CLACKAMAS COUNTY

DAN JOHNSON
DIRECTOR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD OREGON CITY, OR 97045

April 3, 2025 BCC Agenda Date/Item: _____

Board of County Commissioners
Clackamas County

Approval of a Public Improvement Contract with Kerr Contractors for Bilquist Elementary School sidewalk construction. Contract Value is $2,143,495 for 2 years. Funding is through the Oregon Department of Transportation, County Road Fund, and System Development Charges. No County General Funds are involved.

Previous Board Action/Review	5/4/2023: Approval of Resolution of Necessity for Acquisition of Right of Way, Easements and Fee Property for the Bilquist Elementary School – Sidewalks Project. 1/6/22: Approval of contract with Kittelson & Associates Inc. for design services for the Bilquist Elementary School – Sidewalks Project.		
Performance Clackamas	The project will build a strong infrastructure and ensure safe, healthy and secure communities.		
Counsel Review	Amanda Keller, 3/11/25	**Procurement Review**	Yes
Contact Person	Jonathan Hangartner	**Contact Phone**	503-742-4649

EXECUTIVE SUMMARY: Clackamas County received an Oregon Department of Transportation Safe Routes to School (SRTS) Infrastructure Grant to construct bicycle lanes and sidewalks on Webster Road between SE Roots Rd and SE Bixel Way. The existing substandard shoulders will be widened to 8-foot buffered bicycle lanes and the north project limits will connect to the existing school crosswalk at Bixel Way. Crosswalk upgrades consisting of illumination, center pedestrian refuge, and ADA-compliant curb ramps will be constructed. The total project length is approximately 1,325 feet and includes seven reconstructed and 13 new ADA curb ramps.

The total construction contract cost is $2,143,495.00 and will be paid through the SRTS grant, County Road Fund, and System Development Charges. Construction is expected to be substantially complete by December 31, 2025 and the purchase order for the contract will expire December 31, 2026 to allow for seed establishment.

For Filing Use Only

PROCUREMENT PROCESS: This project was advertised in accordance with ORS and LCRB Rules on December 10, 2024, Invitation to Bid 2024-107. Bids were publicly opened on January 8, 2025. The County received nine (9) bids in response to the Invitation to Bid from Turney Excavation, D&D Concrete and Utilities, Pacific Excavation, Corpac Construction, Dirt and Aggregate, Kerr Contractors Oregon, The Saunders Company, SLE, and Moore Excavation. The apparent lowest bid was from Kerr Contractors Oregon, LLC with a total value of $2,143,495.00. A review of the bids received led to a recommendation for a contract award to the apparent low bidder, Kerr Contractors Oregon, LLC.

RECOMMENDATION: Staff respectfully recommends that the Board of County Commissioners approval of this Public Improvement Contract #1151 with Kerr Contractors Oregon, LLC for the Construction of the Bilquist Elementary School Sidewalks Construction Project.

Respectfully submitted,

Dan Johnson

Dan Johnson, Director
Department of Transportation & Development

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT
Contract #1151

This Public Improvement Contract (the "Contract"), is made by and between Clackamas County, a political subdivision of the State of Oregon, hereinafter called "Owner," and **Kerr Contractors Oregon, LLC**, hereinafter called the "Contractor" (collectively the "Parties"). This Contract shall become effective on the date this Contract has been signed by all the Parties and shall expire upon completion the completion of all obligations under the terms of this Contract unless terminated earlier by the Parties.

All capitalized terms in this Contract shall have the meanings identified in the Specifications (defined below) unless otherwise defined in this Contract.

Project Name: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

1. Contract Price, Contract Documents and Work.
The Contractor hereby agrees to perform all the work described in, and reasonably inferred from, the Contract Documents, as further defined below ("Work"). In consideration of the Contractor performing the Work in accordance with the terms of the Contract, the Owner agrees to pay the Contractor an amount not to exceed **Two Million One Hundred Forty-Three Thousand Four Hundred Ninety-Five Dollars ($2,143,495.00)** (the "Contract Price"). Payment will be made in accordance with the terms and conditions provided in the Contract Documents. The Contract Price is the amount contemplated by the Base Bid, as indicated in the accepted Bid.

The following documents are incorporated by reference in this Contract and made a part hereof ("Contract Documents"):

- Notice of Contract Opportunity
- Supplemental Instructions to Bidders
- Bid Form
- Prevailing Wage Rates
- Plans, Specifications and Drawings
- Instructions to Bidders
- Bid Bond
- Performance Bond and Payment Bond
- Payroll and Certified Statement Form

The Plans, Specifications and Drawings expressly incorporated by reference into this Contract includes, but is not limited to, the Special Provisions for Roadway Construction, Bilquist Elementary School Sidewalk Construction (the "Specifications"), together with the provisions of the Oregon Standard Specifications for Construction (2021) referenced therein.

The Contractor shall comply with the prohibitions set forth in ORS 652.220, compliance of which is a material element of this Contract and failure to comply is a material breach that entitles County to exercise any rights and remedies available under this Contract including, but not limited to, termination for default.

2. Representatives.
Contractor has named Jeff Holiday as its Authorized Representative to act on its behalf. Owner designates, or shall designate, its Authorized Representative as indicted below (check one):

☒ Unless otherwise specified in the Contract Documents, the Owner designates Jonathan Hangartner as its Authorized Representative in the administration of this Contract. The above-named individual shall be the initial point of contact for matters related to Contract performance, payment, authorization, and to carry out the responsibilities of the Owner.

☐ Name of Owner's Authorized Representative shall be submitted by Owner in a separate writing.

3. Key Persons.
The Contractor's personnel identified below shall be considered Key Persons and shall not be replaced during the project without the written permission of Owner, which shall not be unreasonably withheld. If the Contractor intends to substitute personnel, a request must be given to Owner at least 30 days prior to the intended time of substitution. When replacements have been approved by Owner, the Contractor shall provide a transition period of at least 10 working days during which the original and replacement personnel shall be working on the project concurrently. Once a replacement for any of these staff members is authorized, further replacement shall not occur without the written permission of Owner. The Contractor's project staff shall consist of the following personnel:

Project Executive: Jeff Holiday shall be the Contractor's project executive, and will provide oversight and guidance throughout the project term.

Project Manager: Joel Jenson shall be the Contractor's project manager and will participate in all meetings throughout the project term.

Job Superintendent: Cory Templin shall be the Contractor's on-site job superintendent throughout the project term.

Project Engineer: Rob Bell shall be the Contractor's project engineer, providing assistance to the project manager, and subcontractor and supplier coordination throughout the project term.

4. Contract Dates.
The Contractor agrees to complete the Work in accordance with the following key dates:

COMMENCEMENT DATE: Upon Issuance of Notice to Proceed ("NTP")
SUBSTANTIAL COMPLETION DATE: December 31, 2025
FINAL COMPLETION DATE: December 31, 2026

5. Insurance Certificates and Required Performance and Payment Bonds.

5.1 In accordance with Section 00170.70 of the Specifications, Contractor shall furnish proof of the required insurance naming Clackamas County as an additional insured. Insurance certificates may be returned with the signed Contract or may be emailed to the Owner's Contract Analyst.

5.2 Primary Coverage: Insurance carried by Contractor under the Contract shall be the primary coverage. The coverages indicated are minimums unless otherwise specified in the Contract Documents.

5.2.1 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under the Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than the minimum amount required by statute for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation coverage by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

5.3 Builder's Risk Insurance: During the term of the Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk forms, including earthquake and flood, for an amount equal to the full amount of the Contract, plus any changes in values due to modifications, Change Orders and loss of materials added. Such Builder's Risk shall include, in addition to earthquake and flood, theft, vandalism, mischief, collapse, transit, debris removal, and architect's fees "soft costs" associated with delay of Project due to insured peril. Any deductible shall not exceed $50,000 for each loss, except the earthquake and flood deductible which shall not exceed 2 percent of each loss or $50,000, whichever is greater. The deductible shall be paid by Contractor. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear.

5.4 Builder's Risk Installation Floater: For Work other than new construction, Contractor shall obtain and keep in effect during the term of the Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under the Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear. Owner may waive this requirement at its sole and absolute discretion.

5.4.1 Such insurance shall be maintained until Owner has occupied the facility.

5.4.2 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner as loss payee. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner. The Owner shall have power to adjust and settle a loss with insurers.

5.5 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of the Contract for a duration of 36 months or the maximum time period available in the marketplace if less than 36 months. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 36 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of the Contract. Owner's receipt of the policy endorsement evidencing such coverage shall be a condition precedent to Owner's obligation to make final payment and to Owner's final acceptance of Work or services and related warranty (if any).

5.6 Notice of Cancellation or Change: If the Contractor receives a non-renewal or cancellation notice from an insurance carrier affording coverage required herein, or receives notice that coverage no longer complies with the insurance requirements herein, Contractor agrees to notify Owner by fax within five (5) business days with a copy of the non-renewal or cancellation notice, or written specifics as to which coverage is no longer in compliance. When notified by Owner, the Contractor agrees to stop Work pursuant to the Contract at Contractor's expense, unless all required insurance remain in effect. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the Owner and its institutions, divisions, officers, and employees. Owner shall have the right, but not the obligation, of prohibiting Contractor from entering the Project Site until a new certificate(s) of insurance is provided to Owner evidencing the replacement coverage. The Contractor agrees that Owner reserves the right to withhold payment to Contractor until evidence of reinstated or replacement coverage is provided to Owner.

5.7 Before execution of the Contract, the Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Revised Statutes, Chapter 279C.830 and 279C.836, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting any Subcontractor to start Work.

5.8 When the Contract Price is $50,000 or more, the Contractor shall furnish and maintain in effect at all times during the Contract Period a performance bond in a sum equal to the Contract Price and a separate payment bond also in a sum equal to the Contract Price. Contractor shall furnish such bonds even if the Contract Price is less than the above thresholds if otherwise required by the Contract Documents.

5.9 Bond forms furnished by the Owner and notarized by Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.

6. Responsibility for Damages/Indemnity.

6.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under the Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, employees, guests, visitors, invitees and agents.

6.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner and its elected officials, officers, directors, agents, and employees (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses, demands and actions of any nature whatsoever which arise out of, result from or are related to: (a) any damage, injury, loss, expense, inconvenience or delay described in this Section 6.1; (b) any accident or occurrence which happens or is alleged to have happened in or about the Project Site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects; (c) any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract; (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder (except to the extent otherwise void under ORS 30.140); and (e) any lien filed upon the Project or bond claim in connection with the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 6.2.

6.3 In claims against any person or entity indemnified under Section 6.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 6.2 shall not be limited on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

7. Tax Compliance.

The Contractor shall comply with all federal, state and local laws, regulation, executive orders and ordinances applicable to this Contract. Contractor represents and warrants that it has complied, and will continue to comply

throughout the duration of this Contract and any extensions, with all tax laws of this state or any political subdivision of this state, including but not limited to ORS 305.620 and ORS chapters 316, 317, and 318. Any violation of this section shall constitute a material breach of this Contract and shall entitle County to terminate this Contract, to pursue and recover any and all damages that arise from the breach and the termination of this Contract, and to pursue any or all of the remedies available under this Contract or applicable law.

8. Confidential Information.
Contractor acknowledges that it and its employees or agents may, in the course of performing their responsibilities under this Contract, be exposed to or acquire information that is confidential to Owner. Any and all information of any form obtained by Contractor or its employees or agents in the performance of this Contract shall be deemed confidential information of Owner ("Confidential Information"). Contractor agrees to hold Confidential Information in strict confidence, using at least the same degree of care that Contractor uses in maintaining the confidentiality of its own confidential information, and not to copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purpose unless specifically authorized in writing under this Contract.

9. Counterparts.
This Contract may be executed in several counterparts, all of which when taken together shall constitute an agreement binding on all Parties, notwithstanding that all Parties are not signatories to the same counterpart. Each copy of the Contract so executed shall constitute an original.

10. Integration.
All provisions of state law required to be part of this Contract, whether listed in the Specifications or Contract Documents or otherwise, are hereby integrated and adopted herein. Contractor acknowledges the obligations thereunder and that failure to comply with such terms is a material breach of this Contract.

The Contract Documents constitute the entire agreement between the parties. There are no other understandings, agreements or representations, oral or written, not specified herein regarding this Contract. Contractor, by the signature below of its authorized representative, hereby acknowledges that it has read this Contract, understands it, and agrees to be bound by its terms and conditions.

11. Liquidated Damages
The Contractor acknowledges that the Owner will sustain damages as a result of the Contractor's failure to substantially complete the Project in accordance with the Contract Documents. These damages may include, but are not limited to delays in completion, use of the Project, and costs associated with Contract administration and use of temporary facilities. The liquidated damages amount is not a penalty, but a reasonable estimate of the amount of losses the Owner will suffer. Liquidated damages are set forth in the Contract Documents and may include the following:

11.1 $1,100.00 per Calendar day past the Substantial Completion date, as set forth in section 00180.85 (b).

11.2 $500.00 per 15 minutes, or for a portion of 15 minutes, per lane, as set forth in 00180.85. (c).

12. Compliance with Applicable Law. Contractor shall comply with all federal, state, county, and local laws, ordinances, and regulations applicable to the Work to be done under this Contract including, but not limited to, compliance with the prohibitions set forth in ORS 652.220, compliance of which is a material element of this Contract and failure to comply is a material breach that entitles County to exercise any rights and remedies available under this Contract including, but not limited to, termination for default.

13. Responsibility for Taxes. Contractor is solely responsible for payment of any federal, state, or local taxes required as a result of the Contract or the Work including, but not limited, to payment of the corporate activity tax imposed under enrolled HB 3427 (2019 Oregon regular legislative session). Contractor may not include its federal, state, or local tax obligations as part of the cost to perform the Work.

15. No Attorney Fees. In the event any arbitration, action or proceeding, including any bankruptcy proceeding, is instituted to enforce any term of this Contract, each party shall be responsible for its own attorneys' fees and expenses.

In witness whereof, Clackamas County executes this Contract and the Contractor does execute the same as of the day and year first above written.

Contractor DATA:
Kerr Contractors Oregon, LLC
395 Shenandoah Ln NE
Woodburn, Oregon 97071

Contractor CCB # 227664 Expiration Date: 8/27/2025
Oregon Business Registry # 687808-90 Entity Type: DLLC State of Formation: Oregon

Payment information will be reported to the IRS under the name and taxpayer ID# provided by the Contractor. Information must be provided prior to contract approval. Information not matching IRS records could subject Contractor to 28 percent backup withholding.

Kerr Contractors Oregon, LLC		Clackamas County	
	2/19/2025		
Authorized Signature	Date	Chair	Date
Alan Aplin, VP/SEC			
Name / Title Printed		Recording Secretary	

APPROVED AS TO FORM

3/11/2025
County Counsel Date

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT OPPORTUNITY

Table of Contents

CLACKAMAS COUNTY
NOTICE OF PUBLIC IMPROVEMENT CONTRACT OPPORTUNITY

INVITATION TO BID #2024-107
Bilquist Elementary School Sidewalk Construction Project
December 10, 2024

Clackamas County ("County") through its Board of County Commissioners is accepting sealed bids for the **Bilquist Elementary School Sidewalk Construction Project** until **January 8, 2025, 2:00 PM,** Pacific Time, ("Bid Closing") at the following location:

Bidding Documents can be downloaded from the state of Oregon procurement website ("OregonBuys") at the following address: https://oregonbuys.gov/bso/view/login/login.xhtml, Document No.S-C01010-00012271.
Prospective Bidders will need to sign in to download the information and that information will be accumulated for a Plan Holder's List. Prospective Bidders are responsible for obtaining any Addenda from Website listed above.

Submitting Proposals: Bid Locker
Proposals will only be accepted electronically thru a secure online bid submission service, **Bid Locker**.
Email submissions to Clackamas County email addresses will no longer be accepted.

A. Completed proposal documents must arrive electronically via Bid Locker located at https://bidlocker.us/a/clackamascounty/BidLocker.
B. Bid Locker will electronically document the date and time of all submissions. Completed documents must arrive by the deadline indicated in Section 1 or as modified by Addendum. LATE PROPOSALS WILL NOT BE ACCEPTED.
C. Proposers must register and create a profile for their business with Bid Locker in order to submit for this project. It is free to register for Bid Locker.
D. Proposers with further questions concerning Bid Locker may review the Vendor's Guide located at https://www.clackamas.us/how-to-bid-on-county-projects .

Engineers Estimate: $2,496,568.00

Contact Information
Procurement Process and Technical Questions: Tralee Whitley at Twhitley@clackamas.us.

Bids will be opened and publicly read aloud at the above Delivery address after the Bid Closing. Bid results will also be posted to the OregonBuys listing shortly after the opening.

To be eligible for award under this Invitation to Bid, bidders (prime contractors) must submit a prequalification application (either ODOT or County) to the County at least two business days prior to the Bid Closing. County will reject bids from bidders who are not prequalified for the class of work indicated prior to the Bid Closing. **Bidders must be prequalified in Earthworks and Drainage (EART).**

State Prevailing Wage
Prevailing Wage Rates requirements apply to this Project because the maximum compensation for all Owner-contracted Work is more than $50,000. Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates. The Bureau of Labor and Industries (BOLI) wage rates and requirements set forth in the following BOLI booklet (and any

listed amendments to that booklet), which are incorporated herein by reference, apply to the Work authorized under this Agreement:

PREVAILING WAGE RATES for Public Works Contracts in Oregon, July 5, 2024 and amended on October 5, 2024, which can be downloaded at the following web address: http://www.oregon.gov/boli/WHD/PWR/Pages/pwr_state.aspx The Work will take place in Clackamas County, Oregon.

Clackamas County encourages bids from Minority, Women, and Emerging Small Businesses.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

INSTRUCTIONS TO BIDDERS

Clackamas County Local Contract Review Board Rules ("LCRB Rules") govern this procurement process. LCRB Rules may be found at: http://www.clackamas.us/code/documents/appendixc.pdf. The Instructions to Bidders is applicable to the procurement process for Clackamas County, or any component unit thereof identified on the Notice of Public Improvement Contract Opportunity, herein after referred to as the "Owner."

Article 1. Scope of Work

The work contemplated under this contract with the Owner, includes all labor, materials, transportation, equipment and services necessary for, and reasonably incidental to, the completion of all construction work in connection with the project described in the Project Manual which includes, but is not necessarily limited to, the Notice of Public Improvement Contract Opportunity, Instructions to Bidders, Supplemental Instructions to Bidders, Bid Form, Bid Bond, Public Improvement Contract Form, Performance Bond, Payment Bond, and Plans, Specifications and Drawings.

Article 2. Examination of Site and Conditions

Before making a Bid, the Bidder shall examine the site of the work and ascertain all the physical conditions in relation thereto. The Bidder shall also make a careful examination of the Project Manual including the plans, specifications, and drawings and other contract documents, and shall be fully informed as to the quality and quantity of materials and the sources of supply of the materials. Failure to take these steps will not release the successful Bidder from entering into the contract nor excuse the Bidder from performing the work in strict accordance with the terms of the contract at the price established by the Bid.

The Owner will not be responsible for any loss or for any unanticipated costs, which may be suffered by the successful Bidder, as a result of such Bidder's failure to be fully informed in advance with regard to all conditions pertaining to the work and the character of the work required, including site conditions. No statement made by an elected official, officer, agent, or employee of the Owner in relation to the physical or other conditions pertaining to the site of the work will be binding on the Owner, unless covered by the Project Manual or an Addendum.

Article 3. Interpretation of Project Manual and Approval of Materials Equal to Those Provided in the Specifications

If any Bidder contemplating submitting a Bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications or forms of contract documents, or detects discrepancies or omissions, such Bidder may submit to the Architect (read "Engineer" throughout in lieu of Architect as appropriate) a written request for an interpretation thereof at least ten (10) calendar days prior to the date set for the Bid Closing.

When a prospective Bidder seeks approval of a particular manufacturer's material, process or item of equal value, utility or merit other than that designated by the Architect in the Project Manual, the Bidder may submit to the Architect a written request for approval of such substitute at least ten (10) calendar days prior to the date set for the Bid Closing. The prospective Bidder submitting the request will be responsible for its prompt delivery.

Requests of approval for a substitution from that specified shall be accompanied by samples, records of performance, certified copies of tests by impartial and recognized laboratories, and such other information as the Architect may request.

To establish a basis of quality, certain processes, types of machinery and equipment or kinds of materials may be specified in the Project Manual either by description of process or by designating a

manufacturer by name and referring to a brand or product designation or by specifying a kind of material. Whenever a process is designated or a manufacturer's name, brand or item designation is given, or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or approved equal" follow such name, designation or description, whether in fact they do so or not.

Any interpretation of the Project Manual or approval of manufacturer's material will be made only by an Addendum duly issued. All Addenda will be posted to the OregonBuys listing and will become a part of the Project Manual. The Owner will not be responsible for any other explanation or interpretation of the Project Manual nor for any other approval of a particular manufacturer's process or item for any Bidder.

When the Architect approves a substitution by Addendum, it is with the understanding that the Contractor guarantees the substituted article or material to be equal or better than the one specified.

Article 4. Security to Be Furnished by Each Bidder

Each Bid must be accompanied by either 1) a cashier's check or a certified check drawn on a bank authorized to do business in the State of Oregon, or 2) a Bid bond described hereinafter, executed in favor of the Owner, for an amount equal to ten percent (10%) of the total amount Bid as a guarantee that, if awarded the contract, the Bidder will execute the contract and provide a performance bond and payment bond as required. The successful Bidder's check or Bid bond will be retained until the Bidder has entered into a contract satisfactory to Owner and furnished a one hundred percent (100%) performance bond and one hundred percent (100%) payment bond. The Owner reserves the right to hold the Bid security as described in Article 10 hereof. Should the successful Bidder fail to execute and deliver the contract as provided for in Article 12 hereof, including a satisfactory performance bond and payment bond within twenty (20) calendar days after the Bid has been accepted by the Owner, then the contract award made to such Bidder may be considered canceled and the Bid security may be forfeited as liquidated damages at the option of the Owner. The date of the acceptance of the Bid and the award of the contract as contemplated by the Project Manual shall mean the date of acceptance specified in the Notice of Intent to Award.

Article 5.Execution of Bid Bond

Should the Bidder elect to utilize a Bid bond as described in Article 4 in order to satisfy the Bid security requirements, such form must be completed in the following manner:

A. Bid bonds must be executed on the County forms, which will be provided to all prospective Bidders by the Owner.

B. The Bid bond shall be executed on behalf of a bonding company licensed to do business in the State of Oregon.

C. In the case of a sole individual, the bond need only be executed as principal by the sole individual. In the case of a partnership, the bond must be executed by at least one of the partners. In the case of a corporation, the bond must be executed by stating the official name of the corporation under which is placed the signature of an officer authorized to sign on behalf of the corporation followed by such person's official capacity, such as president, etc. The corporation seal should then be affixed to the bond.

D. The name of the surety must be stated in the execution over the signature of its duly authorized attorney-in-fact and accompanied by the seal of the surety corporation.

Article 6. Execution of the Bid Form

Each Bid shall be made in accordance with: (i) the sample Bid Form accompanying these instructions; (ii) the appropriate signatures for a sole individual, partnership, corporation or limited liability corporation shall be added as noted in Article 5C above; (iii) numbers pertaining to base Bids shall be stated both in writing and in figures; and (iv) the Bidder's address shall be typed or printed.

The Bid Form relates to Bids on a specific Project

Manual. Only the amounts and information asked for on the Bid Form furnished will be considered as the Bid. Each Bidder shall Bid upon the work exactly as specified and provided in the Bid Form. The Bidder shall include in the Bid a sum to cover the cost of all items contemplated by the Contract. The Bidder shall Bid upon all alternates that may be indicated on the Bid Form. When Bidding on an alternate for which there is no charge, the Bidder shall write the words "No Charge" in the space provided on the Bid Form. If one or more alternates are shown on the Bid Form, the Bidder shall indicate whether each is "add" or "deduct."

Article 7. Prohibition of Alterations to Bid

Bids that are incomplete, or contain ambiguities or have differing conditions required by the Bidder, including requested changes or exceptions to the Public Improvement Contract form or other portions of the Project Manual, may be rejected in Owner's sole and absolute discretion.

Article 8. Submission of Bid

Each Bid shall be sealed in an envelope, properly addressed to the Owner, showing on the outside of the envelope the name of the Bidder and the name of the project. Bids will be received at the time and place stated in the Notice of Public Improvement Contract Opportunity.

Article 9. Bid Closing and Opening of Bids

All Bids must be received by the Owner at the place and time set for the Bid Closing. Any Bids received after the scheduled Bid Closing time for receipt of Bids will be rejected.

At the time of opening and reading of Bids, each Bid received will be publicly opened and read aloud, irrespective of any irregularities or informalities in such Bids.

Generally, Bid results will be posted to the Oregonbuys Website within a couple hours of the opening.

Article 10. Acceptance or Rejection of Bids by Owner

Unless all Bids are rejected, the Owner will award a contract based on the lowest responsive Bid from a responsible Bidder. If that Bidder does not execute the contract, it will be awarded to the next lowest responsible Bidder or Bidders in succession.

The Owner reserves the right to reject all Bids and to waive minor informalities. The procedures for contract awards shall be in compliance with the provisions of the LCRB Rules in effect at that time.

The Owner reserves the right to hold the Bid and Bid security of the three lowest Bidders for a period of thirty (30) calendar days from and after the time of Bid opening pending award of the contract. Following award of the contract the Bid security of the three lowest Bidders may be held twenty (20) calendar days pending execution of the contract. All other Bids will be rejected and Bid security will be returned.

In determining the lowest Bidder, the Owner reserves the right to take into consideration any or all authorized base Bids as well as alternates or combinations indicated in the Bid Form.

If no Bid has been accepted within thirty (30) calendar days after the opening of the Bids, each of the three lowest Bidders may withdraw the Bid submitted and request the return of the Bid security.

Article 11. Withdrawal of Bid

At any time prior to the Bid Closing, a Bidder may withdraw its Bid. This will not preclude the submission of another Bid by such Bidder prior to the time set for the Bid Closing.

After the time set for the Bid Closing, no Bidder will be permitted to withdraw its Bid within the time frames specified in Article 10 for award and execution, except as provided for in that Article.

Article 12. Execution of Contract, Performance Bond and Payment Bond

The Owner will provide the successful Bidder with contract forms within seven (7) calendar days after

the completion of the award protest period. The Bidder is required to execute the contract forms as provided, including a performance bond and a payment bond from a surety company licensed to do surety business in the State of Oregon, within seven (7) calendar days after receipt of the contract forms. The contract forms shall be delivered to the Owner in the number called for and to the location as instructed by the Owner.

Article 13. Recyclable Products

Contractors will use recyclable products to the maximum extent economically feasible in the performance of the Contract.

