

RESOLUTION NO. 5353-18

A RESOLUTION UPDATING THE PUBLIC WORKS CONSTRUCTION CODE

WHEREAS, Tualatin Municipal Code (TMC) 2-3-010 establishes the Public Works Construction Code (PWCC) as the standards, specifications and procedures used for all Public Works Construction within the City; and

WHEREAS, under Tualatin Municipal Code 2-3-020, the City Engineer has the duty to maintain and update the PWCC, subject to Council approval by resolution; and

WHEREAS, the PWCC was adopted by Council resolution on October 8, 2001, and subsequently amended on February 11, 2002; October 14, 2002; March 10, 2003; March 22, 2004; April 12, 2010; July 26, 2010; September 26, 2011; and February 25, 2013; and December 12, 2016; and April 24, 2017; and

WHEREAS, the City Engineer is recommending the PWCC be revised.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF TUALATIN, OREGON, that:

Section 1. PWCC Section 100.1.00, Application of Provisions, is deleted and replaced to read as follows:

100.1.00 Application of Provisions

The provisions of the Code apply to all City owned public works facilities and Public Utility construction proposed by any private party, quasi-public body, partnership, firm, association, corporation, or public agency.

Section 2. The following definitions are modified in PWCC Section 101.1.00, Definitions, as follows:

Applicant – The person or firm making application for a permit from the City.

Permit – A permit issued by the City Engineer. May refer to a Public Works Construction Permit, Water Quality Permit, Erosion Control Permit, Public Utility Permit, or other.

Permittee – The person or firm that has received a permit from the City Engineer.

Utility – Any physical component of a system, including but not limited to poles, pipes, mains, conduits, ducts, junction boxes, vaults, structures, cables, wires, transmitters, equipment, and other facilities, located within, under, or above rights-of-way, any portion of which is used or designed to be used to deliver, transmit, or otherwise provide utility service.

Section 3. The following definitions are added to PWCC Section 101.1.00, Definitions, as follows:

Controlled Low Strength Material (CLSM) – A highly flowable lean concrete mix with a 28-day compressive strength of 100 psi - 200 psi.; a mixture of fly ash, cement, fine aggregates, water and admixtures, if necessary.

Pavement Coring – Pavement coring is an exploratory vacuum excavation not more than 12 inches in diameter to uncover an existing utility for the purpose of determining its precise location and elevation.

Public Utility – Any corporation, company, individual, association of individuals, or its lessees, trustees or receivers, that owns, operates, manages or controls all or a part of any line, facility, or system for producing, transmitting, or distributing communications, power, electricity, heat, gas, oil, water, steam, waste, stormwater, or any other similar commodity which directly or indirectly serves the public. The term may also mean the utility company, district, or cooperative owning and operating such facilities, including any wholly owned or controlled subsidiary.

Public Utility also includes any corporation, company, individual or association of individuals, which is party to an oral or written agreement for the payment by a public utility, for service, managerial construction, engineering or financing fees, and having an affiliated interest with the public utility.

Public Utility Permit – The permit required for Public Utilities to perform work within a Right-of-Way or public easement. Public Utilities must have a current Franchise agreement or Rights-of-Way License with the City of Tualatin to apply for a Public Utility Permit.

Erosion Control Permit –The permit required for all construction projects that will cause, or are likely to cause a temporary or permanent increase in the rate of soil erosion from a site, including but not limited to grading, excavating, filling, working of land, or stripping of soil or vegetation from land.

Section 4. The following abbreviations are added to PWCC Section 101.2.00, Abbreviations, as follows:

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| ADA | Americans with Disabilities Act |
| PROWAG | 2011 Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way |
| PWCC | City of Tualatin Public Works Construction Code |

Section 5. PWCC Section 102.1.00, Permits Required, is deleted and replaced to read as follows:

102.1.00 Construction Permits Required

Property owners, developers, and others proposing construction within public Rights-of-Way, easements, tracts, streams, creeks, or natural drainage ways, or construction of a Water Quality Facility on private land, are required to obtain all applicable permits and land-use approvals as appropriate, pay all applicable fees, and secure applicable performance assurances before commencing any work.

102.1.1 Public Works Construction Permit

A Public Works Construction Permit is required to construct public works facilities within the public Right-of-Way, public easements, or land to be dedicated to the public.

Obtain a Public Works Construction Permit using the application form provided by the City Engineer. With the application, include a permit fee deposit as set forth in subsection 102.3.1, Permit Fees and Deposits, complete plans and specifications as set forth in subsection 102.4.1, Plans and Specification Requirements, and a preliminary engineer's estimate.

Prior to submitting an application for a Public Works Construction Permit, attend a pre-application meeting with the Engineering Division. Required attendees include the owner, the design engineer, and the contractor if known.

102.1.2 Water Quality Permit

A Water Quality Permit is required to construct or modify a public or private water quality facility.

Obtain a Water Quality Permit using the application form provided by the City Engineer. With the application, include a permit fee deposit as set forth in subsection 102.3.1, Permit Fees and Deposits, complete plans and specifications as set forth in subsection 102.4.1, Plans and Specification Requirements, and a preliminary engineer's estimate.

Prior to submitting an application for a Water Quality Permit, attend a pre-application meeting with the Engineering Division. Required attendees include the owner, the design engineer, and the contractor if known.

102.1.3 Public Utility Permit

A Public Utility Permit is required to perform work on any public utility within Rights-of-Way and easements.

Obtain a Public Utility Permit from the City Engineer using the application forms provided. Complete plans and specifications as set forth in Section 207, Public Utility Design.

102.1.4 Erosion Control Permit

An Erosion Control Permit is required if changes to improved or unimproved real property cause, will cause, or are likely to cause a temporary or permanent increase in the rate of soil erosion from the site, as described in Clean Water Services Design and Construction Standards Section 2.03.4, Erosion Control Permits. Obtain Erosion Control Permits in conjunction with other permits as applicable.

There are four categories of Erosion Control Permits issued by the City for construction outside the building footprint. Obtain the applicable Erosion Control Permit using the process outlined below and in Section 102.4.5, Erosion Control Plan Review Procedure. With the application, include a permit fee as set forth in the current version of the City of Tualatin Fee Schedule located on the City of Tualatin website and pay all required DEQ fees.

102.1.4A Single-Family Residence

A single-family residence Erosion Control Permit is required for modifications to a single family residence lot for work that has ground disturbing activities.

If a Site Assessment is required in accordance with Clean Water Services Chapter 3, Sensitive Areas and Vegetated Corridors, obtain an Erosion Control Permit following the requirements of Section 102.1.4B, Erosion Control (Disturbing Under One Acre).

If a water quantity or quality approach is required in accordance with Clean Water Services Chapter 4, Runoff Treatment and Control, obtain an Erosion Control Permit following the requirements of Section 102.1.4B, Erosion Control (Disturbing Under One Acre).

102.1.4B Erosion Control (Disturbing Under One Acre)

If the proposed construction activities will cause or are likely to cause physical disturbance to the surface of the land less than one acre but more than 500 square feet, obtain an Erosion Control Permit from the City Engineer.

102.1.4C 1200-CN (Disturbing Between 1 and 5 Acres)

A NPDES 1200-CN Construction Stormwater (Erosion Control) Permit is required for construction activities on sites that disturb between one acre and five acres to control stormwater runoff during construction.

102.1.4D 1200-C (Disturbing Five Acres and Greater)

A NPDES 1200-C Construction Stormwater (Erosion Control) Permit is required for construction activities on sites that disturb five acres and larger to control stormwater runoff during construction.

102.1.4E Erosion Control (Disturbing less than 500 SF)

If the proposed construction activities will cause or are likely to cause physical disturbance to the surface of the land less than 500 SF, no Erosion Control Permit from the City is required provided all the following criteria are met:

1. No land development activity or disturbance of land surface occurs within 100 feet of a Sensitive Area, and
2. The work on the site involves the disturbance of less than 500 square feet of land surface where the slope is less than 20 percent or less than 50 square feet where the slope is 20 percent or greater, and
3. The excavation, fill, or combination thereof involves less than 20 cubic yards of material.

Erosion control measures must still be in place during construction, even if a permit is not required.

Exception from the Erosion Control permit requirement does not exempt the Property Owner from the responsibilities of CWS Design and Construction Standards Section 6.02.1, Erosion Prohibited.

For projects that disturb less than 500 square feet that do not meet all criteria in this section, an Erosion Control Permit is required. Obtain an Erosion Control Permit following the requirements of Sections 102.1.4B and 102.4.5B, Erosion Control (Disturbing Under One Acre).

Section 6. PWCC Section 102.2.1, Public Works Construction Permit Application Procedure, is deleted and application requirements are incorporated into Section 102.1.00, Construction Permits Required.

Section 7. PWCC Section 102.3.1, Permit Fees and Deposits, is deleted and replaced to read as follows:

102.3.1 Permit Fees and Deposits

This section applies to Public Works Construction Permits, Water Quality Permits, and Erosion Control Permits.

102.3.2 Public Works Construction Permit Deposit

Public Works Construction Permit deposits are paid by the applicant as follows:

1. At the time construction plans are submitted for approval by the City Engineer, pay the deposit shown in the current version of the City of

Tualatin Fee Schedule located on the City of Tualatin website.

2. As the work progresses, the City's actual costs may exceed the amount deposited. If this occurs, the Permittee will receive an invoice for the full actual cost incurred by the City, less previous payments.
3. If the City's actual costs exceed the amount deposited, the City Engineer may require an additional amount to be deposited. If an additional deposit is requested, deposit the amount with the City within 15 days of the date requested. If the deposit is not made, stop all work on the project until the deposit is made.
4. Before acceptance of work by the City, pay all outstanding amounts due to the City in full.
5. Upon completion and acceptance of the work by the City, should the amount deposited exceed the actual cost, the difference will be refunded to the Permittee. No interest will be paid on refunded amounts.

The permit deposit is intended to defray costs incurred by the City in providing technical or inspection services related to any public works or water quality facility construction. Costs incurred by the City may be through services provided by the City staff or through a private engineer and Contractor at the applicant's expense. Services provided by the City include but are not limited to the following:

1. Meeting with the applicant, the design engineer or agent to review City standards, specifications, ordinances, and procedures.
2. Providing the applicant's design engineer with information on existing conditions and facilities.
3. Provide information and data for State or County approvals that are required.
4. Reviewing all construction drawings, engineering calculations, and specifications.
5. Making inspections necessary to ensure compliance with City standards and specifications.
6. Keeping notes and records for inclusion in the as-built drawings.
7. Updating City maps, files, and records by incorporating as-built information.
8. Meeting with the various utility companies to review all utility construction and installations.
9. Soils testing, asphalt testing, re-televising sanitary and storm sewer during 1-year maintenance period, and other material tests specified in this Code or

deemed necessary by the City Engineer.

10. In cases in which an emergency exists that threatens the health, safety, and welfare of residents of the City of Tualatin as a result of actions taken by the applicant or the applicant's representative, the City may take such measures as it deems necessary to correct such hazardous situations and bill all costs incurred by the City to the applicant.
11. Other necessary expenses related to permit work.

The City's actual cost of technical services includes consultant costs, direct payroll costs and expenses plus a percentage for insurance, benefits, and overhead as determined by the City Engineer.

102.3.3 Erosion Control Fees

For all projects requiring an erosion control permit, pay the fees shown in the current version of the City of Tualatin Fee Schedule located on the City of Tualatin website. If applicable, pay all required DEQ fees as well.

102.3.4 Water Quality Permit Deposit

Water Quality Permit deposits are paid by the applicant as follows:

1. At the time construction plans are submitted for approval by the City Engineer, pay the deposit shown in the current version of the City of Tualatin Fee Schedule located on the City of Tualatin website.
2. As the work progresses, the City's actual costs may exceed the amount deposited. If this occurs, the Permittee will receive an invoice for the full actual cost incurred by the City, less previous payments.
3. If the City's actual costs exceed the amount deposited, the City Engineer may require an additional amount to be deposited. If an additional deposit is requested, deposit the amount with the City within 15 days of the date requested. If the deposit is not made, stop all work on the project until the deposit is made.
4. Before acceptance of work by the City, pay all outstanding amounts due to the City in full.
5. Upon completion and acceptance of the work by the City, should the amount deposited exceed the actual cost, the difference will be refunded to the Permittee. No interest will be paid on refunded amounts.

The permit deposit is intended to defray costs incurred by the City in providing technical or inspection services related to any public works or water quality facility construction. Costs incurred by the City may be through services provided by the City staff or through a private engineer and Contractor at the applicant's expense. Services provided by the City may include but are not limited to the following:

1. Meeting with the applicant, the design engineer or agent to review City standards, specifications, ordinances, and procedures.
2. Providing the applicant's design engineer with information on existing conditions and facilities.
3. Provide information and data for State or County approvals that are required.
4. Reviewing all construction drawings, engineering calculations, and specifications.
5. Making inspections necessary to ensure compliance with City standards and specifications.
6. Keeping notes and records for inclusion in the as-built drawings.
7. Updating City maps, files, and records by incorporating as-built information.
8. Meeting with the various utility companies to review all utility construction and installations.
9. In cases in which an emergency exists that threatens the health, safety, and welfare of residents of the City of Tualatin as a result of actions taken by the applicant or the applicant's representative, the City may take such measures as it deems necessary to correct such hazardous situations and bill all costs incurred by the City to the applicant.
10. Other necessary expenses related to permit work.

The City's actual cost of technical services includes consultant costs, direct payroll costs and expenses plus a percentage for insurance, fringe benefits, and overhead as determined by the City Engineer.

