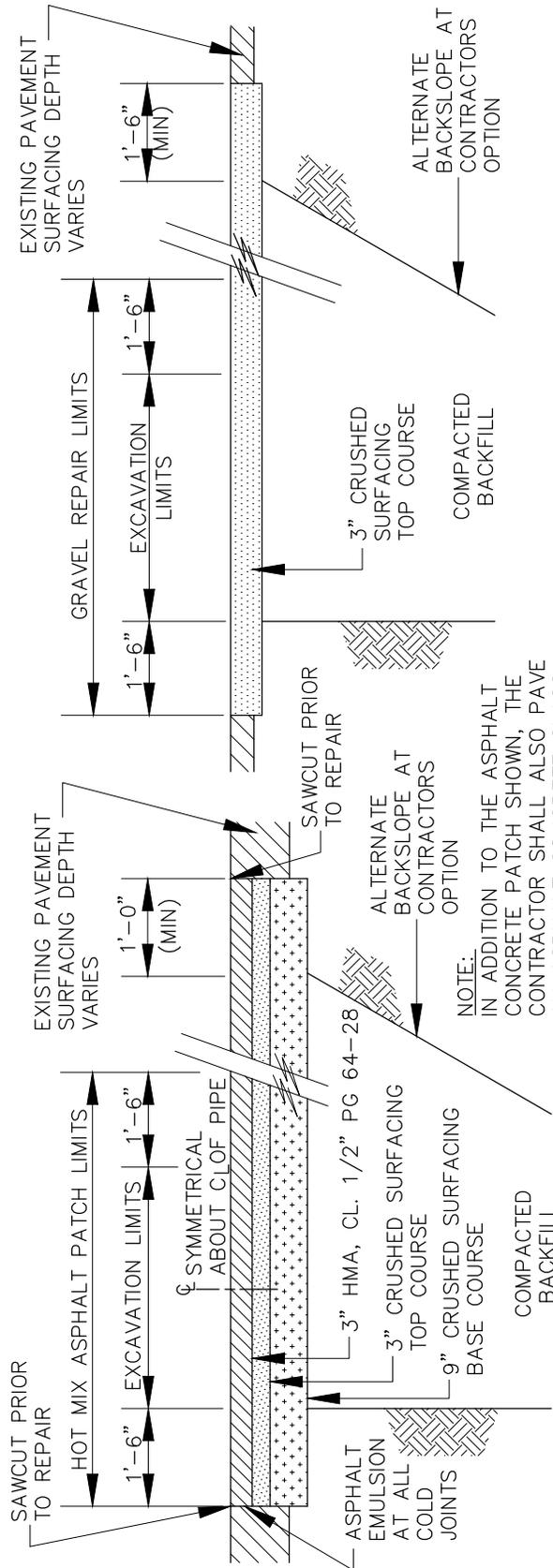
COMMERCIAL DRIVEWAY APPROACH

NOT TO SCALE

NOTE:
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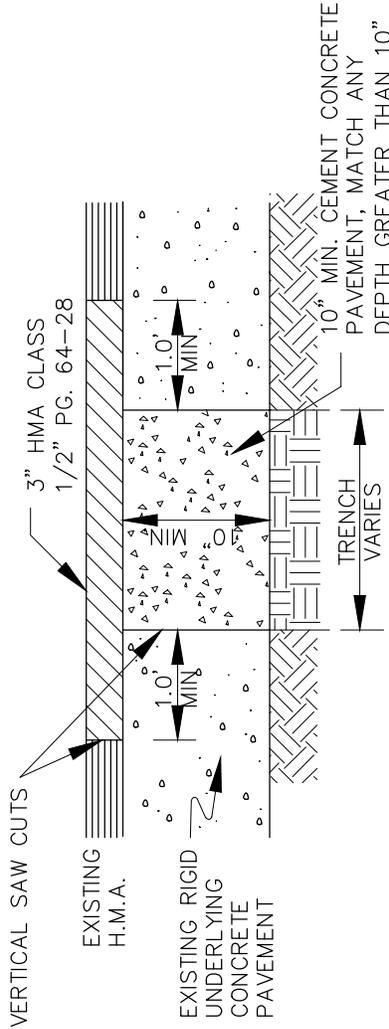
ORIG.	12/17		
Revision	Date	Description	Appr



HMA PAVEMENT REPAIR

NOTE:
IN ADDITION TO THE ASPHALT CONCRETE PATCH SHOWN, THE CONTRACTOR SHALL ALSO PAVE AN ASPHALT CONCRETE CLASS 3/8" OVERLAY FROM 1-1/2" DEPTH AT EDGE OF PAVEMENT TO 0" DEPTH (FEATHERED) AT THE ROADWAY CENTERLINE.

GRAVEL SURFACING



CONCRETE CLASS 3000 STANDARD SPECIFICATIONS

COMPACTION STANDARD SPECIFICATIONS SECTION 7-08.3(3) - 95% MAXIMUM DENSITY SECTION 7-09.3(11) - 95% MAXIMUM DENSITY SECTION 2-03.3(14)C AND D

HMA PAVEMENT REPAIR OVER CONCRETE

TRENCH SURFACING REPAIR

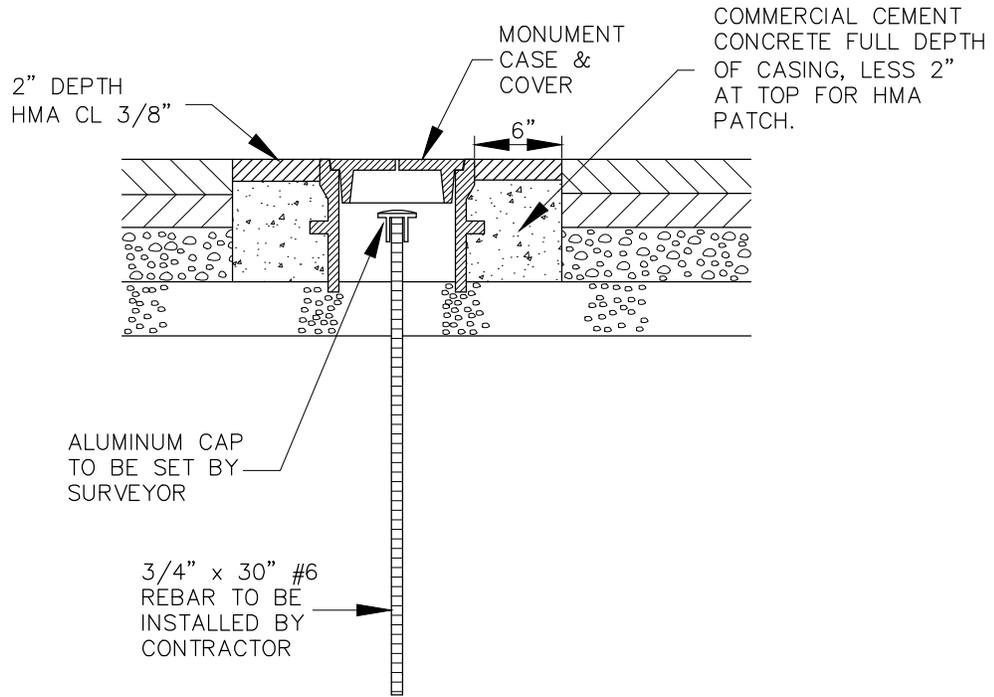
NOT TO SCALE

- NOTES:
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SURFACE RESTORATION BEYOND THE LIMITS SHOWN, INCLUDING WIDER TRENCH SECTIONS RESULTING FROM LAYING BACK TRENCH SIDES AT THE CONTRACTORS OPTION. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR SURFACE REPAIR BEYOND THE PAYMENT LIMITS.
 - NO AREA REQUIRING ASPHALT CONCRETE SURFACING REPAIR SHALL REMAIN UNPAVED FOR MORE THAN FIVE WORKING DAYS FOLLOWING INITIAL EXCAVATION.
 - ALL THICKNESSES ARE COMPACTED DEPTHS.

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



NOTES:

1. TOP OF MONUMENT CAP SHALL BE 3" BELOW FINISH GRADE.
2. MONUMENT, MONUMENT CASE & COVER TO BE PLACED AFTER FINAL LIFT OF HMA.
3. MONUMENT CASE, COVER AND RISERS SHALL MEET REQUIREMENTS OF SECTION 9-22 AS MANUFACTURED BY OLYMPIC FOUNDRY OR EQUAL.

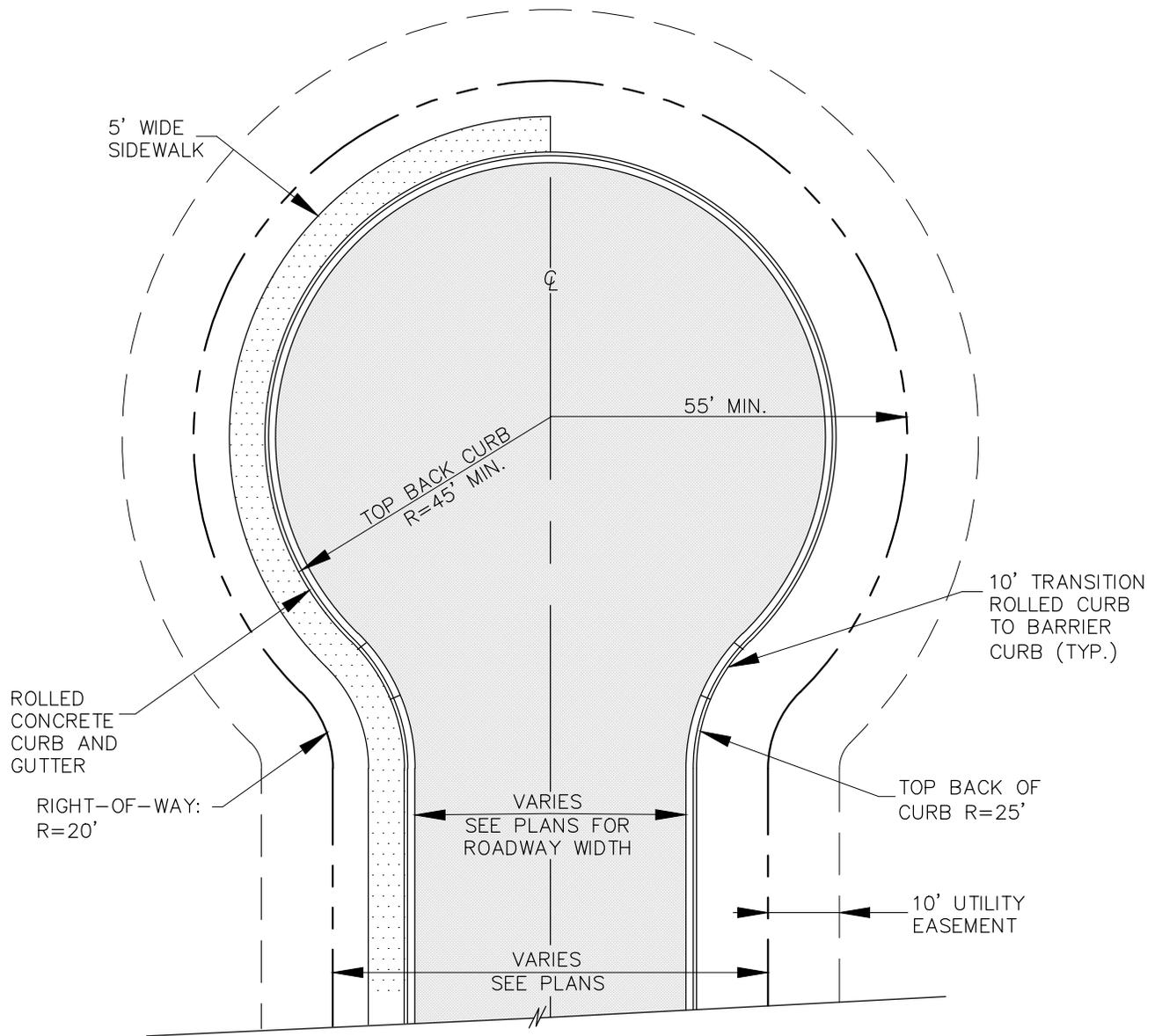
MONUMENT

NOT TO SCALE

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



NOTE:
 CUL-DE-SAC STREETS SHALL BE A
 MAXIMUM OF 600 FEET IN LENGTH.

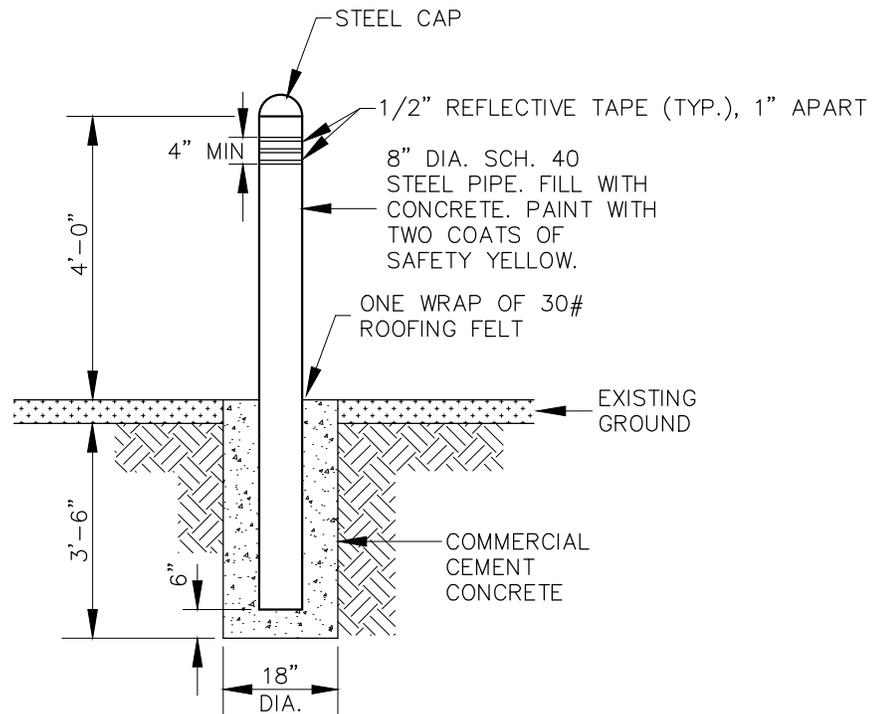
CUL-DE-SAC LAYOUT

NOT TO SCALE

NOTE:
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 APPROVED BY THE DIRECTOR OF
 PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr



PERMANENT BOLLARD

NOT TO SCALE

NOTE:
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APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.