Article 14. Clarification or Protest of the Solicitation Document or Specifications

Any request for clarification or protest of the solicitation document or specifications must be submitted in the manner provided for in the applicable section of the LCRB Rules to the Procurement Representative referenced in the Notice of Public Improvement Contract Opportunity.

A protest of the Solicitation Document must be received within seven (7) business days of the issuance of the Bid or within three (3) business days of issuance of an addendum.

Requests for clarification may be submitted no less than five (5) business days prior to the Bid Closing Date.

Article 15. Protest of Intent to Award

Owner will name the apparent successful Bidder in a "Notice of Intent to Award" letter. Identification of the apparent successful Bidder is procedural only and creates no right in the named Bidder to the award of the contract. Competing Bidders will be notified by publication of the Notice of Intent to Award on the OregonBuys Website of the selection of the apparent successful Bidder(s) and Bidders shall be given seven (7) calendar days from the date on the "Notice of Intent to Award" letter to review the file at the Procurement Division office and file a written protest of award, pursuant to C-049-0450. Any award protest must be in writing and must be delivered by email, hand delivery, or mail to the Procurement Division Director at: Procurement Division, 2051 Kaen Road, Oregon City, OR 97045.

Article 16. Disclosure of First-Tier Subcontractors

Within two (2) working hours after the Bid Closing, all Bidders shall submit to the County a disclosure form identifying any first-tier subcontractors (those entities that would be contracting directly with the prime contractor) that will be furnishing labor and materials on the contract, if awarded, whose subcontract value would be equal to or greater than: (a) Five percent (5%) of the total contract price, but at least $15,000; or (b) $350,000, regardless of the percentage of the total contract price.

Disclosures may be submitted with the Bid or may be hand delivered to the Bid Closing address or emailed to the Contract Information Analyst listed on the Notice of Contract Opportunity.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

Project Name: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

The following modify the Clackamas County "Instructions to Bidders" for this Project. Where a portion of the Instructions to Bidders has been modified by these Supplemental Instructions to Bidders, the unaltered portions shall remain in effect.

1. To be eligible for award under this Invitation to Bid, bidders (prime contractors) must submit a prequalification application (either ODOT or County) to the County at least two business days prior to the Bid Closing. County will reject bids from bidders who are not prequalified for the class of work indicated prior to the Bid Closing. **Bidders must be prequalified in Earthwork and Drainage (EART).**

2. **Electronic Submissions: The County is requiring all bids for this project be electronically submitted. Complete Bids (including all attachments) will only be accepted electronically thru a secure online bid submission service, Bid Locker. Email submissions to Clackamas County email addresses will no longer be accepted. https://bidlocker.us/a/clackamascounty/BidLocker.**

   Bids will be publicly read aloud via the computer application, Zoom. Bidders will be allowed to video conference or listen by phone to the bid results. The projects Zoom meeting can be accessed via the information below:

   ZOOM LINKS.
   Join Zoom Meeting
   https://clackamascounty.zoom.us/j/83729346128

   Meeting ID: 837 2934 6128

   One tap mobile
   +17193594580,,83729346128# US
   +12532050468,,83729346128# US

   Dial by your location
   • +1 719 359 4580 US
   • +1 253 205 0468 US
   • +1 253 215 8782 US (Tacoma)
   • +1 346 248 7799 US (Houston)
   • +1 408 638 0968 US (San Jose)
   • +1 669 444 9171 US

• +1 669 900 6833 US (San Jose)
• +1 305 224 1968 US
• +1 309 205 3325 US
• +1 312 626 6799 US (Chicago)
• +1 360 209 5623 US
• +1 386 347 5053 US
• +1 507 473 4847 US
• +1 564 217 2000 US
• +1 646 876 9923 US (New York)
• +1 646 931 3860 US
• +1 689 278 1000 US
• +1 301 715 8592 US (Washington DC)

Meeting ID: 837 2934 6128

Find your local number: https://clackamascounty.zoom.us/u/kBkNo3lWX

**The Apparent Low bid results will be posted to the projects OregonBuys listing as soon as possible following the bid opening.

3. **Good Faith Effort:** Clackamas County encourages participation in contracts by Historically Underrepresented Businesses. "Historically Underrepresented Businesses" are State of Oregon-certified and self-identified minority, women and emerging small business as well as firms that are certified federally or by another state or entity with substantially similar requirements as the State of Oregon.

   Bidders must perform Good Faith Effort (defined below) and submit **Form 1 and Form 2** for the Bidders Bid to be considered responsive. **Form 1 and Form 2** must be submitted within **two (2) hours** after the Closing Date and Time. Form 1 and Form 2 may be submitted to either the Contact Information Analyst listed on Notice of Contract Opportunity or via the https://bidlocker.us/a/clackamascounty/BidLocker listing.
   "Good Faith Effort" is a requirement of a prime contractor to reach out to at least three Historically Underrepresented Business Subcontractors for each division of work that will be subcontracted out and to complete the required forms. If fewer than three Historically Underrepresented Business Subcontractors are reasonably available for a particular division of work, the Bidder must specifically note the reason for there being fewer than three contacts. The outreach should be performed with sufficient time to give the subcontractors at least 5 calendar days to respond to the opportunity. Form 3, which documents the actual amount of subcontractors on the project, must be submitted with the project final pay application. Compliance with the Good Faith Effort and submission of Forms 1, 2 and 3 is a contractual requirement for final payment.

   The sufficiency of the documentation or the performance of Good Faith Effort shall be in the sole and absolute determination of Clackamas County. Only those Bidders that Clackamas County has determined have not sufficiently performed Good Faith Effort shall have protest rights of the determination for such Bidder.

No Bidder shall have protest rights of the sufficiency of any other Bidder completing Good Faith Effort.

CLACKAMAS COUNTY
GOOD FAITH EFFORT
SUBCONTRACTOR AND SELF-PERFORMED WORK LIST
(FORM 1)

Prime Contractor Name: Kerr Contractors Oregon, LLC **Total Contract Amount:** 2,143,495.00

Project Name: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

PRIME SELF-PERFORMING: Identify below **ALL** GFE Divisions of Work (DOW) to be self-performed. Good Faith Efforts are otherwise required.	
DOW BIDDER WILL SELF-PERFORM *(GFE not required)*	
Demolition	Asphalt Paving
Excavation	
Utilities	
Milling	

PRIME CONTRACTOR SHALL DISCLOSE AND LIST ALL SUBCONTRACTORS, including those Minority-owned, Woman-owned, and Emerging Small Businesses ("M/W/ESB") that you intend to use on the project. Delivery via bid locker https://bidlocker.us/a/clackamascounty/BidLocker within 2 hours of the BID/Quote Closing Date/Time.

LIST ALL SUBCONTRACTORS BELOW Use **correct legal name** of Subcontractor (No Assumed Business Names)	**Division of Work** (Painting, electrical, landscaping, etc.) List **ALL** DOW performed by Subcontractors	**DOLLAR AMOUNT OF SUBCONTRACT**	If Certified or self-reporting MBE/WBE/ESB Subcontractor Check box ☑		
			MBE	WBE	ESB
Name Roger Langliers Construction Address 7145 NE Progress Ct City/St/Zip Hillsboro, OR 97124 Phone# (503) 533-5709 OCCB# 106364	$311,773.00	Concrete	☐	☐	☐
Name Fox Erosion Control Address 11901 HWY 211 City/St/Zip Clackamas, OR 97015 Phone# 503-654-8816 OCCB# 7393	$30,532.00	Erosion control + Landscaping	☒	☒	☐
Name Cascade Land Surveying Address 22982 Riverside Drive City/St/Zip St. Paul, OR 97137 Phone# 530-518-2067 OCCB#	Surveying	$1,150.00	☐	☐	☒
Name Hicks Stripins & Curbing, LLC Address P.O. Box 9127 City/St/Zip Salem OR 97303 Phone# 503-364-4577 OCCB# 240403	Striping	$33,524.00	☐	☐	☐

GFE SUBCONTRACTOR AND SELF-PERFORMED WORK LIST (FORM 1) cont'd

Prime Contractor Name:

Total Contract Amount:

Project Name: #2024-107 Bilquist Elementary School Sidewalk Construction Project

LIST ALL SUBCONTRACTORS BELOW Use **correct legal name** of Subcontractor (No Assumed Business Names)	**Division of Work** (Painting, electrical, landscaping, etc.) List **ALL** DOW performed by Subcontractors	**DOLLAR AMOUNT OF SUBCONTRACT**	If Certified or self-reporting MBE/WBE/ESB Subcontractor Check box ☑		
			MBE	WBE	ESB
Name ARCK Construction CO. **Address** 40985 Lacomb RR **City/St/Zip** Lebanon, OR 97355 **Phone#** 541.990-1351 **OCCB#** 241975	Video Inspection	$ 18,798.00	☒	☒	☒
Name K.T. Contracting **Address** P.O. Box 9180 **City/St/Zip** Salem, OR 97305 **Phone#** 503-390-0626 **OCCB#** 88693	Signage (Permanent)	$ 51,403	☐	☐	☐
Name A+ flagging **Address** P.O. Box 123 **City/St/Zip** Aumsville, OR 97325 **Phone#** 503-749-2211 **OCCB#** 191152	flagging	$ 221,520.00	☒	☒	☒
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐
Name **Address** **City/St/Zip** **Phone#** **OCCB#**			☐	☐	☐

CLACKAMAS COUNTY
GOOD FAITH EFFORT
M/W/ESB CONTACT / BIDS RECEIVED LOG
(FORM 2)

Prime Contractor:
Project: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

Prime Contractor must contact or endeavor to contact at least 3 M/W/ESB Subcontractors for each Division of Work. Prime Contractor shall record its contacts with M/W/ESB Subcontractors through use of this log (or equivalent) entering all required information. All columns shall be completed where applicable. Additional forms may be copied if needed.

NAME OF M/W/ESB SUBCONTRACTOR	Divisions of Work (Painting, electrical, landscaping, etc.)	Date Sollicitation Letter / Fax Sent	PHONE CONTACT		BID ACTIVITY Check Yes or No			REJECTED BIDS (if bid received & not used)		Notes
			Date of Call	Person Receiving Call	Will Bid	Bid Received	Bid Used	Bid Amount	Reason Not Used (Price, Scope or Other. If Other, explain in Notes>>)	
Berven Concrete	Concrete	12/20/24	N/A		☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☐ No	477,512	Not Low	
Johnny's Concrete Services LLC	Concrete	12/20/24			☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☐ No	468,721	Not Low	
TTE, Inc	Concrete	12/20/24			☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☐ No	420,514	Not Low	
Champion Parking Lot Maintenance	Striping	12/20/24	~~11/7/25~~		☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No		None Given	no bid per email
DT Striping	Striping	12/20/24	1/7/25	Donnie Crawford	☐ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No			Never received Bid
Legacy Pavings & Construction LLC	Striping	12/20/24	1/7/25	Alex	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☐ No		Scope	
Aegis Asphalt Construction	Striping	12/23/24	1/7/25	Brian Sugg	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No		Scope	

CLACKAMAS COUNTY
GOOD FAITH EFFORT
M/W/ESB CONTACT / BIDS RECEIVED LOG
(FORM 2)

Prime Contractor:
Project: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

Prime Contractor must contact or endeavor to contact at least 3 M/W/ESB Subcontractors for each Division of Work. Prime Contractor shall record its contacts with M/W/ESB Subcontractors through use of this log (or equivalent) entering all required information. All columns shall be completed where applicable. Additional forms may be copied if needed.

NAME OF M/W/ESB SUBCONTRACTOR	Divisions of Work (Painting, electrical, landscaping, etc.)	Date Sollicitation Letter / Fax Sent	PHONE CONTACT		BID ACTIVITY Check Yes or No			REJECTED BIDS (if bid received & not used)		Notes
			Date of Call	Person Receiving Call	Will Bid	Bid Received	Bid Used	Bid Amount	Reason Not Used (Price, Scope or Other. If Other, explain in Notes>>)	
3 Point Geomatic	Survey	12/20/24	1/7/25	Maras Reedy	☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	$58,080	Not Low	
Cascade Land Surveyng	Survey	12/20/24			☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☐ No	$31,500		
PTS Surveyng	Survey	12/23/24	1/7/25	Voicemail	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
O'banco engineering	survey	12/20/24	1/7/25	todd williams	☐ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No		Other	No bid recieved
AT flagging	flagging + signage	12/20/24	1/7/25	Christie Bosche	☐ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	$ 71/hr		
one stop flagging	flagging	12/20/24	1/7/25	Kimberly	☐ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	$ 78.50/hr	Not Low	
C.O.A.T flagsim	flassim + Signage	12/20/24	1/7/25	Voicemail	☐ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No			No Bid Recieved

CLACKAMAS COUNTY
GOOD FAITH EFFORT
M/W/ESB CONTACT / BIDS RECEIVED LOG
(FORM 2)

Prime Contractor:
Project: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

Prime Contractor must contact or endeavor to contact at least 3 M/W/ESB Subcontractors for each Division of Work. Prime Contractor shall record its contacts with M/W/ESB Subcontractors through use of this log (or equivalent) entering all required information. All columns shall be completed where applicable. Additional forms may be copied if needed.

NAME OF M/W/ESB SUBCONTRACTOR	Divisions of Work (Painting, electrical, landscaping, etc.)	Date Sollicitation Letter / Fax Sent	PHONE CONTACT		BID ACTIVITY Check Yes or No			REJECTED BIDS (if bid received & not used)		Notes
			Date of Call	Person Receiving Call	Will Bid	Bid Received	Bid Used	Bid Amount	Reason Not Used (Price, Scope or Other. If Other, explain in Notes>>)	
Egami Construction	Signage	12/20/24	1/7/25	Reed thatcher	☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	$89,000	Price	Not Low
Bella terra Landscaping	Landscapin	12/20/24	1/7/25	voicemail	☐ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No			
Andersons Erosion Control	Landscaping	12/20/24			☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☒ No	$31,610	Price	Not Low
fox Erosion Control	Landscaping	12/20/24			☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	$30,532		
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			
					☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No			

Divisions of Work	Subcontractor	Certifications	Name	Email	Phone	First Contact Email	Phone Call Date	Bid Sent	Amount	Reasoning Not Used	No Bid Reasoning
Concrete Work	Berrien Concrete, LLC	DBE, ESB, MBE	Lillian Stevenson	kevin.berrien@berrienconcrete.com	503-567-1774	20-Dec		X	$ 477,512.00	Not Low	
	Johnnys Concrete Services	DBE, ESB, MBE	Jhon Duran	johnnysconcreteservicesllc@gmail.com	503-421-3129	20-Dec		X	$ 468,721.00	Not Low	
	TTE	ESB	Russell Williams	tteinc1@gmail.com	971-255-3136	20-Dec		X	$ 420,514.00	Not Low	
Striping	Champion Parking Lot Mainteneace	MBE	Kidane Tekle	eblete65@gmail.com	503-816-2522	20-Dec				No Bid	None Given
	DT Striping	DBE, ESB, MBE	Donnie Crawford	DTStriping@aol.com	503-953-9193	20-Dec	7-Jan			No Bid	None Given
	Legacy Paving & Construction LLC	ESB. MBE	Alex	alexjr@legacypavingllc.com	503-857-8592	20-Dec	7-Jan			No Bid	Scope
	Aegis Asphalt Construction	ESB	Brian Sugg	brian.sugg@aegisasphalt.com	541-501-2309	23-Dec	7-Jan			No Bid	Scope
Surveying	3 Point Geomatics, LLC	ESB	Marcus Reedy	jon.broadwater@3pointgeo.com	503-932-0528	20-Dec	7-Jan	x	$ 58,080.00	Not Low	
	Cascade Land Surveying	ESB	Troy Neer	troy@cascadesurvey.com	530-518-2067	20-Dec		x	$ 31,500.00	Bid Accepted	
	PTS Surveying, Inc.	DBE, MBE	Tyler Handforth	ptssurveying@gmail.com	503-710-2048	23-Dec	7-Jan			No Bid	None Given
	O'Bunco	DBE, SBE, MBE	Todd Willaims	twilliams@obuncoengineering.com	509-203-7200	20-Dec	7-Jan			No Bid	None Given
Flagging	A+	DBE, MBE, WBE	Christine Busche	aplusflagging@gmail.com	503-749-2211	20-Dec	7-Jan	x	$71/hr	Bid Accepted	
	One Stop Flagging	DBE, ESB, MBE, WBE	Kimberly Dennis	onestopflagging@gmail.com	602-303-1905	23-Dec		x	$78.50/hr	Not Low	
	HQ Traffic Control	DBE, ESB, WBE	Shelly Ream	hqtrafficcontrol@gmail.com	503-949-8656	20-Dec	7-Jan			No Bid	None Given
Traffic Sign Installation/Removal	Egami Construction	DBE, MBE, WBE	Sakurako Thatcher	sakurako@egamiconstruction.com	503-569-1416	20-Dec	7-Jan	x	$ 89,000.00	Not Low	
	A+	DBE, MBE, WBE	Christine Busche	aplusflagging@gmail.com	503-749-2211	20-Dec	7-Jan			Bidding Flagging Scope Only	
	COAT	DBE, ESB, MBE, WBE	Valeria J Solorzano	tracey@coatflagging.com	503-467-6386, 1001	23-Dec	7-Jan			No Bid	None Given
Landscaping	Andersons Erosion Control	DBE, WBE	Pat Robinson	pat@andersonsec.com	541-998-2062	20-Dec		x	$ 31,610.00	Bid Accepted	
	Bella Terra LLC	DBE, WBE	Sam Anderson	bids@1bellaterra.com	360-225-1125	20-Dec	7-Jan			No Bid	None Given
	Fox Erosion Control	DBE, WBE	Mark Myers	Mark@foxerosion.com	503-654-8816	20-Dec		x	$ 30,532.00	Not Low	

CLACKAMAS COUNTY

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

BID BOND

Project Name: # 2024-107 Bilquist Elementary School Sidewalk Construction Project

We, Kerr Contractors Oregon, LLC, as "Principal,"
(Name of Principal)

and Liberty Mutual Insurance Company, an Massachusetts Corporation,
(Name of Surety)

authorized to transact Surety business in Oregon, as "Surety," hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns to pay unto Clackamas County ("Obligee") the sum of ($ 10%)

Ten Percent of Total Amount Bid dollars.

WHEREAS, the condition of the obligation of this bond is that Principal has submitted its proposal or bid to an agency of the Obligee in response to Obligee's procurement document (No. *) for the project identified above which proposal or bid is made a part of this bond by reference, and Principal is required to furnish bid security in an amount equal to ten (10%) percent of the total amount of the bid pursuant to the procurement document. * S-C01010-00012271

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, we have caused this instrument to be executed and sealed by our duly authorized legal representatives this 20th day of December, 2024.

Principal: Kerr Contractors Oregon, LLC

By: _____
Signature

ALAN W. APLIN
VP/SEC
Official Capacity

Attest: _____
Corporation Secretary

Surety: Liberty Mutual Insurance Company

By: Attorney-In-Fact Vicki Mather

Vicki Mather
Name

PO Box 2808
Address

Portland OR 97208
City State Zip

503-224-2500 503-224-9830
Phone Fax

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8212146-905001**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Andrew Choruby; Ashlee Pingree; Brent Olson; Casey J. Geske; Chloe Lyons; Christopher A. Reburn; Gloria Bruning; J. Patrick Dooney; Jessi Wimer; Joel Dietzman; Justin Cumnock; Leticia Romano; Philip O. Forker; Richard W. Kowalski; Sterling Drew Roddan; Vicki Mather

all of the city of Lake Oswego state of OR each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 23rd day of July, 2024.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 23rd day of July, 2024 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 20th day of December, 2024.

By: _____
Renee C. Llewellyn, Assistant Secretary

LMS-12873 LMIC OCIC WAIC Multi Co 02/21

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

BID FORM

PROJECT: # 2024-107 Bilquist Elementary School Sidewalk Construction Project
BID CLOSING: January 8, 2025, 2:00 PM, Pacific Time
BID OPENING: January 8, 2025, 2:05 PM, Pacific Time

FROM: Iker Contractors Oregon, LLC
Bidder's Name (must be full legal name, not ABN/DBA)

TO: https://bidlocker.us/a/clackamascounty/BidLocker

1. Bidder is (*check one of the following and insert information requested*):

____a. An individual; or

____b. A partnership registered under the laws of the State of _____; or

____c. A corporation organized under the laws of the State of _____; or

__X__ d. A limited liability corporation organized under the laws of the State of Oregon;

and authorized to do business in the State of Oregon hereby proposes to furnish all material and labor and perform all work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Basic Bid as follows:

two million one hundred forty-three thousand-four hundred & ninety five & no cents Dollars ($2,143,495.00)

and the Undersigned agrees to be bound by the following documents:

- Notice of Public Improvement Contract Opportunity
- Instructions to Bidders
- Supplemental Instructions to Bidders
- Bid Bond
- Bid Form
- Public Improvement Contract Form
- Performance Bond and Payment Bond
- Prevailing Wage Rates
- Payroll and Certified Statement Form
- Plans, Specifications and Drawings

- ADDENDA numbered __0__ through __0__, inclusive *(fill in blanks)*

2. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items of work relating to the following Alternate(s) as designated in the Specifications: **N/A**

3. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items or work relating to the following Unit Price(s) as designated in the Specifications, for which any adjustments in the Contract amount will be made in accordance with the project specifications: **Provide the attached Bid Schedules with Bid.**

4. The work shall be completed within the time stipulated and specified in 00180.50(h) of the Special Provisions for **Roadway Construction, Bilquist Elementary School-Sidewalks Construction.**

5. Accompanying herewith is Bid Security which is equal to ten percent (10%) of the total amount of the Basic Bid, plus the total sum of Alternatives (if any).

6. The Undersigned agrees, if awarded the Contract, to execute and deliver to Clackamas County, within twenty (20) calendar days after receiving the Contract forms, a Contract Form, and a satisfactory Performance Bond and Payment Bond each in an amount equal to one hundred percent (100%) of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be:

Liberty Mutual Surety Company.
(name of surety company - not insurance agency)

The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

7. The Undersigned further agrees that the Bid Security accompanying the Bid is left in escrow with Clackamas County; that the amount thereof is the measure of liquidated damages which the Owner will sustain by the failure of the Undersigned to execute and deliver the above-named Contract Form, Performance Bond and Payment Bond, each as published, and that if the Undersigned defaults in either executing the Contract Form or providing the Performance Bond and Payment Bond within twenty (20) calendar days after receiving the Contract forms, then the Bid Security shall become the property of the Owner at the Owner's option; but if the Bid is not accepted within thirty (30) calendar days of the time set for the opening of the Bids, or if the Undersigned executes and timely delivers said Contract Form, Performance Bond and Payment Bond, the Bid Security shall be returned.

8. The Undersigned certifies that: (i) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (ii) the contents of the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned or its surety on any Bond furnished with the Bid and will not be communicated to such person prior to the official opening of the Bid.

9. The undersigned ☒ **HAS,** ☐ **HAS NOT** (*check one*) paid unemployment or income taxes in Oregon within the past 12 months and ☒ **DOES,** ☐ **DOES NOT** (*check one*) a business address in Oregon. The undersigned acknowledges that, if the selected bidder, that the undersigned will have to pay all applicable taxes and register to do business in the State of Oregon before executing the Contract Form.

10. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

11. Contractor's CCB registration number is 227664. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will make the bid unresponsive and it will be rejected, unless contrary to federal law.

12. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the contract.

13. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is SAIF,

Policy No. 774583, and that Contractor shall submit Certificates of Insurance as required.