Section 8. PWCC Section 102.4.1, Plans and Specifications, is deleted and replaced to read as follows:

102.4.1 Plans and Specifications

102.4.2 Plan and Specification Requirements

For Public Works Construction Permits, Water Quality Permits, and Erosion Control Permits, the required plans and specifications must be prepared by the Design Engineer who must be a registered engineer licensed to practice engineering in the State of Oregon. Prepare the plans and specifications to be used in conjunction with the Standard Specifications and Standard Drawings, and provide sufficient detail to ensure full disclosure of the proposed work. Conform to the design requirements of

Chapter 200 of this Code.

For Erosion Control Permit plans and specifications, conform to CWS Design and Construction Standards, Chapter 6, Erosion Prevention and Sediment Control.

For Public Utility Permit plans, conform to the design requirements of Section 207, Public Utility Design, of this Code.

102.4.3 Public Works Plan Review Procedure

Submit complete plans and required calculations to the City Engineer for review. The City Engineer may request up to six sets of plans.

The City will verify required information was provided and conforms to this Code, applicable portions of CWS Design and Construction Standards, and the development approval conditions.

If the submittal does not meet the requirements, the City will prepare a correction list or "red line" set of construction plans for the design engineer specifying what is needed and return the plans to design engineer.

After the design engineer has completed all revisions, submit five revised plans and the original "red line" plans to the City for approval. If approved by the City, and if the plans include storm drain or sanitary sewer design, the City will forward one set of plans to CWS for approval. The City may require the design engineer to incorporate CWS' comments into final approval of construction plans.

The City will issue a Public Works Construction Permit once the following have been completed:

1. The plans and specifications have been approved for construction.
2. The necessary deposits are paid.
3. The necessary insurance certificates are submitted and approved.
4. Copies of other agency permits are submitted.
5. All other requirements made by the City Engineer have been met.

Once approved, up to three sets will be stamped approved by the City Engineer and returned at time of issuance of the Public Works Construction Permit. Approval does not relieve the design engineer from liability for errors and omissions.

102.4.4 Water Quality Plan Review Procedure

Submit plans and calculations for review. The City Engineer may request up to four sets of plans and calculations.

The City will verify required information was provided and conforms to this Code, CWS Design and Construction Standards, and the land-use conditions of approval.

If the submittal does not meet requirements, the City will prepare a correction list or "red line" set of construction plans for the design engineer specifying what is needed.

After the design engineer has completed all revisions, submit three revised plans and the original "red line" plans to the City for approval. If the City approves the submittal, the City will forward one set of plans to CWS approval. The City may require the design engineer to incorporate CWS' comments into final approval of construction plans.

The City will issue a Water Quality Permit once the following have been completed:

1. The plans and specifications have been approved for construction.
2. The necessary deposits are paid.
3. The maintenance plans and agreement are submitted and approved.
4. All other requirements made by the City Engineer have been met.

Once approved, up to four sets will be stamped approved by the City Engineer and returned at time of issuance of the Water Quality Permit. Approval does not relieve the design engineer from liability for errors and omissions.

102.4.5 Erosion Control Plan Review Procedure

Submit the required plans and all additional documents as described in the subsections below.

The City will verify required information was provided and conforms to this Code and CWS Design and Construction Standards.

If the submittal does not meet the requirements, the City will prepare a correction list or "redline" set of erosion control plans specifying what is needed.

After all revisions have been completed, submit revised plans and documents and the original "redline" plans to the City for approval. The City will forward plans to CWS for approval. The City may require the design engineer to incorporate CWS' comments into final approval of construction plans.

Once the requirements for the applicable erosion control category have been approved and the necessary fees paid, the City will issue an Erosion Control Permit. Approval does not relieve the design engineer from liability for errors and omissions.

102.4.5A Single-Family Residence

No plans are required. Submit a single-family residence Erosion Control Permit to the City Building Department using the application forms provided.

Construction must conform to the requirements of Standard Drawing 001, Example Single Family Erosion & Sediment Control Site Plan

Once the application has been approved and the necessary fees paid, the City will issue an Erosion Control Permit.

102.4.5B Erosion Control (Disturbing Under One Acre)

Submit two sets of plans that meet the requirements of Clean Water Services Design and Construction Standards, Chapter 6, Erosion Prevention and Sediment Control for the City Engineer to review.

102.4.5C 1200-CN (Disturbing Between 1-5 Acres)

Submit two sets of plans for the City to review that meet the requirements of the most current 1200-CN template. With the plans submit a signed DEQ 1200-CN ESC Plan Checklist. The plan template and checklist are available on Clean Water Services website.

The City will issue a 1200-CN Construction Stormwater (Erosion Control) Permit once the following have been completed:

1. The plans and specifications have been approved.
2. The signed DEQ 1200-CN ESC Plan Checklist has been submitted.
3. The necessary fees paid.

102.4.5D 1200-C (Disturbing Five Acres and Greater)

Submit three sets of plans for the City to review that meet the requirements of the most current 1200-C template. With the plans submit a signed DEQ 1200-C ESC Plan Checklist and the DEQ 1200-C Construction Stormwater (Erosion Control) Permit Application. For more information regarding the plan template, checklist, and DEQ application refer to Clean Water Services website.

Upon City approval two sets of plans will be forwarded to CWS for approval. Upon CWS approval one set of plans will be forwarded to DEQ for a 14-day public review period.

Clean Water Services and the City act as permit agents for DEQ. At the conclusion of the required 14-day public comment period, DEQ will authorize issuance of the 1200-C Permit.

The City will issue a 1200-C Construction Stormwater (Erosion Control) Permit once the following have been completed:

1. The plans and specifications have been approved.
2. The signed DEQ 1200-C ESC Plan Checklist has been submitted.
3. The DEQ 1200-C Construction Stormwater (Erosion Control) Permit Application has been submitted.
4. The necessary fees paid.
5. The 14-day public review period has been observed.

102.4.6 Public Utility Plan Review Procedure

Submit one set of plans in compliance with Section 207, Public Utility Design, for review with the permit application.

The City will verify required information conforms to this Code and City of Tualatin Municipal Code Chapter 03-06, Utility Facilities in the Rights-of-Way. Submit all required permits, agreements or documents from other jurisdictions or persons as required.

If the submittal does not meet the standards, the applicant will be informed of needed changes and additional requirements. A new review period will begin once the applicant resubmits the required information or documents.

Section 9. PWCC Section 102.5.00, Prequalification of Contractor, is deleted and replaced to read as follows:

102.5.00 Prequalification of Contractor

All Contractors engaged by the Permittee to perform public works construction must be prequalified with the City in compliance with Chapter 279 of the Oregon Revised Statutes, City Ordinance No. 327-76 as amended and Resolution No. 1789- 86 and any special prequalification standards approved by the City.

This provision may be waived by the City Engineer for work having an estimated value of less than \$10,000, if in the opinion of the City Engineer the Contractor has sufficient experience, personnel, and equipment for the type and scope of work contemplated.

Public Utilities are exempt from the requirements of this section.

Section 10. PWCC Section 102.6.6, Exemption for Public Utilities, is added to read as follows:

102.6.6 Exemption for Public Utilities

For Public Utility insurance and indemnification requirements, comply with City of Tualatin Municipal Code Chapter 03-06, Utility Facilities in the Right-of-Way.

Section 11. PWCC Section 102.7.2, Easements and Tracts Granted to the City, is deleted and replaced to read as follows:

102.7.2 Easements and Tracts Granted to the City

All required easements and tracts are to be granted to, and accepted by, the City prior to the issuance of Water Quality and Public Works Construction Permits. Provide the City with the documents necessary to grant such easements and tracts free and clear of encumbrances and all taxes paid.

The City Engineer determines what facilities need to be part of the publicly owned system. When it is not possible or practical to install these facilities within dedicated public Right-of-Way, grant an easement or tract to the City. Facilities include, but are not be limited to, water works, sanitary sewers, storm systems, slopes for public streets, sensitive areas, created and constructed wetlands, greenways, pedestrian pathways or bikeways, and water quality or quantity facilities.

Center public water systems, sanitary sewers or storm systems within a permanent easement that has a minimum width of 15-feet along its entire length unless otherwise approved by the City Engineer. When a sanitary and storm sewer are within the same easement, provide a minimum easement width of 20 feet. The City may require a larger easement when either the sanitary or the storm sewers are larger than 24-inches. Do not install a pipe within 5-feet of an easement line.

Slope easement widths for roadway slopes extending beyond the dedicated public Right-of-Way will be as determined by the City Engineer.

Widths of easements for sensitive areas, wetlands, greenways, pedestrian pathways or bikeways, or access ways, will be as determined by the City Engineer.

Tracts deeded to the City are required for access to all easements including the public water quality and quantity facilities that include outlet control structures and to manholes where required by the City. Widths of such tracts will be as determined by the City Engineer.

Section 12. PWCC Section 102.7.3, Temporary Construction Easements, is deleted and replaced to read as follows:

102.7.3 Temporary Construction Easements

Prior to the issuance of a construction permit, provide to the City Engineer, for review and documentation, all temporary construction easements necessary to perform the work.

102.12.00

Other Agency Permits

If the construction includes work within Clackamas County, Washington County, or State of Oregon rights-of-way or easements, or includes Clean Water Services (CWS) sensitive areas, a permit to perform such work is required from the respective agency prior to the start of construction. Provide copies of these permits, and all other agency-required permits, to the City Engineer for review and documentation prior to issuance of the City permit.

Section 18. PWCC Section 102.13.00, Issuance, Expiration, Reinstatement and Amendments, is deleted and replaced to read as follows:

102.13.00

Issuance, Expiration, Reinstatement and Amendments

Once the plans and specifications have been approved for construction, the necessary fees paid, the Contractor's prequalification accepted, the necessary certificates of insurance submitted and approved, the required easements submitted and approved, copies of other agency permits submitted, the grading/erosion control information worksheet submitted, the erosion control joint permit submitted, the contributed equity information and written documentation of confined space entry information submitted, the City Engineer will issue a permit for the proposed work. The City Engineer may impose any additional conditions, including but not limited to imposing time constraints and limits on work to be performed in existing public Right-of-Way and on existing public works facilities, which the City Engineer deems necessary to the permit. The date of issuance and the conditions under which the construction is authorized by the City will be clearly described in the permit.

When the City Engineer issues the permit, the City Engineer will endorse in writing or stamp the plans and specifications "APPROVED." Do not change, modify, or alter approved plans and specifications without authorization from the City Engineer. Complete all work regulated by this code in accordance with the approved plans.

Keep one set of approved plans and specifications on the site of the work at all times during which the work authorized thereby is in progress.

The issuance or granting of a permit or approval of plans, specifications and computations will not be construed to be a permit for, or an approval of, any violation of this code or of any other ordinance of the City. Permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the City will not be valid.

The issuance of a permit based upon plans, specifications and other data does not prevent the City Engineer from requiring the correction of errors in the plans, specifications and other data, or from preventing operations being carried on when in violation of this code or of any other ordinances of the City.

Every permit issued by the City Engineer under this code expires by limitation and becomes null and void if the work authorized by such permit has not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work has commenced for a period of 180 days. Before such

work can be resumed, reinstate the permit.

To reinstate the permit, submit a written request for reinstatement to the City Engineer giving the reasons for failure to begin construction and a date when construction will be commenced. In reinstating the permit, the City Engineer may impose any additional conditions deemed necessary or require amendment to the permit.

Any Permittee holding an unexpired permit may apply for an extension of the time within which to may commence work under that permit when the Permittee is unable to commence work within the time required by this section for good and satisfactory reasons. The City Engineer may extend the time for action by the Permittee for a period not exceeding 180 days upon written request by the Permittee showing that circumstances beyond the control of the Permittee have prevented action from being taken. A permit will not be extended more than once.

The City Engineer may, in writing, suspend or revoke a permit issued under this code whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or this Code. The Permittee may appeal the suspension or revocation of the permit as set forth in Section 104.6.00, Appeal of Disputed Work or Rulings, of this Code.

Changes to the approved plans and special specifications will only be allowed when requested by Permittee and approved by the City Engineer. Incorporate authorized changes by amendment to the permit and approved plans.

Section 19. PWCC Section 102.14.00, Performance of the Work, is deleted and replaced to read as follows:

102.14.00

Performance of the Work

In order to protect the safety of the public and the integrity of the City's public works facilities, enter into a Public Improvement Agreement for work proposed on an existing public works facility. Public works facilities include any public transportation, sanitary sewer, storm drainage, water, or park facility.

If the scope of work necessitates a Public Improvement Agreement, the permit for the project will not be issued until the Contract is executed and filed with the City. The contract is enforceable by and against the parties, their heirs, successors and assigns.

As a condition of the agreement, a bond, cash deposit, or other security acceptable to the City will be required from the applicant in an amount equal to the value of the improvements to the existing public facilities, but not less than \$25,000. This assurance is to ensure that the applicant constructs and completes all required improvements to the public facilities.

Fulfill the conditions of the agreement within the time limitations specified. Failure to fulfill a condition within the time may result in the City collecting the assurance and completing the improvements.

Further, notwithstanding any other provision, the City has the authority to deny a permit upon a determination that the applicant, or any officer, or principal of the applicant, willfully has failed to fulfill conditions of approval imposed in any previous permit and a determination that such a decision would encourage compliance or is necessary to protect the public from future noncompliance.

Section 20. PWCC Section 104.7.00, Notifications Relative to Contractor's Activities, is deleted and replaced to read as follows:

104.7.00 Notifications Relative to Contractor's Activities

Obtain prior approval from the City Engineer before working in the Right-of-Way or easements, and before closing or partially closing any road, street, alley, sidewalk, bike lane, or other public thoroughfare. Provide notice not less than two working days in advance of all construction in Rights-of-Way and easements. Notify the City and all agencies providing public services including, but not limited to, the sheriff, police, fire, ambulance services, Tri-Met, and the school district transportation services.