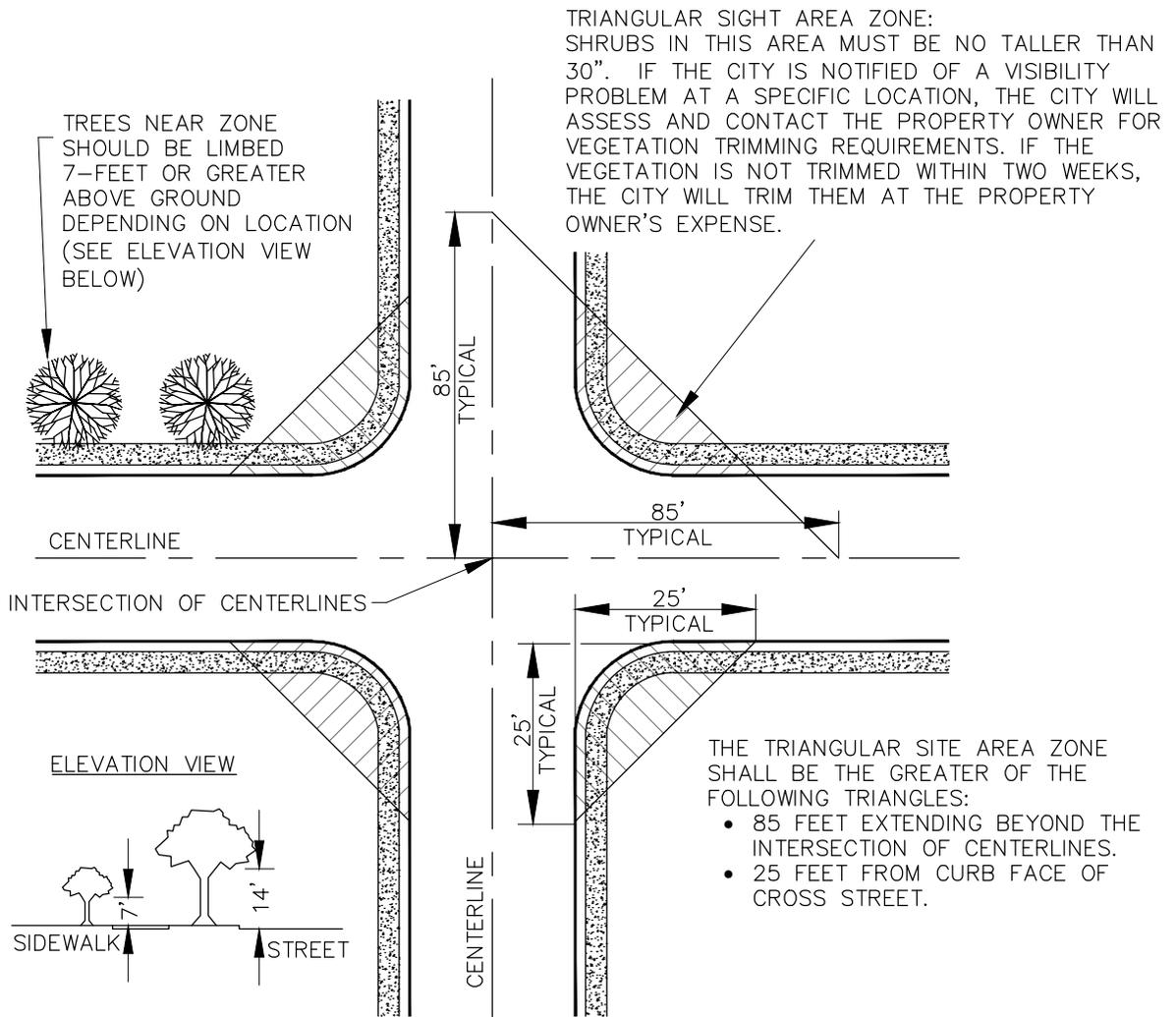


ORIG.	12/17		
Revision	Date	Description	Appr

CITY OF PROSSER-STANDARD DETAIL

PERMANENT BOLLARD

ST-14



NOTES FOR NEW DEVELOPMENT:

1. TREES SHALL NOT BE PLACED IN SUCH A WAY THAT THEY IMPEDE THE SAFE FLOW OF TRAFFIC BY BLOCKING THE VIEW OF TRAFFIC SIGNS, AND/OR IMPEDE PEDESTRIANS AND VEHICLES. ABOVE ARE CITY VISIBILITY STANDARDS.
2. LANDSCAPER SHALL COORDINATE WITH SIGN INSTALLER TO ASSURE NO CONFLICT BETWEEN THE TWO WILL BE CREATED.

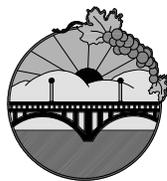
NOTES FOR EXISTING VEGETATION:

1. OVERGROWN VEGETATION IMPEDES THE SAFE FLOW OF TRAFFIC WHEN IT BLOCKS THE VIEW OF TRAFFIC SIGNS, PEDESTRIANS AND OTHER VEHICLES. IF EXISTING VEGETATION IS BLOCKING VISIBILITY IN THE STREET OR AN INTERSECTION, IT IS THE RESPONSIBILITY OF THE ADJACENT PROPERTY OWNER OR RESIDENT TO TRIM THE VEGETATION.
2. TO ENSURE SAFE PASSAGE FOR EVERYONE, TREE LIMBS OVER STREETS MUST BE LIMBED TO 14 FEET. LIMBS OVER SIDEWALKS MUST BE LIMBED UP 7 FEET.

CORNER LOT VISION CLEARANCE

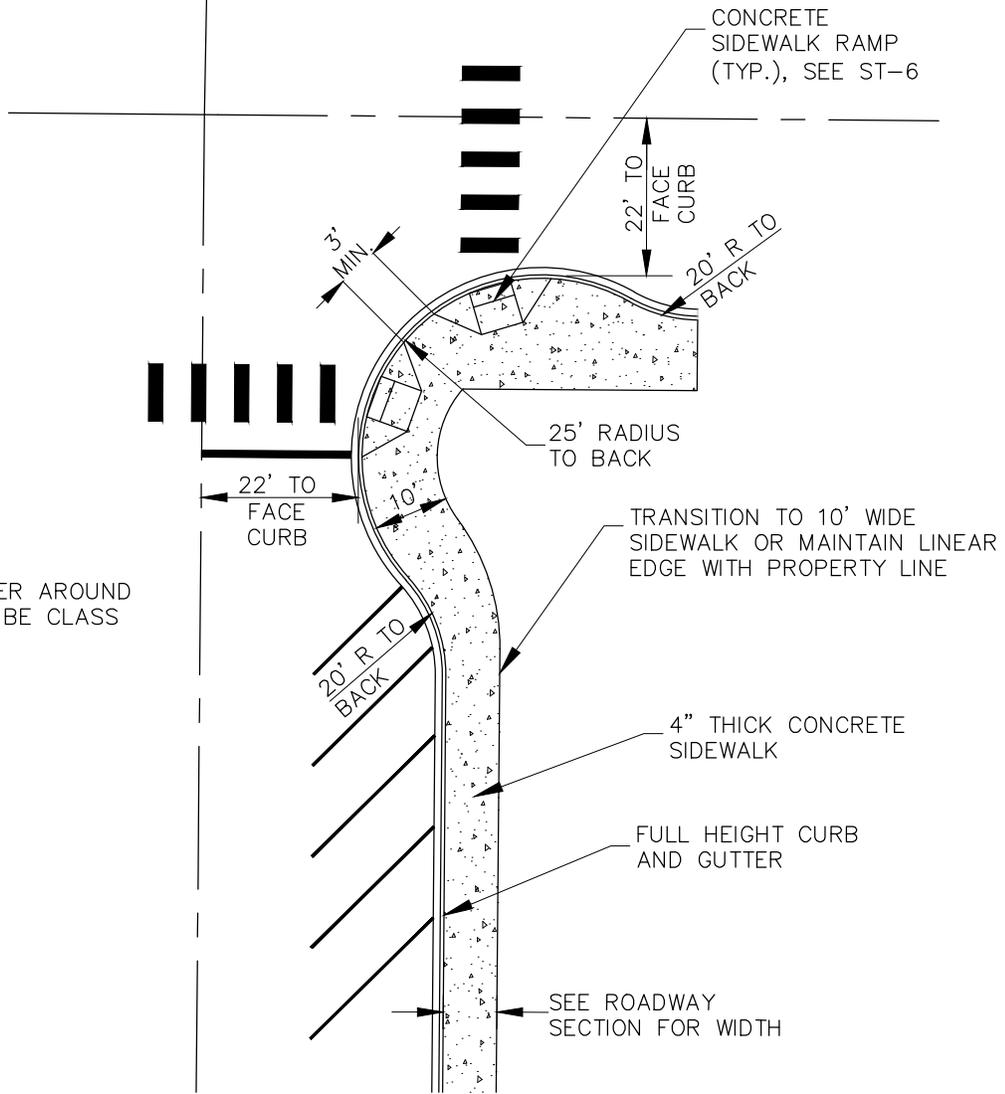
NOT TO SCALE

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr

NOTE:
CURB AND GUTTER AROUND
BULBOUT SHALL BE CLASS
4000 CONCRETE.



TRAFFIC BULB OUT

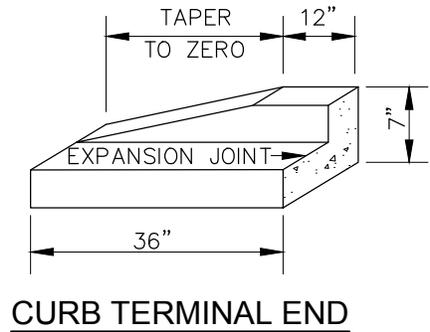
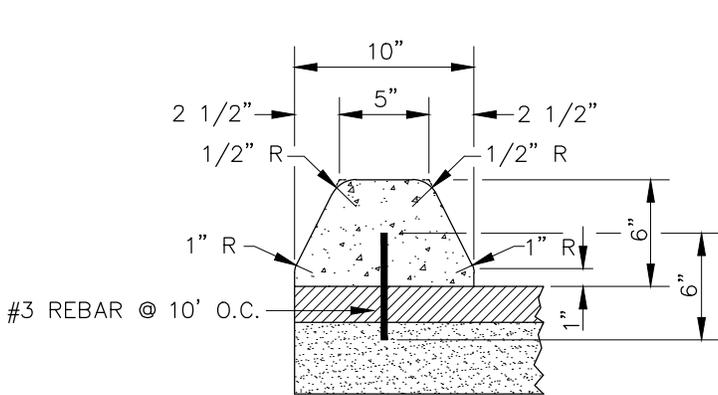
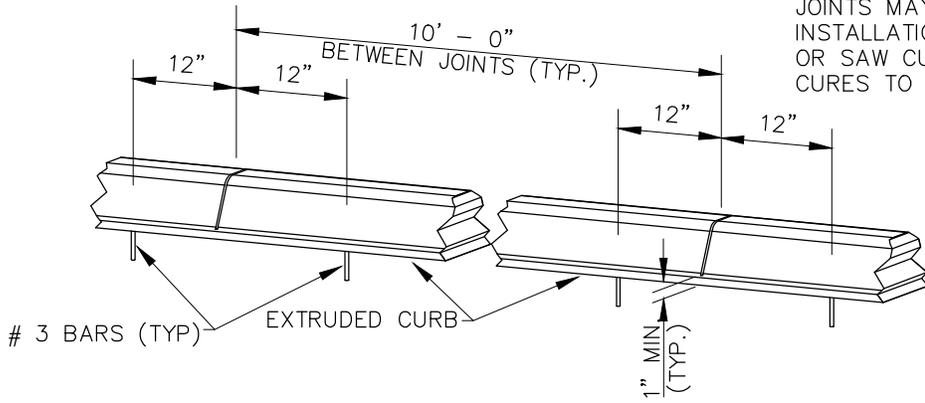
NOT TO SCALE

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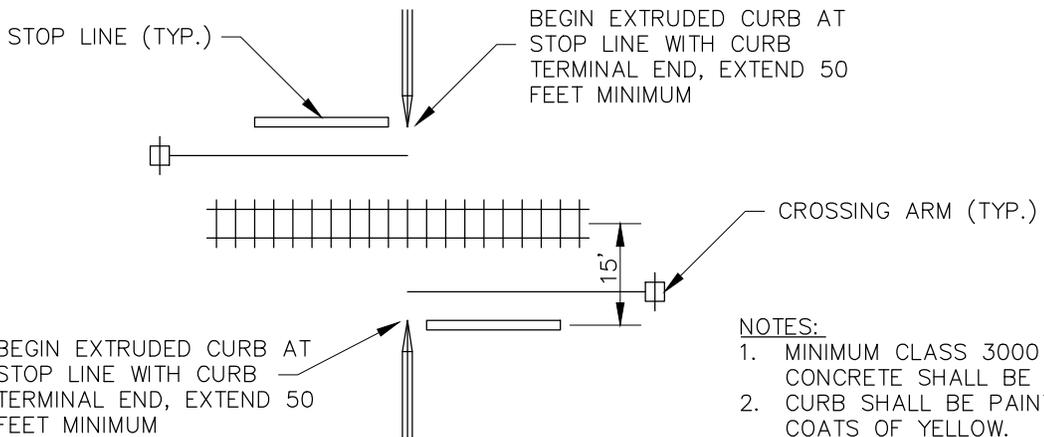


ORIG.	12/17		
Revision	Date	Description	Appr

NOTE:
 JOINTS MAY BE FORMED DURING
 INSTALLATION USING A RIGID DIVIDER
 OR SAW CUT AFTER CONCRETE
 CURES TO MINIMUM STRENGTH.