14. Contractor's Key Individuals for this project (supply information as applicable):

Project Executive:	Jeff Holiday	Cell Phone:	971-216-0050
Project Manager:	Joel Jensen	Cell Phone:	971-216-0056
Job Superintendent:	Corey Templin	Cell Phone:	971-216-0050
Project Engineer:	Rob Bell	Cell Phone:	971-216-0056

15. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

16. The Undersigned certifies that it has a drug testing program in accordance with ORS 279C.505.

REMINDER: Bidder must submit the below First-Tier Subcontractor Disclosure Form.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM: Kerr Contractors Oregon LLC

ADDRESS: 395 Shenandoah Ln NE
Woodburn, OR 97071

TELEPHONE NO: 971-216-0050

EMAIL: estimating@kerrcontractors.com

SIGNATURE 1) _____
Sole Individual

or 2) _____
Partner

or 3) _____
Authorized Officer or Employee of Corporation
Allan W. Aplin

***** *END OF BID* *****

BID SCHEDULE

Bilquist Elementary School - Sidewalks Construction

ITEM	SPEC	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE
HARASSMENT PREVENTION, MOBILIZATION AND EXTRA						
1	0180	Workplace Harassment Prevention Plan	LS	1	500.00	500.00
2	0196	Extra Work As Authorized	AA	1	$100,000.00	$100,000.00
3	0210	Mobilization	LS	1	210,080.00	210,080.00
TEMPORARY FEATURES AND APPURTENANCES						
4	0221	Temporary Work Zone Traffic Control, Complete	LS	1	20,000.00	20,000.00
5	0223	Flaggers	HR	3,120	79.00	246,480.00
6	0225	Temporary Striping	LF	4,500	0.65	2,925.00
7	0225	Stripe Removal	LF	243	2.50	607.50
8	0280	Erosion Control	LS	1	32,200.00	32,200.00
9	0280	Check Dam, Type 6	EA	3	260.00	780.00
10	0280	Sediment Barrier, Type 8	LF	2,487	6.50	16,165.50
11	0280	Inlet Protection, Type 3	EA	20	100.00	2,000.00
12	0290	Pollution Control Plan	LS	1	500.00	500.00
ROADWORK						
13	0305	Construction Survey Work	LS	1	34,265.00	34,265.00
14	0310	Removal of Structures and Obstructions	LS	1	81,000.00	81,000.00
15	0310	Removal of Pipes	LF	386	20.00	7,720.00
16	0310	Removal of Inlets	EA	7	870.00	6,090.00
17	0320	Clearing and Grubbing	LS	1	19,500.00	19,500.00
18	0330	General Excavation	CY	1,113	78.00	86,814.00
19	0350	Subgrade Geotextile	SY	1,453	2.00	2,906.00
DRAINAGE AND SEWERS						
20	0445	12 Inch Storm Sewer Pipe, 5ft Depth	LF	460	95.00	43,700.00
21	0445	12 Inch Storm Sewer Pipe, 10ft Depth	LF	904	125.00	113,000.00
22	0445	15 Inch Storm Sewer Pipe, 10ft Depth	LF	154	155.00	23,870.00
23	0470	Concrete Storm Sewer Manholes	EA	10	4,700.00	47,000.00
24	470	Concrete Inlets, Type WES Standard GB-2	EA	16	4,000.00	64,000.00
25	SP0470	Storage Pond, Infiltration Trench 1	LS	1	42,500.00	42,500.00
26	SP0470A	Precast 48" Water Quality Manhole	EA	1	21,000.00	21,000.00
27	SP0470B	Galvanized Steel Curb Hatch	EA	2	5,500.00	11,000.00
28	0490	Extra For Manholes Over Existing Sewers	EA	2	1,750.00	3,500.00
29	0490	Filling Abandoned Structures	EA	7	540.00	3,780.00
30	0490	Adjusting Boxes	EA	34	800.00	27,200.00
31	0490	Major Adjustment of Manholes	EA	2	2,400.00	4,800.00
32	0490	Minor Adjustment of Manholes	EA	5	1,200.00	6,000.00
33	0490	Connection to Existing Structures	EA	3	3,000.00	9,000.00
34	0495	Trench Resurfacing	SY	468	50.00	23,400.00
BASES						
35	0620	Cold Plane Pavement Removal, 0 - 2 Inches Deep	SY	5,302	5.00	26,510.00
36	0641	Aggregate Base	TON	1,521	67.00	101,907.00
WEARING SURFACES						
37	0744	Level 3, 1/2" ACP Mixture	TON	1,594	170.00	270,980.00
38	0749	Extra for Asphalt Aproaches	EA	17	1,800.00	30,600.00
39	0759	Concrete Curbs, Standard Curb	LF	496	25.50	12,648.00
40	0759	Concrete Curbs, Curb & Gutter	LF	2,634	28.00	73,752.00
41	0759	Concrete Islands	SF	273	19.00	5,187.00
42	0759	Concrete Walks	SF	11,913	6.50	77,434.50
43	SP0759	Extra for Thickened Edge Sidewalk	LF	160	70.00	11,200.00
44	0759	Concrete Driveways	SF	5,988	9.00	53,892.00
45	0759	Concrete Driveways, Reinforced	SF	650	11.50	7,475.00
46	0759	Truncated Domes On New Surfaces	SF	301	30.00	9,030.00
47	0759	Extra For New Curb Ramps	EA	24	1,040.00	24,960.00

PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES						
48	0855	Bi-Directional Yellow Type I Markers	EA	8	55-	440-
49	0855	Bi-Directional Blue Type IAR Markers, Recessed	EA	2	235-	470-
50	0865	Thermoplastic, Extruded, Surface, Non-profiled	LF	13,663	1.50	20,494.50
51	0867	Pavement Legend, Type AB: Arrows	EA	6	300-	1,800-
52	0867	Pavement Legend, Type B-HS: Bike Lane Stencil	EA	10	350-	3,500-
53	0867	Pavement Bar, Type B-HS	SF	105	12-	1,260-
54	0868	Green Bicycle Lane, Preformed Thermoplastic Film	SF	110	14-	1,540-
55	0869	Curb Marking, Paint	LF	20	7-	140-
PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEM						
56	0902	Crosswalk Closure Supports	EA	4	1,200-	4,800-
57	0905	Remove Existing Signs	LS	1	2,000-	2,000-
58	0905	Remove and Reinstall Existing Signs	LS	1	4,580-	4,580-
59	0920	Sign Support Footings	CY	2.6	2,100-	5,460-
60	0930	Perforated Steel Square Tube Anchor Sign Supports	LS	1	6,900-	6,900-
61	0940	Signs, Standard Sheeting, Extruded Aluminum	SF	239	32-	7,648-
62	0970	Pole Foundations	LS	1	2,500-	2,500-
63	0970	Switching, Conduit, And Wiring	LS	1	11,000-	11,000-
64	0990	Flashing Beacon Installation, SE Webster Rd & SE Bixel Way	LS	1	8,500-	8,500-
65	0990	Flashing Beacon Installation, SE Webster Rd & SE Webster Lane	LS	1	7,500-	7,500-
RIGHT-OF-WAY DEVELOPMENT						
66	1030	Permanent Seeding	AC	0.18	10,000-	1,800-
67	1040	Topsoil	CY	95	72-	6,840-
68	1040	Bark Mulch	CY	23	68-	1,564-
69	1070	Single Mailbox Supports	EA	13	700-	9,100-
70	1070	Multiple Mailbox Supports	EA	2	1,400-	2,800-
71	1070	Mailbox Concrete Collars	EA	15	400	6,000-
WATER SUPPLY SYSTEMS						
72	01150	2.5 Inch Backflow Prevention Assembly	EA	1.00	5000-	5,000-

PROPOSED COST BID SCHEDULE 2,143,495.00-
(Numerically)

PROPOSED COST BID SCHEDULE two million, one hundred forty-three thousand four hundred ninety five & no cents
(Written in Words)

COMPANY NAME Kerr Contractors Oregon, LLC

AUTHORIZED SIGNATURE _____ 1/8/25

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM
PROJECT: #2024-107

BID OPENING: January 8, 2025, 2:00 PM, Pacific Time

Failure to submit this Form by the disclosure deadline will result in a nonresponsive bid.

INSTRUCTIONS:
This First-Tier Subcontractor Disclosure Form ("Form") must be submitted and received at the location specified in the Notice of Public Improvement Contract Opportunity on the advertised Bid Closing, and within two working hours after the advertised Bid Closing Time.

A. Completed proposal documents must arrive electronically via Bid Locker located at https://bidlocker.us/a/clackamascounty/BidLocker.
B. Bid Locker will electronically document the date and time of all submissions. Completed documents must arrive by the deadline indicated in Section 1 or as modified by Addendum. LATE PROPOSALS WILL NOT BE ACCEPTED.
C. Proposers must register and create a profile for their business with Bid Locker in order to submit for this project. It is free to register for Bid Locker.
D. Proposers with further questions concerning Bid Locker may review the Vendor's Guide located at https://www.clackamas.us/how-to-bid-on-county-projects .

Subcontractor lists may be submitted with the bid in the same envelope or email at the Bid Closing date and time. Subcontractor lists **MUST** be submitted within **two (2) hours** of the Bid Closing date and time.

List below the name of each subcontractor that will be furnishing labor, or labor and materials, for which disclosure is required, the category of work that the subcontractor will be performing, and the dollar value of the subcontract. Enter **"NONE"** if the value of the project bid is less than $100,000 or there are no subcontractors that need to be disclosed. ATTACH ADDITIONAL SHEETS IF NECESSARY.

	SUBCONTRACTOR NAME	DOLLAR VALUE	CATEGORY OF WORK
1.	Roger Langliers Construction	$ 311,773.00	Concrete
2.	A+ Flashing	$ 221,520.00	Flashing
3.			
4.			
5.			
6.			

The above listed first-tier subcontractor(s) are providing labor, or labor and material, with a Dollar Value equal to or greater than:

a) 5% of the total Contract Price, but at least $15,000. If the Dollar Value is less than $15,000 do not list the subcontractor above; or
b) $350,000 regardless of the percentage of the total Contract Price.

Firm Name: Kerr Contractors Oregon, LLC

Bidder Signature: [signature] Phone # 971-216-0050

CLACKAMAS COUNTY

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

PERFORMANCE BOND

Bond No.: 023232914
Solicitation: #2024-107
Project Name: Bilquist Elementary School Sidewalk Construction Project

Liberty Mutual Insurance Company	(Surety #1)	Bond Amount No. 1:	$ 2,143,495.00 ---
N/A	(Surety #2)*	Bond Amount No. 2:*	$ N/A
** If using multiple sureties*		Total Penal Sum of Bond:	$ 2,143,495.00 ---

We, Kerr Contractors Oregon, LLC as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Clackamas County, the sum of (Total Penal Sum of Bond) Two Million One Hundred Forty-Three Thousand Four Hundred Ninety-Five &00/100ths Dollars --- (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety); and

WHEREAS, the Principal has entered into a contract with Clackamas County, along with the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation; and

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall defend, indemnify, and save harmless Clackamas County and its elected officials, officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in

all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect for so long as any term of the Contract remains in effect.

Nonpayment of the bond premium will not invalidate this bond nor shall Clackamas County, be obligated for the payment of any premiums.

This bond is given and received under authority of Oregon Revised Statutes Chapter 279C and the Clackamas County Local Contractor Review Board Rules, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this 7th day of March, 2025.

PRINCIPAL: Kerr Contractors Oregon, LLC

By: _____
ALAN W. APL
Signature

VP/SEC
Official Capacity

Attest: _____
Corporation Secretary

SURETY: Liberty Mutual Insurance Company
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

Vicki Mather
Name

Vicki Mather
Signature

P.O. Box 2808
Address

Portland, OR 97208
City State Zip

(503) 224-2500 (503) 224-9830
Phone Fax

LIBERTY MUTUAL INSURANCE CO. INCORPORATED 1912 BOSTON, MASS.

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT

PAYMENT BOND

Bond No.: 023232914
Solicitation: #2024-107
Project Name: Bilquist Elementary School Sidewalk Construction Project

Liberty Mutual Insurance Company	(Surety #1)	Bond Amount No. 1:	$ 2,143,495.00 ---
N/A	(Surety #2)*	Bond Amount No. 2:*	$ N/A
* *If using multiple sureties*		Total Penal Sum of Bond:	$ 2,143,495.00 ---

We, Kerr Contractors Oregon, LLC, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Clackamas County, the sum of (Total Penal Sum of Bond) Two Million One Hundred Forty-Three Thousand Four Hundred Ninety-Five &00/100ths Dollars --- (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety); and

WHEREAS, the Principal has entered into a contract with Clackamas County, along with the plans, specifications, terms and conditions of which are contained in above-referenced Solicitation; and

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, and shall defend, indemnify, and save harmless Clackamas County and its elected officials, officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its subcontractors in connection with the performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167, and

shall permit no lien nor claim to be filed or prosecuted against Clackamas County on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect for so long as any term of the Contract remains in effect.

Nonpayment of the bond premium will not invalidate this bond nor shall Clackamas County be obligated for the payment of any premiums.

This bond is given and received under authority of Oregon Revised Statutes Chapter 279C and the Clackamas County Local Contractor Review Board Rules, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this 7th day of March, 2025.

PRINCIPAL: Kerr Contractors Oregon, LLC

By: _____
ALAN W. ARLIN
Signature

VP/SEC
Official Capacity

Attest: _____
Corporation Secretary

SURETY: Liberty Mutual Insurance Company
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

Vicki Mather
Name

Vicki Mather
Signature

P.O. Box 2808
Address

Portland, OR 97208
City State Zip

(503) 224-2500 (503) 224-9830
Phone Fax

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 BOSTON, MASS.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8212146-905001**

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Andrew Choruby; Ashlee Pingree; Brent Olson; Casey J. Geske; Chloe Lyons; Christopher A. Reburn; Gloria Bruning; J. Patrick Dooney; Jessi Wimer; Joel Dietzman; Justin Cumnock; Leticia Romano; Philip O. Forker; Richard W. Kowalski; Sterling Drew Roddan; Vicki Mather

all of the city of Lake Oswego state of OR each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 23rd day of July, 2024.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 23rd day of July, 2024 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of March, 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

LMS-12873 LMIC OCIC WAIC Multi Co 02/21

CLACKAMAS COUNTY
PUBLIC IMPROVEMENT CONTRACT
PROJECT INFORMATION, PLANS, SPECIFICATIONS AND DRAWINGS

PROJECT: #2024-107 Bilquist Elementary School Sidewalk Construction Project

Project Background:
Clackamas County DTD obtained Safe Routes to School (SRTS) funds through ODOT to provide bicycle lanes and sidewalk improvements on Webster Rd from Roots Rd to Bilquist Elementary School. The existing street lacks these facilities, and they are needed to provide safe routes and important connections to the Bilquist Elementary School. Additional improvements will include upgraded storm water conveyance and management facilities, ADA curb ramps, and an enhanced crosswalk at Bixel Way. The anticipated schedule is for substantial completion by December 31, 2025, with a 1-year plant establishment period ending December 31, 2026.

Road improvements will also include mobilization, temporary traffic control, construction survey, permanent signing and striping, base work, shoulder construction, grading, permanent seeding, and asphalt concrete pavement wearing surfaces.

Engineers Estimate: $2,496,568.00

Key Dates:
All Basic Bid Work may begin as soon as the Notice to Proceed ("NTP") is issued
Substantial Completion: December 31, 2025
Final Completion: December 31, 2026

Time is of the essence for this Project. Note the Liquidated Damages requirements as described in the project Specifications.

The Scope further includes the following Plans, Specifications and Drawings:

SPECIAL PROVISIONS FOR ROADWAY CONSTRUCTION- DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT CLACKAMAS COUNTY, OREGON- BILQUIST ELEMENTARY SCHOOL-SIDEWALKS CONSTRUCTION, dated September 2024 (79 pages)

BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CONSTRUCTION Drawing Set, dated September 2024 (131 pages).

Report of Geotechnical Engineering Services- Bilquist Elementary School-Sidewalks, Clackamas County, Oregon- NV5 (40 pages)

SPECIAL PROVISIONS

FOR ROADWAY CONSTRUCTION

DEPARTMENT OF TRANSPORTATION

AND DEVELOPMENT

CLACKAMAS COUNTY, OREGON

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

CONSTRUCTION

GRADING, PAVING, DRAINAGE, ROADSIDE DEVELOPMENT, SIGNING, ILLUMINATION, PAVEMENT MARKINGS

September 2024

TABLE OF CONTENTS

CLACKAMAS COUNTY DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

SPECIAL PROVISIONS

FOR

BILQUIST ELEMENTARY SCHOOL – SIDEWALKS

CONSTRUCTION

PROFESSIONAL OF RECORD CERTIFICATION(S):

Seal w/signature	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bilquist Elementary School – Sidewalks Construction. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00110, 00120, 00130, 00140, 00150, 00160, 00165, 00170, 00180, 00190, 00195, 00196, 00197, 00199, 00210, 00220, 00221, 00222, 00223, 00224, 00225, 00228, 00280, 00290, 00305, 00310, 00320, 00330, 00331, 00350, 00405, 00415, 00440, 00445, 00470, 00470A, 00470B, 00490, 00620, 00641, 00744, 00749, 00759, 00850, 00855, 00865, 00867, 00868, 00869, 00902, 00905, 00920, 00930, 00940, 00960, 00962, 00970, 00990, 01030, 01040, 01070, 02001, 02030 02050, 02320, 02415, 02560, 02690,

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

SECTION 00110 – ORGANIZATION, CONVENTIONS, ABBREVIATIONS AND DEFINITIONS

Comply with Section 00110 of the Standard Specifications supplemented and/or modified as follows:

00110.05(d) References to Laws, Acts, Regulations, Rules, Ordinances, Statutes, Orders, and Permits

Add the following to the first bullet (Statutes and Rules):

- Clackamas County's Local Contract Review Board (LCRB) Rules are accessible online on the County's website https://dochub.clackamas.us/documents/drupal/ef976bc9-14f4-495b-9bd8-c69ee7334685

00110.10 Abbreviations

Add the following:

CCDA	-	Clackamas County Development Agency
DTD	-	Clackamas County Department of Transportation and Development
LCRB	-	Local Contract Review Board
ODFW	-	Oregon Department of Fish and Wildlife
UNS	-	Utility Notification System
WES	-	Water Environment Services of Clackamas County

00110.20 Definitions

Add or modify definitions as follows:

Agreement Form – The written agreement between the Owner and Contractor covering the work to be performed under the contract.

Amendment – A contract modification for Additional Work, Changed Work, Extra Work, Field Directives, or other changes. An Amendment changes the contract value, scope, and/or time. Amendments require formal approval by the Board of County Commissioners, pursuant to LCRB Rule Division C-049-160, prior to approval of such work.

Approved Equal - Materials or services proposed by the contractor and approved by the County as equal substitutes for those materials or services specified.

Award – Same as “Notice to Intent to Award”.

BCC – The Clackamas County Board of County Commissioners

Bid - A written offer by a bidder on forms furnished by the County to do work stated in the bid documents at the prices quoted. "Bid" is synonymous with "proposal" in these bid documents.

Bid Closing - The date and time for Bid Closing is the same as the date and time for Bid Opening.

Bid Documents- The following documents together comprise the Bid Documents:

- Invitation to Bid, Instructions to Bidders, Bid Form, Bid Proposal, Schedule of Prices, Bid
- Bond, Performance Bond
- Certificate of Insurance, Prevailing Wage Rates
- The "Oregon Standard Specifications for Construction" by ODOT and APWA, 2021 edition.

- Plans and drawings
- Other bid documents included or referenced in the bid documents
- Addenda, if any
- The Agreement Form and Special Provisions

Bonds - The bond or surety bond is a written document given by the surety and principal to the obligee to guarantee a specific obligation.

Change Order - A price agreement for Extra Work, Changed Work, field directives, or other changes. A Change Order does not change the contract value, scope, or time until it is incorporated into an Amendment. Change Orders will be agreed upon, in writing, by the County Project Manager and the Contractor's designated representative.

Contract - The written contract agreement, including amendments, signed by the Contractor and Clackamas County, which describes the work to be done, the contract amount, and defines the relationships and obligations of the Contractor and the County.

Contract Documents - The Invitation to Bid, the Instructions to Bidders, the accepted Bid Proposal and Schedule of Prices, the Subcontractor List, the Bid Bond, the Performance and Payment Bond, the Certificate of Insurance, the Prevailing Wage Rates, the Standard Specifications and Special Provisions, Amendments, the Plans and Drawings, the Agreement, as well as all documents incorporated by reference therein, and any and all addenda prepared by or at the direction of and adopted by the County and further identified by the signature of the parties and all modifications thereof incorporated in the documents before their execution.

County - The term "County" shall mean Clackamas County, including the Board of County Commissioners, employees and agents of the County authorized to administer the conditions of these contract documents.

Department – A subdivision of the Agency.

Engineer - The County's Project Manager either acting directly or through an authorized representative(s). When referring to approval of extra work or other Contract modifications, "Engineer" also refers to the County's legal authority according to the LCRB rules.

Invitation to Bid - The public announcement (Notice to Contractors) inviting bids for work to be performed or materials to be furnished.

Legal Holiday - As defined in ORS 279C.540.

Lump Sum - A method of payment providing for one all-inclusive cost for the work or for a particular portion of the work.

Notice of Intent to Award - A written notice from the County notifying bidders that the County intends to award to the responsible bidder submitting lowest responsive bid.

ODOT Procurement Office – Clackamas County Purchasing Department.

Owner – Synonymous with Agency.

Plan Holder's List – A list of contractor's names, contact names, phone and fax numbers that the County's Purchasing Department creates during bidding of the Project.

Project Manager – The Owner's representative who directly supervises the engineering and administration of the contract.

Shop Drawings – Synonymous with Working Drawings.

Solicitation Document – Synonymous with Bid Documents.

Standard Drawings – The Agency-prepared detailed drawings for Work or methods of construction that normally do not change from project to project. The Standard Drawings include the ODOT Standard Drawings.

Standard Specifications - "Oregon Standard Specifications for Construction", current edition, published by the Oregon Department of Transportation and as amended by **the Agency.**

State - Where the term "State" or "State of Oregon" or "ODOT" appears in the contract documents it shall mean "Clackamas County", "State of Oregon", or "ODOT" as applicable because of context.

Work Day - Any and every calendar day from January 1 to December 31 of every year, excluding Saturdays, Sundays and Legal Holidays.

END OF SECTION

SECTION 00120 – BIDDING REQUIREMENTS AND PROCEDURES

Comply with Section 00120 of the Standard Specifications supplemented and/or modified as follows:

00120.00 Prequalification of Bidders - Delete and replace with the following:

See Instructions to Bidders.

00120.01 General Bidding Requirements – Delete and replace with the following:

See Instructions to Bidders.

00120.05 Request for Plans, Special Provisions, and Bid Booklets: – Delete and replace with the following:

See Notice of Public Improvement Contract and Instructions to Bidders.

Copies of the 2021 Oregon Standard Specifications for Construction and Supplements might be found on the Oregon Department of Transportation website at:
http://www.oregon.gov/ODOT/Business/Pages/Standard_Specifications.aspx

00120.15 Examination of Work Site and Solicitation Documents; Consideration of Conditions to be Encountered – Delete the third paragraph.

00120.25 Subsurface Investigations - Replace the first two sentences of the first paragraph with the following:

The Agency or its consultant has conducted subsurface or geologic investigations of the Project Site, and the results of these investigations are included in the Bid Documents and available at the Engineer's office.

00120.30 Changes to Plans, Specifications, or Quantities before Opening of Bids - Delete and replace with the following:

See Instructions to Bidders.

00120.40 Preparation of Bids – Delete and replace this section with the following:

See Instructions to Bidders.

00120.45 Submittal of Bids - Delete and replace with:

See Instructions to Bidders.

00120.50 Submitting Bids for More than One Contract – Delete this subsection.

00120.60 Revision or Withdrawal of Bids - Delete and replace with the following:

See Instructions to Bidders.

00120.70 Rejection of Nonresponsive Bids – Delete and replace with the following:

See Instructions to Bidders.

00120.95 Opportunity for Cooperative Arrangement – Delete this section**.**

END OF SECTION

SECTION 00130 – AWARD AND EXECUTION OF CONTRACT

Comply with Section 00130 of the Standard Specifications supplemented and/or modified as follows:

00130.00 Consideration of Bids - Delete third paragraph.

00130.10 Award of Contract - Delete and replace with the following:

See Instructions to Bidders.

00130.15 Right to Protest Award – Delete and replace with the following:

See Instructions to Bidders.

00130.30 Contract Booklet – Add the following:

Other documents are part of the contract documents by reference. These include, but are not limited to:

- The "Oregon Standard Specifications for Construction", 2021 Edition, as published by the Oregon Department of Transportation (ODOT).
- “Oregon Standard Drawings” latest edition, as published by ODOT.
- Clackamas County Service District No. 1 "Surface Water Standard Specifications", latest edition.

00130.40 Contract Submittals - Delete and replace with the following:

See Instructions to Bidders.

00130.70 Release of Bid Guaranties – Delete and replace with the following:

See Instructions to Bidders.

END OF SECTION

SECTION 00140 – SCOPE OF WORK

Comply with Section 00140 of the Standard Specifications supplemented and/or modified as follows:

00140.30 Agency-Required Changes in the Work – Replace the last paragraph with the following:

Upon receipt of an Engineer’s written order modifying the Work, the Contractor shall perform the Work as modified via Change Order, which may be subject to approval as an Amendment.

If an Amendment incorporating changes to the Work increases the Contract amount, the Contractor shall notify its Surety of the increase and shall provide the Agency with a copy of any resulting modification to bond documents. The Contractor's performance of Work pursuant to Amendments shall neither invalidate the Contract nor release the Surety. Payment for changes in the Work shall be made in accordance with 00195.20. Contract Time adjustments shall be made in accordance with 00180.80.

00140.31 "As-Built" Records - Add the following section:

Maintain a current and accurate record of the work completed during the course of this contract. This may be in the form of "as-built" drawings kept by accurately marking a designated set of the contract plans with the specified information as the Work proceeds. Accurate, complete and current "as-built" drawings are a specified requirement for full partial payment of the work completed. At project completion and as a condition of final payment, the Contractor shall deliver to the Project Manager a complete and legible set of "as-built" drawings.

The "as-built" drawings must show the information listed below. Where the term "locate" or "location" is used, it shall mean record of position with respect to both the construction vertical datum and either construction horizontal datum or a nearby permanent improvement.

1) Record location of underground services and utilities as installed.

2) Record location of existing underground utilities and services that are to remain and that are encountered during the course of the work.

3) Record changes in dimension, location, grade or detail to that shown on the plans.

4) Record changes made by change order.

5) Record details not in the original plans.

6) Provide fully completed shop drawings reflecting all revisions.

END OF SECTION

SECTION 00150 – CONTROL OF WORK

Comply with Section 00150 of the Standard Specifications modified as follows:

00150.00 Authority of the Engineer – Delete and replace the first sentence with the following:

Except as indicated elsewhere in the Contract (e.g. Amendment approval by the BCC), the Engineer has full authority over the Work and its suspension.

00150.05 Cooperative Arrangements – Delete this section**.**

00150.10 Coordination of Contract Documents

(a) Order of Precedence – Delete this section and replace with the following:

The Engineer will resolve any discrepancies between these documents in the following order of precedence:

- Approved Amendments;
- Approved Change Orders
- Bid Schedule with Schedule of Prices;
- Permits from governmental agencies
- Special Provisions;
- Agency-prepared drawings specifically applicable to the Project and bearing the Project title;
- Reviewed and accepted, stamped Working Drawings;
- Agreement Form;
- Standard Drawings;
- Approved Unstamped Working Drawings;
- Standard Specifications;
- All other Contract Documents not listed above.

Notes on a drawing shall take precedence over drawing details.

Dimensions shown on the drawings, or that can be computed, shall take precedence over scaled dimensions.

00150.15(b) Agency Responsibilities - Replace this subsection, except for the subsection number and title, with the following:

The Engineer will perform the Agency responsibilities described in the ODOT Construction Surveying Manual for Contractors, Chapter 1.5 (see Section 00305).

00150.15(c) Contractor Responsibilities - Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall perform the Contactor responsibilities described in the ODOT Construction Surveying Manual for Contractors, Chapter 1.6 (see Section 00305) and the following:

- Perform earthwork slope staking including intersections and matchlines and set stakes defining limits for clearing which approximate right-of-way and easements.
- Inform the Engineer of any property corners monuments and/or survey markers that are not shown on the plans and are found during construction activities prior to disturbing the monuments. Allow the Agency 2 Work days for referencing all found markers before they are removed. Monuments that are noted on the plans to be protected and are disturbed by the Contractor's activities shall be replaced by the Contractor’s surveyor at the Contractor's expense.

00150.50 Cooperation with Utilities: Add the following to the end of Paragraph (a):

There may be other utility servers who are not specifically listed in these Special Provisions or on the Plans that may be adjusting or inspecting their facilities within the project limits.

00150.50(c) Contractor Responsibilities – Add the following to the bulleted list:

- Hold a utility scheduling meeting and monthly utility coordination meetings (see also 00180.42);
- Maintain and re-establish utility location marks according to OAR 952-001-0090(3)(a). Coordinate re-establishment of the location marks with the associated Utility;
- Determine the exact location before excavating within the tolerance zone according to OAR 952-001-0090(3)(c);
- Backfill any exposed utilities as recommended and approved by the Utility representative. Obtain utility locate warning tape from the Utility and replace damaged or removed warning tape. Utility locate warning tape may not be present at all existing utilities;
- Stake, place warning tape, and maintain no work limits around critical Utility facilities as shown or directed by the Engineer and the Utility; and
- In addition to the notification required in OAR 952-001-0090(6), notify the Engineer and the Utility as soon as the Contractor discovers any previously unknown Utility conflicts or issues. Contrary to the OAR, stop excavating until directed by the Engineer and allow the Utility a minimum of two weeks to relocate or resolve the previously unknown utility issues.

The existing underground utilities shown on the Plans have been determined by as-built records and field surveys, but are not guaranteed to be complete or accurate. The Contractor shall be responsible for contacting the individual utility companies to mark locations, and arranging with them for any relocation work that should be required.