Notify all public utilities at least two working days before beginning work.

Verify location of all public utilities and public works facilities prior to construction and meet requirements of Oregon Administrative Rule (OAR) 952 Division 1. In accordance with OAR 952 Division 1, notify the Oregon Utility Notification Center of the date and location of the proposed excavation at least two working days and not more than ten working days before commencing work.

Notify all agencies and public utilities affected by the operations in order to coordinate and expedite the work in order to cause the least amount of conflict and interference between the operations and those of other agencies.

Include in the notification the time that work will begin and end, names of streets or location of alleys to be closed or impacted, schedule of operations, routes of possible detours, and additional information requested by the City Engineer.

The Permittee is responsible for all damages or claims resulting from improper or insufficient notification of the affected agencies.

Section 21. PWCC Section 104.8.00, Utilities and Existing Improvements, is deleted and replaced to read as follows:

104.8.00 Utilities and Existing Improvements

Do not block, obstruct or interfere with any portion of the City's public works facilities, including roads, bike lanes, and sidewalks.

Provide for the flow of sewers, drains, and watercourses interrupted during the progress of the work and restore all drains and watercourses as approved by the City Engineer.

Make excavations and pavement coring ahead of work as necessary to determine the exact location of existing utilities. If the Contractor is unable to determine the exact location of public storm and sanitary sewer utilities, provide a TV inspection after construction, if approved by the City Engineer.

Coordinate with Public Utilities to complete all installations, relocations, repairs, or replacements needed for those utilities before work begins, unless otherwise agreed to by the Public Utility. Provide the time needed for such public utility work to be accomplished during construction.

Where it is necessary to connect to existing public works facilities, do not interrupt City operations to make such connections. Before making connections to existing public works facilities, obtain approval from the City Engineer and schedule the work to be done at a time that is convenient to the City.

In accordance with Section 104.10.00, Protection of Property, the Contractor is responsible for all damage and associated costs caused directly or indirectly by execution of the work.

Section 22. PWCC Section 104.13.00, Traffic Maintenance, is deleted and replaced to read as follows:

104.13.00 Traffic Maintenance

Erect and maintain all barricades, guards, standard construction signs, warning signs, and detour signs as necessary to warn and protect the public at all times from injury, inconvenience, or damage as a result of the work operations on highways, roads, or streets affected by such operations. Install and maintain all detours/signs, traffic control devices and markings per the requirements of the MUTCD and Oregon Supplement, or the Oregon Temporary Traffic Control Handbook. Submit a plan and schedule for detours/signs, traffic control devices and markings to be approved by the City Engineer prior to installation and before construction starts.

Upon failure to immediately provide the necessary flaggers or to provide, erect, maintain, and remove barricades, detours, lights, and standard signs when so ordered, the City may issue a stop work order or at its discretion provide appropriate traffic control necessary to protect the public and assess all of the costs to the Permittee. Nothing contained in this section will require the City to do so or relieve the Permittee and Contractor of their responsibilities to provide traffic control for public safety.

At the end of each day, in locations where vehicular or pedestrian traffic will pass over trenches before they are paved, repair the pavement in accordance with Section 313.3.03G, Temporary Surfacing. Maintain a smooth driving surface to the satisfaction of the City Engineer for as long as the temporary surface is in place. If the Contractor or Permittee fails to maintain a smooth driving surface, the City may at its discretion repair the surface and assess all of the costs to the Permittee.

Provide access driveways where needed and maintain pedestrian access around the

construction zone as directed. Commence cleanup operations immediately following backfilling and maintain the work site in an orderly condition at all times.

See Section 302, Temporary Traffic Control, for additional traffic control requirements.

Section 23. PWCC Section 201.1.01, Scope, is deleted and replaced to read as follows:

201.1.01 Scope

This chapter covers the standards for the design of public works facilities, water quality facilities, Public Utilities, and the preparation and submittal of construction plans. Except as provided otherwise in a specific section, these standards and regulations apply to all public works and water quality construction within the City.

Design and construct all public works facilities in accordance with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG).

Section 202, Construction Plans, does not apply to Public Utilities.

Section 24. PWCC Section 203.2.23 “Franchise Utilities” is deleted. Requirements for constructing Public Utilities in the Right-of-Way or easements are defined in Section 207, Public Utility Design.

Section 25. PWCC Section 205.02.07F, Spacing Requirements, is deleted and replaced to read as follows:

205.2.07F Spacing Requirements from Water Supplies

Meet requirements of Oregon Administrative Rule 33-061-0050(2), Construction Standards.

Construct public sanitary gravity sewers a minimum of 50-feet away from all wells, springs, or other sources of domestic water supply.

Construct public sanitary pressure sewers a minimum of 100-feet away from all wells, springs, or other sources of domestic water supply.

Section 26. PWCC Section 205.2.07G, Paralleling Water Lines, is added to read as follows:

205.2.07G Water Line – Sewer Line Horizontal Separation

For parallel water and sanitary sewer lines, maintain a minimum horizontal separation of at least 10-feet. If approved by the City Engineer, the horizontal separation can be reduced down to one foot (as measured from the outside edge of the pipes), with the requirement that the bottom of the water line be 18-inches or more above the top of the sewer line.

Refer to OAR 333-061-0050(9) "Crossings-Sanitary sewers and water lines" for additional information regarding Oregon Health Authority Rules.

Section 27. PWCC Section 205.2.07H, Crossing Water Lines, is added to read as follows:

205.2.07H Water Line – Sewer Line Vertical Separation

Whenever it is necessary for sanitary sewer and water lines to cross, the crossing should be at an angle of approximately 90 degrees.

Whenever possible, the bottom of the water line will be 18 inches or more above the top of the sewer line and one full length of water pipe will be centered at the crossing. Where the water line crosses over the sewer line but with a clearance of less than 18-inches, the sewer pipe will be exposed to the sewer pipe joints on both sides of the crossing to permit examination of the sewer pipe by the City. If the sewer pipe is in good condition and there is no evidence of leakage from the sewer pipe, as determined by the City, then 18 inch separation may be reduced. If it is determined that the conditions are not favorable or there is evidence of leakage from the sewer line, replace the sewer line with a full length of pipe centered at the crossing point, of:

- PVC Pressure Pipe (ASTM D-2241, SDR 32.5);
- High-Density Polyethylene Pipe (HDPE);
- Ductile-Iron Class 50 (AWWA C-151);
- Other similar acceptable pipe;

Alternatively, the sewer can be encased in a reinforced concrete jacket for a distance of 10-feet on both sides of the crossing.

Where water lines cross under sewer lines, expose the sewer line and examine it as described above. If conditions are favorable and there is no evidence of leakage from the sewer line, the sewer line may be left in place. Take special precautions to ensure that the backfill material over the water line near the crossing is thoroughly tamped in order to prevent settlement that could result in the leakage of sewage. In this situation, center one length of the water line at the crossing. If the City determines that conditions are not favorable or finds evidence of leakage from the sewer line, replace sewer line as described above.

Refer to OAR 333-061-0050(9) "Crossings-Sanitary sewers and water lines" for additional information regarding Oregon Health Authority Rules.

Section 28. PWCC Section 207, Public Utility Design, is added to read as follows:

207 PUBLIC UTILITY DESIGN

207.1.00 **Scope**

Public Utilities that have a current Franchise Agreement or a Rights-of-Way License with the City may construct Public Utilities in the City of Tualatin public Rights-of-Way or in publicly controlled easements in strict conformance with City of Tualatin standards and specifications and the requirements stipulated in City of Tualatin Municipal Code Chapter 03-06, Utility Facilities in the Rights-of-Way. Before starting construction of work in the public Rights-of-Way or publicly controlled easements, obtain a Public Utility Permit. Public Utilities may also be constructed with a Public Works Construction Permit.

207.2.00 **Construction Plans**

Show the location of all existing and proposed Rights-of-Way, easements, public utilities, and public works facilities including curb and gutter, edge of pavement and sidewalk. Label identifying features including street names and site addresses. Provide a north arrow and a scale.

On construction plans, clearly show the location and construction methods of all proposed work. When public works facilities are potentially affected or as directed by the City Engineer, include all applicable City of Tualatin standard drawings with the construction plan submittal.

207.3.00 **Location of Proposed Public Utilities**

Place Public Utilities in the Public Utility Easement (PUE) or as approved by the City Engineer. Place Public Utilities parallel to the Right-of-Way, except when crossing a street. Install public utility street crossings perpendicular to the Right-of-Way.

When an underground Public Utility is not completely installed before construction of the road subgrade, place the appropriate utilities conduits in all areas to be paved to allow future completion of the utility. Extend conduit termini beyond the edge of Right-of-Way a minimum of 5 feet or as directed by the City Engineer. Seal and mark the ends of the conduit in accordance with the requirements of the affected utility.

All installations of Public Utilities are subject to the inspection and approval of the affected utility and the City of Tualatin.

207.4.00 **Minimum Depth**

Place Public Utilities a minimum of 36 inches below finished grade.

207.5.00 **Minimum Vertical Separation**

Provide a minimum of 12 inches vertical separation from all City owned utilities, except as approved by the City Engineer. Locate public utilities below water lines when crossing. The City Engineer may require Public Utilities to be placed deeper to avoid the possibility of conflict. Sanitary sewer and water lines must comply with Section 205.2.07H, Water Line – Sewer Line Vertical Separation.

207.6.00 **Minimum Horizontal Separation**

Provide a minimum horizontal separation of ten feet from all parallel City utilities, except as approved by the City Engineer.

For sanitary sewer or water lines, conform to Section 205.2.07G, Water Line – Sewer Line Horizontal Separation.

Section 29. PWCC Section 302.1.00, General, is deleted and replaced to read as follows:

302.1.00 General

With the permit application submittal, provide a proposed traffic control plan that meets the requirements of this Code and the current version of the Manual of Uniform Traffic Control Devices or the Oregon Temporary Traffic Control Handbook for project durations of three days or less as approved by the City Engineer. On the traffic control plan, show all planned vehicular and bicycle lane closures, sidewalk closures, temporary traffic control devices, and all traffic control devices that may be impacted by the project, including but not limited to signals and signs.

Provide for the safe and proper routing of vehicular, bicycle, and pedestrian traffic in a manner that will minimize congestion and delay and maintain safety. Furnish, install, and maintain all construction signs and detour signs, temporary signs, temporary striping and pavement markings, lights, flares, barricades, cones, guardrail, runways, pavement, bridges, stairs, temporary pedestrian walkways, and other devices and facilities necessary to safeguard the public and the work. All temporary pedestrian walkways shall comply with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way. Relocate devices and facilities as necessary to accomplish the proper routing of traffic as the work progresses and, when no longer needed, remove from the work site.

Notify the City Engineer, Fire Department, other Emergency Services, Police Department, appropriate School District, and Tri-Met before closing any street or portion of a street. For signal shutdowns, obtain a Washington County Traffic Signal Shutdown Permit and provide notifications as required by the permit.

Do not close a street or portion of a street, bicycle lane, or pedestrian route without the City Engineer's approval. Notify those departments when the streets are again passable for emergency vehicles. Do not block emergency vehicle access to consecutive arterial crossings or dead-end streets without special written permission from the Fire Department. Conduct operations with the least interference to the fire equipment access and at no time prevent such access.

Provide night emergency telephone number(s) to the City Engineer, Police Department, and Fire Department so the contractor may be contacted at all times.

Section 30. PWCC Section 304.3.03C, Embankment Compacting and Density Requirements, is deleted and replaced to read as follows:

304.3.03C Embankment Compacting and Density Requirement

Compact all embankments, fills, and backfills to a minimum density of 92 percent of maximum density per AASHTO T 180. Where materials are used that cannot be tested utilizing the above method (such as coarse aggregates or foundation stabilization material) a method compaction specification will be required. Provide the method compaction specification to the City Engineer or the City Engineer's designated geotechnical representative based on the material characteristics and appropriate compaction equipment.

Apply water to materials to provide compaction of embankments and backfills and to alleviate dust nuisance. Apply water with approved tanker trucks equipped with spray bars, by hose and nozzle, or by other approved equal means that will ensure uniform and controlled application. The use of splash boards will not be permitted without prior approval.

Do not place embankment or backfill materials in final position until moisture in excess of optimum moisture has been stabilized near optimum. Place and compact fill or backfill at a moisture content near optimum to provide a compact stable grade. Where unstable conditions are evident due to moisture deviation from optimum and/or disturbance due to construction traffic, remove or rework, and compact unstable fill to provide a stable grade meeting the compaction requirements outlined above.

Section 31. PWCC Section 305.3.02, Untreated Subgrade, is deleted and replaced to read as follows:

305.3.02 Untreated Subgrade

Excavate and shape subgrade to line, grade, and cross section. Compact to the depth of grubbing or a minimum of 12-inches, not less than 92 percent of maximum density as determined by AASHTO T 180. Remove all soft or otherwise unsuitable material disclosed by the proof-rolling as directed and replace with approved material. Compact to one foot beyond the edge of paving, curb, or form.

Subgrade areas that cannot be compacted to specified density, but which in the judgment of the City Engineer otherwise meet the requirements herein, may be removed and aerated or stabilized with an approved soil stabilizing material.

Do not excavate or shape subgrade in the rain.