CEMENT CONCRETE EXTRUDED CURB



- NOTES:**
1. MINIMUM CLASS 3000 CONCRETE SHALL BE USED.
 2. CURB SHALL BE PAINTED TWO COATS OF YELLOW.

RAIL CROSSING LAYOUT

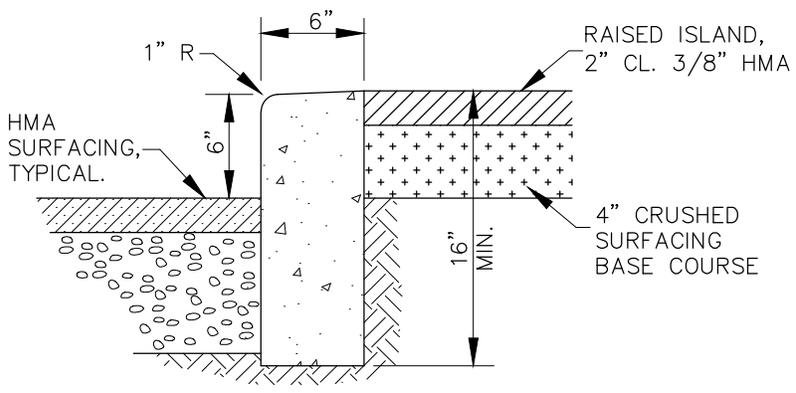
RAILROAD CROSSING CHANNELIZATION

NOT TO SCALE

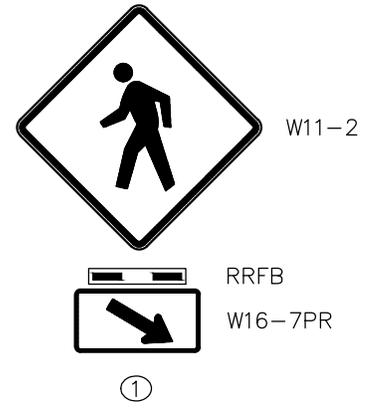
NOTE:
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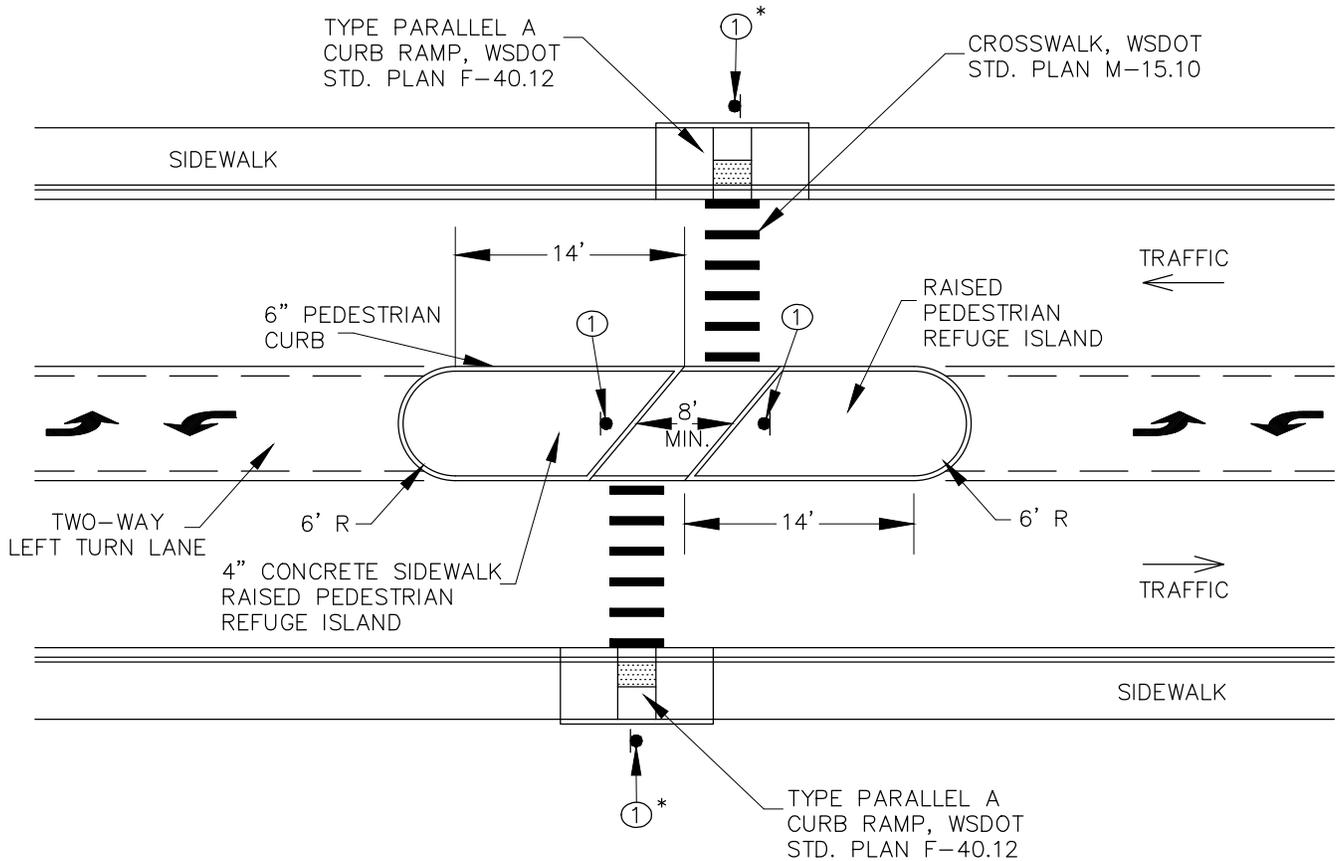
ORIG.	12/17		
Revision	Date	Description	Appr



PEDESTRIAN CURB
NOT TO SCALE



* ARROW POINTS DOWN AND LEFT



MID-BLOCK CROSSING REFUGE ISLAND
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS
APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.



ORIG.	12/17		
Revision	Date	Description	Appr



W11-2



W11-2



RRFB*

W16-7PL

①

FRONT OF POLE
(FACING APPROACHING TRAFFIC)

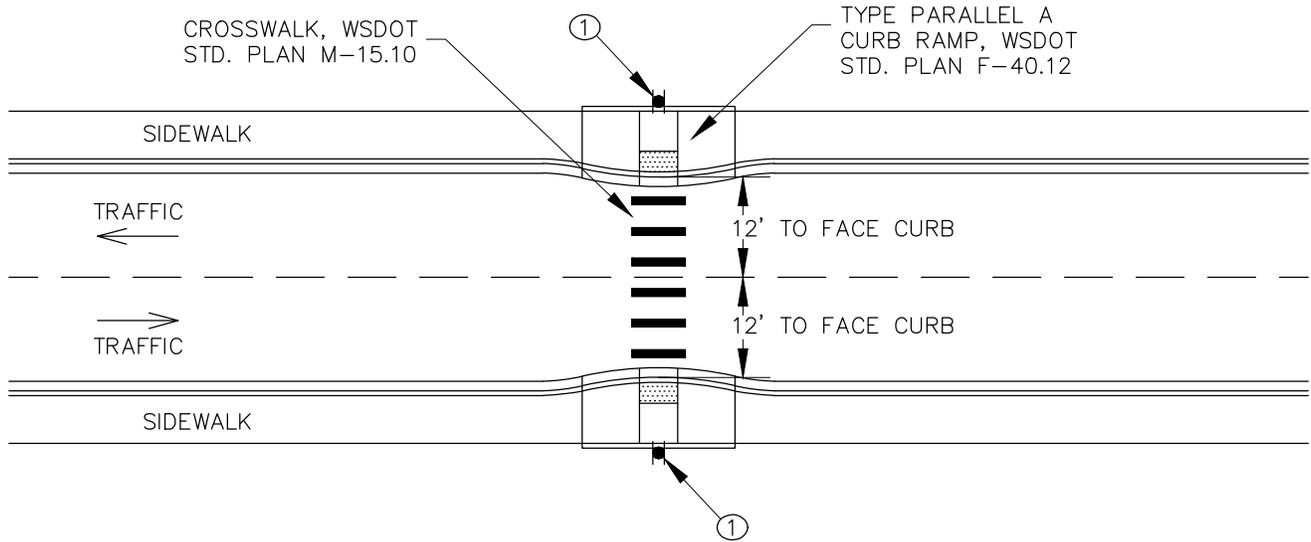


RRFB*

W16-7PR

①

BACK OF POLE



MID-BLOCK CROSSING CHOKE

NOT TO SCALE

NOTE:
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APPROVED BY THE DIRECTOR OF
PUBLIC WORKS, SHALL BE USED.

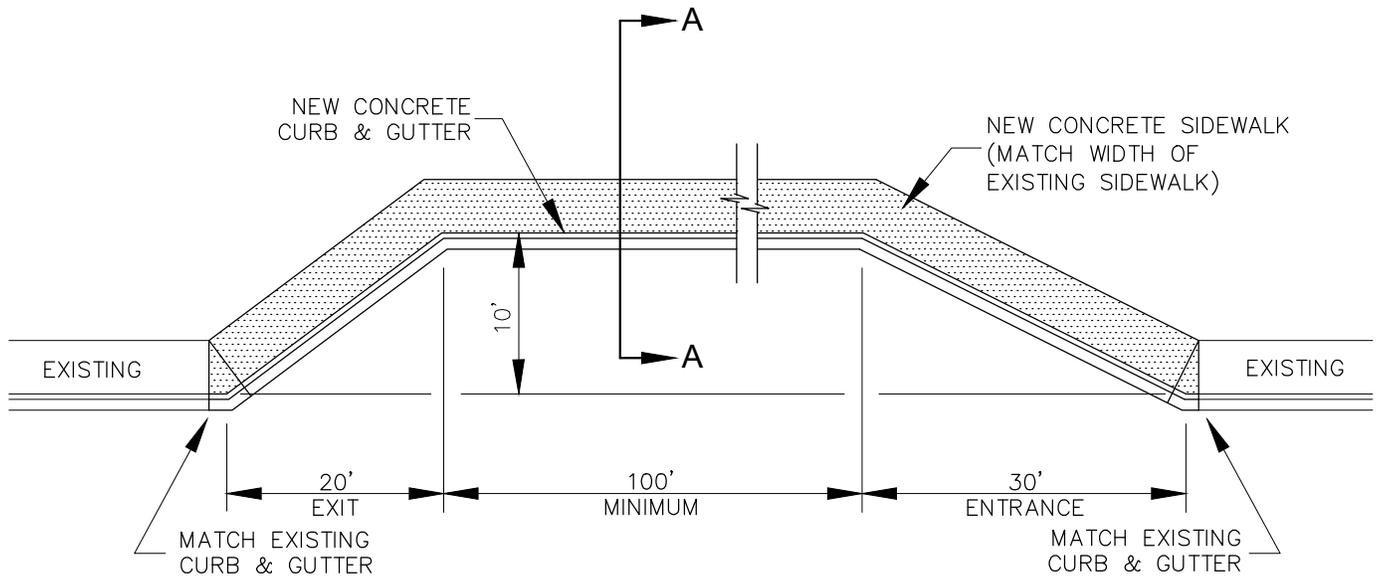


ORIG.	12/17		
Revision	Date	Description	Appr

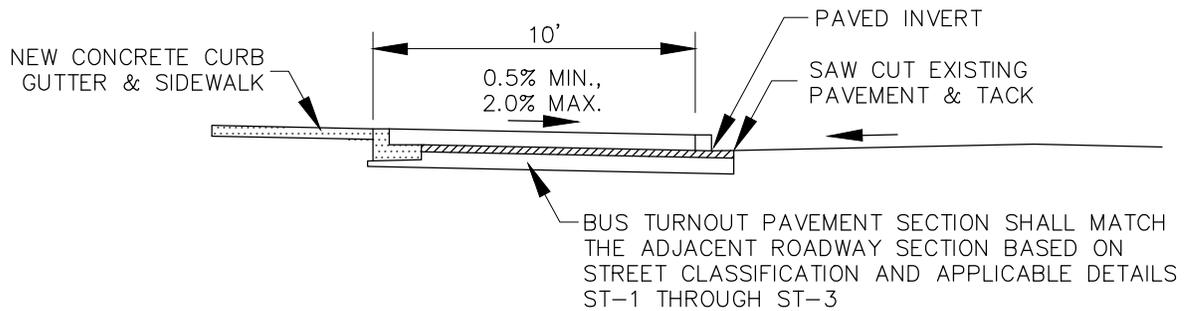
CITY OF PROSSER-STANDARD DETAIL

MID-BLOCK CROSSING CHOKE

ST-18B



PLAN VIEW



SECTION A

NOTE:
 DETAIL PROVIDES GENERAL CONFIGURATION REQUIREMENTS FOR BUS TURNOUTS. FINAL DESIGN SHALL BE BASED UPON SITE CONDITIONS AND SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL CONSIDERATION BY THE CITY ENGINEER.