The Contractor shall make excavations and borings ahead of the work where necessary to determine the exact location of underground pipes or other features, which might interfere with construction. The Contractor shall support and protect pipes or other services where they cross the trench and shall be responsible for all damages incidental in interruptions of service that may be caused by Contractor operations. Where a new utility line crosses an existing pipeline or other conduit, the trench backfill shall be well compacted in a manner that provides for the required backfill and compaction standards while protecting the utility in question.

00150.50 Cooperation with Utilities - Add the following subsection:

00150.50(f) Utility Information (No Anticipated Relocations) - Within the Project limits, there are no anticipated relocations with the Utilities listed in Table 00150-1. The Contractor shall contact those Utilities having buried facilities and request that they locate and mark them for their protection prior to construction.

Table 00150-1

Utility	Contact Person's Name, Address, Email, and Phone Number
Portland General Electric (PGE)	Contact Name: Brent Baldwin Address: 121 SW Salmon St, Portland, OR 97204 Phone: 503-736-5470 Email: Brent.Baldwin@pgn.com
Comcast	Contact Name: Todd Royer Address: Phone: 971-801-5610 Email: todd_royer@cable.comcast.com
Clackamas Broadband Exchange (CBX)	Contact Name: Duke Dexter Address: 121 Library Court, Oregon City, OR 97045 Phone: 503-722-6663 Email: DDexter@clackamas.us
Water Environment Services	Contact Name: Don Kemp Address: 150 Beavercreek Road #430, Oregon City, OR 97045 Phone: 503-742-4567 Email: wes-permitservices@clackamas.us
Zayo	Contact Name: Fatih Adam Address: Phone: Email: Fatih.Adam@cobbfendley.com; zayo.relo.oregon@zayo.com

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project. Utilities may require an on-site observer, at no cost to the Contractor.

Portland General Electric - Power Suppliers - Energized power lines overhang portions of the Work with a minimum vertical clearance of 18 feet. The Contractor shall maintain at least 10 feet of safety clearance. Exceptions require written approval from the Power Supplier(s) and may require an on-site safety watcher, at no cost to the Contractor. The Contractor shall provide the Engineer a copy of the written approval of exception before beginning Work.

Comcast, CBX, Zayo - Telecommunication Utilities - The Contractor shall obtain written approval from Telecommunication Utilities that have fiber optic communication cable facilities, for excavating within 10 feet of a buried fiber optic communications cable. Telecommunication Utilities may require an on-site safety watcher at no cost to the Contractor for monitoring purposes. The Contractor shall provide the Engineer a copy of the written approval before beginning Work.

Add the following subsection:

00150.50(g) Utility Information (Anticipated Relocations):

The organizations list in Table 00150-2 may be adjusting Utilities within the limits of the Project during the period of the Contract with relocation Work estimated to be completed by the following dates and times:

Table 00150-2

Subsection	Utility	Contact Person's Name, Address, Email, and Phone Number	Estimated Completion Date
00150.50(g)(1)	NW Natural	Contact Name: Brock Inman Address: 250 SW Taylor St, Portland, OR 97204 Phone: Email: Brock.Inman@nwnatural.com	April 1st, 2025
00150.50(g)(2)	Century Link/Lumen	Contact Name: Martina Gettman Address: 8021 SW Capitol Hill Rd, Portland, OR 97219 Phone: Email: martina.gettman@lumen.com	April 1st, 2025
00150.50(g)(3)	Clackamas River Water District	Contact Name: Joe Eskew Address: 16770 SE 82nd Dr, Clackamas, OR 97015 Phone: 503-723-2565 Email: jeskew@crwater.com	April 1st, 2025

The Contractor shall contact the Engineer to view the approved utility relocation Plans.

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project. Utilities may require an on-site observer, at no cost to the Contractor.

(1) (NW Natural) - "Gas Utility":

The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the gas pipeline.

The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, 21 Calendar Days before the Contractor is scheduled to begin performing excavation word. After the Gas Utility receives the notification, the Contractor shall then allow the Gas Utility 21 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing excavation work..

In the event of an emergency, and in addition to the calls required by the Utilities notification system, the Contractor shall call:

- Northwest Natural Gas 1-800-882-3377

(2) (Century Link/Lumen) - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, 21 Calendar Days before the Contractor is scheduled to begin performing excavation work. After the Telecommunication Utility receives the notification, the Contractor shall then allow the Telecommunication Utility 21 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing excavation work.

(3) (Clackamas River Water District) - "Water Utility":

The Contractor shall notify the Water Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Water Utility facilities.

The Contractor shall notify the Water Utility in writing, with a copy to the Engineer, 21 Calendar Days before the Contractor is scheduled to begin performing Excavation work. After the Water Utility receives the notification, the Contractor shall then allow the Water Utility 21 Calendar Days to schedule and complete the relocation and adjustment work before the Contractor begins performing excavation work.

00150.70 Detrimental Operations – Add the following:

Portions of this project might be constructed in close proximity to existing private improvements. All private improvements disturbed by the Contractor's operations shall be repaired or replaced to equal or better condition at the Contractor's expense. The Engineer may withhold from future payments to the Contractor, an amount equal to the costs reasonably estimated by the Engineer to repair or replace, as the case may be, those private improvements disturbed by the Contractor's operations. Engineer shall release the retained amount once Engineer has determined that the Contractor has completed the repair consistent with the requirements of this provision. In addition, prior to construction, the Contractor shall provide to the Engineer videotape showing private property, if any, which may be disturbed during construction.

SECTION 00160 – SOURCE OF MATERIALS

Comply with Section 00160 of the Standard Specifications supplemented and/or modified as follows:

00160.20(a) Buy America – Delete this section and replace with the following: Federal highway funds are NOT involved on this Project.

END OF SECTION

SECTION 00165 – QUALITY OF MATERIALS

Comply with Section 00165 of the Standard Specifications modified as follows:

00165.04 Costs of Testing – Replace this section with the following sentence: All testing required to be performed by the Contractor will be at the Contractor's expense.

00165.10(a) Field-Tested Materials – Add the following sentence: The County follows the MFTP on its projects:

00165.10(b) Nonfield-Tested Materials - Add the following sentence:

The County follows the NTMAG on its projects.

END OF SECTION

SECTION 00170 – LEGAL RELATIONS AND RESPONSIBILITIES

Comply with Section 00170 of the Standard Specifications supplemented and/or modified as follows:

00170.00 General - Replace the first sentence of the first paragraph in this section with the following:

The Contractor shall comply with all laws, ordinances, codes, regulations, executive orders, and administrative rules (collectively referred to as "Laws" in this Section) that relate to the Work or to those engaged in the Work.

00170.02 Permits, Licenses, and Taxes – Add the following:

This project is to be constructed in Clackamas County road right of way and streets. There are no separate road opening permits required from Clackamas County to perform the work required under this contract.

00170.61(a) Workers' Compensation - In the paragraph, replace "00170.70(d)" with "the Agreement".

Add the following subsection:

00170.67 Fees - The fee required by ORS 279C.825(1) will be paid by the Agency to the Commissioner of the Oregon Bureau of Labor and Industries under the administrative rules of the Commissioner.

00170.70(a) Insurance Coverages - Add the following to the end of this subsection:

The following insurance coverages and dollar amounts are required pursuant to this subsection:

Insurance	Combined Single Limit	Annual Aggregate

Coverages	per Occurrence	Limit
Commercial General Liability	$1,000,000	$2,000,000
Commercial Automobile Liability	$1,000,000	(aggregate limit not required)

00170.70(d) Additional Insured - Add the following paragraph at the beginning of the section and add the bullets to the end of this subsection:

The liability insurance coverages of 00170.70(a) shall include the Agency, the Agency's governing body, board, or Commission and its members, and their respective officers, agents, and employees as Additional Insureds, but only with respect to the Contractor's activities to be performed under the Contract.

- Clackamas County and its officers, agents, and employees
- Clackamas County Board of Commissioners
- Kittelson & Associates, Inc. and its officers, agents, and employees

00170.70(h) Agency Acceptance – Delete the paragraph in this section and replace with the following:

All insurance and insurance providers are subject to Agency acceptance. In addition, all of the following are subject to Agency acceptance and, if requested by Agency, the Contractor shall provide complete copies of the following to Agency's representatives responsible for verification of the insurance coverages required by the Contract: insurance policies, endorsements, self-insurance documents and related insurance documents.

00170.70(k) Builder's Risk Installation Floater – Delete the paragraph in this section and replace with the following:

If specified by Special Provision, the Contractor shall obtain, at its expense, and keep in effect during the term of the Contract, Builder's Risk Installation Floater Insurance covering the Contractor's Materials and Equipment to be used for completion of the Work performed under the Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contractor´s Equipment, Materials, or fixtures to be installed, in-transit, or stored off-site during the performance of the Contract. This insurance shall include as loss payees the Agency, State of Oregon, the building or structure owner, the Contractor and Subcontractors as their interests may appear.

00170.72 Indemnity/Hold Harmless – Delete and replace with the following:

Clackamas County Public Improvement Contract.
Extend indemnity and hold harmless to the Agency and the following:

- Clackamas County and its officers, agents, and employees
- Clackamas County Board of Commissioners
- Kittelson & Associates, Inc. and its officers, agents, and employees

00170.85(b-1) Contractor Warranty for Specific Items – This subsection does not apply:

END OF SECTION

SECTION 00180 – PROSECUTION AND PROGRESS

Comply with Section 00180 of the Standard Specifications supplemented and/or modified as follows:

00180.06 Assignment of Funds Due Under the Contract - Delete first bulleted item.

00180.21 Subcontracting - Add the following to subsection (a):

All contracts with subcontractors or suppliers shall have provisions making the contract assignable to the County, at the option of the County, if the Contractor terminates, goes out of business, declares bankruptcy, or otherwise is unable to perform provided that the County gives the subcontractor notice of assignment within fourteen (14) days of learning of the inability of the Contractor to perform.

The Engineer may revoke consent to subcontract. If the Engineer revokes consent to subcontract, the subcontractor shall be immediately removed from the Project Site.

00180.40 Limitation of Operations - Add the following to subsection (a):

The Contractor must provide, at a minimum, a 48-hour notice to the Clackamas County Project Manager in order to perform any work on Saturdays.

Add the following subsection:

00180.40(c) Specific Limitations - Limitations of operations specified in these Special Provisions include, but are not limited to, the following:

Limitations	Subsection
Cooperation with Utilities	00150.50
Contract Completion Time	00180.50(h)
Traffic Lane Restrictions	00220.40(e)
Noise Control	00290.32
Maintenance Under Traffic	00620.43
Opening Sections to Traffic	00744.51

Be aware of and subject to schedule limitations in the Standard Specifications that are not listed in this Subsection.

00180.41 Project Work Schedules – Add the following:

A Type “A” schedule as detailed in the Supplemental Specifications is required on this Contract. In addition, a three-week look ahead schedule shall be prepared by the Contractor on a weekly basis and submitted to the Engineer. It shall include all construction activities planned for the following three-week period. The three-week look ahead schedule can be hand-written and shall be in a format agreed upon by the Contractor and the Engineer.

00180.42 Preconstruction Conference - Add the following:

Before beginning On-Site Work and before meeting with the Engineer for the preconstruction conference, hold a group utilities scheduling meeting with representatives from the utility companies involved with this project. Incorporate the utilities time needs into the Contractor's schedule submitted prior to the preconstruction conference.

Submit the following during the preconstruction conference unless otherwise directed:

- The names, addresses, and telephone numbers of two or more persons employed by the Contractor who can be reached day or night to handle emergency matters.
- Subcontractor's list including contact list for each subcontractor with phone numbers and addresses and work to be performed.
- List of personnel authorized to sign change orders and receive progress payment warrants.
- Video recording of private properties affected by construction per 00150.70.

A representative of each subcontractor shall be required to attend the pre-construction conference.

The Contractor shall plan and schedule all Utility adjustment operations well in advance of On-Site Work. When the Contractor becomes aware of Utility conflicts not previously identified, the Contractor shall notify the applicable Utilities in writing the same Calendar Day. The Contractor shall allow Utilities at least 2 weeks (14 Calendar Days) to relocate (adjust) the Utility conflicts not previously identified.

00180.43 Commencement and Performance of Work - Add the following bullet item:

- Conduct the work at all times in a manner and sequence that will insure minimal interference with traffic. The Contractor shall not begin work that will interfere with work already started. If it is in the County's best interest to do so, the County may require the Contractor to finish a portion or unit of the project on which work is in progress or to finish a construction operation before work is started on an additional portion or unit of the project.

00180.44 Critical Time Periods - Note the following critical time periods where only certain types of work can be performed throughout the project, and completion times for work items:

- All work adjacent to Bilquist Elementary school, except for final lift paving:
  “W” Sta. 195+95.64 to “W” Sta. 199+75 June 15, 2025 – August 31, 2025

00180.50(h) Contract Time - Complete all Work to be done under the Contract, except for seeding establishment, before the earlier of 120 Calendar Days, or December 31, 2025.

Recording of Calendar Days will begin on the day the Contractor begins On-Site Work as defined in 00110.20.

00180.70 Suspension of Work - Add the following to the first bullet item:

If the Inspector has reason to believe that any safety provisions are not being adhered to, the Inspector will immediately notify the Contractor's site foreman and/or the appropriate person and the County Project Manager. The purpose of this discussion is to determine the validity of the alleged violation. This will also allow the Contractor a reasonable amount of time to correct or improve any of the provisions for the safety on this project. If the County Project Manager finds the problem still unresolved or uncorrected, they will notify the Contractor's Project Manager and the County's Risk Management Safety Analyst. If the County's Risk Management Safety Analyst finds that the job site contains any unresolved safety issues they will take appropriate action up to and including suspension of the Contractor's operations on all or part of the Work.

00180.85(b) Liquidated Damages - Add the following paragraph:

The liquidated damages for failure to complete the Work on time required by 00180.50(h) will be $1,100.00 per Calendar Day *.

* Calendar Day amounts are applicable when the Contract time is expressed on the Calendar Day or fixed date basis.

Add the following subsection:

00180.85(c) Lane Closures and Road Closures - Lane closures and road closures beyond the limits specified will inconvenience the traveling public and will be a cost to the Agency.

(1) Lane Closures - It is impractical to determine the actual damages the Agency will sustain in the event traffic lanes are closed beyond the limits listed in 00220.40(e). Therefore, the Contractor shall pay to the Agency, not as a penalty, but as liquidated damages, $500 per 15 minutes, or for a portion of 15 minutes, per lane, for any lane closure beyond the limits listed in 00220.40(e). In addition to the liquidated damages, all added cost for traffic control measures, including flagging, required to maintain the lane closures beyond the allowed time limits, will be at no additional cost to the Agency. The required traffic control measures will be as determined by the Engineer.

The Engineer will determine when it is safe to reopen lanes to traffic. Assessment of liquidated damages will stop when all lanes have been safely reopened. Any liquidated damages assessed under these provisions will be in addition to those listed in 00180.85(b).

00180.88 Workplace Harassment Prevention Plan – Submit a workplace harassment prevention plan for review 10 days before the preconstruction conference. The plan shall ensure all workers are guaranteed a safe and respectful work environment regardless of their identity or status. The plan applies to, but is not limited to, a worker's race, gender, creed, or any protected characteristic under state or federal law. At a minimum, the plan shall include:

- A Statement that the Contractor shall provide a safe and respectful workplace on the jobsite for all workers, subcontractors, suppliers, and other persons performing work.
- A description of how the plan will be implemented and monitored during the project duration.
- A list of the in-person trainings that will be conducted for workers of all ranks working on the project to support, promote, and grow a positive jobsite culture.

- A list of meaningful policies including procedures for aggrieved workers in need of recourse.
- How incidents involving bullying or harassment will be investigated and resolved in a prompt, thorough, and impartial manner.

Contractor shall post on the jobsite and make available copies of policies about hate, intimidation, or harassment including how to report incidents and how to receive support. Materials will be provided in all languages necessary to be inclusive of the workforce.

00180.89 Measurement – No measurement of quantities will be made for workplace harassment prevention plan.

00180.95 Payment – Payment for workplace harassment prevention plan will be for developing and implementing the plan during construction of the project, in-person training, developing meaningful policies, and investigating incidents.

END OF SECTION

SECTION 00190 – MEASUREMENT OF PAY QUANTITIES

Comply with Section 00190 of the Standard Specifications supplemented and/or modified as follows:

00190.20(a) Contractor to Provide Vehicle Weigh Scales: Delete and replace the last paragraph in this section with the following:

Unless otherwise provided in the Contract, Pay Items to be measured by weight shall include all Contractor costs for providing, maintaining, inspecting, and testing scales; for furnishing appropriate weigh tickets; for self-printing scales; for electronic weigh memo system(s); and for transporting Materials to the scales or to check weighing.

00190.20(f)(1) Scale with Automatic Printer: Delete and replace the first sentence in this section with the following:

If the scales have an automatic weigh memo printer or an approved electronic weigh memo system that does not require manual entry of gross weight information, the Agency may periodically have a representative at the scales to observe the weighing procedures.

00190.20(f)(1) Scale with Automatic Printer: Delete and replace the last bullet in this section with the following:

- Furnish a legible, serially numbered weigh memo for each load of Materials to the Agency's Materials receiver at the point of delivery, or as directed by the Engineer. The memo shall identify the Project, the Materials, the date, net weight (gross and tare as appropriate), and identification of the vehicle and weigh technician. If approved by the Engineer an electronic weigh memo system may be used. Requests to use an electronic weigh memo system shall be submitted to the Engineer according to 00150.37, providing sufficient detail for the Engineer to perform an evaluation. If approved, the Contractor shall provide training, technical support, reports, and weigh memo information to the Engineer at no additional cost to the Agency. The electronic weigh memo system shall be:

- Capable of recording and securely retaining the same required “weigh memo” information identified above. For retention see 00170.07(c).
- Fully integrated with the provided weigh scale system.
- Designed in such a way that the data electronically read from scales cannot be altered by the Contractor, Subcontractor, Supplier, Engineer, or other system users.
- Designed to allow the Engineer remote access to all the weigh memo data in real-time and allow the Engineer to add comments to the individual weigh memo regarding waste, temperature, stations, yield or other information. The system shall identify the system user or individual that adds comments to the electronic weigh memo or otherwise access the system. The Contractor shall provide the Engineer a means to access the data if the Engineer cannot use an Agency provided hand held device for access.
- Capable of providing all the weigh memo information, including any added comments, in an electronic data file the Engineer can easily access without proprietary software.

00190.20(g) Agency-Provided Weigh Technician: Delete and replace subsection (g) with the following:

The Contractor must provide a weigh technician. The Agency will not provide one for the Contractor.

00190.30 Plant Scales: Add the following sentence after the bulleted list:

If approved by the Engineer an electronic weigh memo system may be used in place of a printer system. See 00190.20(f)(3).

END OF SECTION

SECTION 00195 – PAYMENT

Comply with Section 00195 of the Standard Specifications supplemented and/or modified as follows:

00195.10 Payment for Changes in Material Costs - Delete and replace with the following:

There are no clauses for material price escalation/de-escalation in this project, including for Asphalt, Steel, or Fuel. There is no option for Contractor participation.

00195.20(b) Significant Changed Work – Add the following:

Significant is defined as:

a) An increase or decrease of more than 25 percent of the total cost of the Work calculated from the original proposal quantities and the unit contract prices; or,
b) An increase or decrease of more than 25 percent in the quantity of any one major contract item.

For condition b) above, a major item is defined as any item that amounts to 10 percent or more of the original total contract price.

00195.50(a) Progress Payments - Delete and replace the last sentence in the second paragraph as follows:

All estimated quantities are subject to correction in the final estimate. If the Contractor uses these estimates as a basis for making payments to Subcontractors and Suppliers, the Contractor assumes all risk and bears any losses that result.

00195.50(a)(1) Progress Estimates - Delete the first sentence and replace with the following:

At a regular period each month to be determined at the Preconstruction Conference, the Contractor will make an estimate of the amount and value of pay item work completed and in place. This estimate will be submitted to the Project Manager for review and approval.

(2) Value of Material on Hand - Delete the section and replace with the following:

(2) Value of Material on Hand - The Contractor will make an estimate of the amount and value of acceptable material to be incorporated in the completed work which has been delivered and stored as given in 00195.60(a) for review and approval.

(4) Limitations on Value of Work Accomplished - In the first sentence, change "Engineer's estimate" to “Contractor’s reviewed estimate”.

00195.50 (b) Retainage - Delete the first paragraph and replace with:

The amount to be retained from progress payments will be 5.0% of the value of payments made, and will be retained in one of the forms specified in Subsection (c) below. The County will withhold Retainage from all force account and change order work.

00195.50(c) Forms of Retainage – Delete first paragraph and replace with:

Forms of acceptable retainage are set forth below in Subsections (1) through (3). “Cash, Alternate A” or “Cash, Alternate B” (Retainage Surety Bond) are the Agency-preferred forms of retainage. Unless the Contractor notifies the County otherwise in writing, the County will automatically hold retainage per paragraph (2) “Cash, Alternate B (No Interest Earned). If the Agency incurs additional costs as a result of the Contractor’s election to use “Bonds and Securities”, the Agency may recover such costs from the Contractor by a reduction of the final payment.

Delete and replace paragraph (2) with the following:

> **(2) Cash, Alternate B (No Interest Earned)** – Retainage will be deducted from progress payments and held by the Agency until final payment is made in accordance with 00195.90, unless otherwise specified in the Contract.

00195.50(d) Release of Retainage – Delete this section and replace with the following:

(d) Release of Retainage - As the Work progresses, release of the amounts to be retained under (b) of this Subsection will only be considered for Pay Items that have been satisfactorily completed. For purposes of this Subsection, a Pay Item will be considered satisfactorily completed only if all of the Work for the Pay Item is complete and all contractual requirements pertaining to the Pay Item and Work have been satisfied. Work not included in a Pay Item, or

which constitutes part of an uncompleted Pay Item, will not be regarded as satisfactorily completed Work for the purposes of this Subsection.

When the Work is 50% completed and upon written application of the Contractor and written approval of the Surety, the Engineer or Project Manager may reduce or eliminate retainage on remaining progress payments if the Work is progressing satisfactorily.

A determination of satisfactory completion of Pay Items or Work or release of retainage shall not be construed as acceptance or approval of the Work and shall not relieve the Contractor of responsibility for defective Materials or workmanship or for latent defects and warranty obligations.

END OF SECTION

SECTION 00196 – PAYMENT FOR EXTRA WORK

Comply with Section 00196 of the Standard Specifications and modified as follows:

00196.91 Extra Work Allowance – Add the following new section:

The Bid schedule of prices contains a bid item for a pre-determined amount of Engineer ordered extra work. All Bidders shall reflect this same amount in their total Bid. No Bidder shall presume in the preparation of the bid or in the course of contract work that there will be a certain payment under that item or a certain order for extra work.

END OF SECTION

SECTION 00197 – PAYMENT FOR FORCE ACCOUNT WORK

Comply with Section 00197 of the Standard Specifications.

END OF SECTION

SECTION 00199 – DISAGREEMENTS, PROTESTS AND CLAIMS

Comply with Section 00199 of the Standard Specifications supplemented and/or modified as follows:

00199.40 Claim Decision; Review; Exhaustion of Administrative Remedies - Delete the entire section and replace with the following:

The Contractor must properly submit a claim as detailed in 00199.30.

(a) Engineer Claim Review - The Engineer or Project Manager will, as soon as practicable, consider and investigate a Contractor's properly submitted claim for additional compensation,

Contract Time, or for a combination of additional compensation and Contract Time. Once the Engineer or Project Manager determines the Agency is in receipt of a properly submitted claim, the Engineer or Project Manager will arrange a meeting, within 28 Calendar Days, or as otherwise agreed by the parties, with the Contractor in order to present the claim for formal review and discussion. A person authorized by the Contractor to execute Change Orders on behalf of the Contractor must be present and attend all claim meetings.

If the Engineer or Project Manager determines that the Contractor must furnish additional information, records, or documentation to allow proper evaluation of the claim, the Engineer will schedule a second meeting, to be held within 14 calendar days, or as otherwise agreed by the parties, at which the Contractor shall present the requested information, records and documentation.

The Engineer or Project Manager will advise the Contractor of the decision to accept or reject the claim. If the Engineer or Project Manager finds the claim has merit, an equitable adjustment will be offered. If the Engineer or Project Manager finds the claim has no merit, no offer of adjustment will be made and the claim will be denied. The County intends to resolve claims at the lowest possible level.

If, at any step in the claim decision or review process, the Contractor fails to promptly submit requested information or documentation that the Agency deems necessary to analyze the claim, the Contractor is deemed to have waived its right to further review, and the claim will not be considered properly filed and preserved.

If the Engineer or Project Manager has denied a claim, in full or in part, for Contract Time only according to 00180.80, or has denied a claim, in full or in part, for correction of final compensation according to 00195.95, those disputed claims may then be resolved, in full or in part, at either of the two progressive steps of claim review procedure as specified in this Subsection. For all claims, all of the actions and review under each step of the review process shall occur before the review can be advanced to the next higher step.

(b) Director Claim Review - Upon request by the Contractor, the Department Director will review the Engineer or Project Manager's decision on the claim and advise the Contractor of the decision in writing. If the Director finds the claim has merit, and equitable adjustment will be offered. If the Director finds the claim has no merit, no offer of adjustment will be made and the claim will be denied.
Once the Engineer determines the Agency is in receipt of a properly submitted claim, the Engineer will arrange a meeting, within 21 Calendar Days or as otherwise agreed by the parties, with the Contractor in order to present the claim for formal review and discussion.

If the Engineer determines that the Contractor must furnish additional information, records or documentation to allow proper evaluation of the claim, the Engineer will schedule a second meeting, to be held within 14 Calendar Days or as otherwise agreed by the parties, at which the Contractor shall present the requested information, records and documentation.

The Director shall evaluate the claim based on the information provided by the Contractor to the Engineer or Project Manager. However, if the Department Director (or designee) determines that the Contractor must furnish additional information, records or documentation to allow proper evaluation of the claim, the Department Director (or designee) will schedule a meeting, to be held within 14 Calendar Days, or as otherwise agreed by the parties, at which the Contractor shall present the requested information, records and documentation.

The claim is subject to records review, if not all of the records requested by the Department Director (or designee) were furnished. If applicable, advancement of the claim is subject to the provisions regarding waiver and dismissal of the claim or portions of the claim.

The decision of the Department Director shall be the final decision of the Agency.

(c) Commencement of Litigation - If the Contractor does not accept the Director's decision, then the Contractor shall commence any suit or action to collect or enforce any claim filed in accordance with 00199.30 within a period of one (1) year following the mailing of the decision or within one (1) year following the date of "Second Notification", whichever is later. If said suit or action is not commenced in said one (1) year period, the Contractor expressly waives any **and** all claims for additional compensation and any and all causes of suit or action for the enforcement thereof that he might have had.

The Contractor must follow each step in order, and exhaust all available administrative remedies before resorting to litigation. Litigation of a claim that cannot be resolved through the process described above shall be initiated by filing a complaint in the Clackamas County Circuit Court for the State of Oregon.