Section 32. PWCC Section 305.3.03D, Compaction, is deleted and replaced to read as follows:

305.3.03D Compaction

Immediately after mixing treated subgrade, spread mixture to specified line, grade, and cross section and compact entire depth of mixture to not less than 92 percent of maximum density as determined by AASHTO T 180.

Compact and finish cement treated surface within three hours after cement is applied. Compact and finish other treated surfaces within 12 hours

after compaction begins. If not compacted and finished within this time period, loosen the mixture and add stabilizing material and water as directed, remix, relay, and compact. During compaction, maintain surface of mixture at proper grade and cross section and lightly water to retain optimum moisture content.

Accomplish final finishing by rolling accompanied by light watering and reshaping to provide a surface free of hairline cracking.

Section 33. PWCC Section 308.3.01, Base Course, is deleted and replaced to read as follows:

308.3.01 Base Course

Spread base course material on the prepared subgrade to such a depth that when thoroughly compacted it will conform to the grades and dimensions shown on the Plans, with proper allowance for the leveling course hereinafter specified. Build the base course up in layers, with a maximum compacted thickness of 6 inches per layer. Spread crushed rock in an even course of uniform thickness from vehicles equipped with spreading devices. Avoid segregation of material and spread material to be free from pockets of large or fine material.

In general, begin spreading at the end of the work farthest from the point of loading materials. Do not dump base course materials in piles upon the subgrade.

After the base course has been spread and brought to line and cross section, compact with approved equipment to achieve a minimum of 92 percent of the maximum density when tested in accordance with AASHTO T 180, as determined by the City Engineer. Add sufficient water as needed to facilitate the movement of key material into the voids. Remove all soft or otherwise unsuitable material disclosed by the proof-rolling as directed and replace with an approved material as specified herein.

The surface of the base course must be parallel with the cross section and grade established for the top of base course within 0.04 feet.

Section 34. PWCC Section 310.1.01, Scope, is deleted and replaced to read as follows:

310.1.01 Scope

This work shall consist of constructing Portland cement concrete (P.C.C.) pavement in accordance with Standard Drawing 481, Concrete Roadway, composed of Portland cement, water, fine aggregate, coarse aggregate, and special purpose additives when required or permitted. The P.C.C. pavement shall be constructed on a prepared base in accordance with these specifications and in conformity to the lines, grades, thicknesses and cross sections shown on the plans or established by the City Engineer. P.C.C. paving construction shall be in accordance with these specifications,

ACI 318 (Building Code Requirements for Structural Concrete) and ACI 325.9R (Guide for Construction of Concrete Pavements and Concrete Bases). All concrete, unless otherwise specified, shall be mixed and deposited in accordance with ASTM C 94 (Specifications for Ready-Mixed Concrete). Concrete placed during hot weather or cold weather shall be mixed, placed, cured, and tested in accordance with the recommendations of ACI 305R or ACI 306, respectively. When a conflict exists between various governing codes, the more stringent code requirement shall be followed.

Section 35. PWCC Section 310.2.00, Materials, is deleted and replaced to read as follows:

310.2.00 Materials

Materials shall meet the requirements of the applicable sections of the City of Tualatin Public Works Construction Code, applicable provisions of ASTM, as well as modifications and additions given in this Specification and the Special Provisions, Section 201.0.00.

Section 36. PWCC Section 310.2.04, Tie Bars, is deleted and replaced to read as follows:

310.2.04 Fly Ash

Furnish fly ash conforming to AASHTO M 295 (ASTM C618).

Section 37. PWCC Section 310.2.05, Dowels, is deleted and replaced to read as follows:

310.2.05 Steel Reinforcement

310.2.05A Dowels

Dowels must conform to the requirements of AASHTO M 31 (ASTM A615) for Grades 40 and 60, or AASHTO M 227 (ASTM A663) for Grades 70, 75, and 80. Unless otherwise specified or shown, all dowel bars must be Grade 60.

310.2.05B Tie Bars

Tie bars must conform to the requirements of ASTM A706, AASHTO M 31 (ASTM A615), or AASHTO MP 18 (ASTM A1035). Unless otherwise specified or shown, all tie bars must be Grade 60.

310.2.05C Welded Wire Reinforcement

Welded wire reinforcement and deformed welded wire reinforcement must conform to the requirements of ASTM A1064. Epoxy-coated welded wire reinforcement must conform to the requirements of ASTM A884.

310.2.05D Bar Mats

Bar mats must conform to the requirements of ASTM A184.

Section 38. PWCC Section 310.3.02, Mixers, is deleted and replaced to read as follows:

310.3.02 Mixers

Each mixer shall carry a clearly visible manufacturer's plate showing the capacity of the mixer and other pertinent operating rates and limits. Provision shall be made at the mixer for the controlled addition of air-entraining admixtures or other special components of the mix, when such items are required.

Central plant mixers shall be equipped with a timing device that will not permit the batch to be discharged until the specified mixing time has elapsed.

Section 39. PWCC Section 310.3.14, Placing Portland Cement Concrete, is deleted and replaced to read as follows:

310.3.14 Placing Portland Cement Concrete

The P.C.C. shall be delivered from the hauling vehicles to the paving machine hopper. The Contractor's equipment hauling P.C.C. or reinforcement will not be permitted on the subgrade but will be allowed on the base, with turns or other maneuvering kept to a minimum. Any damage to the subgrade or base due to the Contractor's operations shall be corrected by the Contractor, at the Contractor's expense, to the satisfaction of the City Engineer.

The P.C.C. shall be placed in final position by the slipform or other approved method, uniformly in one layer, so that a minimum of finishing will be necessary to provide a dense, homogenous pavement conforming to true grade and cross section.

- 1) The spreader shall receive the P.C.C. mixture in its hopper and uniformly spread and strike it off at the proper thickness for the full width of the area being paved.
- 2) The paver shall vibrate, consolidate, and finish the slab to the proper grade and cross section.

The paver shall be operated with as nearly continuous forward movement as possible, and all operations of mixing, delivering, and spreading P.C.C. shall be coordinated to provide uniform progress. Stopping and starting the paver shall be held to an absolute minimum. If, for any reason, it is necessary to stop the forward motion of the paver, the vibratory and tamping elements shall also be stopped immediately. No external force shall be applied to the paver except with the approval of the City Engineer.

While placing P.C.C., provision shall be made for constructing joints, placing dowels, tie bars, and other devices as required by Standard Drawing 481, Concrete Roadway, called for by the plans, as directed by the City Engineer, and as provided in 310.3.13.

P.C.C. will be rejected if it:

- 1) Has exceeded the batch to discharge time requirements of 310.3.05,
- 2) Has begun to take an initial set prior to placement,
- 3) Has been retempered with water, or
- 4) The surface finish is unacceptable to the City Engineer.

Supports for the paver, and other equipment which ride on previously placed pavement which meets the requirements of 310.3.06, shall be equipped to prevent marring, edge breaking, or chipping of the previously placed pavement.

Hand spreading and distributing shall be with shovels, not rakes. The P.C.C. shall not be fouled with foreign matter. The Contractor shall furnish hand operated mechanical vibrators satisfactory to the City Engineer. These vibrators shall be used to consolidate the P.C.C. pavement at least 6 feet each side of construction and expansion joints, or when using bridge finishing or other approved machines.

Section 40. PWCC Section 310.3.15, Joints, is deleted and replaced to read as follows:

310.3.15 Joints

Joints shall be the type called for by the plans, shown on Standard Drawing 481, Concrete Roadway, or otherwise directed by the City Engineer. Joints in the P.C.C. pavement will be referred to as contraction or construction either of which may be transverse or longitudinal, as called for by the plans or as directed by the City Engineer. All joints and joint filler shall extend to pavement edges or to each other, as the case may be, and shall be constructed normal to the surface of the pavement. Joints shall not vary from specified or indicated line by more than 1/4-inch.

The Contractor shall submit to the City Engineer for approval, a jointing plan, 7-days before placement of any concrete street. The Contractor shall take into consideration the placement of joints in curb and gutter, at catch basins, and the position of manholes and other structures, as well as the other limitations herein mentioned.

Compensation for jointing and fillers shall be incidental to paving.

310.3.15A Contraction Joints

Contraction joints shall be of the sawed type with poured rubber-asphalt filler, or as shown on Standard Drawing 481, Concrete Roadway. All joints must include dowels or tie bars. Sawing shall be to a depth of 1/4 the thickness of the P.C.C. with a maximum width of 1/4-inch and a minimum width of 1/8-inch, in straight lines as shown or directed. Saw-cuts shall be performed as soon as the P.C.C. has set enough to permit sawing without tearing or raveling, before uncontrolled cracking results, and within 24-hours of placing the P.C.C. Saws may be single or tandem, as the Contractor may elect, and shall be controlled by

guides to true line. The Contractor is wholly responsible for the timing of sawed concrete joints. The joints shall be thoroughly cleaned of all foreign matter before pouring the approved rubber-asphalt filler. The tops of joint filler shall be true to pavement cross section within 1/8-inch and shall be protected from damage by P.C.C. operations. Any area containing uncontrolled cracks shall be removed and replaced by the Contractor, at the Contractor's expense, at the direction of the City Engineer. Curing agents broken or damaged by the sawing operations shall be restored.

Longitudinal joints shall be spaced as shown on the plans at the interface between lanes, normally at intervals between 10 to 14-feet. All longitudinal joints must include tie bars per Standard Drawing 481, Concrete Roadway.

Transverse joints shall be perpendicular to the direction of traffic, as shown on the plans or as approved by the City Engineer, with intervals of 12 to 15-feet. A transverse type joint shall also be placed radial to and at the 1/2-angle point of a curb return, extended to meet a transverse or longitudinal contraction joint.

310.3.15B Construction Joints

Construction joints shall be constructed when there is an interruption of longer than 45 minutes in the P.C.C. placing operations or where herein specified. Both free edges of joints shall be tooled with 1/8-inch radius rounder to remove lattice and mortar resulting from finishing operations and to provide a clean rounded edge. Tooling shall not form ridges on the surface of the concrete.

The new P.C.C. placed contiguous to the joint shall conform closely to the proportions and consistency of the previously placed concrete and shall be vibrated and consolidated to a greater degree, with more care and to a closer surface tolerance than is usual in normal construction.

No transverse construction joint shall be constructed within 3-feet of a transverse contraction joint. If sufficient P.C.C. has not been mixed at the time of interruption to place a construction joint at least 3-feet from a planned contraction joint, remove excess P.C.C. back to a position to satisfactorily meet these criteria to the satisfaction of the City Engineer. Transverse construction joints shall be of the doweled type using 18-inch dowels of the diameter shown on Standard Drawing 481, Concrete Roadway, at 12-inch centers and coated with plastic, grease, heavy oil or other approved material that will neither bond with nor be harmful to the P.C.C.. Support dowels and maintain in position during the P.C.C. placing operation at a depth of 1/2 the pavement thickness parallel to the street centerline. Fill all transverse construction joints that have opened to a width of 1/8-inch or greater, during the construction or maintenance periods with approved poured rubber-asphalt filler.

Longitudinal construction joints shall include 36-inch long #5 deformed tie bars at 36-inch centers and shall be placed at all radiused sections of a curb return with a P.C.C. gutter as well as a normal longitudinal construction joint.

Tie bars shall not be required at the construction joint between the P.C.C. pavement and gutter except where shown on the plans and mentioned above. Tie bars shall be placed by:

- 1) Inserting the tie bars into the plastic P.C.C. before vibrating and finishing the P.C.C.
- 2) Drilling the hardened concrete section and then inserting and grouting the tie bars into place. The holes shall be drilled large and deep enough to allow the tie bars to be inserted with adequate approved grout and shall be performed any time after the P.C.C. has attained enough strength to resist any damage caused by drilling. Tie bars shall be grouted a maximum of 3-hours prior to placement of adjacent P.C.C.

All loose tie bars shall be replaced by drilling and grouting as described, at the Contractor's expense.

Section 41. PWCC Section 312.3.01, Excavation, Fill, and Sidewalk Base, is deleted and replaced with the following:

312.3.01 Excavation, Fill, and Sidewalk Base

Excavate and place fill for sidewalks in conformance with Section 304, Road Excavation and Embankment.

Prepare sidewalk base to the thickness shown on the standard drawings and approved plans, and construct in conformance with Section 308, Base and Leveling Courses.

312.3.01A Panel Demolition and Removal

Before removing a sidewalk panel that is to be replaced, sawcut to full depth of existing concrete panel along existing joint on each end of the panel. Remove existing panel carefully to avoid damaging adjacent panels. Replace all sidewalk panels damaged during construction.

Section 42. PWCC Section 312.3.07, Finish, is deleted and replaced to read as follows:

312.3.07 Finish

Construct concrete walks so longitudinal slope, cross slope, surface, and other features do not exceed maximum allowable slope according to the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG).

If the existing adjacent sidewalk cross slope exceeds PROWAG requirements, construct a transition panel between the new sidewalk panel and the nearest transverse joint with a minimum length of two feet. The intent of transitional segments is to

smoothly transition between the PROWAG-compliant replacement sidewalk panels and non-PROWAG-compliant existing sidewalk panels.

After the concrete has been thoroughly consolidated and leveled, float surface with a wood or magnesium float and finish with a steel float at the proper time. Edge joints with 1/4-inch radius edger. Use a fiber hair brush to apply a light broomed finish in a transverse direction to the centerline of the sidewalk as approved by the City Engineer.

The finished surface must be free of humps, sags or other irregularities and must be constructed within 0.02 feet of the specified line, grade, cross section, slope, and thickness.

Section 43. PWCC Section 313.1.01, Scope, is deleted and replaced to read as follows:

313.1.01 Scope

This section covers the work necessary to restore surfacing including driveways, extruded curb, trench repaving, pavement coring, and to adjust miscellaneous structures to grade.