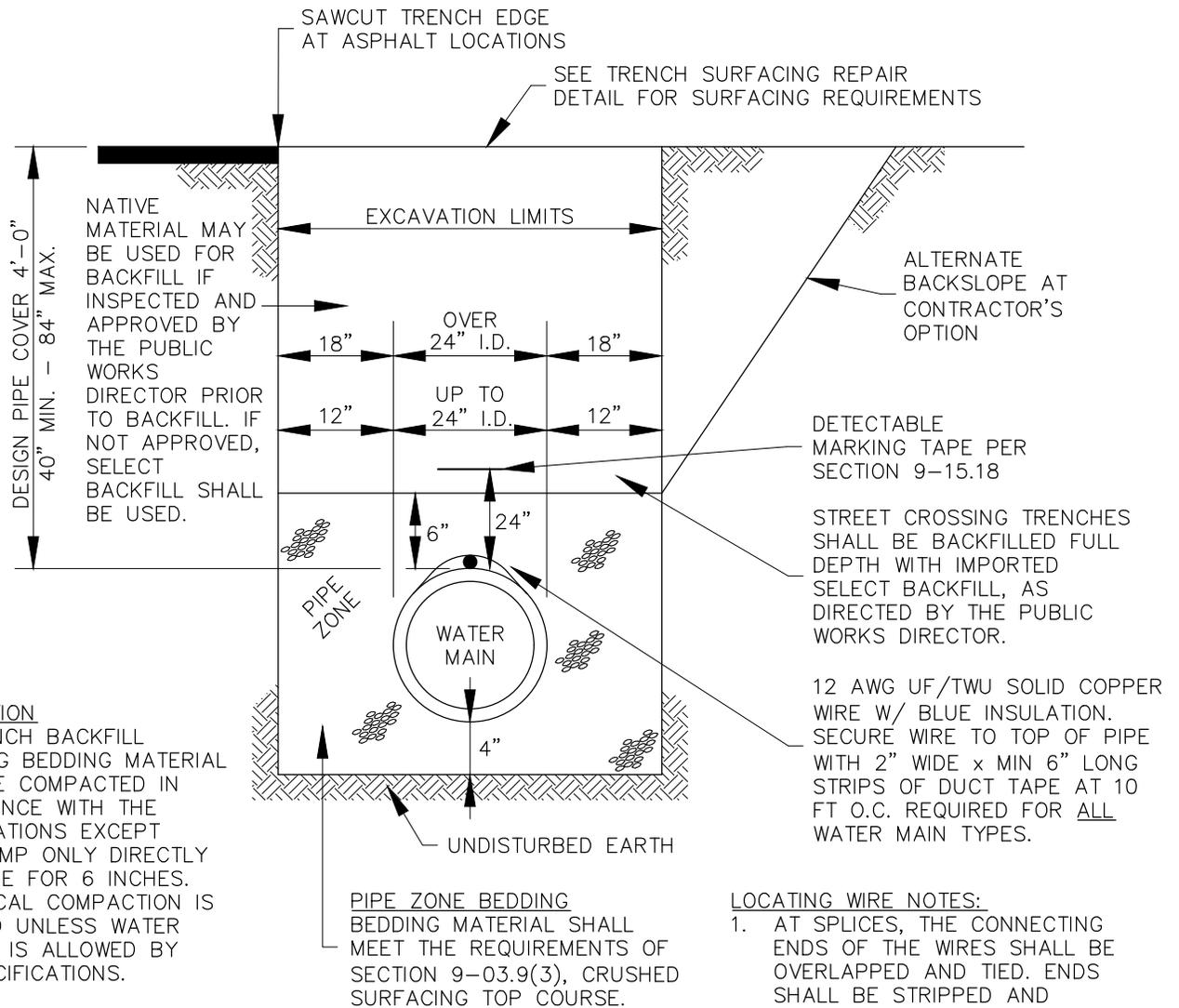
BUS TURNOUT

NOT TO SCALE

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



NOTE:
CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

WATER MAIN TRENCH SECTION

NOT TO SCALE

NOTE:
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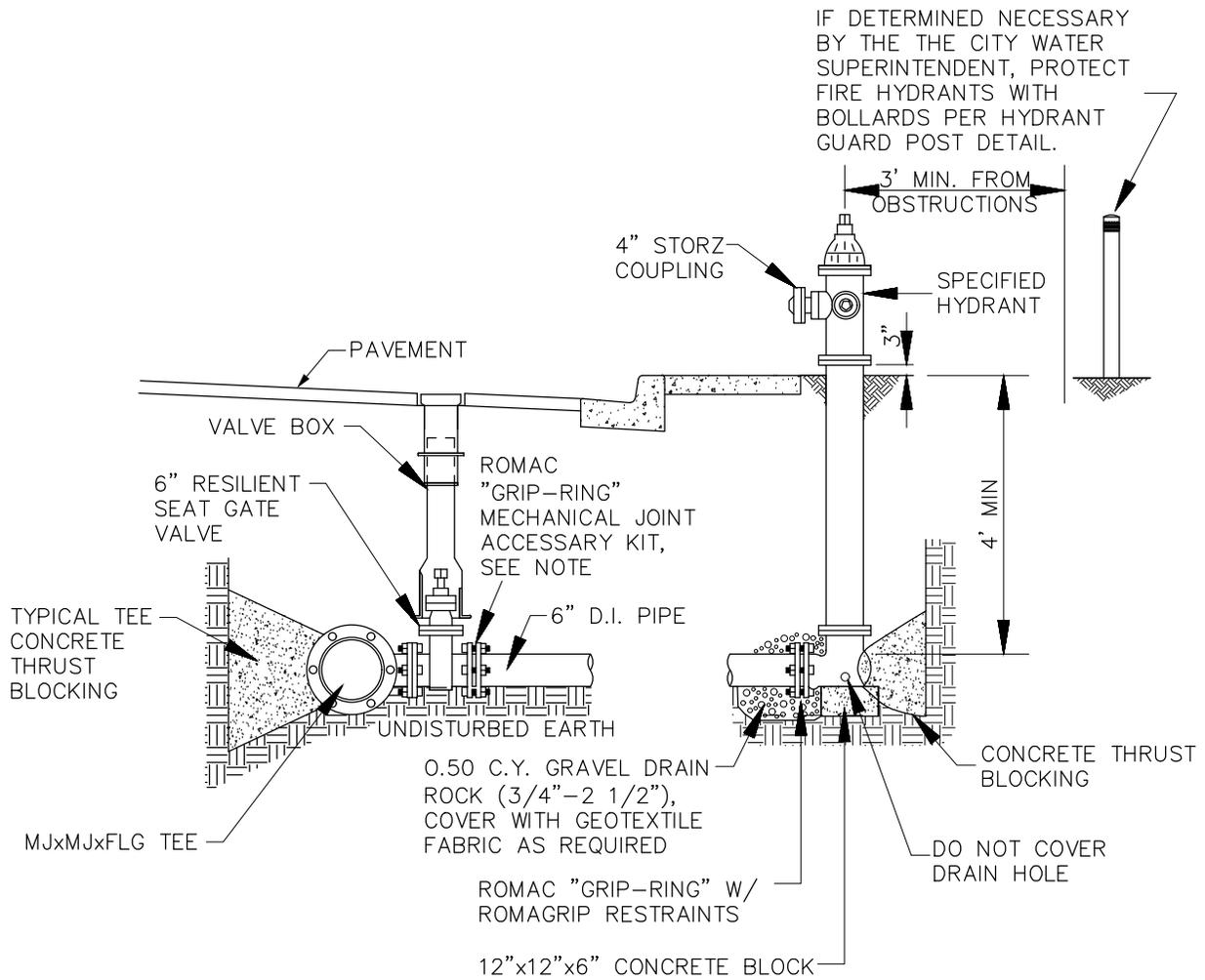


Revision	Date	Description	Appr
ORIG.	12/17		

CITY OF PROSSER-STANDARD DETAIL

WATER MAIN TRENCH SECTION

W-1



NOTES:

1. ROMAC "GRIP RING" MECHANICAL JOINT ACCESSARY KITS SHALL BE USED ON ALL MECHANICAL JOINT CONNECTIONS FROM VALVE TO HYDRANT.
2. WHEN DISTANCE FROM VALVE TO HYDRANT IS GREATER THAN 18 FEET, ROMAGRIP RESTRAINTS AND GRIP RINGS SHALL BE USED AT PIPE JOINTS.

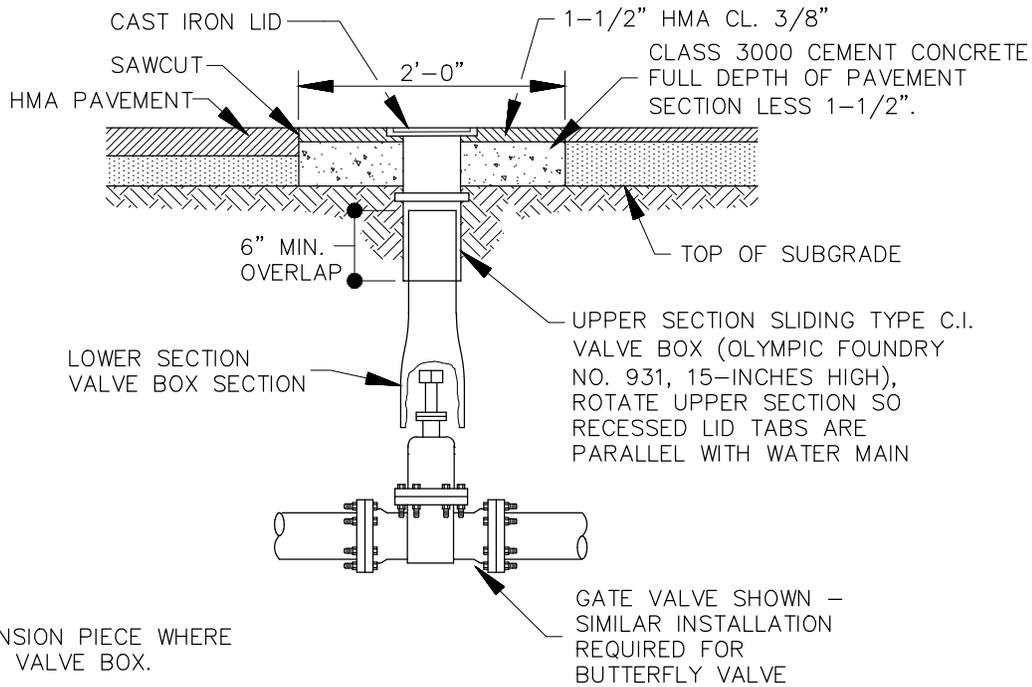
FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr

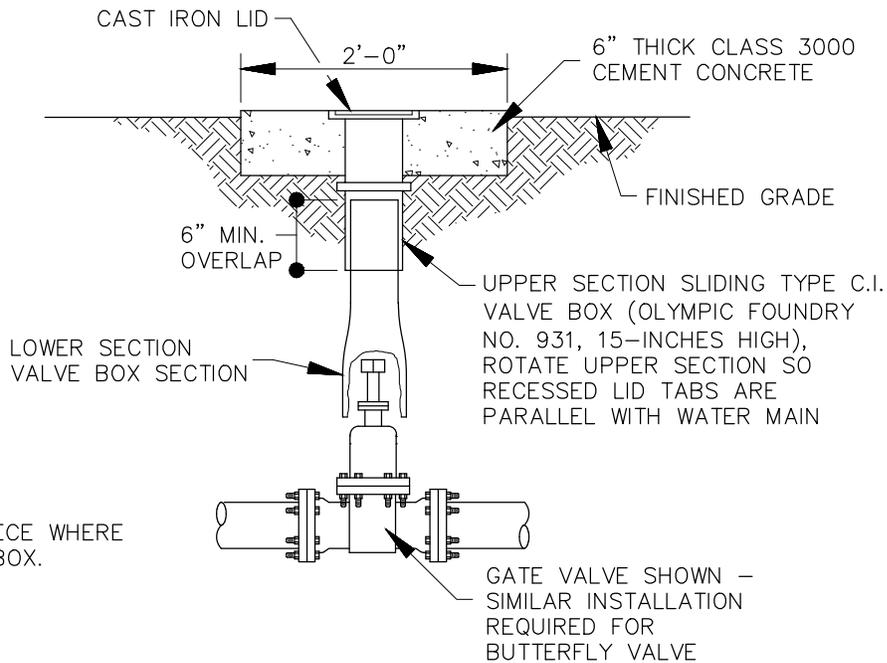


NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX.

WATER VALVE BOX - IN PAVEMENT

NOT TO SCALE



NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX.

WATER VALVE BOX - NOT IN PAVEMENT

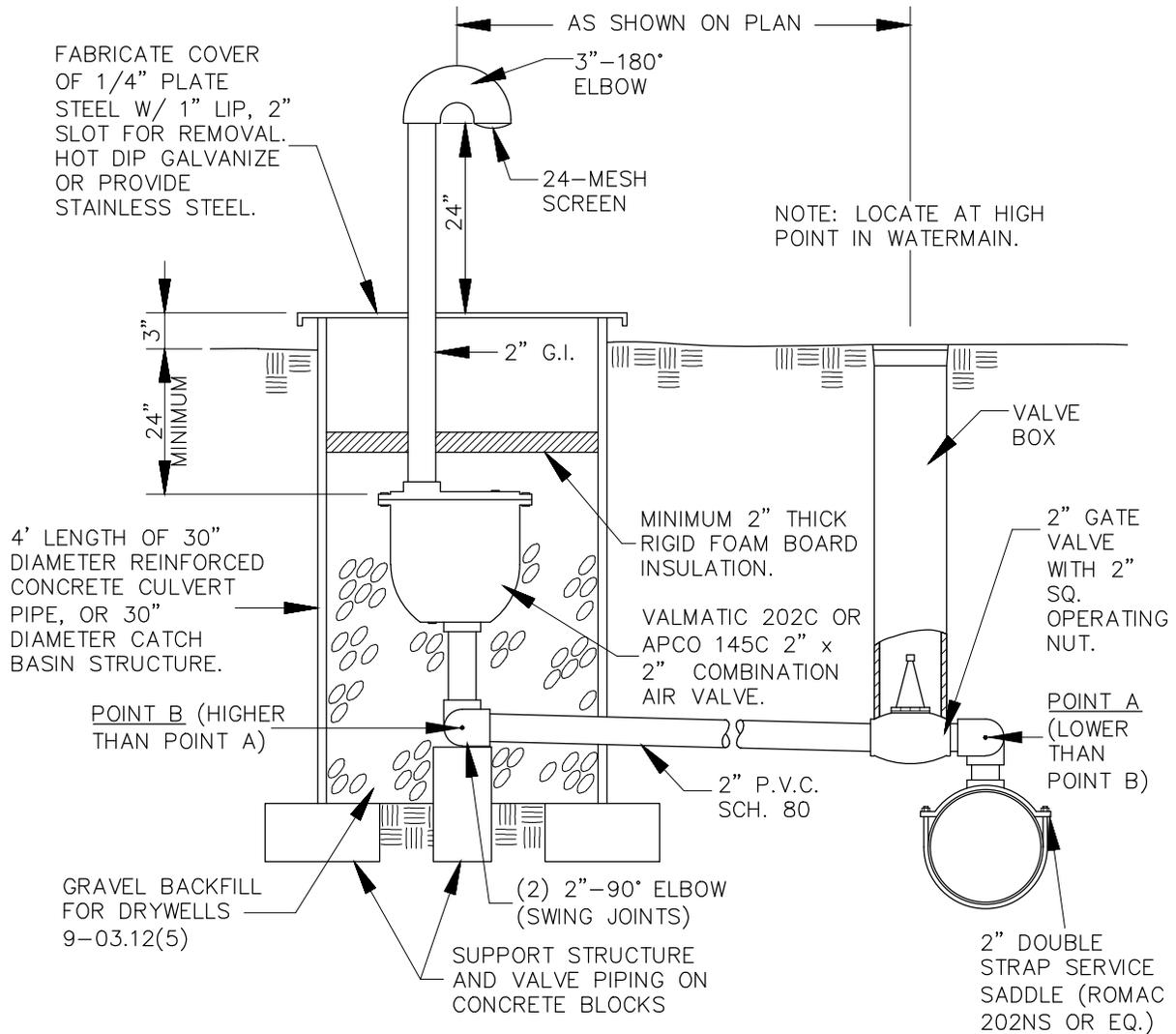
NOT TO SCALE

NOTE:

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ORIG.	12/17		
Revision	Date	Description	Appr



AIR RELEASE / VACUUM VALVE ASSEMBLY

NOT TO SCALE

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APPROVED BY THE DIRECTOR OF
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ORIG.	12/17		
Revision	Date	Description	Appr

CITY OF PROSSER-STANDARD DETAIL

AIR RELEASE/ VACUUM VALVE
ASSEMBLY

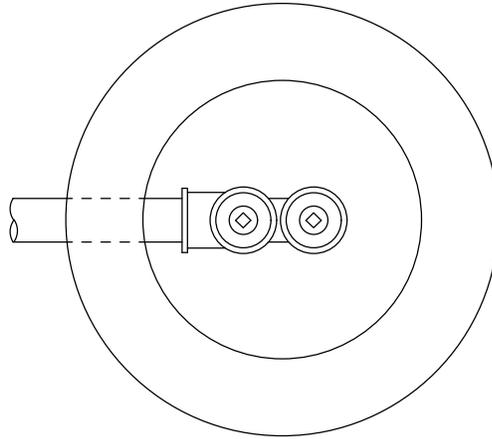
W-4

ROMAC
202NS
SERVICE
SADDLE

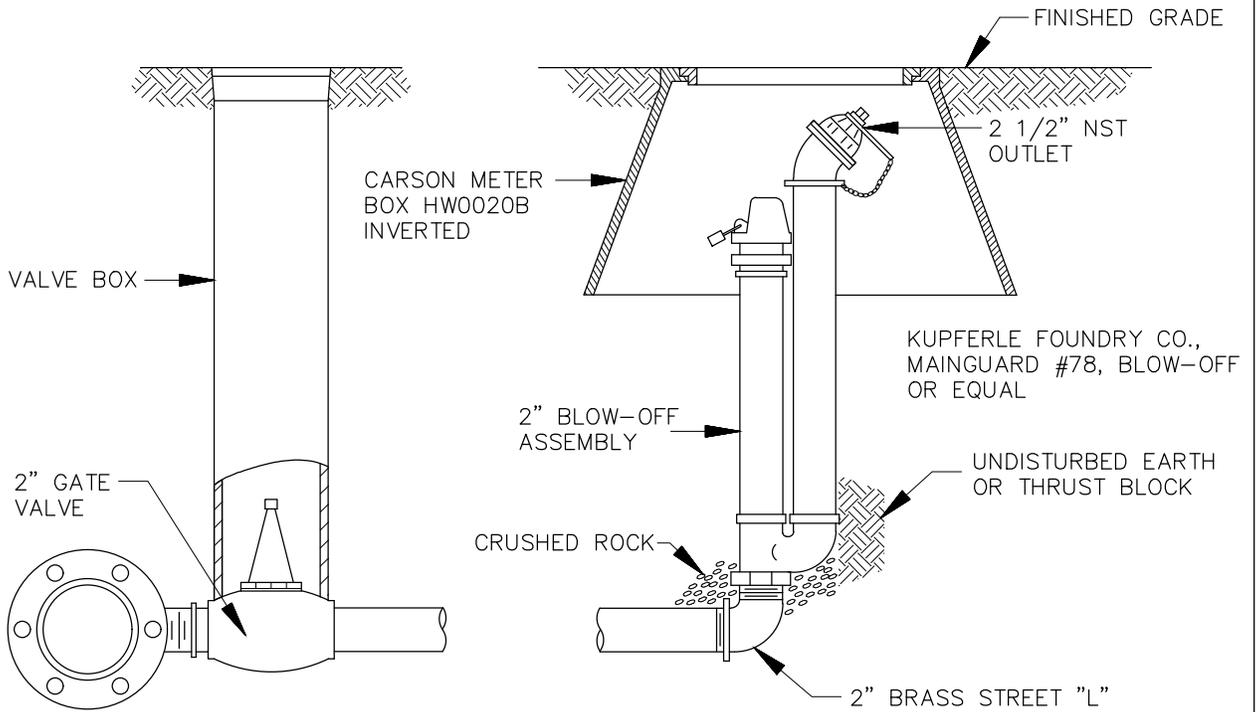
1.5' MIN.

CONCRETE BLOCKING
(SEE PLUG DETAIL)

2" SCH. 40 P.V.C.
& FITTINGS



TOP VIEW



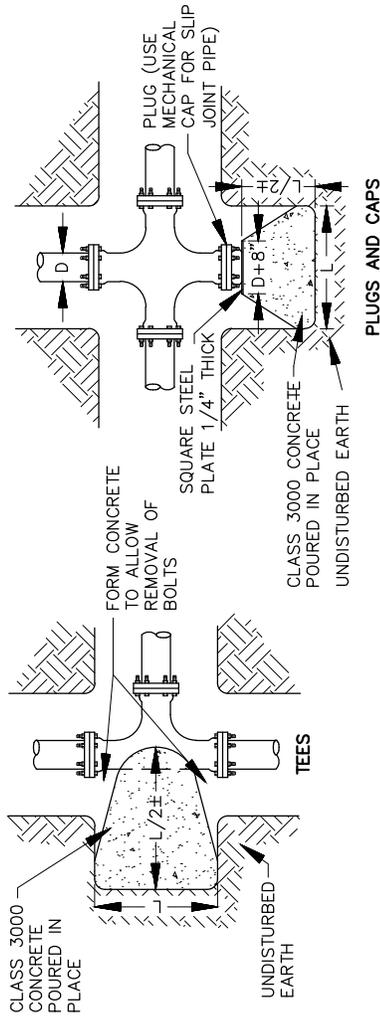
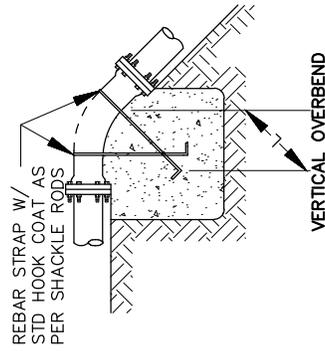
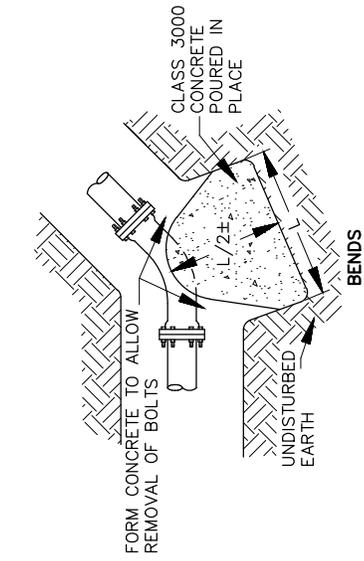
BLOW-OFF ASSEMBLY

NOT TO SCALE

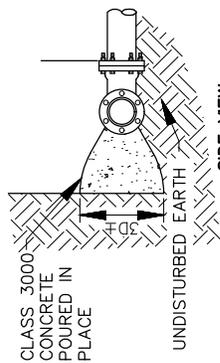
NOTE:
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ORIG.	12/17		
Revision	Date	Description	Appr



- NOTES:**
1. D IS APPROXIMATE PIPE DIAMETER. THE ABOVE END AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AND 250 PSI TEST PRESSURE. DIMENSIONS LISTED DENOTE MINIMUM STANDARDS FOR SOIL AND TEST PRESSURE AND/OR SOIL CONDITIONS VARY. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIAL THRUST BLOCK DESIGN.
 2. ALL FITTINGS AND/OR PIPE MAKING DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING PRIOR TO PLACEMENT OF CONCRETE.
 - 3.



THIS VIEW TYPICAL OF ALL BLOCKING

PIPE SIZE (D)	MINIMUM END AREAS				
	TEES & PLUGS	90° BENDS	45° BENDS	11¼° AND 22½° BENDS	
6"	5.1 SQ FT	7.2 SQ FT	3.9 SQ FT	2.0 SQ FT	
8"	8.8 SQ FT	12.4 SQ FT	6.7 SQ FT	3.4 SQ FT	
10"	14.3 SQ FT	20.2 SQ FT	11.0 SQ FT	5.6 SQ FT	
12"	20.4 SQ FT	28.9 SQ FT	15.7 SQ FT	7.9 SQ FT	
14"	27.7 SQ FT	39.2 SQ FT	21.2 SQ FT	10.7 SQ FT	
16"	35.8 SQ FT	51.2 SQ FT	27.5 SQ FT	13.9 SQ FT	

PIPE SIZE (D)	VERTICAL OVERBEND				
	22½° BEND	45° BEND	REBAR SIZE	L	
6"	20 CU FT	39 CU FT	#5	2.0 FT	
8"	34 CU FT	67 CU FT	#5	2.0 FT	
10"	56 CU FT	110 CU FT	#5	2.0 FT	
12"	79 CU FT	157 CU FT	#6	2.5 FT	
14"	107 CU FT	212 CU FT	#7	3.0 FT	
16"	139 CU FT	275 CU FT	#9	4.0 FT	

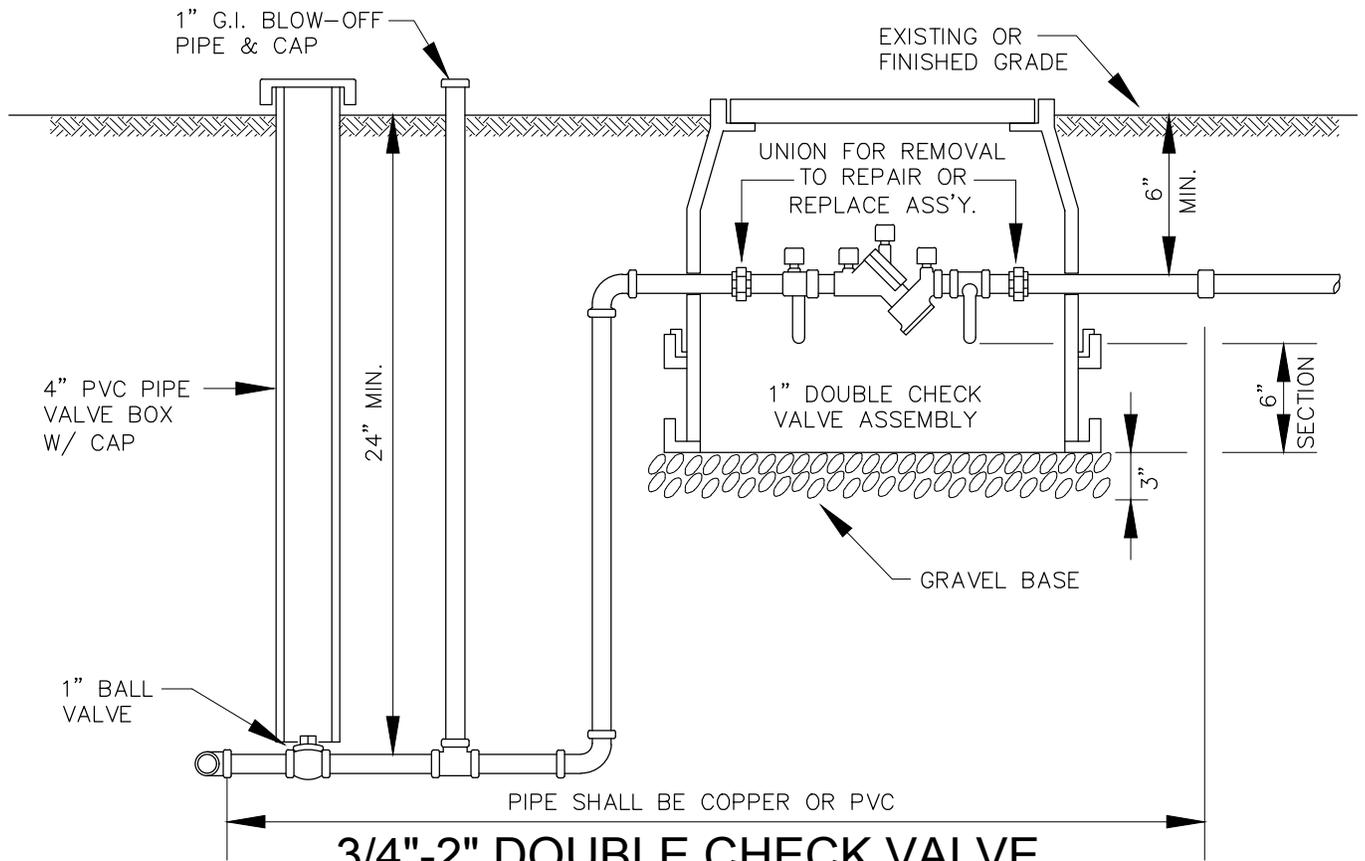
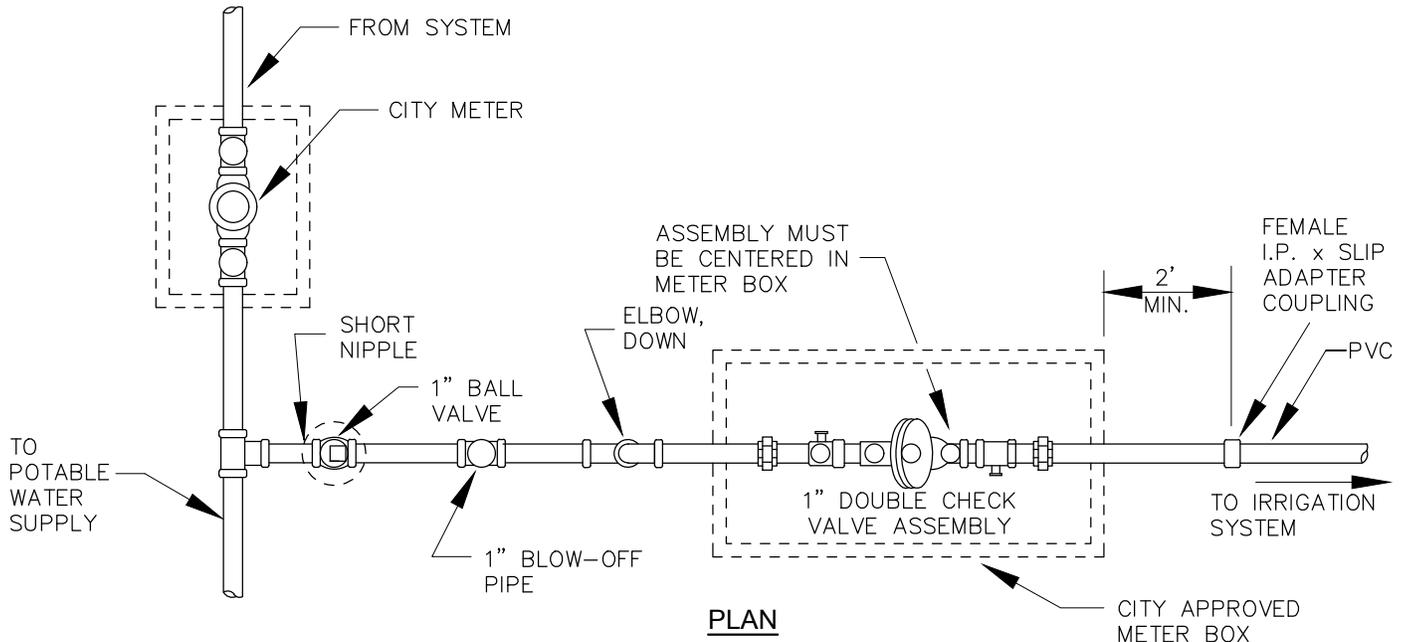
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CONCRETE THRUST BLOCKING