In any litigation, the entire text of any order or permit issued by the County or any other governmental or regulatory authority, as well as any documents referenced or incorporated therein by reference, shall be admissible for purposes of Contract interpretation.

The Contract shall not be construed against either party regardless of which party drafted it. Other than as modified by the Contract, the applicable rules of contract construction and evidence shall apply. This Contract shall be governed by and construed according to the laws of the State of Oregon without regard to principles of conflict of laws.

The Contractor shall comply with 00170.00.

00199.50 Mediation - Delete the entire section.

00199.60 Review of Determination Regarding Records - Delete the entire section.

END OF SECTION

SECTION 00210 - MOBILIZATION

Comply with Section 00210 of the Standard Specifications.

END OF SECTION

SECTION 00220 - ACCOMMODATIONS FOR PUBLIC TRAFFIC

Comply with Section 00220 of the Standard Specifications modified as follows:

00220.02(a) General Requirements - Add the following bullet to the end of the bullet list:

Before activating a modified traffic signal, revising lane usage, implementing new roadway geometry, or removing a "STOP" sign, protect traffic by installing "NEW TRAFFIC PATTERN AHEAD" (W23-2) signing according to 00222.40. Keep the signs in place for 30 Calendar Days after completing the modifications.

When an abrupt edge is created by excavation, protect traffic according to the "Excavation Abrupt Edge" and the "Typical Abrupt Edge Delineation" configurations shown on the Standard Drawings.

00220.03 Work Zone Notifications, (c) Public Notifications – Add the following to the end of this subsection:

Submit road closure application at least 30 days prior to contractors scheduled closure. Application can be obtained at https://www.clackamas.us/how-to-apply-for-a-permit.

00220.40(e)(1) Closed Lanes - Replace this subsection, except for the subsection number and title, with the following:

Traffic Lanes may be closed on SE Webster Road when allowed, shown, or directed during the following periods of time except as specified in 00220.40(e)(2):

- Daily, Monday through Thursday, between 9:00 a.m. and 2:00 p.m.
- Friday, between 9:00 a.m. and 2:00 p.m.
- Nightly, Sunday night through Friday morning, between 6:00 p.m. and 7:00 a.m.

One Traffic Lane may be closed on all other adjacent Roadways within the Project Site not listed above, when allowed, shown, or directed:

- SW Bixel Way
- SW Webster Lane
- SE Mable Avenue
- SE Roots Road

END OF SECTION

SECTION 00221 - COMMON PROVISIONS FOR WORK ZONE TRAFFIC CONTROL

Comply with Section 00221 of the Standard Specifications modified as follows:

00221.03 Traffic Safety and Operations - Replace the bullet that begins “When paving operations create…” with the following bullet:

- When paving operations create an abrupt or sloped edge drop off greater than 1 inch, protect traffic by installing signing according to the "2 Lane, 2 Way Roadway Overlay Area" detail shown on the Standard Drawings. Protect longitudinal and transverse

Pavement joints by placing and maintaining an asphalt concrete wedge according to 00221.07(c)(1).

00221.90(b) Temporary Protection and Direction of Traffic - Delete the bullet that begins "Moving temporary barrier to and from Contractor's stockpile areas".

Replace the bullet that begins "When the Schedule of Items does not include …" with the following bullet:

Preparing and signing the daily "Traffic Control Inspection Report", when a TCS is not included in the Schedule of Items or when a TCS is not onsite for a work shift.

00221.98 Payment, Method B – Replace the 2nd paragraph with the following:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing Materials, TCD, TPAR, and Pedestrian Channelizing Devices and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

END OF SECTION

SECTION 00222 – TEMPORARY TRAFFIC CONTROL SIGNS

Comply with Section 00222 of the Standard Specifications modified as follows:

00222.40(e) Temporary Sign Placement - Add the following to the end of the bullet list:

- At least ten Calendar Days before closing a sidewalk,, place a "SIDEWALK CLOSED, Full Time" (CW11-4) sign in advance of each future closure point. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade or on a single-post TSS. Do not place the sign or sign support such that it narrows the pedestrian pathway to a width of less than 4 feet.
- Before opening the TPAR, place TPAR signing and other TCM as shown, or as directed. Maintain the "SIDEWALK CLOSED, Full Time" (CW11-4) signs while the TPAR is open to pedestrian traffic.
- At least ten Calendar Days prior to the start of work, place a "SIDEWALK OPEN" (CW11-3) sign in advance of each end of the Work Area. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade, or on a single-post TSS. Do not place the sign or support such that it narrows the pedestrian pathway to a width less than 4 feet.
- Before starting work, place pedestrian-specific TCM as shown in the TCP, or as directed. Maintain "SIDEWALK OPEN" (CW11-3) signs while work is affecting the pedestrian pathway.
- Place a "PEDESTRIANS ON ROADWAY" (CW11-2) sign at the beginning of each end of the Work Area, facing incoming traffic as shown, or as directed.
- Install "ROAD WORK AHEAD" (W20-1-48) signs with a 36 by 24-inch "FINES DOUBLE" (R2-6aP) rider on the SE Webster Road, SE Roots Road, and SE Bixel Way, according to the "TCD Spacing Table" shown on the Standard Drawings or as modified

by the Plans except do not install the "FINES DOUBLE" rider on concrete barrier mounted signs.

- Install beyond each end of the Project, facing outgoing traffic, an "END ROAD WORK" (CG20-2A-24) sign a distance of (A ÷ 2) according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans.
- Install two sign flag boards, as shown on the Standard Drawings, above the following detour and road closed advance warning signs, where applicable:
    - "DETOUR AHEAD", "DETOUR XXXX FT", "DETOUR X/X MILE" (W20-2) signs.
    - "ROAD CLOSED AHEAD", "ROAD CLOSED XXXX FT", "ROAD CLOSED X/X MILE" (W20-3) signs.

00222.91 Payment, Lump Sum or Incidental Basis - Replace this subsection, except for the subsection number and title, with the following:

When the Contract indicates payment for Work under 00221.98 Payment, Method “B” - Lump Sum Basis or 00221.99 Payment, Method “C” - Incidental Basis, no separate or additional payment will be made for Work performed under this Section. Payment will be included in payment according to 00221.98 or 00221.99.

END OF SECTION

SECTION 00223 - WORK ZONE TRAFFIC CONTROL LABOR AND VEHICLES

Comply with Section 00223 of the Standard Specifications modified as follows:

00223.31(b) Traffic Control Inspection Without TCS - Replace the bullet that begins “Prepares and signs a daily “Traffic Control Inspection Report”…” with the following bullet:

- Prepares and signs a “Traffic Control Inspection Report” (Form No. 734-2474) upon the initial installation of TCM and each working day when any modification, removal, or reinstallation of TCM are made, or as directed by the Engineer. Submit completed reports to the Engineer no later than the end of the next working day.

END OF SECTION

SECTION 00224 - TEMPORARY TRAFFIC CHANNELIZING DEVICES

Comply with Section 00224 of the Standard Specifications modified as follows:

00224.46 Pavement Edge Delineation - Replace the paragraph that begins “Place tubular or conical markers…” with the following paragraph:

Place tubular or conical markers to delineate the edge of Pavement immediately after construction Work or paving operations create an abrupt or sloped edge drop-off greater than 1 inch in height along the right hand or left hand Shoulder.

00224.91 Payment, Lump Sum or Incidental Basis - Replace this subsection, except for the subsection number and title, with the following:

When the Contract indicates payment for Work under 00221.98 Payment, Method “B” - Lump Sum Basis or 00221.99 Payment, Method “C” - Incidental Basis, no separate or additional payment will be made for Work performed under this Section. Payment will be included in payment according to 00221.98 or 00221.99.

END OF SECTION

SECTION 00225 - TEMPORARY PAVEMENT MARKINGS

Comply with Section 00225 of the Standard Specifications modified as follows:

00225.40 Temporary Pavement Markers - Replace the paragraph that begins "Unless otherwise shown..." and the three bullets with the following paragraphs and bullets:

Install temporary flexible oiling pavement markers for temporary centerline marking as follows:

- Place and maintain one temporary flexible oiling pavement marker on 40-foot spacing in tangent and curve sections except as below.
- Place and maintain one temporary flexible oiling pavement marker on 20-foot spacing in curved alignment sections identified by a speed rider displaying less than the posted speed and channelization areas.

Establish alignment for placing the temporary flexible oiling pavement markers as follows:

- Control markers at:
    - 200-foot intervals on tangents
    - 50-foot intervals on curves
    - 40-foot intervals on curves with speed rider
- Use string line or other appropriate means to maintain proper alignment of the markers. Adjust placement to avoid straddling a longitudinal joint, while maintaining a suitable alignment of markers.
- Remove and replace misaligned markers at no additional cost to the Agency.

00225.91 Payment, Lump Sum or Incidental Basis - Replace this subsection, except for the subsection number and title, with the following:

When the Contract indicates payment for Work under 00221.98 Payment, Method “B” - Lump Sum Basis or 00221.99 Payment, Method “C” - Incidental Basis, no separate or additional payment will be made for Work performed under this Section. Payment will be included in payment according to 00221.98 or 00221.99.

END OF SECTION

SECTION 00228 - TEMPORARY PEDESTRIAN AND BICYCLIST ROUTING

Comply with Section 00228 of the Standard Specifications modified as follows:

00228.00 Scope - Replace this subsection, except subsection number and title, with the following:

In addition to the requirements of Section 00221, this Work consists of furnishing, installing, operating, maintaining, inspecting, and removing temporary devices for accommodating pedestrians and bicyclists through a work zone.

00228.80(a) Length Basis - Replace this subsection, except subsection number and title, with the following:

Pedestrian channelizing devices and bicycle channelizing devices will be measured on the length basis upon delivery to the Project. The quantities will be limited to those in the approved TCP.

00228.91 Payment, Lump Sum or Incidental Basis - Replace this subsection, except for the subsection number and title, with the following:

When the Contract indicates payment for Work under 00221.98 Payment, Method “B” - Lump Sum Basis or 00221.99 Payment, Method “C” - Incidental Basis, no separate or additional payment will be made for Work performed under this Section. Payment will be included in payment according to 00221.98 or 00221.99.

END OF SECTION

SECTION 00280 - EROSION AND SEDIMENT CONTROL

Comply with Section 00280 of the Standard Specifications modified as follows:

00280.00 Scope - Replace the paragraph that begins "This Work also consists of providing temporary …" with the following paragraphs:

This Work also consists of providing temporary erosion and sediment control (ESC) measures and furnishing, installing, moving, operating, maintaining, inspecting, and removing ESC throughout the Project area according to the Standard Drawings, the erosion and sediment control plan (ESCP), the Specifications, or as directed, until the site is permanently stabilized. Included also is the monitoring of weather, of stormwater and receiving waters, the reporting of monitoring observations, the reporting of corrective actions (when necessary) and the updates and revisions of the ESCP, including ESCP cover sheet, necessary to keep it representative of current site conditions and compliant with the 1200-CA permit.

When contaminants, pollutants or hazardous materials are discovered in the Project location in soils or groundwater comply with 00290.30(f) and, provide an environmental management plan (EMP) as required by the 1200-CA permit.

Add the following paragraph to the end of this subsection:

The Agency's NPDES 1200-CA permit is applicable to the Project.

00280.02 Definitions -

Replace the sentence that begins "**Temporary Stabilization"** with the following sentence:

Temporary Stabilization - Covering soil or other measures to prevent erosion until permanent stabilization measures are in place and established.

00280.06 Erosion and Sediment Control Manager - Delete this subsection.

00280.15(f)(1) Filter Sock Material - Add the following sentence to the end of this subsection:

Furnish filter sock Material with a diameter of 12 inches.

00280.16(i) Concrete Washout – Replace this subsection, except subsection number and title, with the following:

Furnish impermeable, spill resistant, leak proof concrete washout basin of sufficient size and quantity to retain all concrete wash water and concrete waste developed during construction, meeting the following requirements:

(1) Field fabricated washout basin as shown and consisting of the following:

- **Straw Bales** - Standard rectangular straw bales, with straw Material according to 01030.15, except no certification is required.
- **Plastic Sheeting** - Minimum 10-mil thick polyethylene plastic sheeting.
- **Staples** - 1/8-inch diameter steel wire staples. 2-inch "U" width with a length of 6 inches minimum

00280.46(i) Concrete Washout - Add the following paragraph to the end of this subsection:

Locate concrete wash basins and concrete waste disposal to prevent stormwater that has been in contact with concrete wash or waste concrete from contaminating Waters of the State or stormwater inlets or conveyances. Handle wash water as waste. Do not dispose of concrete wash water or wash out concrete trucks or tools onto the ground, or into storm drains, open ditches, streets, or streams.

00280.62 Inspection and Monitoring - Replace the paragraph that begins "Ensure that regular site inspection …" with the following paragraphs:

Inspect the Project Site and all ESC devices for potential erosion or sediment movement on a weekly basis and when 1/2 inch or more of rainfall occurs within a 24 hour period, including weekend and holidays.

If a significant noncompliance or serious water quality issue occurs that could endanger health or the environment, verbally report it to the Engineer within 24 hours.

00280.62(a) Inspection - Replace this subsection, except for the subsection number and title, with the following subsection:

Perform site inspection, complete all applicable parts of the ODOT Erosion Control Monitoring Form, and submit the form to the Agency as follows:

- On initial day of construction activity
- Every 14 days
- 24 hours after any rainfall event or snow melt event that results in runoff, including weekends and holidays
- When directed by the Engineer.
- Include photographs of any BMP that is not functioning or requires maintenance in the inspection report. If all BMPs are functioning as designed, include not less than 4 photos of these BMPs.

For inactive sites or inactive areas within a site, document the dates when work stopped and resumed and identify the location(s) in an ESCP revision. Conduct inspection and monitoring of inactive sites or inactive areas within a site as follows:

- Not more than 14 days prior to the site becoming inactive to verify BMPs are providing Effective Functioning.
- Every 14 days for the first month the area is inactive
- Once a month thereafter
- 24 hours after any rainfall event or snow or ice melt event that results in runoff, including weekends and holidays
- When directed by the Engineer.
- Work may be stopped due to frozen conditions such that the site is stabilized. Resume monitoring every 14 days and within 24 hours of rainfall or melt resulting in runoff when frozen conditions end.

00280.62(b) Rainfall - Replace this subsection, except for the subsection number and title, with the following subsection:

Furnish and install a temporary rain gauge at the Project site. Upon approval, storm event information may be derived from weather stations that are representative of precipitation levels at the site.

The closest on-line rain gauge is located at:
Eagle Creek
Hyperlink: https://www.weather.gov/wrh/timeseries?site=EGKO3

00280.63(c) Paved Areas - Replace this subsection, except for the subsection number and title, with the following subsection:

Keep all paved areas clean for the duration of the Project. Use cleaning methods that do not transport sediment-laden water to receiving streams. Remove sediment that has been tracked-out from the Project Site by the end of the same business day. If the sediment track-out occurs on a non-business day, remove the sediment by the end of the next business day.

Add the following subsection:

00280.64 Corrective Actions - Initiate corrective actions when the following noncompliance occur:

- A discharge from the Project Site causes an exceedance of applicable water quality standards,
- Sediment or turbidity are visible in discharge from the Project site in conveyance system leading to surface water or at the discharge point within surface water,
- BMP needs repair or replacement, beyond routine maintenance,
- BMP shown on ESCP was not installed or installed incorrectly,
- A prohibited discharge has occurred,
- When required by DEQ,
- As directed by Engineer

(a) Corrective Action Timelines - Immediately initiate corrective actions to address noncompliance, including removing discharged material and repairing or replacing BMPs that do not provide Effective Functioning according to the following:

- Mobilize resources to clean contaminated surfaces and address cause of discharge,
- Complete corrective actions by the close of the next business day for discharge clean-up and to restore Effective Functioning of installed BMPs,
- For more significant noncompliance of which require additional, replacement or modified BMPs to restore Effective Functioning, complete corrective action(s) no later than 24 hours after the discovery
    - If completion of corrective action is not feasible within 24 hours, document the reasons why the time line cannot be met.
    - Provide a schedule for clean-up and corrective actions that restores Effective Functioning as soon as feasible. If schedule cannot be met document the reasons for the delay.
    - Provide all corrective action documentation and photographs to Agency within 24 hours of completion of corrective actions.

(b) Corrective Action Documentation - Document corrective actions within 24 hours of implementations to provide:

- The Project Site's common name and 1200-CA permit identification number when applicable,
- Conveyance system discharge location(s) and outfalls that were out of compliance,
- Photographs of the discharge(s) before and after the implementation of corrective actions, or before and after NTU readings of the discharge,
- The period of noncompliance,
- Name(s), titles and contact information of personnel conducting inspections,
- The specific condition and the date and time the noncompliance was identified,
- Description of the noncompliance and BMP failure(s) that caused the noncompliance,
- Description of the actions taken to address the noncompliance and prevent a reoccurrence of the noncompliance,
- Where corrective actions change site conditions from what is shown on ESCP, revise the ESCP to represent the site conditions,
- Immediately upon completion of corrective action documentation, provide to Agency for signature and submittal to DEQ.

00280.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Erosion Control	Lump Sum

Item (a) includes:

- mobilization
- furnishing, stockpiling, protecting, restocking, and removing emergency Materials
- preparing Project for a period of extended non-activity
- inspecting, maintaining, and removing erosion control devices
- restoring, mulching, tacking, and seeding all disturbed ground, Work, and storage areas not otherwise covered

Partial payment for items (a) will be made as follows:

- When the initial Contractor developed ESCP, narrative, and schedule are complete and accepted, and the initial erosion control devices are installed.....25%
- When 50 percent of the Contract is complete, excluding advances on Materials.....25%
- When 75 percent of the Contract is complete, excluding advances on Materials 25%
- At completion of the Work covered by this Section 25%

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for:

- constructing and removing temporary slope berms
- erosion control for Work outside the construction limits including but not limited to limited to, Borrow pits, haul roads, disposal sites, and Equipment storage sites
- modifications or additions to the ESCP.

No separate or additional payment will be made for constructing laps, seams, joints, wraps, overlaps, joint overlaps, or patches unless the Engineer orders additional amounts in excess of the minimum. For laps, wraps, or overlaps that that have been ordered by the Engineer and exceed the minimum or specified length or width, payment will be made for the added lap, overlap, or wrap length or width at the Contract unit price.

Water used for non-chemical dust control will be paid according to Section 00340.

Additional ESC devices required for permit compliance will be paid for according to 00195.20.

END OF SECTION

SECTION 00290 - ENVIRONMENTAL PROTECTION

Comply with Section 00290 of the Standard Specifications modified as follows:

00290.32 Noise Control - Add the following paragraph to the end of this subsection:

Review Clackamas County 6.05 Noise Control which describes noise control regulations. Obtain and be responsible for necessary Noise Variance described in Clackamas County 6.05 Noise Control. Comply with the applicable noise control requirements for Project Work.

00290.36(a) Migratory Birds - Add the following to the end of this subsection:

Do not disturb migratory bird nesting habitat (shrubs, trees, and structures), or clear vegetation from March 1 to September 1 of each year without prior written approval from the Engineer. Notify the Engineer, in writing, a minimum of 10 Calendar Days prior to starting activities that could harm nesting birds.

(1) Bird Management - Bird management activities to comply with the Migratory Bird Treaty Act (16 U.S.C. 703 712) will be performed by the Agency. Ensure that the Agency and its permitted agents have access to the project area, as needed to prevent migratory bird nesting. Nesting prevention may include daily bird harassment and the installation and maintenance of devices that exclude birds.

Do not disturb migratory bird nesting habitats (shrubs, trees, and structures), or clear vegetation from March 1 to September 1 of each calendar year without prior written approval from the Engineer. Notify the Engineer, in writing, a minimum of 10 Calendar Days prior to starting activities that could harm nesting birds.

END OF SECTION

SECTION 00305 - CONSTRUCTION SURVEY WORK

Comply with Section 00305 of the Standard Specifications modified as follows:

00305.00 Scope – Add the following to the end of this subsection:

In addition to the requirements of the ODOT *Construction Surveying Manual for Contractors*, establish Engineering Stationing at 50-foot intervals for the length of the project along the shoulder of the highway. Maintain the stationing so it is visible throughout construction of the project.

File Format for Digital exchange shall be:

- Alignments (Horizontal and Vertical) – LandXML alignments.
- CAD (graphics) – AutoCAD (.dwg).
- Coordinates (1D, 2D, and 3D) – LandXML coordinates.
- Digital Terrain Model (DTM) – LandXML surface.

END OF SECTION

SECTION 00310 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Comply with Section 00310 of the Standard Specifications modified as follows:

00310.90 Payment - Add the following to the end of this subsection:

No separate or additional payment will be made for removal or disposal Work included in Section 00330 according to 00310.02.

END OF SECTION

SECTION 00320 - CLEARING AND GRUBBING

Comply with Section 00320 of the Standard Specifications.

END OF SECTION

SECTION 00330 - EARTHWORK

Comply with Section 00330 of the Standard Specifications modified as follows:

00330.03 Basis of Performance - Add the following paragraph to the end of this subsection:

Perform all earthwork under this Section on the excavation basis.

00330.14 Selected Granular Backfill - Delete the sentence that begins “Reclaimed glass meeting the requirements of Section 02695…”.

00330.15 Selected Stone Backfill - Delete the sentence that begins “Reclaimed glass meeting the requirements of Section 02695…”.

00330.41(a)(4) Excess Materials - Replace this subsection, except for the subsection number and title, with the following:

If the quantities of excavated materials are greater than required to construct embankments and to do all filling and backfilling, the Contractor may use the remaining materials to uniformly widen embankments or to flatten slopes in a manner satisfactory to the Engineer.

00330.41(a)(9) Excavation Below Grade - Delete subsection 00330.41(a)(9)(c).

00330.91(d) General Excavation - Delete the bullet that begins "Includes Unsuitable Material…".

00330.92 Kinds of Incidental Earthwork - Add the following bullets to the end of the bullet list:

- Excess material used to widen embankments or flatten slopes according to 00330.41(a)(4).

- Earthwork required for driveways and road approaches. Earthwork for driveways and road approaches will be that which is outside the Neat Line limits shown on the typical sections.

00330.94 Embankment Basis Payment - Delete the paragraph that begins "Excavation of unstable…".

END OF SECTION

SECTION 00331 - SUBGRADE STABILIZATION

Comply with Section 00331 of the Standard Specifications.

END OF SECTION

SECTION 00350 - GEOSYNTHETIC INSTALLATION

Comply with Section 00350 of the Standard Specifications modified as follows:

00350.01 Definitions - Replace the sentence that begins "**Embankment Geotextile** - For installation…" with the following sentence:

Embankment Geotextile - Embankment geotextile is used as a reinforcement within embankments and as a separation and reinforcement under embankments.

Replace the bullet that begins "**Nonwoven Geotextile** - A textile…" with the following bullet:

Nonwoven Geotextile - A textile produced by bonding or interlocking of fibers by mechanical, heat or chemical means.

Replace the sentence that begins "**Riprap Geotextile** - For installation…" with the following sentence:

Riprap Geotextile - Riprap geotextile is used as a filter and separator behind or beneath riprap, Buttresses, inlays, shear keys and erosion control applications.

Replace the sentence that begins "**Subgrade Geotextile** - For installation…" with the following sentence:

Subgrade Geotextile - Subgrade geotextile is used as a separator and reinforcement on Subgrades and in other material separation applications.

00350.41(f)(5) Geotextile Placement - Replace the paragraph that begins "Slit wrinkles or folds …" with the following paragraph:

Slit wrinkles or folds exceeding 1 inch and lay flat. Shingle-lap not more than 6 inches in the direction of the paving. Broom or squeegee to smooth the geotextile and pneumatic roll to maximize geotextile contact with the Pavement surface. Additional hand-placed sealant material may be required at laps as determined.

END OF SECTION

SECTION 00405 - TRENCH EXCAVATION, BEDDING, AND BACKFILL

Comply with Section 00405 of the Standard Specifications modified as follows:

00405.90 Payment - Add the following paragraph to the end of this subsection:

When the Contract Schedule of Items does not indicate payment for Work performed under this Section, no separate or additional payment will be made. Payment will be included in payment made for the appropriate items under which this Work is required.

END OF SECTION

SECTION 00415 - VIDEO PIPE INSPECTION

Comply with Section 00415 of the Standard Specifications modified as follows:

00415.22 Mainline Inspection Equipment with Laser Profiler - Replace this subsection, except for the subsection number and title, with the following:

Provide laser profiler, software and equipment according to 00415.20 and ASTM F3080.

00415.42 Post Installation Video Inspection - Replace this subsection, except for the subsection number and title, with the following:

Perform post construction video inspection according to 00415.40 and 00415.41. Video inspect the pipe interior no sooner than 30 Days after the trench backfill and compaction have been completed, and before any paving is performed. If the Contract duration does not permit a 30 Day waiting period the Engineer may adjust the duration period.

(a) Deflection Testing for Flexible Pipe - Perform post construction deflection testing for all flexible pipe including plastic, metal, and aluminum pipe using one of the approved following methods.

(1) Remote Video Inspection with Laser Profiler - Calibrate and perform deflection inspection according to ASTM F3080. Use video inspection equipment meeting the requirements of 00415.22.

(2) Manual Deflection Test - Use Equipment meeting the requirements of 00415.23.

In addition to 00415.41(b):

Measure the deflection of the pipe using either a metal or a fabric tape and read at least to the nearest 1/2 inch. Measure the smallest inside diameter three times for each pipe section in the run. Take the first measurement vertically from the crown to invert (12 o'clock to 6 o'clock positions). Take the second measurement by rotating 60 degrees from vertical (2 o'clock to 8 o'clock positions). Take the third measurement by rotating 120 degrees from vertical (4 o'clock to 10 o'clock positions). For all measurements, stretch tape to full extent across the inside of the pipe.

Calculate percent deflection using the following formula:

Percent Deflection = [(D1 - D2) ÷ D1] × 100

where:

D1 = Initial measurement according to AASHTO Nominal Diameter
D2 = Most deflected measurement in each pipe run after construction

00415.70 Video Inspection Recording and Written Inspection Report - Replace the title of this subsection with "**Video Inspection Recording and Inspection Report"**.

00415.70(a) Inspection Report - Replace this subsection, except for the subsection number and title, with the following:

Provide a written inspection report that includes each defect, deformity, and joint along with the distance from the inspection starting point. Provide still digital images in the report along with a reference and description of each defect, deformity and joint.

00415.70(b) Deflection Report - Replace this subsection, except for the subsection number and title, with the following:

For laser profiler provide an inspection report according to ASTM F3080.

If a manual deflection test was performed provide a written deflection inspection report that includes each deformity with the distance from the inspection starting point. Include in the report all measurements, calculations and still digital images and descriptions of each deformity.