For asphalt roads paved within the last five years, meet the requirements of Section 313.3.03D, Asphalt Repair for Newly Paved Roads.

Section 44. PWCC Section 313.1.02, Surfacing Depths, is deleted and replaced to read as follows:

313.1.02 Surfacing Depths for Surface Restoration

Provide a minimum pavement thickness of six inches for asphalt restoration and 10 inches for concrete restoration, or match existing pavement thickness, whichever is greater. Exceptions must be approved by the City Engineer.

Section 45. PWCC Section 313.2.03, Concrete, is deleted and replaced to read as follows:

313.2.03 Concrete Pavement

Furnish concrete as specified in the applicable section(s) listed below:

1. Section 310, Portland Cement Concrete Pavement
2. Section 311, Concrete Curb and Gutter
3. Section 312, Concrete Sidewalks, Pathways, and Driveway Approaches

Section 46. PWCC Section 313.3.01, Driveway, is deleted and replaced to read as follows:

313.3.01 Driveways and Sidewalks

Restore damaged driveways and sidewalks in compliance with Section 312, Concrete Sidewalk, Pathways, and Driveway Approaches. Replace full concrete panels only; partial panel replacement is not allowed. If an existing driveway approach does not meet PROWAG, replace the entire driveway approach.

Section 47. PWCC Section 313.3.03A, Trench Preparation and Backfill, is deleted and replaced to read as follows:

313.3.03A Trench Preparation and Backfill

Comply with Section 320, Trench Excavation and Backfill.

Section 48. PWCC Section 313.3.03D, Asphalt Concrete, is deleted and replaced to read as follows:

313.3.03D Asphalt Concrete

Comply with Section 309, Asphalt Concrete.

For all cuts into a road that was paved within the last five years, additional repair is required. Replace existing asphalt with grind and inlay replacement extending from the face of curb or gutter (or edge of asphalt) to the road centerline or other lane striping approved by the City Engineer, and 10 feet beyond the edges of trench cuts in the direction parallel to the road centerline. If a cut is made within two feet of the road centerline, or if the cut crosses the road centerline, extend the grind and inlay across the entire width of the road. The City Engineer may alter the limits of grind and inlay replacement. Perform work in accordance with Section 315, Cold Plane Pavement Removal.

Section 49. PWCC Section 313.3.03F, Contractor's Responsibility, is deleted and replaced to read as follows:

313.3.03F Contractor's Responsibility

Prior to the end of each workday, permanently resurface all trenches within the Right-of-Way in accordance with these specifications or provide temporary surfacing in accordance with Section 313.3.03G, Temporary Surfacing. Do not leave trenches in a condition that requires traffic to traverse crushed rock or unpaved surface.

Maintain and repair all settlement of pavement over trenches.

Restore all striping, traffic signal loops, and other public works facilities impacted by the work.

Section 50. PWCC Section 313.3.03G, Temporary Surfacing, is added to read as follows:

313.3.03G Temporary Surfacing

Temporary trench surfacing may include the following:

1. **Cold-Mix Asphalt:** Backfill the trench in accordance with Section 320, Trench Excavation and Backfill, and finish the trench with at least three inches of compacted cold-mix asphalt. Finish trench so compacted surface is flush with the surrounding surface. Promptly correct any irregularities in the pavement surface that deviate from the proper street grade or cross-section by 1/4-inch or more.
2. **CLSM:** Backfill the trench to the surface with Class E (CLSM) in accordance with Section 320, Trench Excavation and Backfill. Strike off CLSM to provide a smooth surface that is flush with the surrounding surface. Allow a minimum of 24-hours for CLSM to set. Open to traffic only after CLSM has hardened sufficiently to prevent rutting. Promptly correct any irregularities in the pavement surface that deviate from the proper street grade or cross-section by 1/4-inch or more.
3. **Steel Plates:** In special cases, if approved by the City Engineer, steel plates over the excavation may be used. Before steel plates are installed, the excavation must be adequately shored to support the bridging and traffic loads. Use steel plates that meet ASTM A36 Steel Requirements, and are able to withstand H-20 traffic loading without any movement. Use flat steel plates that do not deviate more than 1/4-inch when measured with a 10-foot long straight edge along the length of the plate. Install steel plates to resist bending and vibrations, and anchor securely to prevent movement. Use leveling shims as needed to reduce plate movement. When more than one plate is used, tack weld plates together at each corner. Place a "Steel Plate Ahead" warning sign (MUTCD W8-24) a distance in feet of four times the posted speed limit or 100 feet, whichever is greater, in advance of steel plate location. Perform and document daily inspections of steel plates and take immediate corrective action as needed to ensure public safety. Do not use steel plates for more than 30 consecutive days, unless otherwise approved by the City Engineer. Use one of the following installation methods as required:

Asphalt Roadways Below 35 MPH: Use steel plates that are a minimum of one inch thick. Install steel plates to provide a minimum of 12 inches overlap onto undisturbed pavement. Install compacted cold-mix asphalt transition taper a minimum of 12 inches wide around all edges of steel plates.

Asphalt Roadways 35 MPH and Greater: Use steel plates that are a minimum of 1 1/4-inch thick. Mill a minimum of 14 inches of undisturbed asphalt surface around the edges of the trench and install steel plates to overlap a minimum of 12 inches on top of the milled asphalt surface, and to be flush with the existing surface. The gap between the edge of steel plate

and undisturbed asphalt must be at least two inches wide. Fill the gap with compacted cold-mix asphalt.

All Concrete Roadways: Use steel plates that are 1 1/4-inch thick minimum. Install steel plates to provide a minimum of 12 inches overlap onto undisturbed pavement. Install compacted cold-mix asphalt transition taper a minimum of 12 inches wide around all edges of steel plates.

Section 51. PWCC Section 313.3.03H, Portland Cement Concrete, is added to read as follows:

313.3.03H Portland Cement Concrete

Comply with Section 310, Portland Cement Concrete Pavement. Replace damaged panels entirely. Place new dowels and tie bars between all cut dowels and tie bars. Provide a minimum pavement thickness of 10 inches or match existing.

Section 52. PWCC Section 313.3.05, Pavement Coring Repair, is added to read as follows:

313.3.05 Pavement Coring Repair

This section covers the repair of pavement coring. If multiple pavement cores are made within three feet of each other, repair in accordance with Section 313.3.03, Trench Repaving. All other excavations are covered under Section 313.3.03, Trench Repaving.

313.3.05A Asphalt Concrete Pavement Coring Repair

Backfill with CLSM to a depth six inches minimum below pavement surface or to bottom of existing asphalt, whichever is greater. Swab the hole with tack coat and fill with hot mix asphalt in three-inch maximum lifts, compacting each lift individually. Seal with tack coat and sand layer.

Use CLSM in compliance with Section 320.2.04, Controlled Low Strength Material (CLSM). Use tack coat in compliance with Section 309.2.08, Asphalt Tack Coat.

If pavement coring in a bike lane, repair in compliance with Section 313.3.03, Trench Repaving.

313.3.05B Portland Cement Pavement Coring Repair

Backfill with CLSM and repair with 10 inches minimum Portland Cement Concrete or match existing pavement thickness, whichever is greater.

Finish new concrete surface to match existing surrounding surface.

Use CLSM in compliance with Section 320.2.04, Controlled Low Strength Material (CLSM). Use concrete in compliance Section 310, Portland Cement Concrete Pavement.

If the edge of the pavement coring is within 18 inches of the edge of the panel, replace the entire panel in compliance with Section 313.3.03, Trench Repaving.

Section 53. PWCC Section 315.3.01, Pavement Removal, is deleted and replaced to read as follows:

315.3.01 Pavement Removal

Remove two inches minimum of existing asphalt surface for the entire area shown on the plans or as directed by the City Engineer. Sawcut the edges of the grind area to a depth of two inches to provide a vertical edge along the perimeter. An inspection will be required before paving may commence. Apply new pavement true to the grade and cross slope shown on the plans or as directed by the City Engineer. Conform to Section 309, Asphalt Concrete Pavement. Restore all striping in accordance with Section 317, Pavement Marking.

If the grind area is required to be open to traffic prior to final asphalt paving is complete, place asphalt joint paper on all edges and construct cold-mix asphalt transition ramps, a minimum of 12 inches long.

Do not remove the existing surfacing more than five days prior to construction of new surfacing, except where samples are taken to establish a job mix formula or otherwise approved by the City Engineer.

Section 54. PWCC Section 320.2.04, Controlled Low Strength Material (CLSM), is added to read as follows:

320.2.04 Controlled Low Strength Material (CLSM)

320.2.04A Materials

Furnish materials meeting the following requirements:

Portland Cement	Section 310.2.01
Fine Aggregates	Section 310.2.02A
Air Entraining Admixtures	Section 310.2.03
Fly Ash	Section 310.2.04

320.2.04B Proportioning of CLSM Mixture

Provide the City Engineer a written certification of proposed CLSM materials with proportions and compressive strength and 28-Day cylinder reports from a trial CLSM batch based on submitted certification. Include evidence that compressive strength requirements for specific applications are met.

320.2.04C Compressive Strength

CLSM must attain a 28-Day compressive strength between 100 and 200 psi.

Section 55. PWCC Section 320.3.09, Trench Backfill Above Pipe Zone, is deleted and replaced to read as follows:

320.3.09 Trench Backfill Above Pipe Zone

When trench width is two feet or less, backfill with Class E. Use Class D backfill when trench width is more than two feet. Use Class C backfill when trench surface is unpaved, regardless of trench width.

Do not allow backfill material to freefall into the open trench until at least 2 feet of cover is provided over the pipe. Do not allow sharp or heavy pieces of material to drop directly onto or near the pipe. Do not use backfill material of consolidated masses. Flooding and jetting are not allowed.

Promptly repair all subsequent settlement of the finished surfacing during the warranty period.

Use the following types of backfill as described above, as shown on the Plans, or as directed by the City Engineer:

Section 56. PWCC Section 320.3.09B, Class "D", is deleted and replaced to read as follows:

320.3.09B Class "D"

Backfill with 3/4-0 inch crushed aggregate in lifts not exceeding eight-inch loose depth. Compact each lift to a minimum of 92 percent relative compaction per AASHTO T 180. Moisture-condition backfill materials to near optimum moisture content prior to placement in the trench. Use mechanical vibrating or impact tampers.

Section 57. PWCC Section 320.3.09C, Class "E", is added to read as follows:

320.3.09C Class "E"

Backfill trench above pipe zone with CLSM. Allow a minimum of 24 hours for CLSM to set prior to paving.

Section 58. PWCC Section 326.3.09, Backfill at the Pipe Zone, is deleted and replaced to read as follows:

326.3.09 Backfill at the Pipe Zone

Use Class "D" backfill. After the water pipe is in place and ready for backfilling, place at approximately the same rate on each side of the pipe such that the elevation of the backfill on each side of the pipe is approximately equal at all times. Compact the backfill by tamping in six-inch lifts to the springline of the pipe, to satisfaction of the City Engineer. Give particular attention to compacting areas beneath the pipe.

Place remainder of the backfill in pipe zone without compacting. After backfilling to top of pipe zone, compact to a minimum of 92 percent relative compaction per AASHTO T 180.

Section 59. PWCC Section 330, Public Utility Installation, is added to read as follows:

330 PUBLIC UTILITY INSTALLATION

330.1.00 General

330.1.01 Scope

This section, in accordance with City of Tualatin Municipal Code 03-06, covers installation and repair of Public Utilities in Rights-of-Way or public easements.

330.1.02 Tree Protection

Locate the receiving and insertion point of all utility bores outside the tree drip line, unless otherwise approved by the City Engineer.

330.2.00 Workmanship

330.2.01 Location of Existing City Utilities

Core and vacuum excavate to verify location of existing utilities prior to construction. All exceptions must be approved by the City Engineer. Repair pavement coring in compliance with Section 313.3.05, Pavement Coring Repair.

330.2.02 Directional Boring

Bore all pipes and conduits to true line and grade. Correct any deviation from true line and grade considered excessive, in the judgment of the City Engineer, at no expense to the City.

330.2.03 Trench Excavation and Restoration

Repair trench in compliance with Section 313, Surface Restoration, and Section 320, Trench Excavation and Backfill.

Section 60. Standard Drawings 475 (Concrete Sidewalk) is deleted and replaced as set forth in Exhibit A, which is attached and incorporated by reference.

Section 61. The following Standard Drawings are added as set forth in Exhibit B, which are attached and incorporated by reference.

- 241 (Trench & Surface Restoration)
- 480 (Asphalt Repair for Newly Paved Roads)
- 481 (Concrete Roadway)
- 482 (Temporary Steel Plates)
- 483 (Temporary Surfacing)
- 484 (Pavement Coring Repair)

Section 62. To the extent this resolution conflicts with a prior resolution involving the PWCC, the provisions of this resolution control.

Section 63. This resolution is effective upon adoption.

INTRODUCED AND ADOPTED this 12th day of February 2018.