NOT TO SCALE

ORIG.	12/17		
Revision	Date	Description	Appr

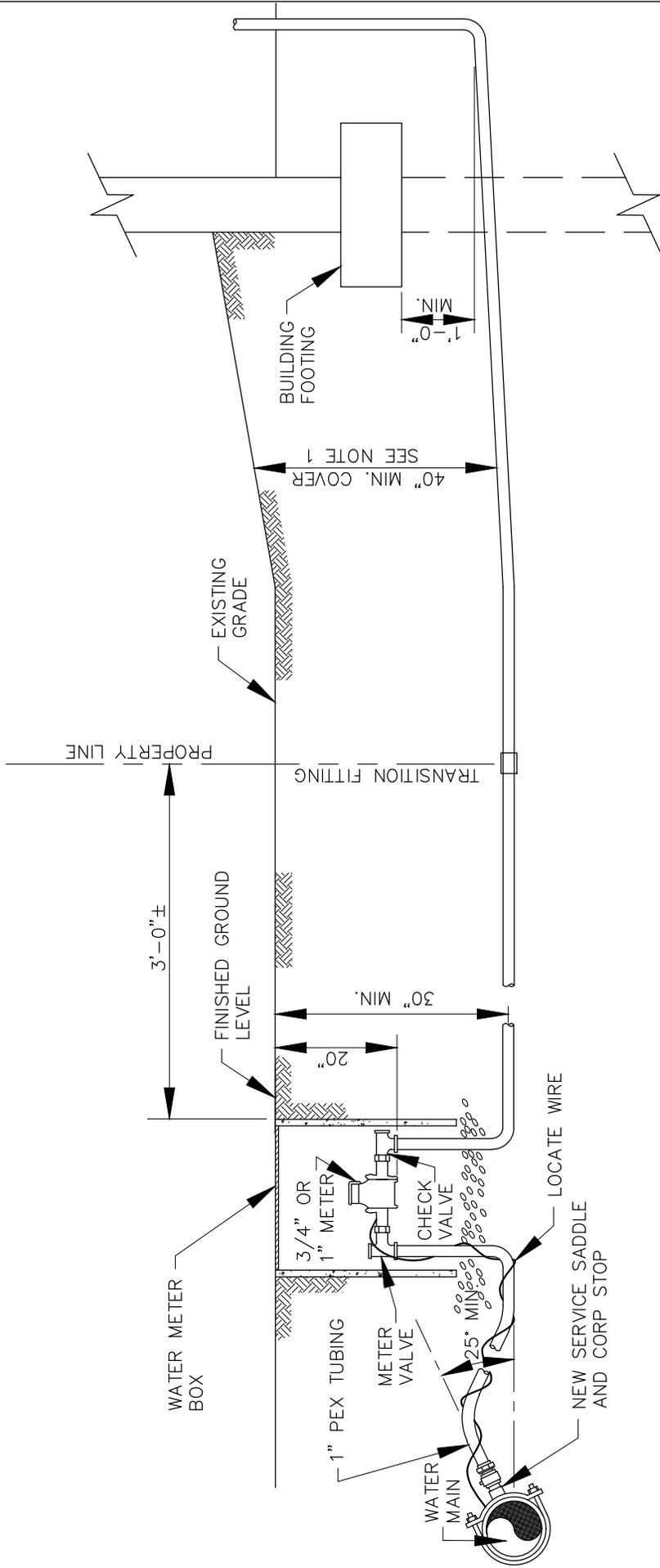


* SEE ATTACHED FOR APPROVAL OF DOUBLE CHECK VALVE ASS'Y AND TESTING AND MAINTENANCE OF ASSEMBLY. DOUBLE CHECK VALVES LARGER THAN 1" WILL SUBMIT DESIGN AND APPROVAL WILL BE MADE BY CITY WATER SUPERINTENDENT.

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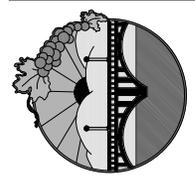


ORIG.	12/17		
Revision	Date	Description	Appr

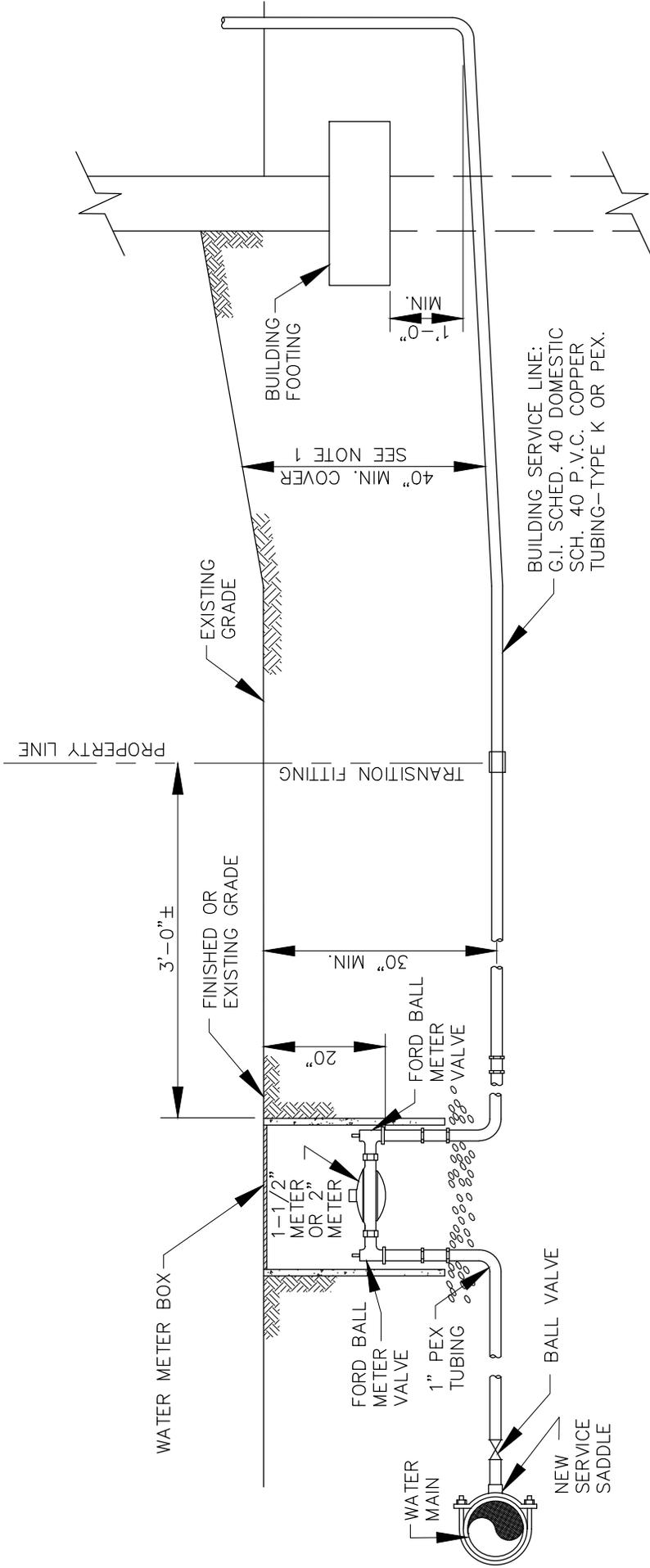


- NOTES:
1. MINIMUM COVER BEFORE AND AFTER FINAL GRADING MUST BE 30 INCHES.
 2. THE CITY OF PROSSER'S OWNERSHIP ENDS AT THE WATER METER. THE WATER SERVICE BEYOND THIS POINT SHALL BE OWNED AND MAINTAINED BY THE SERVING PROPERTY.

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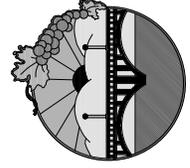


ORIG.	12/17	Date	Description	Appr
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FORD METER SETTER:
 1-1/2" - VVB66-12 x LENGTH
 2" - VVB77-12 x LENGTH



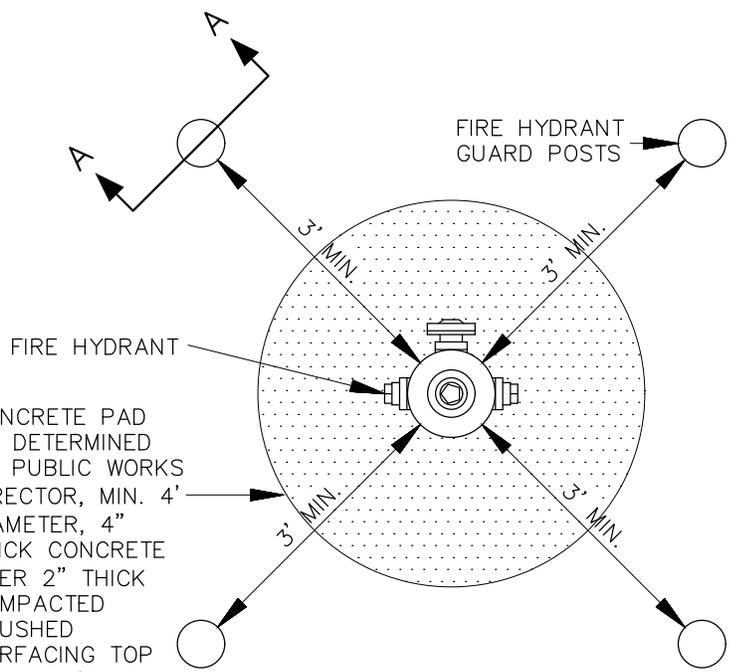
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ORIG.	12/17	Date	Description	Appr
Revision				

CITY OF PROSSER-STANDARD DETAIL

1-1/2" OR 2" WATER SERVICE

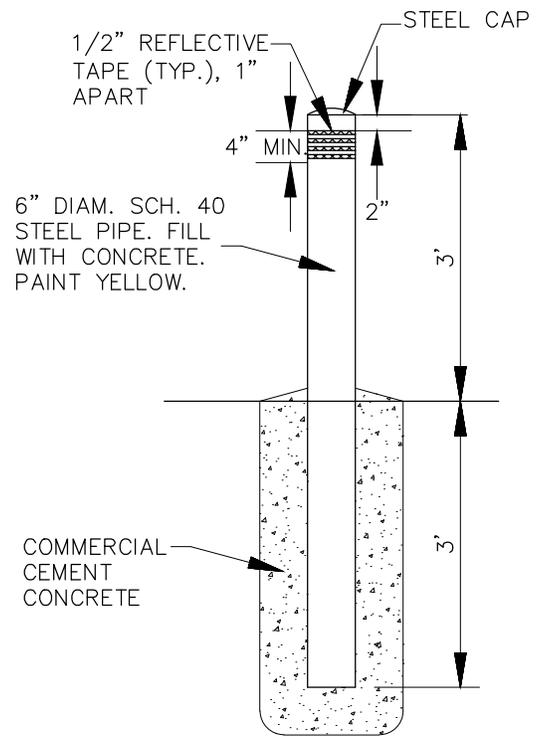
W8-B



FIRE HYDRANT

CONCRETE PAD AS DETERMINED BY PUBLIC WORKS DIRECTOR, MIN. 4' DIAMETER, 4" THICK CONCRETE OVER 2" THICK COMPACTED CRUSHED SURFACING TOP COURSE (SEE CONCRETE SIDEWALK SECTIONS)

PLAN



1/2" REFLECTIVE TAPE (TYP.), 1" APART

4" MIN

2"

3'

3'

6" DIAM. SCH. 40 STEEL PIPE. FILL WITH CONCRETE. PAINT YELLOW.