00415.71 Corrections to Deficiencies in Work - Replace the paragraph that begins "Submit a repair plan to the Engineer for approval …" with the following paragraph:

Submit a repair plan to the Engineer for approval of all detrimental pipe deficiencies that are revealed in the video recording and written report. Repair all deficiencies within 48 hours after receiving notification from the Engineer. Re-perform the video inspection, submit the new video, and update the written report at no additional cost to the Agency.

END OF SECTION

SECTION 00440 - COMMERCIAL GRADE CONCRETE

Comply with Section 00440 of the Standard Specifications modified as follows:

00440.12 Properties of Commercial Grade Concrete - Replace the bullet that begins "**Slump** - 5 inches…" with the following bullets:

Slump - 5 inches or less

For concrete sidewalks, ramps, driveways, or other hand finished surface applications, and when using a high range water reducing admixture, provide a slump of 8 inches or less as approved by the Engineer.

00440.13 Field-Mixed Concrete - Replace the subsection, except for subsection number and title, with the following:

CGC Work items listed in 00440.14(a) may be field-mixed conventionally, or by volumetric/mobile mixers conforming to ASTM C685. When approved, concrete sidewalks, concrete curb ramps, concrete driveways, and other flat concrete surfaces may be field-mixed using volumetric/mobile mixers conforming to ASTM C685, request approval prior to placement. For all other CGC applications, submit written request to the Engineer for approval to use volumetric/mobile mixers conforming to ASTM C685 at least 21 Days prior to placement.

Pre-packaged dry blended concrete from the QPL may be used for Work items listed in 00440.14(a).

00440.40(b) Placing - Add the following bullet to the end of the bullet list:

When haul time or placement conditions warrant exceeding the time of discharge, submit a detailed breakdown of the estimated time needed from batching to discharge of a load along with the measures that will be taken to ensure slump, temperature and uniformity will be maintained. Submit in advance to establish a new time limit at the Engineer's discretion.

END OF SECTION

SECTION 00445 - SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE

Comply with Section 00445 of the Standard Specifications modified as follows:

00445.43(b) Concrete Pipe - Replace this subsection, except for the subsection number and title, with the following:

Lay elliptical reinforced pipe so that the top or bottom marks are not more than 5 degrees from vertical.

00445.70 General - Replace this subsection, except for the subsection number and title, with the following:

(a) Culvert Installations - Inspect culverts to ensure that the lines are free of obstructions and leakage. Perform video and deflection testing.

(b) Storm Sewer, Siphon, Irrigation and Sanitary Sewer Installations - After laying and joining pipe for storm sewer, siphons, irrigation, sanitary sewers, and backfilling trenches, test the installations for watertightness, including inlet and outlet connections. Perform video, deflection, hydrostatic, and low-pressure air testing.

00445.71(a) General - Replace the paragraph that begins "All sanitary gravity systems, siphon systems…" with the following paragraph:

All storm gravity sewer systems, sanitary gravity systems, siphon systems and irrigation systems and appurtenances shall successfully pass a hydrostatic or air test prior to acceptance and shall be free of visible infiltration of water. Test manholes as specified in Section 00470.

00445.72(b) Hydrostatic Testing - Replace this subsection with the following subsection:

00445.72(b) Exfiltration Leakage Testing - Prior to the exfiltration leakage test, the pipe test section may be filled with clear water to permit normal absorption into the pipe walls. Keep the test pipe section saturated for a minimum of 4 hours. After the absorption period, refill the pipe to the required test head.

Exfiltration leakage shall not sustain losses of more than 0.04 gallons per hour per inch diameter per 100 feet of pipe, except 0.3 gallons per hour, per inch per 100 feet may be used in arid climate zones if approved by the Engineer. The hydrostatic head shall be a minimum 6-foot water column above the crown of the highest section of pipe including service connections, or exceed the maximum estimated groundwater level. The Engineer will make the final decisions regarding test height for the water in the pipe section.

The length of pipe tested by exfiltration shall be limited so that the pressure on the invert of the lower end of the section shall not exceed 16 feet of water column. Account for all service connection footage for computing allowable leakage.

00445.72(c)(3) - Replace this subsection, except for the subsection number and title, with the following:

Add air slowly to the test section until the internal air pressure is raised to 4 psi greater than the average back pressure due to groundwater.

00445.72(c)(6) - Replace this subsection, except for the subsection number and title, with the following:

Record the time in seconds that is required for the internal air pressure to drop from 3.5 psi to 2.5 psi greater than the average backpressure due to groundwater.

For air permeable Materials (concrete & clay) the tested section will be acceptable if the time recorded in paragraph (6) above is not less than the time in seconds (T) computed by the formula:

$$T = K/C$$

Where:

K = the sum of the computations (0.011 d2L) for each size of pipe and its length in the section

C = the sum of the computations (0.0003882 dL) for each size of pipe and its length in the section, except that the minimum value for C shall be 1

d = inside diameter of the pipe in inches

L = length of pipe in feet

For non-air permeable pipe (Metal, PVC, HDPE, ABS composite), the section tested shall be accepted if the time recorded in (6) above is not less than the time determined by the following equation.

$$T = 0.085 (DK/Q)$$

Where:

T = shortest time allowed for air pressure to drop 1.0 psig (seconds)
K = 0.000419 DL but not less than 1.0
Q = leak rate in cubic feet/minute/square feet of internal surface = 0.0015 CFM/SF
D = measured average inside diameter of pipe (inches)
L = length of tested section (feet)

00445.73 Deflection Testing for Flexible Pipe - Replace this subsection, except for the subsection number and title, with the following:

Prior to wearing surface paving, conduct deflection tests of culverts, sanitary sewers, and storm sewers constructed of flexible pipe. Perform the deflection testing using one of the following methods.

(a) Remote Video with Laser Profiler - Conduct remote video with laser profiler testing according to 00415.42.

(b) Manual Deflection Test - Conduct manual inspection deflection testing according to 00415.42.

(c) Mandrel Deflection Test - Conduct the testing by pulling an approved mandrel through the completed pipeline. Use a mandrel having at least 9 vanes and a diameter 95 percent of the pipe's initial inside diameter.

Conduct testing on a manhole-to-manhole basis after the line has been completely flushed out with water. Conduct the tests not less than 30 Days after the trench backfill and compaction have been completed. Tests may be conducted sooner if approved by the Engineer. Conduct the test concurrently with video inspection. Pull the mandrel in front of the camera so that the deflection testing is clearly recorded on the video tape unless approved by the Engineer. Provide a water depth gauge, located on the video camera side of the mandrel with the following characteristics:

Graduated with marks at 0.50 inch increments clearly visible during video inspection.

Capable of measuring water depth in 0.50 inch increments from 0.50 inch to 2.50 inches.

Designed so that it will remain plumb regardless of the rotation of the mandrel or video camera.

00445.74 Video Inspection of Sanitary and Storm Sewers - Replace this subsection with the following subsection:

00445.74 Video Inspection of Culverts, Sanitary and Storm Sewers:

(a) Pre-Construction Video Inspection - For all existing culverts being extended or repaired perform video pipe inspection according to Section 00415.

For all existing sanitary sewer and storm sewers being altered or repaired, perform video pipe inspection, according to Section 00415. Video the sewer system between the nearest upstream manhole where Work is not being performed and the nearest downstream manhole where Work is not being performed, including all lateral runs between end manholes.

When replacing entire pipe sections or runs a video pipe inspection is not required prior to replacement.

(b) Post-Construction Video Inspection - When constructing a new run, an extension, or a repair of sanitary sewer, storm sewer, or culvert pipe, perform video pipe inspection, according to Section 00415, including the locations where new pipe meets existing pipe.

END OF SECTION

SECTION 00470 - MANHOLES, CATCH BASINS, AND INLETS

Comply with Section 00470 of the Standard Specifications modified as follows:

00470.00 Scope – Replace the paragraph beginning with "This Work consists…" with the following paragraph:

This Work consists of constructing manholes, catch basins, inlets, siphon boxes, slope protectors, infiltration trenches, and other similar Structures. Construct the Structures of Commercial Grade Concrete, corrugated metal, or other material, with necessary frames, covers, gratings, and other fittings and hardware.

00470.10 Materials – Add the following to this subsection:

Geotextile …….02320

Add the following subsection:

00470.18 Infiltration Trench:

(a) Drain Rock – Furnish commercially available clean 6" – 3" hard cinder, river rock, crushed or pit run aggregate drain rock containing little or no fines.

00470.41(c) Grates, Frames, Covers and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Set metal frames for manholes on full non-shrink grout beds to prevent infiltration of surface water or groundwater between the frame and the concrete of the manhole section. If concrete is to be poured around the frames, coat the portion of the frame that will contact the concrete with hot asphalt before placing the concrete. Set frames, covers and grates true to the locations and grades established. Clean bearing surfaces and provide uniform contact. The use of a bolt adjustment system for frames from the QPL is allowed. Secure all fastenings. Construct all mortared, sanitary sewer manhole necks and all riser ring joints made with non-shrink grout using an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted.

00470.42 Precast Concrete Catch Basins and Inlets - Add the following sentence to the end of this subsection:

Grade adjustments using a bolt system from the QPL is allowed.

Add the following subsection:

00470.49 Infiltration Trenches:

(a) General – Construct infiltration trenches to a depth in conformance with the design depths provided in the Plans. Construct infiltration trenches before constructing sedimentation manholes. Make all pipe connections as specified or approved. Any shoring or additional excavation shall meet the requirements of section 00330. Install drainage geotextile, drain rock, concrete base, and barrels as shown, or as directed. During construction of the infiltration trench, all necessary precautions shall be taken to prevent debris and eroded material from entering the facility.

(b) Excavation – Excavate infiltration trench in accordance with the approved testing procedure in 00470.72. Observe excavation prior to placement of drain rock. Report measurement of excavation limits to the Engineer.

(c) Connections – Make all pipe connections according to 00470.40 (b).

(d) Depth – Construct an infiltration trench to its full depth unless unstable or caving soil strata is encountered during construction. The Engineer will determine the need for infiltration trenches of lesser depth than shown.

(e) Drain Rock – Place drain rock in a way to avoid damage to or displacement of the structures and geotextile. Confirm the storage volume by recording drain rock placement area dimensions.

Add the following subsection:

00470.72 Infiltration Capacity Testing – Prior to acceptance and to ensure the optimum infiltration trench and storm sewer pipe performance, determine the in-place capacity of the infiltration trench downstream from the sedimentation manhole for each infiltration trench system.

(a) Procedure – Test Pit Method

Excavate a rectangular test pit having approximate bottom dimensions of 4 feet in width and 8 feet in length. Extend the pit until its bottom elevation matches the bottom elevation

of the proposed infiltration trench. As much as is practical, excavate the pit to clean dimensions, and keep it free of surface slough, organics, and other deleterious material.

Measure and record the dimensions (length, width, depth) of the test pit. Include photographs of the test pit both before and after the test. Line the walls and bottom of the pit with a highly porous, non-woven, geotextile fabric. Install a vertical, PVC observation pipe in the pit. Then backfill the pit with clean, uniform, pervious, fine gravel; or clean, uniform, pervious, open-graded coarse gravel. The omission of the PVC observation pipe and pervious gravel backfill is an allowable practice if the test pit walls will not slough when water is introduced.

Introduce clean water into the test pit using an in-line, commercially available, flow meter. Prior to the test, field check the accuracy of the flow meter using a suitable container of known volume (i.e., 5 gallon bucket, 55 gallon barrel, etc).

Raise the water level in the pit until a level consistent with the operating head anticipated in the proposed drainage structure is achieved. Based upon the soil permeability, the subsurface soil profile, and the water supply system available, head levels lower than those anticipated in the drainage structure are permitted.

Adjust the flow rate as needed to maintain the constant head level in the pit. Minimum required test time is 2 hours or the time needed to discharge the expected design storm volume into the facility, whichever is shorter. (Note: In highly permeable soils it is possible that no ponding in the test pit will occur even for high flows. In such a case, assume a constant-head depth of 0.5 feet for calculation purposes.)

Monitor and record the flow rate required to maintain the constant-head level at appropriate intervals. In no case shall the interval exceed 15 minutes in length.

Continue maintaining the constant head until a stabilized flow rate has been achieved. Consider the flow rate stable when the incremental flow rate required to maintain the head does not vary by more than about 5 percent between increments. The intent of this section is to achieve a relatively steady-state flow condition between the minimum 2 hour test time and a maximum test time of 2.5 hours. At the discretion of the onsite Engineer or engineering technician, the test may be extended beyond the 2.5 hour maximum.

Upon completion of the constant-head period, discontinue flow, and record the head level drop in the drill hole at 5-minute intervals over at least a 30-minute falling-head period.

(b) Reporting Requirements

Provide a description of the equipment used to perform the test (including the type of flow meter and the results of the onsite flow meter accuracy check). When applicable, describe the type of fabric lining and gravel backfill used.

Report test data for both constant and falling head periods in a format that includes time of day, flow meter readings, incremental flow rates, observed head levels and water depths in the test pit, and total flow volumes.

Upon completion of each infiltration test, compare tested infiltration trench capacity flow rate to the minimum flow rate noted in the projects plans. Contact the Engineer

immediately if tested flow rate is less than the minimum flow rate determined by the Engineer.

(c) Engineer Notification

Notify the Engineer of the estimated time of commencement of infiltration capacity tests at least 48 hours prior to such commencement. The Engineer will be present during all infiltration trench capacity tests.

Based upon the results of the infiltration trench capacity test, the number or size of subsequently installed infiltration trenches may be modified.

00470.80 Measurement – Add the following:

No measurement of quantities will be made for Infiltration Trench Work performed under this Section. The estimated quantities of Materials are:

Storage Pond, Infiltration Trench 1 Quantities:

Item	Quantity
Excavation	131 Cu. Yd.
Drain Rock, 6”-3”	66 Cu. Yd.
Drainage Geotextile, Type 1	154 Sq. Yd.
48” Concrete Manhole	2 Ea.
24” Perforated Storm Pipe	45 Lf.

00470.90 Payment – Add the following pay item to the pay item list:

Pay Item	Unit of Measurement
(l) Storage Pond, Infiltration Trench _____	Lump Sum

The infiltration trench number will be inserted in the blank.

Add the following bullet after the paragraph that begins “No separate payment…”

- Infiltration capacity testing

END OF SECTION

SECTION 00470A- STORM WATER TREATMENT DEVICE (SWTD) – HYDRODYNAMIC SEPERATOR

00470A.00 Scope - This work consists of constructing water quality structures consisting of hydrodynamic separator.

00470A.01 Definitions - The following terms have the meanings presented below when used in this Section:

SWTD – Storm Water Treatment Device

Hydrodynamic Separator - uses swirl concentration and continuous deflective separation to screen, separate and trap trash, debris, sediment, and hydrocarbons from stormwater runoff.

00470A.02 Performance – The SWTD shall meet following design performance:

(a) The SWTD shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load or treat a flow rate designated by the jurisdiction in which the project is located. Both methods should be sized using a particle size distribution having a mean particle size (d50) of 125 microns unless otherwise stated.

(b) The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this subsection under all flow conditions. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff (20 ± 5 mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

(c) The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

(d) The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a minimum capacity of 61 gallons.

(e) The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

(f) The SWTD shall have completed field tested following TARP Tier II protocol requirements.

(g) The SWTD shall have a minimum sump capacity of 0.9 cubic yards.

Materials

00470A.10 Materials - Furnish Materials meeting the following requirements:

(a) Housing unit of storm water treatment device - shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

- Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
- Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
- Cement shall be Type III Portland Cement conforming to ASTM C 150;
- Aggregates shall conform to ASTM C 33;
- Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
- Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
- Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

(b) Internal Components and appurtenances - shall conform to the following:

- Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
- Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
- Fiberglass components shall conform to the ASTM D-4097
- Access system(s) conform to the following:
- Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

Construction

00470A.40 General - Construct stormwater treatment device

(a) The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

(b) The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

(c) The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

(d) The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

Warranty

00470A.75 Manufacturer Warranty – The Contractor unconditionally warrants to the Agency the product and installation under this Section against failure, according to this Subsection and 00170.85(b)(1).

"Unconditionally warrant" means that the warranty covers all failures, regardless of the source or cause of the failure, including, without limitation, whether the source or cause is or may be related to workmanship, inspection, or choice of materials.

The Agency inspection of any portion of the Work during the Contract and during the product installation, the Agency acceptance of the Work, corrections under the warranty, or expiration of the warranty shall not relieve the obligations under this warranty.

(a) Warranty Period - The warranty period shall be for 1 year.

(b) Remedy - Upon notification by the Engineer of a failure, the manufacturer shall repair, correct or replace any manufacturer originated defects. Use materials and procedures meeting the Specifications and coordinate timing of repair Work with the Engineer.

Payment

00470A.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Precast 48" Water Quality Manhole	Each

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for pipe connections, aggregate base backfill, or acceptance testing.

END OF SECTION

SECTION 00470B – GALVANIZED STEEL CURB HATCH

00470B.00 Scope - This work consists of constructing galvanized steel curb hatches.

00470B.01 Definitions - The following terms have the meanings presented below when used in this Section:

Curb Hatch – a curb hatch is a hatch that sits flush with a standard curb that can be easily removed or lifted to allow access to any structure underneath the hatch.

00470B.02 Performance – The galvanized steel curb hatch shall meet following design performance:

(a) The until shall be designed to meet an H-20 load rating for non-deliberate traffic per AASHTO M 306.

Materials

00470B.10 Materials - Furnish Materials meeting the following requirements:

(a) Frame support and curb - shall be constructed of cast-in-place concrete and shall conform to Section 00440.

(b) Cover, Frame, and Fittings - shall conform to the following:

- All materials shall be hot-rolled steel conforming to ASTM A36.
- Steel shall be hot dipped galvanized per ASTM A123 after fabrication.
- Steel cover plate shall be stress relieved and straightened after fabrication the galvanized.
- Top of steel cover plate shall have a minimum coefficient of static friction of 0.5, for either wet or dry conditions, when tested for any shoe sole material. Testing and certification of the friction factor shall be conducted by an independent testing laboratory approved by the Engineer under the direction of a registered Civil, Mechanical or Quality Engineer. Testing shall conform to ASTM D2047, F489 or F609 or other procedure approved by the Engineer.
- Welding shall conform to AWS D1.1.

- Other miscellaneous metal items and hardware shall conform to the appropriate requirements of Section 00560.

Construction

00470B.40 General - Construct stormwater treatment device

(e) The contractor shall exercise care in the storage and handling of the Galvanized Steel Curb Hatch components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

(f) The Galvanized Steel Curb Hatch shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

(g) The contractor shall removal all loose material from the Galvanized Steel Curb Hatch prior to the transfer of operational responsibility to the Owner.

Warranty

00470B.75 Manufacturer Warranty – The Contractor unconditionally warrants to the Agency the product and installation under this Section against failure, according to this Subsection and 00170.85(b)(1).

"Unconditionally warrant" means that the warranty covers all failures, regardless of the source or cause of the failure, including, without limitation, whether the source or cause is or may be related to workmanship, inspection, or choice of materials.

The Agency inspection of any portion of the Work during the Contract and during the product installation, the Agency acceptance of the Work, corrections under the warranty, or expiration of the warranty shall not relieve the obligations under this warranty.

(c) Warranty Period - The warranty period shall be for 1 year.

(d) Remedy - Upon notification by the Engineer of a failure, the manufacturer shall repair, correct or replace any manufacturer originated defects. Use materials and procedures meeting the Specifications and coordinate timing of repair Work with the Engineer.

Payment

00470B.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement

(a) Galvanized Steel Curb Hatch..... Each

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified. No separate or additional payment will be made for aggregate base backfill, or acceptance testing.

END OF SECTION

SECTION 00490 - WORK ON EXISTING SEWERS AND STRUCTURES

Comply with Section 00490 of the Standard Specifications.

END OF SECTION

SECTION 00620 - COLD PLANE PAVEMENT REMOVAL

Comply with Section 00620 of the Standard Specifications modified as follows:

00620.40(e) Warning Signs - Replace this subsection, except for the subsection number and title, with the following:

Provide warning signs as required where abrupt or sloped drop-offs occur at the edge of the existing or new surface according to Sections 00221 and 00222.

END OF SECTION

SECTION 00641 - AGGREGATE SUBBASE, BASE, AND SHOULDERS

Comply with Section 00641 of the Standard Specifications.

END OF SECTION

SECTION 00744 - ASPHALT CONCRETE PAVEMENT

Comply with Section 00744 of the Standard Specifications modified as follows:

00744.11(a) Asphalt Cement - Add the following to the end of this subsection:

Provide PG64-22 grade asphalt cement for this Project.

00744.51 Opening Sections to Traffic - Schedule work so that, during the same shift, the surfaces being paved are paved full width and length through the top Base Course before opening to traffic. Traffic will be allowed on the top Base Course up to 45 Calendar Days.

Before beginning wearing Course paving operations, make repairs to the existing surface as directed. Payment for the repairs will be made according to 00195.20.

END OF SECTION

SECTION 00749 - MISCELLANEOUS ASPHALT CONCRETE STRUCTURES

Comply with Section 00749 of the Standard Specifications.

END OF SECTION

SECTION 00759 - MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES

Comply with Section 00759 of the Standard Specifications modified as follows:

00759.03 Required Submittals - Replace this subsection, except for the subsection number and title, with the following:

Material ordered or Work done before the Engineer reviews and returns the documents shall be at the Contractor's risk.

Submit the following:

(a) ADA Certification for Contractors - For all supervisory personnel who directly supervise the curb ramp Work, submit the names, telephone numbers, and copies of the ODOT ADA Certification for Contractors at least 10 Calendar Days before the preplacement conference.

(b) Curb Ramp Work Plan - Do not begin any curb ramp Work before the plan for completing the Work has been approved. At least 21 Calendar Days before the curb ramp Work is scheduled to begin, submit a plan for accomplishing all phases of the curb ramp Work, including but not limited to the following (also see 00180.41):

- Surface preparation
- Compliance with Working Drawings and details submitted under 00759.03(c)
- Compliance with current Standard Drawings and Plans
- Waste handling and disposal

(c) Working Drawings - At least 10 Calendar Days before the construction of a grouping of one or more curb ramp location(s), not to exceed 32 ramps unless otherwise approved under 00180.41, submit unstamped Working Drawings according to 00150.35. Include field verification of each ramp site, and all dimensions, slopes and grades necessary to demonstrate compliance with the Standard Drawings and Plans. Marked up Supplemental Drawings, if field verified, may be submitted as Working Drawings. Notify the Engineer of any deficiencies or noncompliance with the Standard Drawings or Plans. The Engineer will provide additional or

modified Plans as needed. Do not begin Work at a curb ramp until submittals for that curb ramp have been received, reviewed, and accepted in writing by the Engineer.

After submittal of the unstamped Working Drawings, according to 00150.35 a site visit may be requested by the Contractor or Engineer. The site visit will include a review of any field markings and discuss the submitted unstamped Working Drawings. The Engineer will provide additional or modified information, as needed.

Include the following in the Working Drawings:

- Verification of elevations, slopes, grades and dimensions necessary to demonstrate compliance with the Standard Drawings and Supplemental Drawings,
- Verification of potential utility conflicts or other street furnishings that may require relocation or adjustment.
- Identification of infeasibilities or constructability issues with the Standard Drawings and Supplemental drawings.

(d) Corrective Action Plan - Unless otherwise approved, notify the Engineer before performing corrective action. Include TPAR necessary to complete corrective action work.

At least 21 Calendar Days before concrete Structures Work is scheduled to begin, submit a corrective action plan. The corrective action plan shall address procedures to correct deficient Structures through minor corrective action or replacement according to 00759.55(a), and include:

- List of minor corrective actions that will be used to correct deficiencies, according to 00759.50 and 00759.55.
- Procedures for performing corrective action.
- Proposed concrete grinding Equipment and method of grinding.
- Proposed concrete repair Material used for resurfacing ground concrete surfaces according to Section 02015.
- Construction activities, Equipment and staging necessary to complete corrective action Work.

The Engineer will review the corrective action plan(s) and provide a response to the Contractor within 5 Days after receiving the plan. Do not begin concrete Structure Work until the corrective action plan is approved by the Engineer.

00759.04 Preplacement Conference - Replace this subsection, except for the subsection number and title, with the following:

Before beginning any curb ramp Work, meet with the Contractor's ODOT ADA Certified supervisory personnel and any quality control personnel if applicable, any curb ramp Subcontractors' supervisory personnel, and the Engineer at a mutually agreed upon time.

If the Contractor's personnel change, or if the Contractor proposes a significant revision to the plan for accomplishing the curb ramp Work, the Engineer may require additional preplacement conferences. If the Contractor’s schedule of work identifies multiple groups of curb ramp construction, as allowed by 00180.41, additional preplacement conferences may be required for each ramp group, at a mutually agreed upon time before Work begins.

All supervisory personnel who have an active ODOT ADA Certification for Contractors and directly supervise the curb ramp Work are required to attend the preplacement conference.

00759.23 Concrete Resurfacing Equipment - Furnish power-operated scarifying Equipment capable of uniformly removing and preparing the existing surface to depths required. For concrete grinding operations, furnish 12 segment grinders, fine-toothed scarifying Equipment, or other approved grinding Equipment.

00759.31 Qualifications - Add the following sentence to the end of the paragraph:

Provide onsite supervisory personnel that are ODOT ADA Certified during construction of the curb ramps.

00759.46 Concrete - Replace this subsection, except for the subsection number and title, with the following:

Construct the Structures between suitable forms or by the extrusion method. Place concrete according to the Plans, Section 00440, and this Section.

00759.50(a) General - Add the following paragraphs to the end of this subsection:

Install truncated domes as shown. Place according to the manufacturer's recommendation. Install abutting truncated dome panels with no more than 1/4 inch spacing. Install anchors along cut edges of truncated dome panels according to manufacturer's recommendations.

In addition, finish concrete surfaces of Structures to be within the established Slopes and dimensions allowed by the Standard Drawings and Plans. Repair or remove and replace Structures not meeting the Standard Drawings and Plans at no additional cost to the Agency.

00759.50(c) Driveways, Walks, and Surfacings - Replace this subsection, except for the subsection number and title, with the following:

Prevent segregation of the concrete during placement. Strike-off the concrete to the grade shown, and float the surface smooth. After the water sheen disappears, edge the joints and remove edging tool marks prior to final finishing. Lightly cross-broom the surface to a uniform texture. Do not trowel joints or edges after brooming surface.

The 24 inch smart level will be used to measure driveway and sidewalk cross slopes on the Pedestrian Access Route.

00759.50(d) Curb Ramps - Replace this subsection, except for the subsection number and title, with the following:

Prevent segregation of the concrete during placement. Strike-off the concrete to the grade shown and float the surface smooth. After the water sheen disappears, edge the joints and remove edging tool marks prior to final finishing. Lightly cross-broom the surface to a uniform texture. Do not trowel joints or edges after brooming surface.