CITY OF TUALATIN OREGON

BY 

Mayor

APPROVED AS TO LEGAL FORM

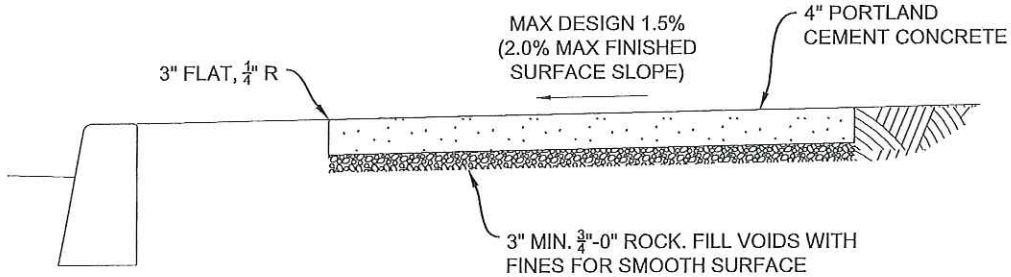
BY 

City Attorney

ATTEST

BY 

City Recorder



CROSS SECTION

NOTES:

1. PLATE COMPACT THE SIDEWALK SUBGRADE AND BASE ROCK TO SATISFACTION OF THE CITY ENGINEER. DO NOT COMPACT EARLIER THAN 7 DAYS AFTER CONSTRUCTING CURB OR BEFORE COMPLETING THE PLACEMENT OF PAVEMENT BASE ROCK. FILL VOIDS WITH FINES WHERE NECESSARY TO PROVIDE SMOOTH SURFACE.
2. USE PORTLAND CEMENT CONCRETE WITH 4-7% AIR ENTRAINMENT AND A 28 DAY COMPRESSIVE STRENGTH OF AT LEAST 3,300 PSI.
3. CONSTRUCT TRANSVERSE CONTROL JOINTS OF THE WEAKENED PLANE TYPE, 1-1/2" CONCRETE DEPTH AND SPACE AT 5' INTERVALS AND AT POINTS OF TANGENCY.
4. FORM CONTROL JOINTS WITH A SMOOTH FACE SQUARE TO THE SIDEWALK.
5. WHERE A STRUCTURE IS SURROUNDED BY OR IS ADJACENT TO THE SIDEWALK (EXCLUDING CURB), PROVIDE SEPARATION WITH $\frac{1}{2}$ " PREMOLDED ASPHALT-IMPREGNATED, NON-EXTRUDING EXPANSION JOINT MATERIAL.
6. BROOM FINISH THE SURFACE TRANSVERSE TO THE DIRECTION OF TRAFFIC.
7. FINISH ALL EDGES WITH $\frac{1}{4}$ " RADIUS EDGER WITH 3" FLAT.
8. WHERE PRACTICAL, ALIGN SIDEWALK CONTROL JOINTS WITH CURB JOINTS.
9. IF EXISTING ADJACENT SIDEWALK PANEL DOES NOT MEET PROWAG REQUIREMENTS, CONSTRUCT TRANSITIONAL PANEL THAT IS AT LEAST 2' LONG BETWEEN THE NEW SIDEWALK PANEL AND THE NEAREST CONTROL JOINT IN THE EXISTING SIDEWALK.



**CITY OF
TUALATIN, OR**

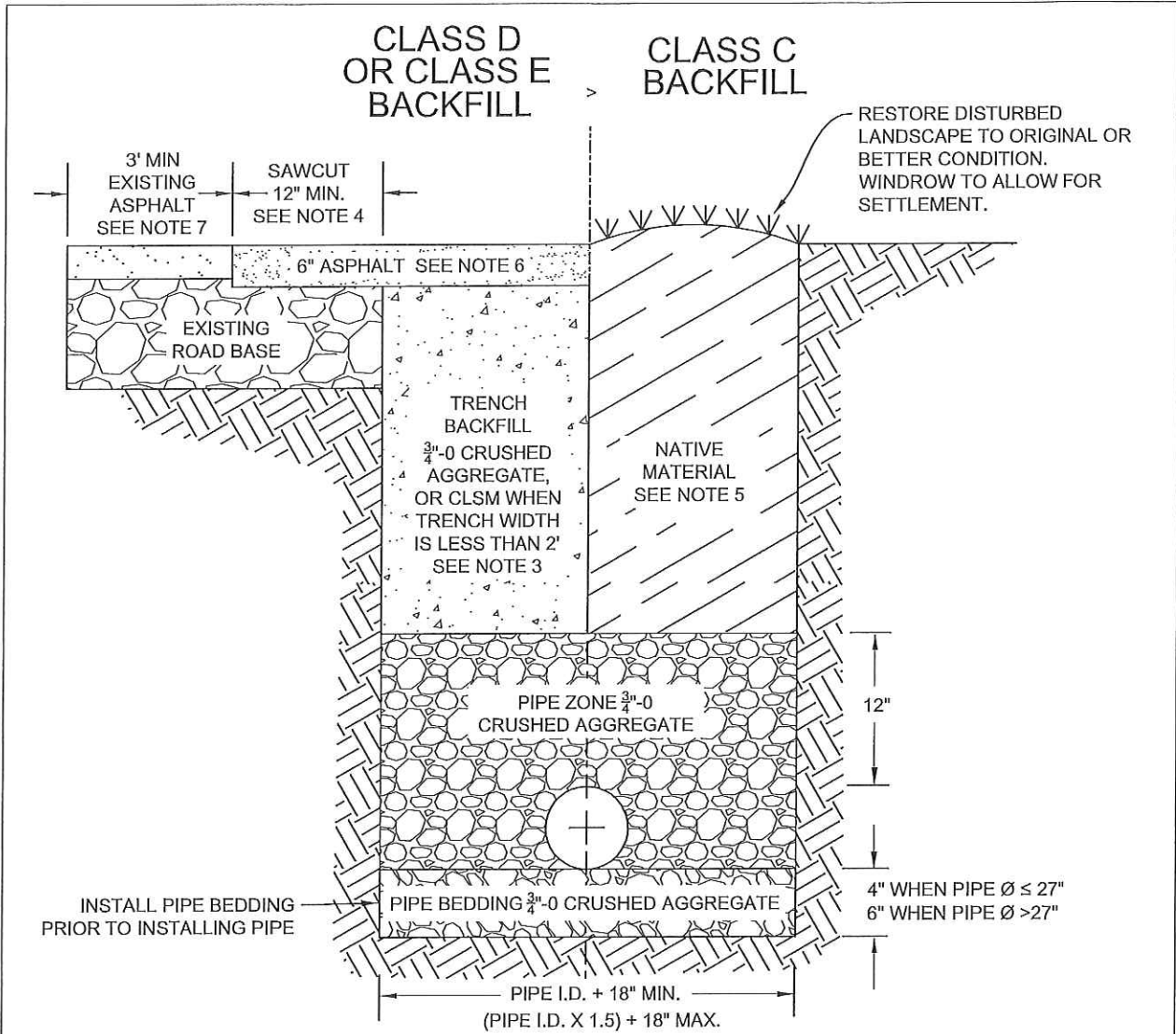
**CONCRETE
SIDEWALK**

REVISED: 2/12/2018

DRAFTED BY: S. STRASSER
APPROVED BY: J. FUCHS


SCALE: NTS

DRAWING NO. **475**

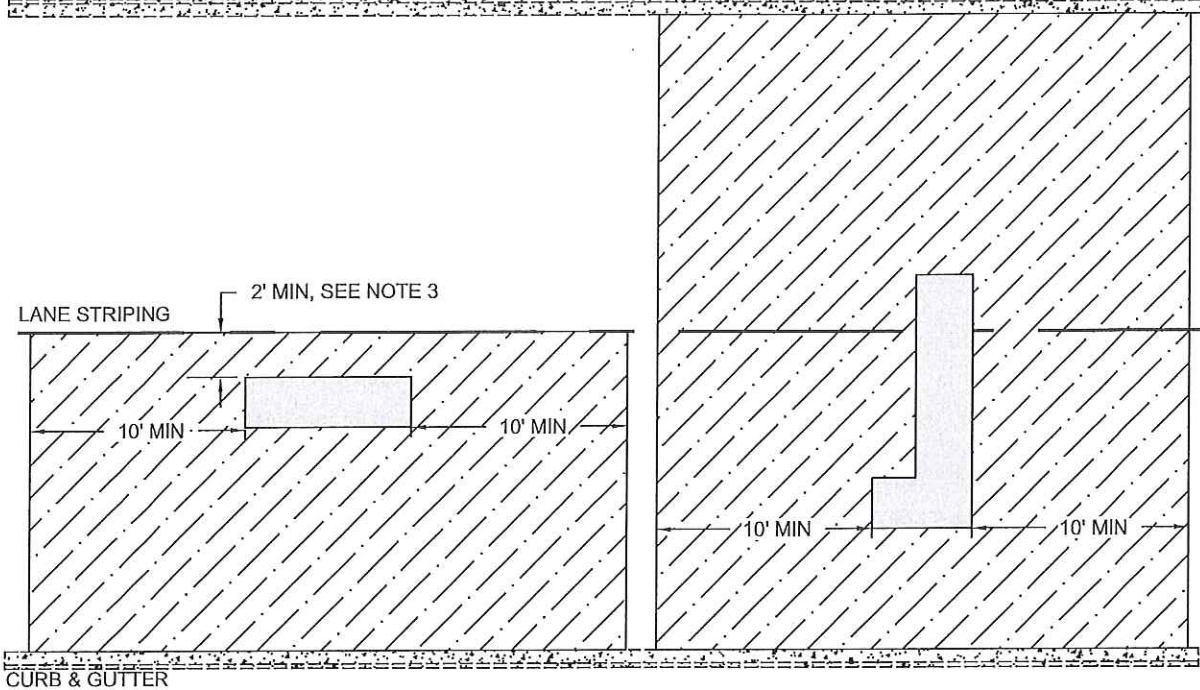


NOTES:


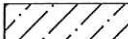
1. SEE STANDARD DRAWING NO. 480 FOR ROADS PAVED WITHIN THE LAST 5 YEARS.
2. SEE STANDARD DRAWING NO. 481 FOR CONCRETE ROADWAY RESTORATION.
3. WHEN TRENCH WIDTH IS LESS THAN 2' WIDE, BACKFILL WITH CLASS E, CONTROLLED LOW STRENGTH MATERIAL (CLSM) WITH A 28-DAY DESIGN STRENGTH OF 100-200 PSI.
4. SAWCUT A MINIMUM OF 12" OF PAVEMENT FROM EDGE OF TRENCH.
5. COMPACT CRUSHED AGGREGATE BACKFILL TO 92% AASHTO T 180, AND COMPACT NATIVE MATERIAL TO 90% AASHTO T 99, OR TO SATISFACTION OF CITY ENGINEER.
6. PROVIDE A MINIMUM ASPHALT THICKNESS OF 6" OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
7. IF LESS THAN 3' OF UNDISTURBED ASPHALT REMAINS BETWEEN THE EXCAVATION AND EDGE OF THE ROADWAY, REMOVE AND REPAIR THE REMAINING AREA.

	<h1>CITY OF TUALATIN, OR</h1>		<h2>TRENCH & SURFACE RESTORATION</h2>	
	REVISED: 2/12/2018	DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 241

CURB & GUTTER



LEGEND:

- TRENCH AREA 
- GRIND & INLAY AREA 

NOTES:

1. THIS STANDARD DRAWING APPLIES TO ROADS PAVED WITHIN THE LAST 5 YEARS.
2. ALL CUTS INTO ANY LANE REQUIRE A VERTICAL CUT AND A 2" GRIND AND INLAY REPLACEMENT EXTENDING FROM THE CURB AND GUTTER TO THE ROAD CENTERLINE, OR OTHER LANE STRIPING AS APPROVED BY THE CITY ENGINEER. EXTEND THE LENGTH OF THE GRIND AND INLAY TO 10' BEYOND THE EDGES OF THE TRENCH.
3. IF A TRENCH CUT IS MADE WITHIN 2' OF THE ROAD CENTERLINE OR IF A CUT CROSSES THE ROAD CENTERLINE, EXTEND THE GRIND AND INLAY THE ENTIRE WIDTH OF THE ROAD.
4. GRIND AND INLAY MUST BE AT LEAST 2" DEEP FOR THE ENTIRE AREA. AN INSPECTION IS REQUIRED BEFORE ASPHALT MAY BE APPLIED.
5. RESTORE ALL STRIPING.
6. REFERENCE STANDARD DRAWING NO. 241 FOR TRENCH REPAIR.