COMMERCIAL CEMENT CONCRETE

SECTION A-A

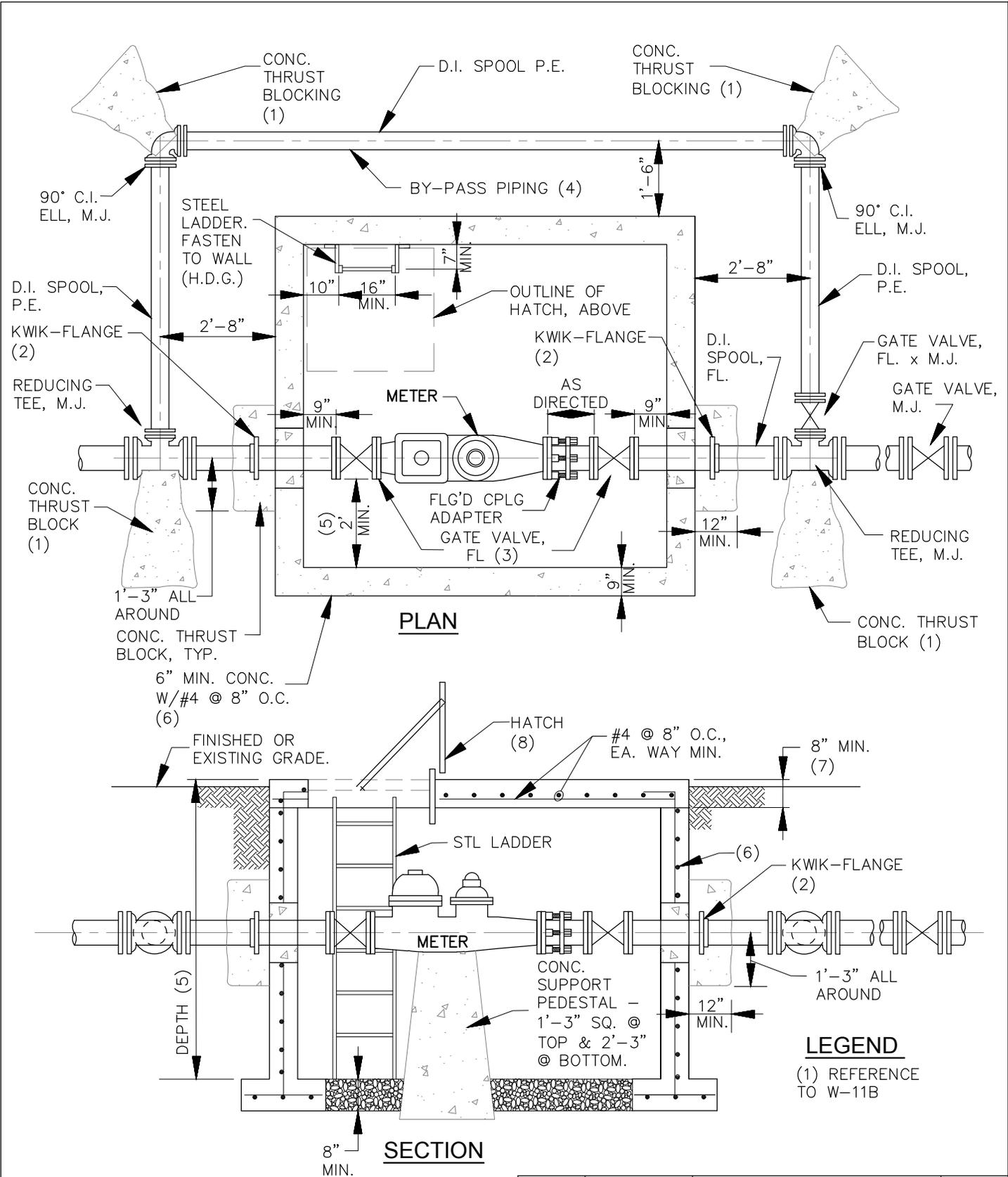
HYDRANT GUARD POSTS AND CONCRETE PAD

NOT TO SCALE

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ORIG.	12/17		
Revision	Date	Description	Appr



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ORIG.	12/17		
Revision	Date	Description	Appr

1. PROVIDE EITHER SHACKLE RODS OR MEG-A-LUG THRUST BLOCKS. SHACKLE RODS SHALL BE 3/4" DIAMETER AND SHALL BE PROTECTED WITH BITUMASTIC PAINT OR APPROVED EQUAL. CONCRETE THRUST BLOCKS SHALL BE AS APPROVED BY THE WATER SUPERINTENDENT.
2. WHERE THE WATER MAIN ENTERS THE VAULT, CAST MAIN INTO WALL OR ADD KWIK-FLANGE AND THRUST BLOCK, AS INDICATED SO THAT METER MAY BE REMOVED WITH LINE PRESSURIZED.
3. GATE VALVE SHALL BE AWWA FLANGED WITH HAND WHEEL.
4. BY-PASS SIZE SHALL BE NO LESS THAN STIPULATED BELOW:

METER SIZE	MINIMUM BY-PASS SIZE
3"	1"
4"	2"
6"	4"

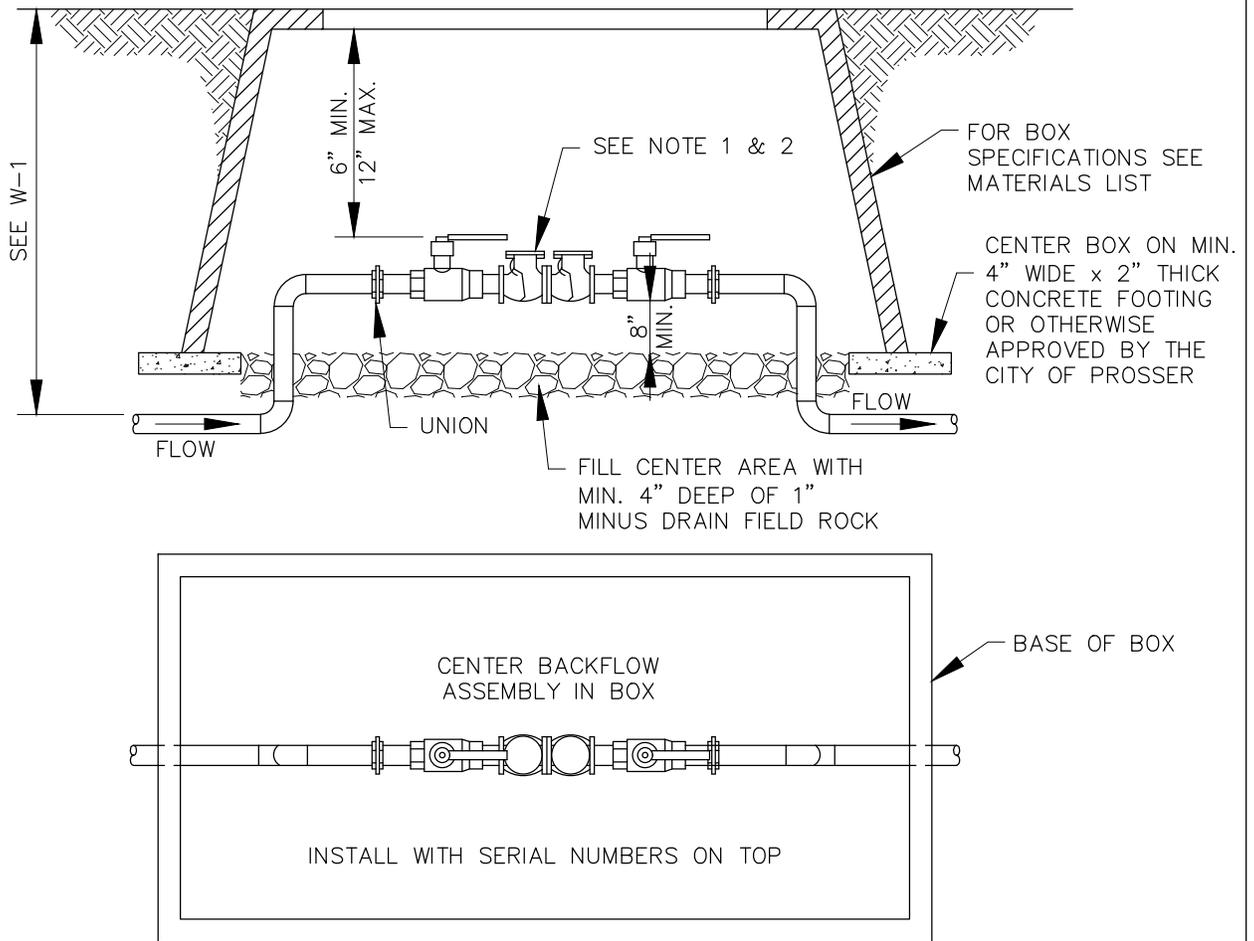
5. VAULT SIZE SHALL BE SUFFICIENT TO PROVIDE NO LESS THAN 12" CLEARANCE AROUND ALL FITTINGS AND METER. DEPTH SHALL BE DETERMINED BY THE WATER SUPERINTENDENT, BASED UPON THE DEPT OF THE MAIN, SIZE OF THE METER, AND SIZE OF THE HATCH.
6. VAULT WALLS SHALL BE 6" MINIMUM THICKNESS CAST-IN-PLACE CONCRETE (3,000 PSI, 28-DAY STRENGTH) REINFORCED WITH NOT LESS THAN #4 BARS AT 8-INCH ON CENTER EACH WAY, CONTINUOUS AT CORNERS. OR "UTILITY VAULT COMPANY" PRECAST VAULT, MODEL NOS. AS FOLLOWS:

 MODEL NO. 687-LA @ 6" METER COMP.
 MODEL NO. 676-WA @ 4" METER COMP.
 MODEL NO. 456-LA @ 3" \$ 4" METER TURBINE (OR APPROVED EQUAL)
7. VAULT DECK SHALL BE NOT LESS THAN 8" THICK AND SHALL BE DESIGNED TO MEET ALL NECESSARY LOADINGS.
8. HATCH SHALL BE BILCO ALUMINUM TYPE J OR JD OR APPROVED EQUAL FOR SIDEWALK DUTY. IF HATCH IS IN STREET OR TRAFFIC AREAS, HATCH MUST MEET H-20 LOADINGS. HATCH AND ROOF DECK FOR STREET LOADING MUST HAVE WATER SUPERINTENDENT'S APPROVAL. SIZE SHALL BE DETERMINED BY THE WATER SUPERINTENDENT BASED UPON DEPTH OF THE VAULT AND THE SIZE OF THE METER.

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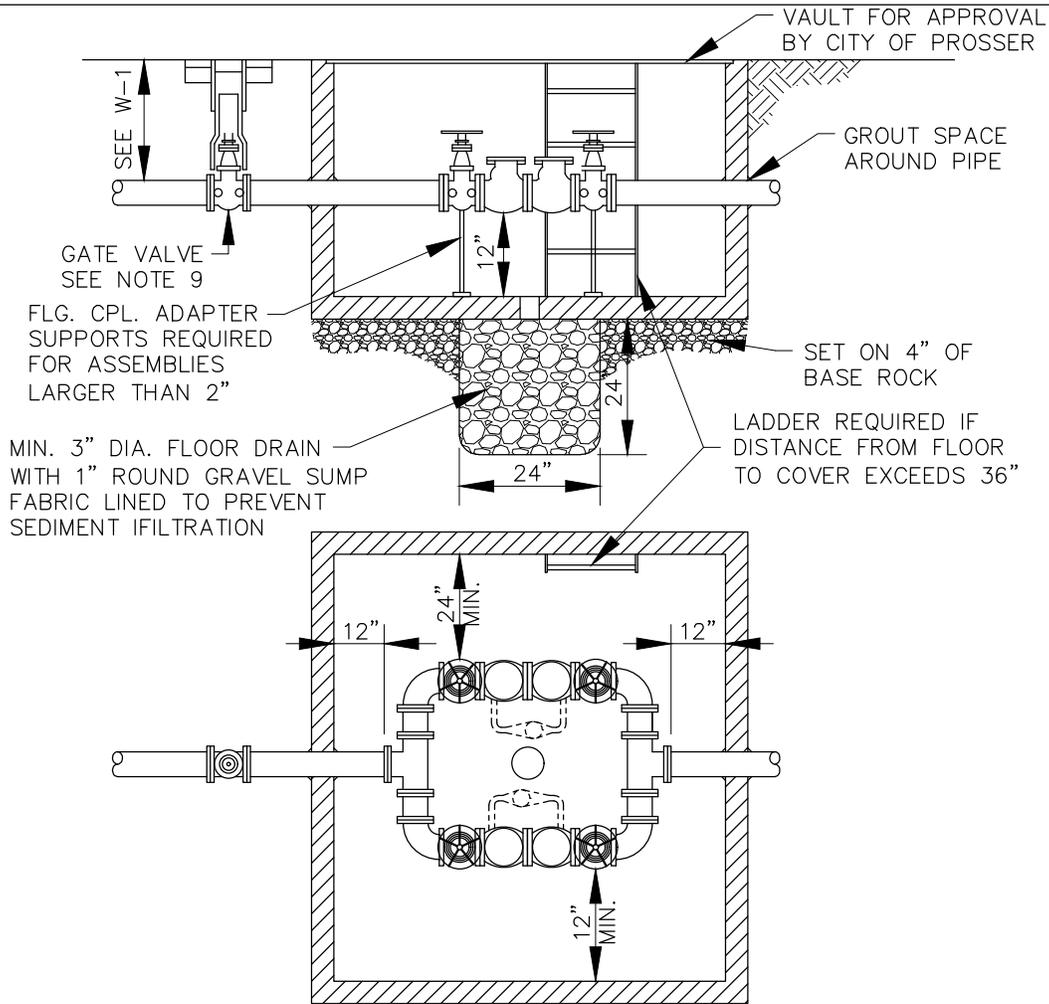
NOTES:

1. MUST BE ON THE LATEST USC APPROVED LIST OF BACKFLOW PREVENTION ASSEMBLIES.
2. MUST BE INSTALLED IN THE ORIENTATION AS APPROVED BY THE USC TESTING LAB AND ACCEPTED BY THE DEPARTMENT OF HEALTH.
3. CITY OF PROSSER CROSS CONNECTION SPECIALIST MUST BE CONSULTED PRIOR TO INSTALLATION. PLEASE CALL 786-2037.
4. ASSEMBLY INSTALLATIONS ABOVE GROUND REQUIRE COPPER OR GALVANIZED PIPE MUST HAVE TWO UNIONS.
5. FREEZE PROTECTION IS THE RESPONSIBILITY OF THE OWNER.
6. ASSEMBLIES APPROVED FOR BELOW GROUND INSTALLATION CANNOT BE SUBJECT TO FLOODING.
7. A LADDER IS REQUIRED IF ACCESS OPENING TO FLOOR EXCEEDS 36 INCHES.
8. THE BACKFLOW ASSEMBLY IS TO BE TESTED AT THE TIME OF INSTALLATION BY A CERTIFIED TESTER APPROVED BY THE CITY UNLESS PRE-APPROVED BY THE CROSS CONNECTION SPECIALIST.
9. THE IRRIGATION SUPPLY VALVE IS TO BE NO LESS THAN 24" OUTSIDE OF THE METER BOX ON 3/4" AND 1" SERVICES.
10. THESE BACKFLOW PREVENTION ASSEMBLY INSTALLATION STANDARDS REFLECT MINIMUM REQUIREMENTS TO COMPLY WITH WASHINGTON DEPARTMENT OF HEALTH REGULATIONS (WAC 246-290-490) AND UNIFORM PLUMBING CODE. UNAPPROVED DEVIATION MAY RESULT IN THE CITY REJECTING THE INSTALLATION AND THE CERTIFICATE OF OCCUPANCY AS WELL. ALL REQUESTS FOR DEVIATION TO THESE STANDARDS MUST BE SUBMITTED IN WRITING AND APPROVED BY THE CITY'S CROSS CONNECTION SPECIALIST.

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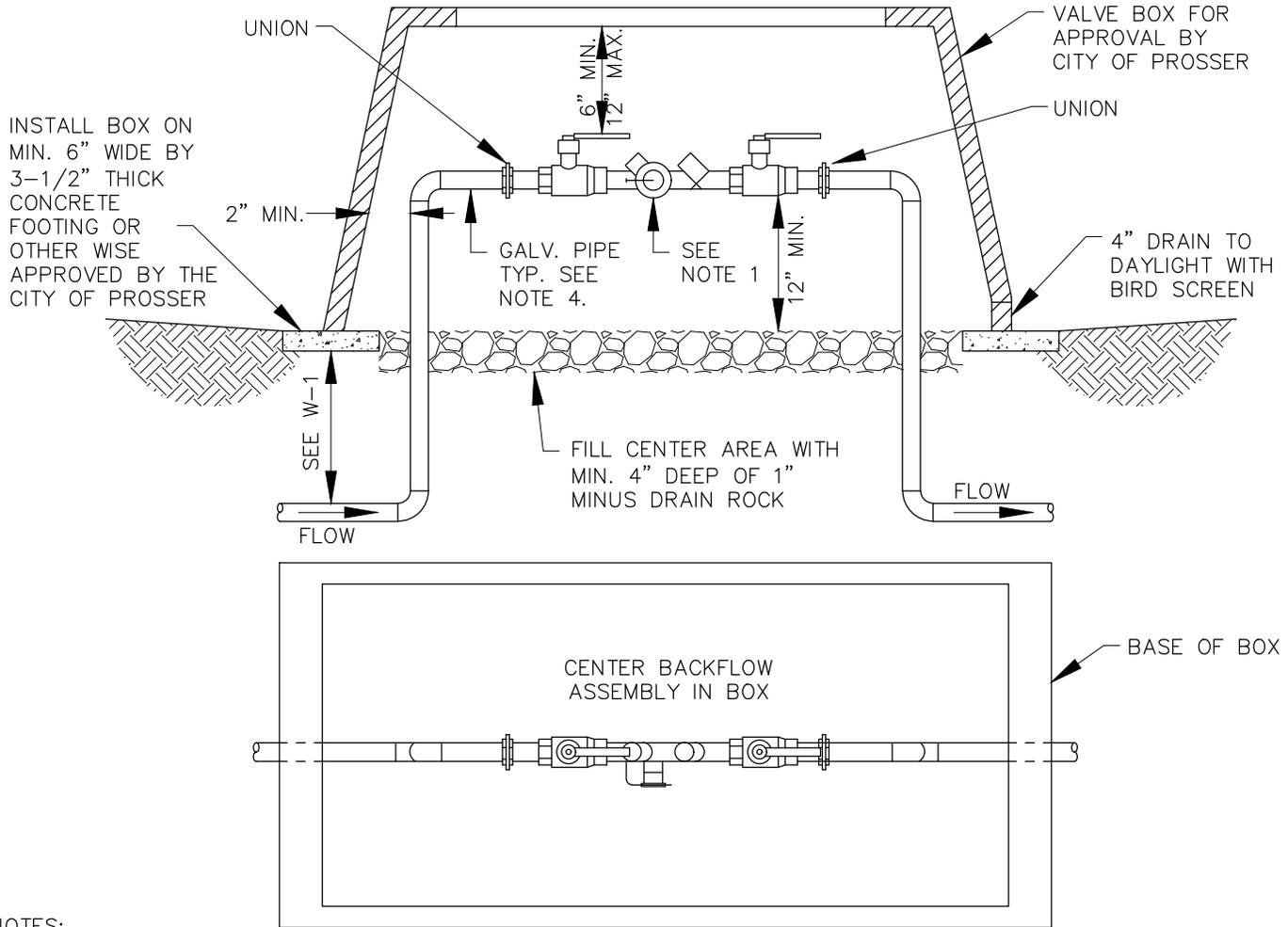
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7. ALL VAULT WALL PENETRATIONS ARE TO BE GROUTED INSIDE AND OUT.
8. IF MAIN VALVE IS LOCATED WITHIN 10' OF THE VAULT, THIS VALVE IS NOT REQUIRED.
9. THESE BACKFLOW PREVENTION ASSEMBLY INSTALLATION STANDARDS REFLECT MINIMUM REQUIREMENTS TO COMPLY WITH WASHINGTON DEPARTMENT OF HEALTH REGULATIONS (WAC 246-290-490) AND UNIFORM PLUMBING CODE. UNAPPROVED DEVIATION MAY RESULT IN THE CITY REJECTING THE INSTALLATION AND THE CERTIFICATE OF OCCUPANCY AS WELL. ALL REQUESTS FOR DEVIATION TO THESE STANDARDS MUST BE SUBMITTED IN WRITING AND APPROVED BY THE CITY'S CROSS CONNECTION SPECIALIST.

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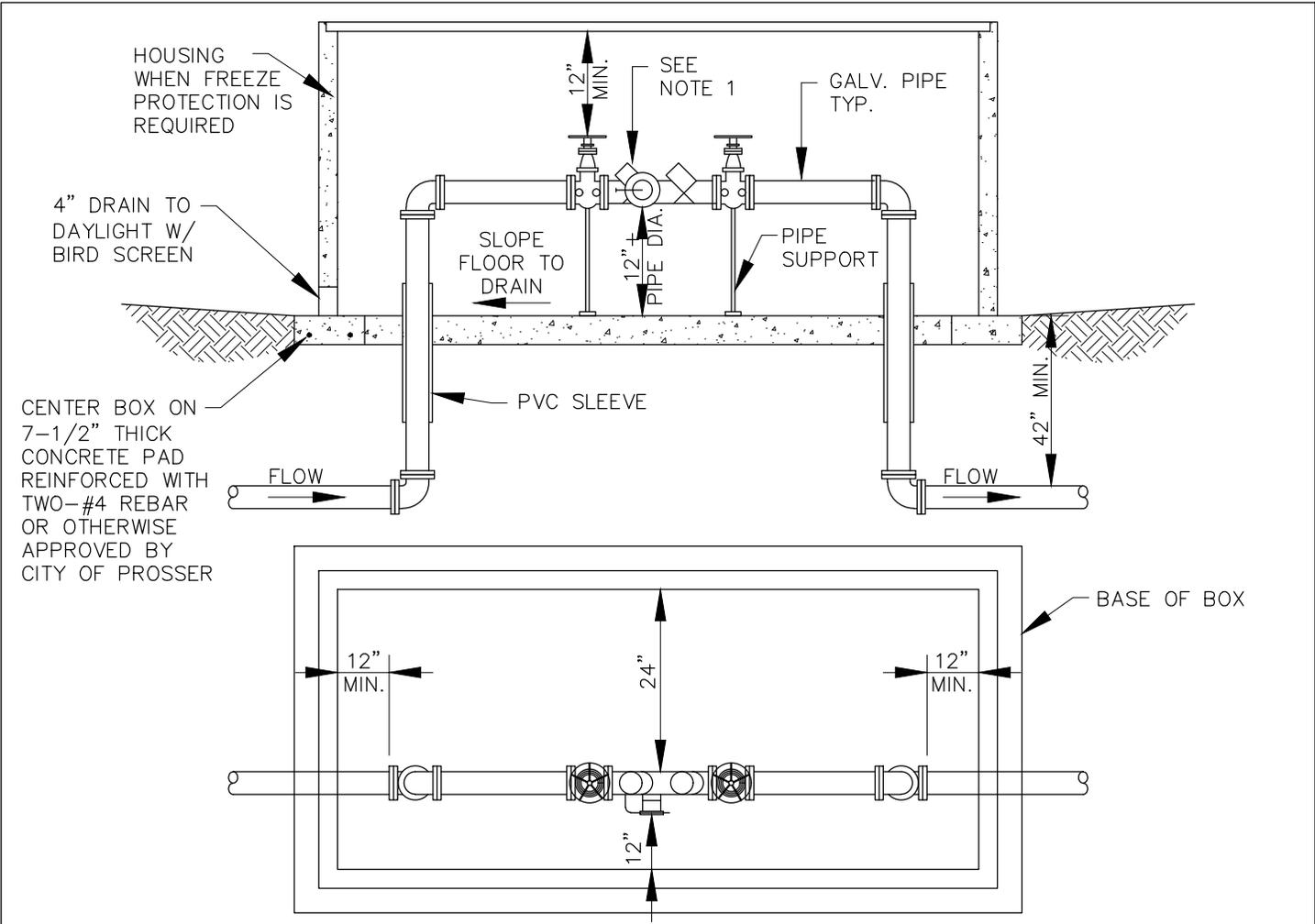
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3. CITY OF PROSSER CROSS CONNECTION SPECIALIST MUST BE CONSULTED PRIOR TO INSTALLATION. PLEASE CALL 786-2037.
4. ASSEMBLY INSTALLATIONS ABOVE GROUND REQUIRE COPPER OR GALVANIZED PIPE MUST HAVE TWO UNIONS.
5. FREEZE PROTECTION IS THE RESPONSIBILITY OF THE OWNER.
6. WHEN INSTALLED INSIDE A BUILDING, A FLOOR DRAIN SIZED TO ACCEPT MAXIMUM DISCHARGE FROM THE RELIEF ASSEMBLY IS REQUIRED.
7. ALL PREMISES ISOLATION MUST BE INSTALLED DIRECTLY AFTER SERVICE METER. IF AN ALTERNATE LOCATION IS REQUIRED THE LOCATION MUST BE APPROVED BY THE CITY OF PROSSER CROSS CONNECTION SPECIALIST. IF THE UPC CALLS FOR BACKFLOW ASSEMBLY PROTECTION INSIDE THERE MUST ALSO BE PREMISES PROTECTION OF EQUAL OR GREATER PROTECTION LOCATED AT THE METER.
8. THESE BACKFLOW PREVENTION ASSEMBLY INSTALLATION STANDARDS REFLECT MINIMUM REQUIREMENTS TO COMPLY WITH WASHINGTON DEPARTMENT OF HEALTH REGULATIONS (WAC 246-290-490) AND UNIFORM PLUMBING CODE. UNAPPROVED DEVIATION MAY RESULT IN THE CITY REJECTING THE INSTALLATION AND THE CERTIFICATE OF OCCUPANCY AS WELL. ALL REQUESTS FOR DEVIATION TO THESE STANDARDS MUST BE SUBMITTED IN WRITING AND APPROVED BY THE CITY'S CROSS CONNECTION SPECIALIST.

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3. CITY OF PROSSER CROSS CONNECTION SPECIALIST MUST BE CONSULTED PRIOR TO INSTALLATION. PLEASE CALL 786-2037.
4. PVC SLEEVE TO EXTEND 6" ABOVE AND 12" BELOW CEMENT PAD TO ALLOW FOR SETTLEMENT OF PAD.
5. FREEZE PROTECTION IS THE RESPONSIBILITY OF THE OWNER.
6. THE BACKFLOW ASSEMBLY IS TO BE TESTED AT THE TIME OF INSTALLATION BY A CERTIFIED TESTER APPROVED BY THE CITY UNLESS PRE-APPROVED BY THE CROSS CONNECTION SPECIALIST.
7. PREMISES ISOLATION MUST BE INSTALLED DIRECTLY AFTER THE SERVICE METER. IF ALTERNATE LOCATION IS REQUIRED THE LOCATION MUST BE APPROVED BY THE CITY OF PROSSER.
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