The 6 inch smart level will be used to measure curb running slope. The 6 inch smart level will be used to measure slopes on portions of the curb ramp, gutter pan, or adjacent surfaces that cannot

accommodate a 24 inch smart level. All other curb ramp locations will use a 24 inch smart level to measure slopes.

00759.55 Correction of Deficient Structures - Unless otherwise approved, notify the Engineer before performing corrective action. Correct deficiencies at no additional cost to the Agency. Perform corrective actions as directed, according to the approved corrective action plan, and according to the following:

(a) Minor Corrective Action - Submit Equipment and procedure for minor corrective action to the Engineer for approval. Minor corrective action can be performed to correct a deficiency up to 1 square foot per panel. Corrective action exceeding 1 square foot per panel requires removal and replacement according to 00150.25. Perform minor corrective action according to the following:

(1) Concrete Grinding - Grinding to correct high area deficiencies is limited to 3/16 inch. Use equipment meeting the requirements of 00759.23. Resurface all ground concrete surfaces according to 00759.55(a)(2).

(2) Concrete Resurfacing - Resurfacing to correct low area deficiencies is limited to 3/16 inch depth. Existing concrete is to be at least 7 Days old prior to resurfacing. Resurface repair areas according to the following:

a. **Keyway** - Sawcut a keyway at the boundaries of repair areas that are not already defined by panel control joints. Sawcut shall be 1/8 inch wide and 1/4 inch deeper than the edge of the repair area. Bevel inside edge of keyway at a 45 degree angle.

b. **Surface Preparation** - Prepare limits of repair area by grinding using Equipment from 00759.23. After grinding, sandblast the surface of the repair area. Clean the surface using a low pressure washer, less than 5,000 psi.

c. **Presoak** - Presoak the repair area for a minimum of 30 minutes to saturated surface dry. Prior to resurfacing, ensure there is no ponding water on the surface.

d. **Resurface** - Provide concrete resurfacer from the QPL according to 02015.60; refer to QPL remarks to select an appropriate material based on allowable installation depths. Furnish resurfacer in a color that closely matches the color of surrounding concrete surfaces. Mask boundaries of the repair area. Use hand tools to work resurfacer into keyways and match existing grade at boundaries. Apply a light broom-finish to achieve non-slip surface.

e. **Curing and Return to Traffic** - Wet cure for a minimum of 1 hour or per the manufacturer's recommendation, whichever is more restrictive. Follow manufacturer's recommendation for return to traffic time.

(3) ACP Grinding - Taper grind to match existing Pavement with a minimum grinding width of 1 foot for each 1/4 inch of ACP removed.

(b) Acceptance of Structures - Once the corrective work or replacement has been completed, acceptance will be based on the Engineer's inspection and approval of the Structure.

Add the following subsection:

00759.81 Extra Area for Thickened Edge Sidewalk– The quantity for thickened edge sidewalk will be measured at the surface where the thickness of the sidewalk exceeds the standard detail for sidewalk.

00759.90 Payment - Add the following pay items:

Pay Item	Unit of Measurement
(o) Extra For Thickened Edge Sidewalk	Square Foot

00759.90 Payment -

Replace the paragraph that begins "Item (k) includes the additional Work required …" with the following paragraph:

Item (k) includes the additional Work required to construct a curb ramp or replace an existing curb ramp. Payment for the area of the curb ramp will be made under the concrete walks Pay Item.

Replace the paragraph that begins "No separate or additional payment will be…" with the following paragraph and bullet list:

No separate or additional payment will be made for:

- curb ramp Working Drawings
- curb ramp plan
- preplacement conference
- concrete form verification
- any necessary repair or removal and replacement of Structures
- providing supervisory personnel who have an active ODOT ADA Certification for Contractors to directly supervise the curb ramp Work
- developing corrective action plans

END OF SECTION

SECTION 00850 - COMMON PROVISIONS FOR PAVEMENT MARKINGS

Comply with Section 00850 of the Standard Specifications.

END OF SECTION

SECTION 00855 - PAVEMENT MARKERS

Comply with Section 00855 of the Standard Specifications modified as follows:

00855.90 Payment - Replace the Pay Items (i) and (j) with the following Pay Items:

(j) Bi-Directional Blue Type IAR Markers, Recessed Each

END OF SECTION

SECTION 00865 - LONGITUDINAL PAVEMENT MARKINGS - DURABLE

Comply with Section 0865 of the Standard Specifications.

END OF SECTION

SECTION 00867 - TRANSVERSE PAVEMENT MARKINGS - LEGENDS AND BARS

Comply with Section 00867 of the Standard Specifications.

END OF SECTION

SECTION 00868 - COLORED LANE MARKINGS

Section 00868, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00868.00 Scope - In addition to the requirements of Section 00850, install colored lane markings according to the following Specifications.

Labor

00868.30 Manufacturer's Representative - Provide a manufacturer's representative according to 00850.30.

00868.31 Manufacturer-Certified Installers - Provide certified installers according to 00850.31.

Construction

00868.45 Installation - Place markings only when the manufacturer's representative determines that the pavement is ready for the pavement marking material.

Apply the material to the pavement according to the manufacturer's installation instructions to the full width shown in the Plans. Joints will be allowed with no overlap or gap allowed at the joint.

Do not install reflective elements.

Install the pavement marking material surface according to the manufacturer's installation instructions to achieve a uniform initial skid resistance greater than or equal to 50 British Pendulum Number (BPN) when tested according to ASTM E303.

Apply one or more of the following marking material types:

Preformed, Fused Thermoplastic Film High Skid - Install preformed, fused thermoplastic film high skid that has factory installed crushed glass or Aggregate on the surface.

Methyl Methacrylate - Apply methyl methacrylate to the pavement to the full width shown in a single application. Colored lane markings shall be 90 mils to 120 mils in thickness, exclusive of projecting surface-applied friction elements, with a continuous and uniform cross sectional configuration.

00868.75 Manufacturer's Warranty - Furnish a manufacturer warranty that unconditionally warrants to the Agency the product(s) and installation under this Section against failure , according to this subsection and 00170.85(c)(1). Use Agency-supplied warranty forms, available from the Engineer.

"Unconditionally warrant" means that the warranty covers all failures, regardless of the source or cause of the failure, including, without limitation, whether the source or cause is or may be related to workmanship, inspection, or choice of materials.

The Agency inspection of any portion of the Work during the Contract and during the product installation, the Agency acceptance of the Work, corrections under the warranty, or expiration of the warranty shall not relieve the obligations under this warranty.

(a) Warranty Period - The warranty period shall be for 18 months.

(b) Failure - For purposes of this warranty, failure is defined as one or more of the following:

Insufficient Color Stability:

Green markings fail to meet the requirements of the Federal Highway Administration Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14) tested according to ASTM D6628.

Loss of Adhesion - Markings show 5 percent or greater loss of marking material due to non-adhesion.

Skid Resistance - Markings fail to maintain an average skid resistance greater than or equal to 50 British Pendulum Number (BPN) when tested in an equal number of test locations in both wheel path and non-wheel path locations according to ASTM E303.

(c) Remedy - Upon notification by the Engineer of a failure, provide the following remedy at no additional cost to the Agency:

Repair or replace, at the discretion of the Engineer, all failed pavement markings within 6 months of the Agency's request to do so.

Use materials and procedures meeting the Specifications.

Match repairs to adjoining Work.

Coordinate timing of repair Work with the Engineer.

(d) Agency's Right to Make Repairs - If, in the opinion of the Engineer, a failure causes or may cause a hazard, the failure may be temporarily corrected by Agency or other forces at no additional cost to the Agency. Replace temporary repairs with permanent repairs at no additional cost to the Agency and according to the Specifications and within the time specified in 00868.75(c).

Measurement

00868.80 Measurement - The quantities of colored lane markings will be measured on the area basis.

Payment

00868.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Green Bicycle Lane, Preformed Thermoplastic Film	Square Foot

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Payment for Work under this Section will be limited to 75 percent of the amount due until the Agency has received the signed warranty.

END OF SECTION

SECTION 00869 - CURB AND NON-TRAVERSABLE MEDIAN MARKINGS

Section 00869, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00869.00 Scope - In addition to the requirements of Section 00850, 00860, and 00865, install curb markings and non-traversable median markings according to the following Specifications.

Labor

00869.31 Manufacturer-Certified Installers - Provide certified installers according to 00850.31 for thermoplastic applications.

Construction

00869.45 Installation - Apply curb markings and non-traversable median markings only when the following conditions are met:

The ambient temperature is at least 50 °F and rising

The pavement has been dry for at least 48 hours

30 Calendar Days of cure time for new concrete curb or median.

Apply the Material to the pavement according to the manufacturer's installation instructions to the full height and width of curb or median as shown in the Plans.

Apply one or more of the following marking material types:

Paint - Apply according to 00860.45 along full height of curb face and along full width of top of curb or non-traversable median.

Thermoplastic, Sprayed - Apply according to 00865.45, using Method B Spray Markings to the full height of curb face and along full width of top of curb or non-traversable median.

Apply each application of painted thermoplastic marking at a thickness of 60 mils.

Measurement

00869.80 Measurement - The quantities of non-traversable median markings will be measured on the area basis. The quantities of curb markings will be measured on the length basis.

Payment

00869.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement

(b) Curb Marking, Paint..... Foot

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

END OF SECTION

SECTION 00902 - CROSSWALK CLOSURE SUPPORTS

Section 00902, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00902.00 Scope - This Work consists of constructing crosswalk closure supports and associated signs as shown.

Materials

00902.10 Materials - Furnish Materials meeting the following requirements:

Commercial Grade Concrete 00440
Steel ..... 01070.10 and 01070.12
Signs..... 00940

Construction

00902.40 General - Install crosswalk closure supports and associated signs as shown or directed.

Measurement

00902.80 Measurement - The quantities of crosswalk closure supports will be measured on the unit basis. No separate measurement will be made for signs attached to crosswalk closure supports.

Payment

00902.90 Payment - The accepted quantities of Work done under this Section will be paid for at the Contract unit price, per each, for the item "Crosswalk Closure Supports".

Payment will be payment in full for furnishing and placing all Materials, including signs, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

END OF SECTION

SECTION 00905 - REMOVAL AND REINSTALLATION OF EXISTING SIGNS

Comply with Section 00905 of the Standard Specifications.

SECTION 00920 - SIGN SUPPORT FOOTINGS

Comply with Section 00920 of the Standard Specifications modified as follows:

00920.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of concrete for minor sign supports are:

Support Type	Quantity
Perforated Steel Square Tube Anchor Sign Supports	2.6 cu. yd.

END OF SECTION

SECTION 00930 - METAL SIGN SUPPORTS

Comply with Section 00930 of the Standard Specifications modified as follows:

00930.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of structural steel are as follows:

Item	Estimated Quantity (Pound)
Minor Sign Supports	
Perforated Steel Square Tube Anchor Sign Supports	552 lbs

END OF SECTION

SECTION 00940 - SIGNS

Comply with Section 00940 of the Standard Specifications modified as follows:

END OF SECTION

SECTION 00960 - COMMON PROVISIONS FOR ELECTRICAL SYSTEMS

Comply with Section 00960 of the Standard Specifications modified as follows:

00960.02 Equipment List and Drawing Submittals - Replace the paragraph that begins "Within 30 Calendar Days after execution of the Contract, submit …" with the following paragraph:

Within 30 Calendar Days after execution of the Contract, submit the Blue Sheets (see 00160.00 and 00160.07) and the Green Sheets (see 00160.00 and 00160.07) according to 00150.37 for all materials the Contractor proposes to install. Blue Sheets and Green Sheets contain submittal instructions and will be made available to the Contractor by the Engineer.

00960.30 Licensed Electricians - Replace the paragraph that begins "According to the Oregon Administrative Rule …" with the following paragraph:

According to the Oregon Administrative Rule 918-282-0120(1), no person or entity shall allow any individual to perform electrical work for which the individual is not properly registered or licensed. Every person who installs electrical systems on the Project shall submit a copy of their electrical license or apprentice registration to the Engineer prior to performing any Work. They must be licensed as an S or a J under Oregon Administrative Rule 918-282.

Add the following subsection:

00960.42(d) Connecting Non-Metallic Conduit to Metallic Conduit - Use a nonmetallic female threaded connector to connect nonmetallic conduit to metallic conduit.

00960.46 Service Cabinet and Electrical Energy - Replace this subsection, except for the subsection number and title, with the following:

Install service cabinet and associated equipment, then arrange for the Utility providing power to have the service cabinet inspected and make the electrical hook-up prior to field testing. Field test according to 00990.70(g) for traffic signals, or according to 00970.70 for illumination.

Table 00960-1 contains Utility contact information to arrange for the Utility to make electrical hookups:

Table 00960-1

Location	Utility	Utility Contact Person's Name, Email and Phone Number	Utility Job Number
SE Webster Rd & SE Bixel Way, east side of street	PGE	Brent Baldwin Brent.Baldwin@pgn.com 503-351-7345	M3343371
SE Webster Rd & SE Webster Ln, NE Corner	PGE	Brent Baldwin Brent.Baldwin@pgn.com 503-351-7345	M3343371

Electrical energy is flat-rated. Meter base is not required.

Electrical energy costs will be billed to the Agency for permanent installations.

END OF SECTION

SECTION 00962 - METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS

Comply with Section 00962 of the Standard Specifications modified as follows:

00962.05(c) Illumination Supports - Replace this subsection, except for the subsection number and title, with the following:

Provide illumination supports as specified in the Project Plans and/or from the PGE Approved Street Lighting Equipment List in effect on the date the Project is advertised.

00962.10 Materials - Replace this subsection, except subsection number and title, with the following:

Provide lighting equipment as specified in the Project Plans and/or from the PGE Approved Street Lighting Equipment List in effect on the date the Project is advertised.

00962.46(j)(2) Assembly of Supports and Bolt Tightening – Delete the sentence “Nuts shall have full thread engagement.”

00962.46(j)(2)(a) Anchor Rods for Signal Supports and Fixed Base Luminaire Supports - Replace this subsection, except for the subsection number and title, with the following:

1. Installation - After foundation concrete strength and curing requirements are satisfied and after inspection of the foundation, pole installation may begin.

Protect anchor rods, washers, and nuts from dirt and moisture. Lubricate anchor rod threads, nuts, and bearing surfaces that will turn during installation according to 02560.70. Estimate the required rake, if any, and set the lubricated leveling nuts accordingly, so that when pole installation is complete and all appurtenances are installed on the pole, the top of the pole is plumb with the base of the pole.

Lift the pole into position on the leveling nuts and washers. Make sure all leveling nuts and washers are in full contact with the base plate.

Install washers with lubricated bearing surfaces that turn during installation and lubricated top nuts, and bring to a snug tight condition. Snug tight is defined as the condition when all plies of the connection are in firm contact and can be obtained by the full effort of a worker on the end of a 12 inch long wrench. Several passes may be required to obtain uniform snug tightness.

When all anchor rods are snug tight, proceed with installation of arms and other appurtenances, if not previously installed. When installation of arms and appurtenances is complete, and the pole is plumb as defined above, final anchor rod tightening may begin. If the pole is not plumb, adjust as required and repeat snug tightening as described above. Make sure all leveling nuts and washers are in full contact with the base plate. As a safety measure, provide crane support of the pole until anchor rods tightening is completed.

Mark the initial relative position of each anchor rod and an outside ridge of each first nut above the base plate with a permanent felt tip pen or similar marker. Retain visibility of the marks for at least 7 Days to verify subsequent nut rotation. Rotate all first nuts above the base plate past snug tight an additional amount shown in 00962.46(j)(2)(e) in two passes. "Cheater" bars, multiplier wrenches, or slugging wrenches are allowed if required for large diameter anchor rods. After final tightening of the first nut above the base plate, tighten the second nut to a snug tight condition for assemblies with two nuts above the base plate.

2. Inspection - Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening operations to ensure that proper procedures are followed.

The installation will be rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962.46(j)(2)(b) Anchor Rods for Slip Base (Break-away) Luminaire Supports - Replace this subsection with the following:

00962.46(j)(2)(b) Anchor Rods and High-Strength Bolts for Slip Base (Break-away) Luminaire Supports

1. Installation - After foundation concrete strength and curing requirements are satisfied and after inspection of the foundation, pole installation may begin.

Furnish, at no additional cost to the Agency, a calibrated torque wrench of a capacity appropriate to the size and type of the bolts being tightened. Confirm the accuracy of the calibrated torque wrench through calibration by an approved independent testing agency at least once a year.

Protect anchor rods, washers, and nuts from dirt and moisture. Lubricate anchor rods, nuts, and bearing surfaces that will turn during installation according to 02560.70. Estimate the required rake, if any, and set the lubricated leveling nuts accordingly, so that when pole installation is complete and all appurtenances are installed on the pole, the top of the pole is plumb with the base of the pole.

Install the anchor plate on the leveling nuts and washers. Make sure all leveling nuts and washers are in full contact with base plate.

Install washers with lubricated bearing surfaces that turn during installation and lubricated top nuts, and bring to a snug tight condition. Snug tight is defined as the condition when all plies of the connection are in firm contact, and can be obtained by the full effort of a worker on the end of a 12 inch long wrench. Several passes may be required to obtain uniform snug tightness.

When all anchor rods are snug tight, proceed with the "Slip Base Bolting Procedure" as shown and lubricate bolt threads and bearing surfaces that turn during installation according to 02560.70. When the slip base bolting procedure is complete, final anchor rod tightening may begin. As a safety measure, provide crane support of the pole until anchor rod tightening is complete.

Mark the initial relative position of each anchor rod and an outside ridge of each first nut above the base plate with a felt tip pen or similar marker. Retain visibility of the marks for at least 7 Days to verify subsequent nut rotation Rotate all first nuts above the base plate past snug tight an additional amount shown in 00962.46(j)(2)(e) in two passes. "Cheater" bars, multiplier wrenches, or slugging wrenches are allowed if required for large diameter anchor rods.

2. Inspection - Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening operations to ensure that proper procedures are followed.

The installation will be rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962.46(j)(2)(c) High-Strength Bolts in Mast Arm-to-Pole Connections and Luminaire Arm-to-Pole Connections - Replace this subsection with the following:

00962.46(j)(2)(c) High-Strength Thru Bolts in Mast Arm-to-Pole Connections and Luminaire Arm-to-Pole Connections -

1. Installation - Do not reuse galvanized high strength bolts. Retightening previously tightened bolts that may have been loosened by the tightening of adjacent bolts will not be considered a reuse.

Provide all high strength bolts according to the details shown. Use bolt, nut, and washer combinations from the same rotational capacity lot with new and unused direct tension indicators with protrusions in contact with the hardened washer.

Protect fasteners from dirt and moisture. Do not remove the lubricant that is present in as-delivered condition. Lubricate threads, nuts, and bearing surfaces that turn during installation according to 02560.70.

Bring the connection to a snug-tight condition. Snug-tight is defined as the condition when all plies of the connection are in firm contact and can be attained by applying the full effort of a worker on the end of a 12 inch long wrench to each bolt in the connection. Tighten all fasteners in the connection by progressing systematically from the most rigid part of the connection to the free edges in a manner that will minimize relaxation of previously tightened fasteners. In some cases, proper tensioning of the bolts may require more than a single cycle of systematic partial tightening. After attaining a snug-tight condition, tighten all fasteners in the connection by progressing systematically from the most rigid part of the connection to the free edges until the direct tension

indicator spaces between the protrusions refuse entry of a 0.005 inch feeler gauge in all spaces except one. "Cheater" bars, multiplier wrenches, or impact wrenches are allowed. Provide impact wrenches with enough capacity and supplied air to tighten each bolt in 10 seconds or less. Do not use a slugging wrench or similar method for final tightening.

2. Inspection - Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening of bolts to determine that the tightening procedures are properly used. Inspect all bolts in each joint. The joint will be accepted as properly tightened when one open space allows entry of a 0.005 inch feeler gauge. If there is more than one space between the direct tension indicator protrusions that allow entry of a 0.005 inch feeler gauge, re-inspect all bolts, retighten bolts in the joint as required, and resubmit the joint for inspection. If no spaces exist between the direct tension indicator protrusions that allow entry of a 0.005 inch feeler gauge, replace bolt assembly, tighten bolts in the joint as required, and resubmit the joint for inspection. Connections that have all bolts fully tightened can replace one bolt at a time without providing crane support of the mast arm.

The installation will be rejected if the geometry does not satisfy the requirements of 02560.05.

00962.46(j)(2)(d) Final Tightening - Replace this subsection with the following:

00962.46(j)(2)(d) High-Strength Bolts in Tapped Holes in Mast Arm-to-Pole Connections and Luminaire Arm-to-Pole Connections -

1. Installation - Protect fasteners from dirt and moisture. Lubricate bolt threads and bearing surfaces that turn during installation according to 02560.70. Provide all high-strength bolts with hardened flat washers under the element turned during tightening.

If arms or appurtenances are attached after pole erection, support them until bolts are snug tight.

Install high-strength tapped hole connections to a snug tight condition. Snug tight is defined as the condition when all plies of the connection are in firm contact, and can be obtained by the full effort of a worker on the end of a 12 inch long wrench. Mark the initial relative position of the outside ridge of each turned element (nut or bolt head) and plate with a permanent felt tip pen or similar marker. Retain visibility of the marks for at least 7 Days to verify subsequent nut rotation. Rotate the top nut of each bolt past snug tight by the amount in 00962.46(j)(2)(e). Several passes may be required to obtain uniform snug tightness. "Cheater" bars, multiplier wrenches, and impact wrenches are allowed. Provide impact wrenches with enough capacity and supplied air to tighten each bolt in 10 seconds or less. Do not use a slugging wrench or similar method for final tightening.

2. Inspection - Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening operations to ensure that proper procedures are followed.

The installation will be rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present showing the rotation past snug tight.

Add the following subsection:

00962.46(j)(2)(e) Final Tightening - Required final tightening of anchor rods and high-strength bolts are shown in the following Table:

Connection Type	Rotation Past Snug Tight
ASTM F1554, Grade 36 Anchor Rods	30° (1/12 turn)
ASTM A449 Anchor Rods	60° (1/6 turn)
ASTM F1554 Grade 55 Anchor Rods	60° (1/6 turn)
ASTM F3125, Grade A325 Bolts	60° (1/6 turn)

END OF SECTION

SECTION 00970 – HIGHWAY ILLUMINATION

Comply with Section 00970 of the Standard Specifications modified as follows:

00970.00 Scope - Add the following:

This Work includes furnishing and installing Clackamas County approved materials and providing a roadway illumination system on separate illumination poles that meets the requirements and standards of Portland General Electric (PGE) Schedule 32 or Schedule 95 Option A as shown on the plans. If there is a conflict between PGE standards and these specifications, the more stringent standard shall control.

Provide lighting equipment as specified in the Special Provisions, the Project Plans and/or from the PGE Approved Street Lighting Equipment List in effect on the date the Project is advertised.

Add the following subsection:

00970.04 Required Submittals - In additional to the requirements of Section 00960, submit installation details for the following equipment:

- Light fixture including LED board and driver
- Photoelectric control

Add the following subsection:

00970.11 LED Street Lighting - For Projects with LED street lighting, provide the following pre-approved Equipment from the PGE Approved Street Lighting Equipment List:

- **Fixture** - LED fixtures shall be dimmable, four-bolt mounting bracket, gray finish, field adjustable drive current, ANSI 7-wire photocontrol receptacle and utility wattage label. Fixture voltage, color temperature, distribution and drive current as shown on the Plans. Where a single photocell is used for the lighting system, shorting caps shall be provided for each fixture.

- **Photoelectric Control** - Photoelectric controls shall be long life with a minimum 10 year guarantee and a 25 year rated life.

00970.30 Qualified Worker - In addition to the requirements of 00960.30, provide a Qualified Worker meeting the requirements of 00970.02 for performing work under this Section.

00970.43 Photocontrol Electronic Relay - Replace this subsection, except the subsection number and title, with the following:

Install photoelectronic control relay as shown on the plans.

00970.50 Grounding and Bonding - Delete the paragraph beginning with "On the inside of…".

Add the following paragraph:

Ground the LED fixture to the pole per the street light manufacturer's instructions. Bonding of street lights on distribution poles shall meet utility requirements.

00970.80 Measurement - Replace this subsection, except for the subsection number and title, with the following:

No measurement of quantities will be made for Work performed under this Section.

The quantities of lighting poles and arms are listed on the Project Plans. Any adjustment to the contract lump sum amount will be made according to 00190.10(h).

END OF SECTION

SECTION 00990 - TRAFFIC SIGNALS

Comply with Section 00990 of the Standard Specifications modified as follows:

00990.90 Payment - Delete Pay Item (c) from the pay item list.

Delete the paragraph that begins "Item (c) includes furnishing and installing…"

Replace the paragraph that begins "In Items (a), (b), (c), (d), (f) …" with the following paragraph:

In Items (a), (b), (d), (f) and (g), the intersection location will be inserted in the blank.

Replace the paragraph that begins "Item (b) includes furnishing and replacing…" with the following paragraph:

Item (b) includes furnishing and replacing or installing items for an existing traffic signal installation and the detection system.

Replace the paragraph that begins "Mast arm pole and strain pole foundations …" with the following paragraph:

Drilled shaft foundations for traffic signal 15 foot through 55 foot mast arm supports will be paid for according to 00963.90. Drilled shaft foundations for traffic signal 60 foot through 75 foot mast arm supports will be paid for according to 00921.90.

END OF SECTION

SECTION 01030 - SEEDING

Comply with Section 01030 of the Standard Specifications modified as follows:

01030.13(c) Pure Live Seed - Replace this subsection, except subsection number and title, with the following subsection:

Use the PLS specified rate listed in 01030.13(f) for determining PLS application rates. Ensure the PLS application rate meets the PLS specified rate. Apply pre blended seed mixes, with multiple species, at a PLS application rate ensuring all species meet or exceed the PLS specified rate for each species in the seed mix.

PLS application rate for an individual seed species is determined as follows:

PLS specified rate is listed in 01030.13(f)

PLS factor is obtained by multiplying the seed label germination percentage times the seed label purity percentage. Use the purity and germination percentages from the label on actual bags of seed to be used on the Project.

PLS application rate is obtained by dividing the PLS specified rate by the PLS factor.

For a seed mix, make this calculation for each seed species in the mix and then adjust as follows:

Using the seed tag, determine the weight of each seed species in the bag and use this information to find the percentage, by weight, of each seed species is in 1 pound for the pre-blended mix.

Divide the percentage by weight of each seed species, per pound, for the pre-blended mix, by the PLS application rate for that specific seed species.

Determine the highest application rate in the seed mix and apply the seed mix at that application rate.

01030.13(f) Types of Seed Mixes - Add the following to the end of this subsection:

Provide the following seed mix formulas:

- **Permanent Seeding:** Protime 310 (or approved equal)

01030.13(g) Availability - Add the following sentence to the end of this subsection:

Submit the seed and seed mixes to be used on the project according to 00150.37.