**CITY OF
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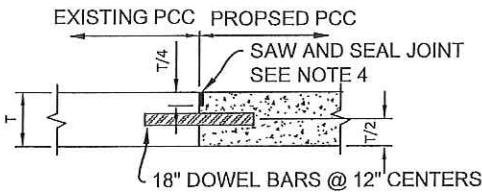
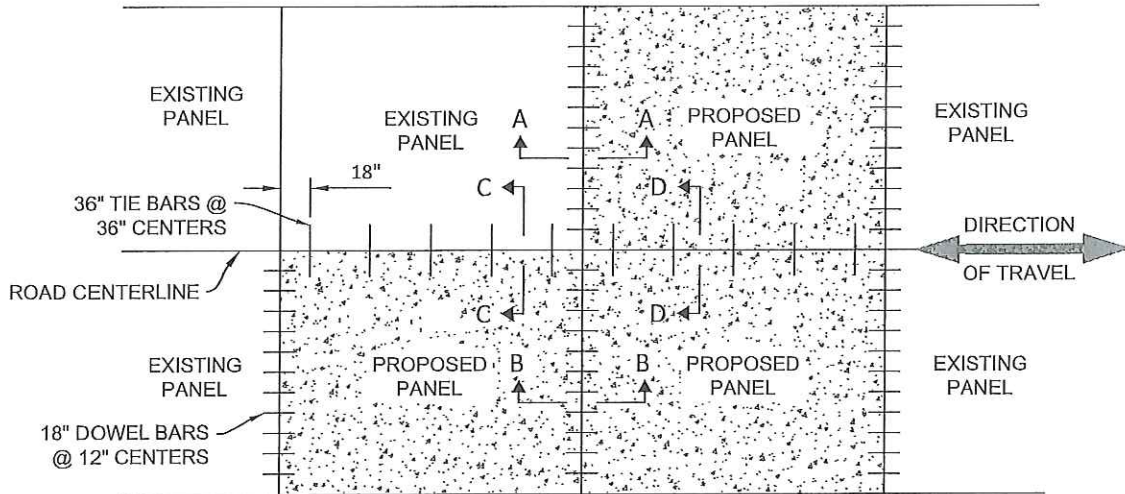
**ASPHALT REPAIR FOR
NEWLY PAVED ROADS**

REVISED: 2/12/2018

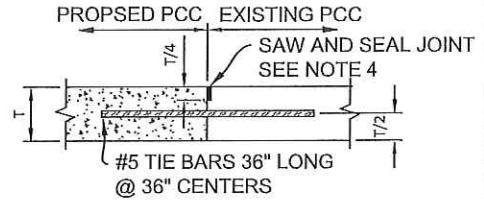
DRAFTED BY: S. STRASSER
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SCALE: NTS

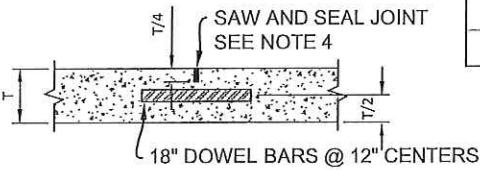
DRAWING NO. **480**



**SECTION A-A
CONSTRUCTION JOINT**

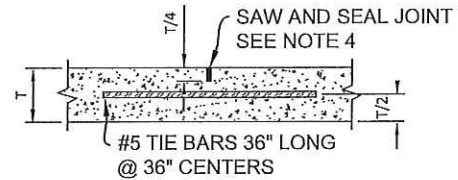


**SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT**



**SECTION B-B
CONTRACTION JOINT**

DOWEL BAR TABLE	
PCC THKN (T)	DOWEL DIA
6" - 8"	1"
8 1/2" - 10"	1 1/4"
10 1/2" & UP	1 1/2"



**SECTION D-D
LONGITUDINAL CONTRACTION JOINT**

NOTES:

1. REPLACE FULL PANELS FOR ALL PCC PAVEMENT REPAIR, EXCEPT PAVEMENT CORING. REPAIR PAVEMENT CORING IN COMPLIANCE WITH STANDARD DRAWING 484, PAVEMENT CORING REPAIR.
2. PAVEMENT THICKNESS (T) FOR REPLACED PANELS MUST BE 10" MINIMUM OR MATCH EXISTING, WHICHEVER IS GREATER.
3. TINE FINISH THE CONCRETE SURFACE WITH 1/8" WIDE MARKINGS AT 1/2" CENTERS PERPENDICULAR TO THE DIRECTION OF TRAVEL, WITHOUT OVERLAP.
4. SAWCUT NEW JOINTS AS SOON AS CONCRETE HAS SET SUFFICIENTLY. FLUSH JOINTS WITH WATER AND VACUUM PRIOR TO FILLING WITH POURED RUBBER-ASPHALT JOINT FILLER.
5. ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI PRIOR TO OPENING TO TRAFFIC.



**CITY OF
TUALATIN, OR**

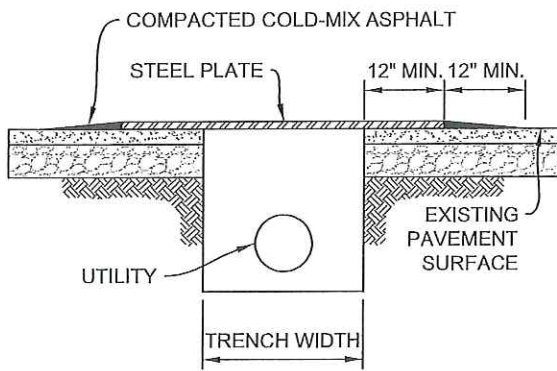
CONCRETE ROADWAY

REVISED: 2/12/2018

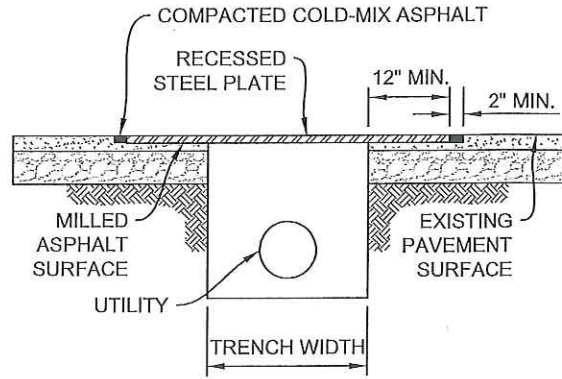
DRAFTED BY: S. STRASSER
APPROVED BY: J. FUCHS

SCALE: NTS

DRAWING NO. **481**



**ASPHALT ROADWAYS BELOW 35 MPH
AND ALL CONCRETE ROADWAYS**



ASPHALT ROADWAYS 35 MPH AND GREATER


STEEL PLATE INSTALLATION

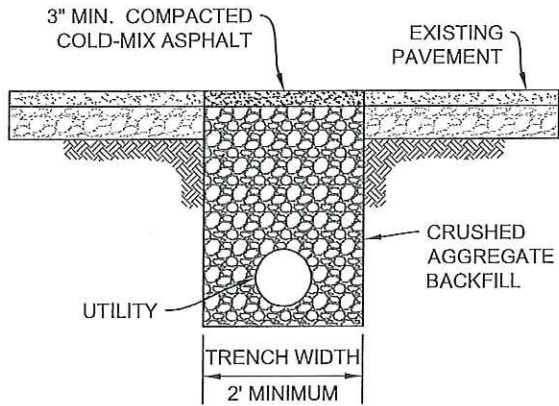


W8-24
SEE NOTE 9

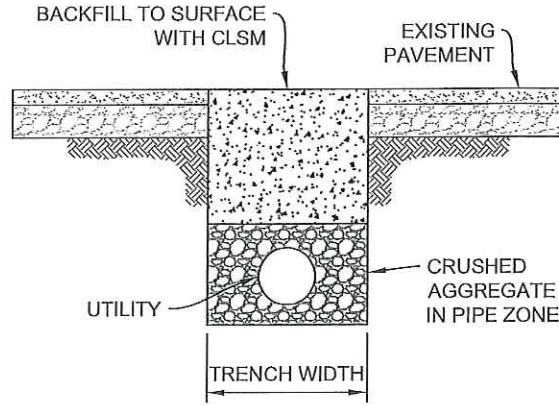
NOTES:

1. USE OF STEEL PLATES MUST BE APPROVED BY THE CITY ENGINEER.
2. USE 1" THICK MIN. STEEL PLATES ON ASPHALT ROADWAYS WITH SPEED LIMITS BELOW 35 MPH.
3. USE 1 1/4" THICK MIN. STEEL PLATES ON CONCRETE ROADWAYS AND ASPHALT ROADWAYS 35 MPH AND GREATER.
4. STEEL PLATES MUST MEET ASTM A36 STEEL REQUIREMENTS AND BE ABLE TO WITHSTAND H-20 TRAFFIC LOADING WITHOUT ANY MOVEMENT.
5. USE FLAT STEEL PLATES THAT DO NOT DEVIATE MORE THAN 1/4" WHEN MEASURED WITH A 10' STRAIGHT EDGE.
6. BEFORE STEEL PLATES ARE INSTALLED, ADEQUATELY SHORE AND SUPPORT TRENCH WALLS TO SUPPORT BRIDGING AND TRAFFIC LOADS
7. INSTALL STEEL PLATES TO RESIST BENDING, VIBRATIONS, AND MOVEMENT. ANCHOR SECURELY TO PREVENT MOVEMENT. USE LEVELING SHIMS AS NEEDED TO REDUCE PLATE MOVEMENT.
8. WHEN MORE THAN ONE PLATE IS USED, TACK WELD PLATES TOGETHER AT EACH CORNER.
9. IN ACCORDANCE WITH MUTCD REQUIREMENTS FOR ADVANCE WARNING SIGNS, PLACE W8-24 "STEEL PLATE AHEAD" WARNING SIGN A DISTANCE IN FEET OF 4 TIMES THE POSTED SPEED LIMIT (100' MINIMUM) IN ADVANCE OF STEEL PLATE LOCATION.
10. DO NOT USE STEEL PLATES FOR MORE THAN 30 CONSECUTIVE DAYS.

 CITY OF TUALATIN, OR	TEMPORARY STEEL PLATES		
	REVISED: 2/12/2018 DRAFTED BY: S. STRASSER APPROVED BY: J. FUCHS	SCALE: NTS	DRAWING NO. 482



COLD-MIX ASPHALT



CONTROLLED LOW STRENGTH MATERIAL (CLSM)

TEMPORARY SURFACING

NOTES:

1. BACKFILL IN ACCORDANCE WITH STANDARD DRAWING NO. 241, TRENCH & SURFACE RESTORATION.
2. BACKFILL TRENCHES LESS THAN 2' WIDE WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM). WIDER TRENCHES MAY ALSO BE BACKFILLED WITH CLSM.
3. USE CLSM WITH 28-DAY DESIGN STRENGTH OF 100-200 PSI. ALLOW CLSM TO SET FOR AT LEAST 24-HOURS BEFORE OPENING TO TRAFFIC.
4. COMPACT COLD-MIX ASPHALT IN 1.5" MAXIMUM LIFTS, TO SATISFACTION OF THE CITY ENGINEER.
5. FINISH AND MAINTAIN TEMPORARY SURFACE TO BE FLUSH WITH EXISTING SURFACE.



**CITY OF
TUALATIN, OR**

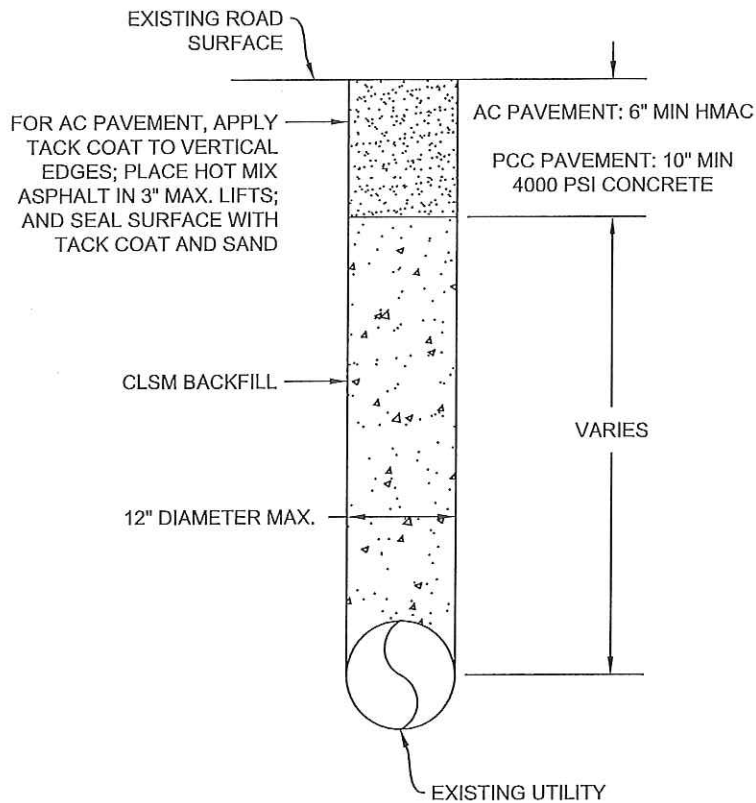
TEMPORARY SURFACING

REVISED: 2/12/2018

DRAFTED BY: S. STRASSER
APPROVED BY: J. FUCHS

SCALE: NTS

DRAWING NO. **483**



NOTES:

1. REPAIR EXCAVATIONS LARGER THAN 12" IN DIAMETER IN COMPLIANCE WITH STANDARD DRAWING 241, TRENCH AND SURFACE RESTORATION.
2. IF PAVEMENT CORING IS WITHIN 18" OF THE EDGE OF A CONCRETE PANEL, REPLACE THE ENTIRE PANEL IN COMPLIANCE WITH STANDARD DRAWING 481, CONCRETE ROADWAY.
3. IF MULTIPLE PAVEMENT CORINGS ARE WITHIN 3' OF EACH OTHER, REPAIR AS A SINGLE AREA TRENCH AND SURFACE RESTORATION, IN COMPLIANCE WITH STANDARD DRAWING 241 FOR ASPHALT, AND STANDARD DRAWING 481 FOR CONCRETE.
4. IF PAVEMENT CORING IS WITHIN A BIKE LANE, REPAIR IN COMPLIANCE WITH STANDARD DRAWING 241 FOR ASPHALT, AND STANDARD DRAWING 481 FOR CONCRETE.
5. IF PAVEMENT IS UNDERMINED OR DAMAGED DURING CONSTRUCTION THEN RESTORE PAVEMENT AS DIRECTED BY THE CITY ENGINEER.
6. REPAIR ASPHALT ROADS WITH HOT MIX PLACED IN 3" MAXIMUM LIFTS AND COMPACT WITH PNEUMATIC TAMPER (OR APPROVED EQUAL). TACK COAT ALL SIDE SURFACES AND SAND SEAL TOP SURFACE.
7. REPAIR CONCRETE ROADS WITH 4,000 PSI MIN. PREMIX OR BATCH PLANT CONCRETE. STRIKE LEVEL WITH EXISTING PAVEMENT AND FINISH TO MATCH EXISTING SURFACE TEXTURE.



**CITY OF
TUALATIN, OR**

PAVEMENT CORING REPAIR

REVISED: 2/12/2018

DRAFTED BY: S. STRASSER
APPROVED BY: J. FUCHS

SCALE: NTS

DRAWING NO. **484**



PUBLIC WORKS CONSTRUCTION CODE

CITY OF TUALATIN

ENGINEERING DIVISION

18880 S.W. MARTINAZZI AVENUE
TUALATIN, OR 97062-7092

NOVEMBER 2001

LATEST REVISION: February 12, 2018

The selection and use of the enclosed specifications and standards, while in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a registered professional engineer.

REVISIONS SUMMARY

February 12, 2018 Revisions (Adopted under Resolution No. 5353-18)

Revised Specification Sections:

- Section 100.1.00 "Application of Provisions" (*Revised*)
- Section 101.1.00 "Definitions" (*Revised*)
- Section 101.2.00 "Abbreviations" (*Revised*)
- Section 102.1.00 "Permits Required" (*Revised*)
- Section 102.2.1 "Application Procedure" (*Deleted*)
- Section 102.3.1 "Permit Fees and Deposits" (*Revised*)
- Section 102.4.1 "Plans and Specifications" (*Revised*)
- Section 102.5.00 "Prequalification of Contractor" (*Revised*)
- Section 102.6.6 "Exemption for Public Utilities" (*Added*)
- Section 102.7.2 "Easements and Tracts Granted to the City" (*Revised*)
- Section 102.7.3 "Temporary Construction Easements" (*Revised*)
- Section 102.8.00 "Erosion Control Permit" (*Deleted*)
- Section 102.9.00 "Erosion Control Joint Permit" (*Deleted*)
- Section 102.10.00 "Contributed Equity Information" (*Revised*)
- Section 102.11.00 "Confined Space Entry Information" (*Revised*)
- Section 102.12.00 "Other Agency Permits" (*Revised*)
- Section 102.13.00 "Issuance, Expiration, Reinstatement and Amendments" (*Revised*)
- Section 102.14.00 "Performance of the Work" (*Revised*)
- Section 104.7.00 "Notifications Relative to Contractor's Activities" (*Revised*)
- Section 104.8.00 "Utilities and Existing Improvements" (*Revised*)
- Section 104.13.00 "Traffic Maintenance" (*Revised*)
- Section 201.1.01 "Scope" (*Revised*)
- Section 203.2.23 "Franchise Utilities" (*Deleted*)
- Section 205.2.07F "Spacing Requirements" (*Revised*)
- Section 205.2.07G "Water Line – Sewer Line Horizontal Separation" (*Revised*)
- Section 205.2.07H "Water Line – Sewer Line Vertical Separation" (*Revised*)
- Section 207 "Public Utility Design" (*Added*)
- Section 302.1.00 "General" (*Revised*)
- Section 304.3.03C "Embankment Compacting and Density Requirements" (*Revised*)
- Section 305.3.02 "Untreated Subgrade" (*Revised*)
- Section 305.3.03D "Compaction" (*Revised*)
- Section 308.3.01 "Base Course" (*Revised*)
- Section 310.1.01 "Scope" (*Revised*)
- Section 310.2.00 "Materials" (*Revised*)
- Section 310.2.04 "Fly Ash" (*Revised*)

- Section 310.2.05 "Steel Reinforcement" *(Revised)*
- Section 310.3.02 "Mixers" *(Revised)*
- Section 310.3.14 "Placing Portland Cement Concrete" *(Revised)*
- Section 310.3.15 "Joints" *(Revised)*
- Section 312.3.01 "Excavation, Fill, and Sidewalk Base" *(Revised)*
- Section 312.3.07 "Finish" *(Revised)*
- Section 313.1.01 "Scope" *(Revised)*
- Section 313.1.02 "Surfacing Depths for Surface Restoration" *(Revised)*
- Section 313.2.03 "Concrete Pavement" *(Revised)*
- Section 313.3.01 "Driveways and Sidewalks" *(Revised)*
- Section 313.3.03A "Trench Preparation and Backfill" *(Revised)*
- Section 313.3.03D "Asphalt Concrete" *(Revised)*
- Section 313.3.03F "Contractor's Responsibility" *(Revised)*
- Section 313.3.03G "Temporary Surfacing" *(Added)*
- Section 313.3.03H "Portland Cement Concrete" *(Added)*
- Section 313.3.05 "Pavement Coring Repair" *(Added)*
- Section 315.3.01 "Pavement Removal" *(Revised)*
- Section 320.2.04 "Controlled Low Strength Material (CLSM)" *(Added)*
- Section 320.3.09 "Trench Backfill Above Pipe Zone" *(Revised)*
- Section 320.3.09B "Class "D"" *(Revised)*
- Section 320.3.09C "Class "E"" *(Added)*
- Section 326.3.09 "Backfill at the Pipe Zone" *(Revised)*
- Section 330 "Public Utility Installation" *(Added)*

Revised Standard Drawings:

- Standard Drawing No. 475 "Concrete Sidewalk" *(Modified)*

New Standard Drawings:

- Standard Drawing No. 241 "Trench & Surface Restoration" *(Added)*
- Standard Drawing No. 480 "Asphalt Repair for Newly Paved Roads" *(Added)*
- Standard Drawing No. 481 "Concrete Roadway" *(Added)*
- Standard Drawing No. 482 "Temporary Steel Plates" *(Added)*
- Standard Drawing No. 483 "Temporary Surfacing" *(Added)*
- Standard Drawing No. 484 "Pavement Coring Repair" *(Added)*

April 24, 2017 Revisions (Adopted under Resolution No. 5314-17)

Revised Specification Sections:

- Section 102.3.3 "Erosion Control Fees"

- Section 102.3.4 "Water Quality Fees"
- Section 203.2.01 "Design Speed"
- Section 312.5.00 "Sidewalk Repair"

Revised Standard Drawings:

- Commercial Driveway Approach – Curbside Planter Strip (Drawing No 440)
- Commercial Driveway Approach – Curbside Sidewalk (Drawing No 441)
- Residential Driveway Approach – Curbside Planter Strip (Drawing No 442)
- Residential Driveway Approach – Curbside Sidewalk (Drawing No 443)
- Curb and Gutter (Drawing No 470)
- Curb (Drawing No 471)

New Standard Drawings:

- Example Single Family Erosion & Sediment Control Site Plan (Drawing No 001)

Deleted Standard Drawings:

- Approach Private Driveway (Drawing No 444)

December 12, 2016 Revisions (Adopted under Resolution No. 5302-16)

Revised Specification Sections:

- Section 202.1.00 "Scope"
- Section 202.2.00 "Plan View"
- Section 203.2.02 "Sight Distance"
- Section 203.2.04 "Superelevation"
- Section 203.2.08 "Intersections"
- Section 203.2.11C "Accessways"
- Section 203.2.14 "Sidewalks"
- Section 203.2.15 "Curb Ramps"
- Section 203.2.24A "Design and Installation Requirements"
- Section 203.2.25 "Traffic Signs"
- Section 203.2.27 "Traffic Marking"
- Section 311.3.05 "Control Joints"
- Section 312.3.05 "Control Joints"
- Section 312.3.07 "Finish"

Revised Standard Drawings:

- ADA Ramp – General Notes (Drawing No 460)
- ADA Ramp – Perpendicular (Drawing No 461)
- ADA Ramp – Parallel (Drawing No 462)
- ADA Ramp – Midblock (Drawing No 463)
- Concrete Sidewalk (Drawing No 475)
- Street Sign Post (Drawing No 516)

New Standard Drawings:

- ADA Ramp – Details (Drawing No 464)
- Street Name Sign (Drawing No 517)

Standard Drawings Table of Contents

NUMBER	EFF. DATE	TITLE
001	Apr-17	EXAMPLE SINGLE FAMILY EROSION & SEDIMENT CONTROL SITE PLAN
010	Oct-01	48-INCH MANHOLE ECCENTRIC CONE TOP
011	Oct-01	48-INCH MANHOLE FLAT TOP
012	Oct-01	60-INCH MANHOLE ECCENTRIC CONE TOP
013	Oct-01	60-INCH MANHOLE FLAT TOP
014	Oct-01	72-INCH MANHOLE ECCENTRIC CONE TOP
015	Oct-01	72-INCH MANHOLE FLAT TOP
016	Oct-01	84-INCH MANHOLE ECCENTRIC CONE TOP
017	Oct-01	84-INCH MANHOLE FLAT TOP
018	Oct-01	96-INCH MANHOLE ECCENTRIC CONE TOP
019	Oct-01	96-INCH MANHOLE FLAT TOP
020	Feb-00	MANHOLE OUTSIDE DROP ASSEMBLY
021	Mar-04	MANHOLE INSIDE DROP ASSEMBLY
030	Jul-96	MANHOLE COVER AND FRAME
031	Jun-97	MANHOLE COVER AND FRAME WATERTIGHT
032	Feb-98	MANHOLE STEPS
040	Dec-01	CATCH BASIN GUTTER GRATE INLET 36-INCH
041	Dec-01	CATCH BASIN CURB INLET 30-INCH
042	Dec-01	CATCH BASIN CURB INLET 48-INCH
043	Dec-01	DITCH INLET 24-INCH
050	Feb-02	FRAME AND GRATE CATCH BASIN
060	Mar-03	MANHOLE WATER QUALITY CONTROL
100	Feb-98	SEWER CLEANOUT
240	Oct-01	PIPE TRENCH BACKFILL
241	Feb-18	TRENCH & SURFACE RESTORATION
270	Mar-03	CONCRETE PIPE SLOPE ANCHORS
290	Mar-04	UNDERCROSSING
300	Mar-03	SEWER BUILDING LATERAL (SERVICE)

Standard Drawings Table of Contents

NUMBER	EFF. DATE	TITLE
310	Jan-02	SUBGRADE DRAIN
330	Mar-03	PIPELINE STREAM CROSSING
425	Jul-92	UTILITY LOCATIONS
450	Oct-02	PARABOLIC SPEED HUMP CONSTRUCTION
451	Oct-02	PARABOLIC SPEED HUMP PAVEMENT MARKINGS & STREET SIGNS
452	Oct-02	SPEED TABLE HUMP CONSTRUCTION
453	Oct-02	SPEED TABLE HUMP PAVEMENT MARKINGS AND STREET SIGNS
460	Dec-16	ADA RAMP – GENERAL NOTES
461	Dec-16	ADA RAMP – PERPENDICULAR
462	Dec-16	ADA RAMP – PARALLEL
463	Dec-16	ADA RAMP – MIDBLOCK
464	Dec-16	ADA RAMP – DETAILS
470	Apr-17	CURB AND GUTTER
471	Apr-17	CURB
475	Feb-18	CONCRETE SIDEWALK
480	Feb-18	ASPHALT REPAIR FOR NEWLY PAVED ROADS
481	Feb-18	CONCRETE ROADWAY
482	Feb-18	TEMPORARY STEEL PLATES
483	Feb-18	TEMPORARY SURFACING
484	Feb-18	PAVEMENT CORING REPAIR
500	Oct-01	MAILBOX POST INSTALLATION
510	Feb-02	STREET BARRICADE
511	Feb-02	STREET BARRICADE SIGN
512	Mar-04	STORMWATER FACILITY SIGN
514	Feb-13	TREE WELL AND GRATE
516	Dec-16	STREET SIGN POST
517	Dec-16	STREET NAME SIGN
520	Apr-10	CENTERLINE SURVEY MONUMENT

Standard Drawings Table of Contents

NUMBER	EFF. DATE	TITLE
600	Apr-10	GATE VALVE AND BOX
601	Apr-10	BUTTERFLY VALVE AND BOX
602	Mar-08	1-INCH AIR RELEASE VALVE
603	Mar-08	2-INCH AIR RELEASE VALVE
604	Mar-08	SAMPLE STATION
605	Mar-08	VALVE ASSEMBLY PERMANENT BLOW-OFF
606	Mar-08	VALVE ASSEMBLY TEMPORARY BLOW-OFF
607	Mar-08	OUTSIDE RPBA 2" AND SMALLER
608	Mar-08	INSIDE RPBA 2" AND SMALLER
609	Mar-08	INSIDE RPBA 3/4"- 1"
610	Mar-03	FIRE HYDRANT ASSEMBLY
611	Mar-08	INSIDE RPBA 1 1/2"- 2 1/2"
612	Mar-08	INSIDE RPBA 2 1/2"- 10"
613	Mar-08	BACKFLOW ASSEMBLY DOUBLE CHECK 3" THRU 10"
614	Mar-08	BACKFLOW ASSEMBLY FIRE PROTECTION WITHOUT FDC
615	Mar-08	BACKFLOW ASSEMBLY FIRE PROTECTION WITH FDC
616	Mar-08	BACKFLOW ASSEMBLY REDUCED PRESSURE 3/4" THRU 2"
617	Mar-08	BACKFLOW ASSEMBLY REDUCED PRESSURE 2 1/2" THRU 10"
620	Feb-02	JOINT RESTRAINT BEARING THRUST BLOCKS
621	Oct-01	JOINT RESTRAINT GRAVITY THRUST BLOCKS
622	Oct-01	JOINT RESTRAINT STRADDLE THRUST BLOCK
630	Apr-10	WATER SERVICE 5/8" x 3/4" METER
631	Mar-08	WATER SERVICE 1" METER
632	Mar-08	WATER SERVICE 1 1/2" METER
633	Mar-08	WATER SERVICE 2" METER
634	Mar-08	WATER SERVICE 3" AND LARGER METER COMPOUND TYPE
635	Mar-08	WATER SERVICE 4" AND LARGER METER FIRE SERVICE TYPE