01030.40 General - Add the following sentence after the sentence beginning “Notify the Agency…”:

Notify the Agency of the acreage to be seeded at least 7 Days before seeding begins.

01030.43(c) Seed Application Rates - Determine the seeding application rate according to 01030.13(c). Apply seed mixes at the highest application rate calculated to provide not less than the specified application rate for each individual seed species in the mix.

01030.60 General - Add the following sentences after the last bullet:

The minimum living plant coverage for native plant seeding is 95% percent of ground surface.

END OF SECTION

SECTION 01040 - PLANTING

Comply with Section 01040 of the Standard Specifications.

END OF SECTION

SECTION 01070 - MAILBOX SUPPORTS

Comply with Section 01070 of the Standard Specifications.

END OF SECTION

SECTION 02001 - CONCRETE

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.02 Abbreviations and Definitions:

Add the following definition:

Lightweight Concrete - Structural concrete having a specified density using lightweight Aggregates.

Replace the sentence that begins "**Pozzolans** - Fly ash, silica fume…" with the following sentence:

Pozzolans - Fly ash, natural Pozzolans, silica fume, and high-reactivity Pozzolans.

Replace the sentence that begins "**Supplementary Cementitious Materials** - Fly ash, silica fume…" with the following sentence:

Supplementary Cementitious Materials - Pozzolans and ground granulated blast furnace slag.

02001.15(a) Current Mix Designs - Replace this subsection, except for the subsection number and title, with the following:

Mix designs that meet the requirements for the specified class of concrete and are currently being used or have been used within the past 24 months on any project, public or private, may be submitted for review. Provide individual test results that comprise the average if more than one data point exists. For paving designs the flexural strength testing must be from within the last two years. For HPC designs the length change and permeability tests must be from within the last two years.

02001.15(b)(1) Trial Batch Plastic Properties - Replace this subsection, except for the subsection number and title, with the following:

For each trial batch, test according to the following test methods:

Test	Test Method
Sampling Fresh Concrete	WAQTC TM 2
Concrete Temperature	AASHTO T 309
Slump	AASHTO T 119 [1]
Air Content	AASHTO T 152 or T 196 [2]
Density	AASHTO T 121
Yield	AASHTO T 121
Molding Concrete Specimens	AASHTO T 23 or R 39 [3]
Water Cement Ratio	[4]

[1] For drilled shaft concrete test the slump retention by subsequent tests at 60 minute intervals for the duration of the estimated drilled shaft placement. Report in table or graphical format.
[2] Use AASHTO T 196 for lightweight concrete.
[3] Cast cylinders in single use plastic molds.
[4] Use ODOT's Field Operating Procedure for AASHTO T 121 in the MFTP.

02001.15(c)(10) Plastic Concrete Tests – Replace the bullet that begins “Initial slump test result and subsequent….”

- Initial slump test results and subsequent results at 60-minute intervals, verifying a minimum slump of 4 inches is maintained for the total time estimated for drilled shaft placement, including temporary casing extraction. Report data in a table or graph format.

02001.15(c)(12) Strength Analysis - Replace this subsection, with the following subsection:

02001.15(c)(12) Documentation of Average Compressive Strength - Provide an analysis, showing applicable data and calculations for documentation of average compressive strength according to ACI 301.

02001.20(a) Strength - Replace Table 2001-1 with the following Table 2001-1:

Table 02001-1

Concrete Strength and Water/Cementitious Material (w/cm) Ratio		
Type of Concrete	**Strength f'_c (psi)**	**Maximum w/cm Ratio**
Structural	3300	0.50
	3300 (Seal)	0.45
	4000	0.48
	4000 (Drilled Shaft)	
	HPC4500	0.40
	HPC(IC)4500	
	5000 +	
Paving	4000	0.44
PPCM's (with cast-in-place decks and no entrained air)	5000	0.48
	5500	0.44
	6000 +	0.42

02001.20(a)(1) Required Average Compressive Strength (f'_{cr}) - Replace this subsection, except for the subsection number and title, with the following:

Except for PPCM designs, provide the required average compressive strength according to ACI 301 for mix design approval.

02001.30(e)(1) HPC Coarse Aggregate Content - Delete the paragraph that begins "Two or more Aggregate products or sources…"

Add the following subsection:

02001.50(d) Concrete Strength Testing Technician (CSTT):

- Receive concrete test cylinders
- Record data
- Strip cylinders
- Store cylinders
- Test cylinders
- Record test data
- Report test data

END OF SECTION

SECTION 02030 – SUPPLEMENTARY CEMENTITIOUS MATERIALS

Comply with Section 02030, of the Standard Specifications modified as follows:

02030.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

This Section includes the requirements for fly ash, natural pozzolans, silica fume, ground granulated blast furnace slag and high reactivity pozzolans used in portland cement concrete.

02030.10 Fly Ash - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class C and Class F fly ash from the QPL and conforming to AASHTO M 295 (ASTM C618).

Add the following subsection:

02030.15 Natural Pozzolans - Furnish Class N natural pozzolans from the QPL and conforming to AASHTO M 295 (ASTM C618).

02030.50 Metakaolin - Replace this subsection with the following:

02030.50 High Reactivity Pozzolans - Furnish high-reactivity pozzolans from the QPL and conforming to AASHTO M 321.

END OF SECTION

SECTION 02050 - CURING MATERIALS

Comply with Section 02050 of the Standard Specifications modified as follows:

02050.10 Liquid Compounds - Replace the paragraph that begins “Furnish liquid membrane-forming curing…“ with the following paragraph:

Furnish liquid membrane-forming curing compounds from the QPL and meeting the requirements of ASTM C309. Before use, submit a one quart sample from each lot for testing. Samples will be tested according to ODOT TM 721. Samples are not required for curing compounds used on Commercial Grade Concrete.

END OF SECTION

SECTION 02320 - GEOSYNTHETICS

Comply with Section 02320 of the Standard Specifications modified as follows:

02320.20 Geotextile Property Values – Replace Table 02320-3 with the following table:

Table 02320-3 Geotextile Property Values for Sediment Fence [1]

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirements
			Woven and Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	120 100
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	—	30
Permittivity (minimum)	D 4491	sec^{-1}	0.05
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	70

[1] All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

SECTION 02415 - PLASTIC PIPE

Comply with Section 02415 of the Standard Specifications modified as follows:

02415.40 Polypropylene Pipe - Replace the sentence that begins "Dual wall polypropylene pipe …" with the following sentence:

Dual wall polypropylene pipe and fittings ..... ASTM F2764

END OF SECTION

SECTION 02560 - FASTENERS

Comply with Section 02560 of the Standard Specifications modified as follows:

02560.30(b) High Strength Tie Rods, Anchor Bolts and Anchor Rods - Add the following paragraph to the end of this subsection:

End stamp all ASTM F1554, Grade 105 according to ASTM F1554 Supplementary Requirements S2 and S3. If the end of the bolt is to be embedded in concrete, the projecting end from the concrete shall be the marked end.

END OF SECTION

SECTION 02690 - PCC AGGREGATES

Comply with Section 02690 of the Standard Specifications modified as follows:

02690.20(a) Harmful Substances - In the paragraph that begins “Material passing No. 200 sieve…”, replace the words “T 11” with the words “T 27 / T 11”.

02690.20(e) Grading and Separation by Sizes for Prestressed Concrete - Replace this subsection with the following subsection:

02690.20(e) Grading and Separation by Sizes - Sampling shall be according to AASHTO R 90. Sieve analysis shall be according to AASHTO T 27 and AASHTO T 11. Provide aggregates meeting the gradation requirements of Table 02690-1 for structural concrete. Provide a CAgT to perform sampling and testing when required.

Table 02690-1
Gradation of Coarse Aggregates
Percent passing (by Weight)

		Sieve Size											
Size Number	Nominal Size Square Openings	(2½ in.)	(2 in.)	(1½ in.)	(1 in.)	(¾ in.)	(½ in.)	(⅜ in.)	(No. 4)	(No. 8)	(No. 16)	(No. 50)	(No. 200)
3	(2 to 1 in.)	100	90 to 100	35 to 70	0 to 15	—	0 to 5	—	—	—	—	—	**
357*	(2 in. to No. 4)	100	95 to 100	—	35 to 70	—	10 to 30	—	0 to 5	—	—	—	**
4	(1½ to ¾ in.)	—	100	90 to 100	20 to 55	0 to 15	—	0 to 5	—	—	—	—	**
467*	(1½ to No. 4)	—	100	95 to 100	—	35 to 70	—	10 to 30	0 to 5	—	—	—	**
5	(1 to ½ in.)	—	—	100	90 to 100	20 to 55	0 to 10	0 to 5	—	—	—	—	**
56	(1 to ⅜ in.)	—	—	100	90 to 100	40 to 85	10 to 40	0 to 15	0 to 5	—	—	—	**
57	(1 to No. 4)	—	—	100	95 to 100	—	25 to 60	—	0 to 10	0 to 5	—	—	**
6	(¾ to ⅜ in.)	—	—	—	100	90 to 100	20 to 55	0 to 15	0 to 5	—	—	—	**
67	(¾ to No. 4)	—	—	—	100	90 to 100	—	20 to 55	0 to 10	0 to 5	—	—	**
68	(¾ to No. 8)	—	—	—	100	90 to 100	—	30 to 65	5 to 25	0 to 10	0 to 5	—	**
7	(½ to No. 4)	—	—	—	—	100	90 to 100	40 to 70	0 to 15	0 to 5	—	—	**
78	(½ to No. 8)	—	—	—	—	100	90 to 100	40 to 75	5 to 25	0 to 10	0 to 5	—	**
8	(⅜ to No. 8)	—	—	—	—	—	100	85 to 100	10 to 30	0 to 10	0 to 5	—	**
89	(⅜ to No. 16)	—	—	—	—	—	100	90 to 100	20 to 55	5 to 30	0 to 10	0 to 5	**

* Use two or more seperated sizes which when combined meet these gradation limits.

** See 02690.20(a). Do Not evaluate material passing the No. 200 sieve according to 00165.40.

02690.20(f) Grading and Separation by Sizes for Other Concrete - Delete this subsection.

02690.30(b) Harmful Substances - In the paragraph that begins “Material passing No. 200 sieve…”, replace the words “T 11” with the words “T 27 / T 11”.

02690.30(g) Grading - In the paragraph that begins “Sampling shall be according to…”, replace the words “AASHTO T 2” with the words “AASHTO R 90”.

END OF SECTION

SECTION 02320 - GEOSYNTHETICS

Comply with Section 02320 of the Standard Specifications modified as follows:

02320.20 Geotextile Property Values – Replace Table 02320-3 with the following table:

Table 02320-3 Geotextile Property Values for Sediment Fence [1]

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirements

			Woven and Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	120 100
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	—	30
Permittivity (minimum)	D 4491	sec^{-1}	0.05
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	70

[1] All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

END OF SECTION

Bilquist Elementary School - Sidewalks

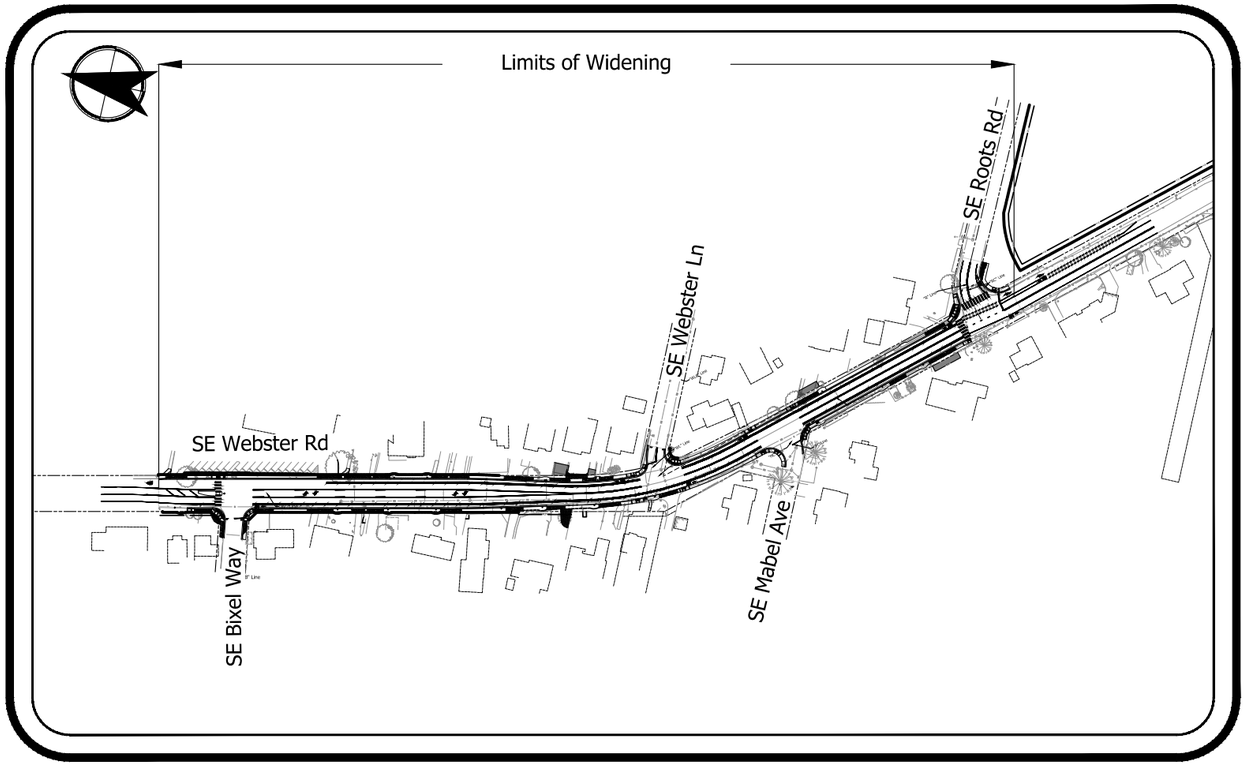
GRADING, PAVING, DRAINAGE, ROADSIDE DEVELOPMENT, SIGNING, ILLUMINATION, PAVEMENT MARKINGS

PREPARED FOR:

CLACKAMAS COUNTY, OR

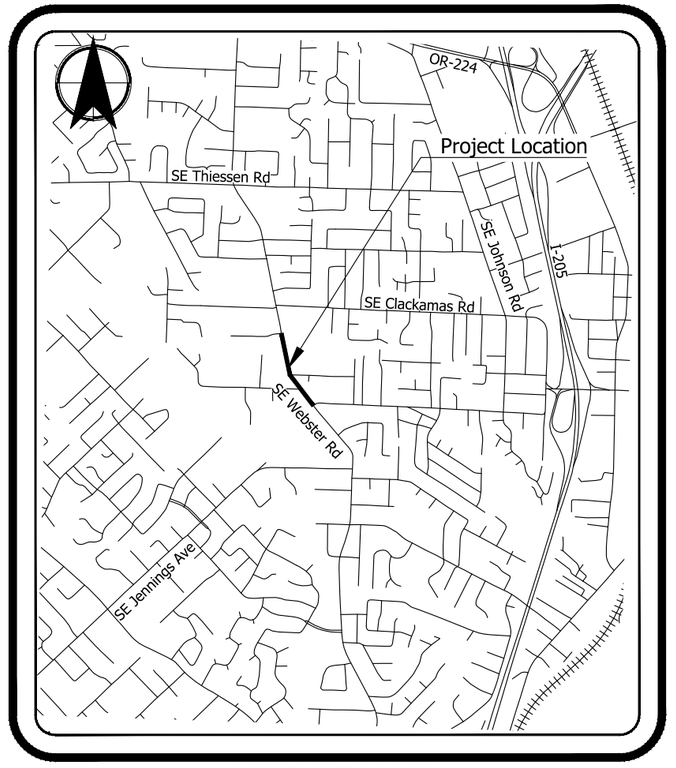
Project Number: 300321302

September 2024



SITE MAP

SCALE: NTS



VICINITY MAP

SCALE: NTS

BASIS OF BEARING:

BEARINGS BASED ON OREGON COORDINATE REFERENCE SYSTEM PORTLAND ZONE, NORTH AMERICAN DATUM OF NAD83/2011 (EPOCH 2010.0000) WITH GPS OBSERVATIONS ON CONTROL POINTS #1 & #2, POST PROCESSED THROUGH TRIMBLE BUSINESS CENTER, AGAINST CORS STATIONS NWBG, P412, P427, AND PDXA, HOLDING THEIR PUBLISHED COORDINATES USED BY THE ODOT ORGN. UNITS IN INTERNATIONAL FEET.

DATUM:

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
BASED ON A CLOSED LEVEL LOOP WITH TRIMBLE DINI THROUGH CONTROL POINTS FROM POINT #199, A WITNESS CORNER (REFERENCE MONUMENT) TO THE RE-ENTRANT CORNER OF THE WARDSWORTH DLC 57, SHOWN IN USBT 2008-038 AS BEING 4.08 FEET LOWER THAN THE RE-ENTRANT CORNER (NOW DESTROYED) MONUMENT THAT HAD A PUBLISHED ELEVATION OF 130.30 FEET NAVD88, YIELDING A CALCULATED ELEVATION OF 126.22 FEET FOR POINT #199.

UTILITY NOTIFICATION:

ATTENTION: Oregon Law Requires You To Follow Rules Adopted By The Oregon Utility Notification Center. Those Rules Are Set Forth In OAR 952-001-0010 Through 952-001-0090. You May Obtain Copies Of The Rules By Calling The Center. (Note: The Telephone Number For The Oregon Utility Notification Center Is (503) 232-1987.)

PROJECT CONTACTS

OWNER
CLACKAMAS COUNTY
CONTACT: Jonathan Hangartner, P.E.
ADDRESS: 150 Beavercreek Rd
Oregon City, OR, 97045
PHONE: 971.804.2825
EMAIL: jhangartner@clackamas.us

ENGINEER
KITTELSON & ASSOCIATES, INC.
CONTACT: Cedomir Jesic, P.E., Caleb Cox, P.E.
ADDRESS: 851 SW 6th Avenue, Suite 600
Portland, OR 97204
PHONE: 503.535.7453
EMAIL: cjesic@kittelson.com
ccox@kittelson.com

SURVEYOR
S&F LAND SURVEY
CONTACT: Andrew Huston, PLS
ADDRESS: 4858 SW Scholls Ferry Rd Suite A,
Portland, OR 97225
PHONE: 541.797.0954
EMAIL: andrew.huston@sflands.com

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TITLE SHEET

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
A01

EXISTING LEGEND

- BUILDING
- BUILDING OVERHANG
- BUILDING DECK
- PARKING STRIPES
- ROAD STRIPING
- FLOW LINE CURB
- EXTRUDED CURB
- STANDARD CURB
- EDGE OF PAVEMENT
- EDGE OF CONCRETE
- EDGE OF GRAVEL
- GUARD RAIL
- WALL-TOP
- WALL-TOE
- COMMUNICATIONS - CABLE TV
- WATER
- STORM SEWER
- GAS
- ELECTRIC
- OVERHEAD POWER
- SANITARY SEWER
- SANITARY SEWER-PRESSURE
- FIBER OPTIC
- TRAFFIC SIGNAL
- TELEPHONE
- COMMUNICATION
- IRRIGATION
- IRRIGATION CANAL
- DITCH FLOW
- UNKNOWN UNDERGROUND UTILITY
- EDGE OF LANDSCAPING
- EDGE OF WATER
- FENCE - MISC***
- FENCE - BARBED WIRE
- FENCE - WOOD
- FENCE - CHAINLINK
- CENTERLINE
- RIGHT OF WAY
- BOUNDARY LINE
- EASEMENT
- LOT/PARCEL LINE
- SETBACK
- TREELINE
- DONATION LAND CLAIM
- SECTION LINE
- ORDINARY HIGH WATER LINE
- NATURAL GAS LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- FENCE
- BUILDING ROOF LINE
- TOE OF SLOPE
- TOP OF SLOPE
- BUILDING HATCH
- CONCRETE HATCH
- GRAVEL HATCH

- BREAKLINE
- SET MONUMENT
- SET BERNSTEN BRASS DISC
- CALCULATED POSITION
- FOUND MONUMENT-ALUMINUM CAP
- FOUND MONUMENT-BRASS CAP
- FOUND MONUMENT-IRON PIPE
- FOUND MONUMENT NO.
- FOUND MONUMENT - 1/2" IRON ROD
- FOUND MONUMENT - MAG NAIL
- FOUND MONUMENT - 5/8" IRON ROD
- FOUND MONUMENT - SCREW
- BENCHMARK
- CONTROL ALUM CAP/BRASS CAP
- CONTROL HUB & TACK
- CONTROL MAGNAIL/PK NAIL
- CONTROL 5/8" IR W/ RPC
- CONTROL RR SPIKE
- CONTROL SCRIBE
- CONTROL NAIL & WASHER
- CONTROL POINT
- HANDICAP PARKING
- SIGN
- FLAG POLE
- MAILBOX
- ROCK-BOULDER
- SIGN-WARNING UNDERGROUND UTILITY
- TEST PIT / BOREHOLE
- A/C UNIT
- STOP SIGN
- MONITORING WELL
- BOLLARD
- BUILDING COLUMN
- RAILROAD X-ING
- FENCE GATE POST
- WETLAND FLAG
- TREE - STUMP
- SHRUB/BUSH
- TREE - DECIDUOUS
- TREE - CONIFER

- POWER METER
- POWER POLE
- POWER TRANSFORMER
- POWER POLE W/ LIGHT
- POWER RISER
- POWER VAULT
- POWER JUNCTION BOX
- GROUND LIGHT
- LIGHT-LAMP POST
- GUY ANCHOR
- POWER CABINET
- POWER MANHOLE
- POWER GUY POLE
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- STORM AREA DRAIN
- STORM CATCH BASIN
- STORM MANHOLE
- STORM ROOF DRAIN
- STORM CLEANOUT
- STORM CULVERT
- STORM DITCH INLET/SLANTED CATCH BASIN
- STORM DRY WELL
- STORM TRAPPED INLET
- STORM CATCH BASIN - ROUND
- STORM CURB INLET
- STORM COMBINATION CURB INLET
- WATER MANHOLE
- WATER AIR RELEASE VALVE
- WATER FIRE DEPT. CONNECT
- WATER POST INDICATOR VALVE
- WATER SPIGOT - SHUTOFF
- WATER VAULT
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- WATER STANDPIPE
- WELL
- GAS VALVE
- GAS METER
- GAS RISER
- GAS FINK
- TRAFFIC SIGNAL CROSSWALK
- TRAFFIC SIGNAL JUNCTION BOX
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL POLE W/ LIGHT
- TELEPHONE RISER
- TELEPHONE MANHOLE
- TELEPHONE VAULT
- COMMUNICATION MANHOLE
- COMMUNICATION VAULT
- FIBER OPTIC JUNCTION BOX
- SPRINKLER HEAD
- IRRIGATION CONTROL VALVE
- CATV RISER
- UNKNOWN VAULT
- UNKNOWN RISER
- UNKNOWN JUNCTION BOX
- UNKNOWN MANHOLE
- UNKNOWN CLEANOUT

PROPOSED LEGEND

- Proposed Public Utility Easement
- Proposed Public Utility and Slope Easement
- Proposed Slope Easement
- Temporary Construction Easement
- Proposed Right Of Way
- Proposed Minor Contour
- Proposed Major Contour
- Proposed Curb/Gutter
- Proposed Thickened Edge Sidewalk
- Proposed Lighting Conduit
- Proposed Storm Sewer Pipe
- Proposed Sawcut Line
- Proposed Grading Daylight - Fill
- Proposed Grading Daylight - Cut
- Proposed Storm Manhole / Drywell
- Proposed Storm Inlet
- Proposed Cobrahead Street Light
- Proposed Pedestrian Signal Pole
- Proposed Junction Box
- Proposed Truncated Domes
- Proposed Fire Hydrant
- Proposed Sign Post
- Proposed Mailbox
- Proposed Sidewalk
- Variable Depth Grind and 2" Inlay
- Variable Depth Asphalt Overlay
- Concrete Driveway
- Concrete Sidewalk
- ACP Driveway Repair
- Bark Mulch
- Landscape

ABBREVIATIONS

Δ	Delta Angle
AC	Asphalt Concrete
ACP	Asphalt Concrete Pavement
AD	Area Drain
ADA	American Disabilities Act
BC	Bottom of Curb
BVC	Begin Vertical Curve
BW	Back of Sidewalk
CB	Catch Basin
CI	Curb Inlet
COMP.	Composite
DI	Ductile Iron
DWG.	Drawing
Elec	Electrical
EA	Each
EAC	Edge of Asphalt Concrete
ELEV	Elevation
EVC	End Vertical Curve
Extg.	Existing
F.L./FL	Flow Line
FLG	Flange
FT	Feet
F.T.	Flat Top
G	Gas
GV	Gas Valve
IE	Invert Elevation
Len	Length
LF	Linear Feet
Lt.	Left
LVC	Length of Vertical Curve
Max.	Maximum
MH	Manhole
Min.	Minimum
MJ	Mechanical Joint
NO.	Number
NOM.	Nominal
N.T.S./NTS	Not to Scale
ODOT	Oregon Department of Transportation
OSSC	Oregon Standard Specifications for Construction
PC	Point of Curvature
PCC	Point of Compound Curvature
PE	Plain End
PI	Point of Inflection
PSUE	Public Slope & Utility Easement
PRC	Point of Reverse Curvature
PSDUE	Public Slope, Drainage, & Utility Easement
PSE	Public Slope Easement
PT	Point of Tangency
PUE	Public Utility Easement
PVC	Poly Vinyl Chloride
PVI	Point of Vertical Inflection
R	Radius
RCP	Reinforced Concrete Pipe
R/W	Right-of-Way
Rt.	Right
S	Slope
Sta.	Station
SD	Storm Drain
Sht.	Sheet
T	Telecom
TC	Top of Curb at Face
TCE	Temporary Construction Easement
THKN.	Thickness
TRK	Truck
VC	Vertical Curve
W	Water
WQ	Water Quality
WQMH	Water Quality Manhole

UTILITY CONTACTS

ELECTRICAL
PORTLAND GENERAL ELECTRIC
CONTACT: Brent Baldwin
ADDRESS: 121 SW Salmon St, Portland, OR 97204
PHONE: 503.736.5470
EMAIL: Brent.Baldwin@pgn.com
WO #: M3277391

GAS
NW NATURAL
CONTACT: Brock Inman
ADDRESS: 250 SW Taylor St, Portland, OR 97204
PHONE:
EMAIL: Brock.Inman@nwnatural.com

STORMWATER
WATER ENVIRONMENT SERVICES
CONTACT: Don Kemp
ADDRESS: 150 Beavercreek Road #430, Oregon City, OR 97045
PHONE: 503.742.4567
EMAIL: wes-permitservices@clackamas.us

WATER
CLACKAMAS RIVER WATER DISTRICT
CONTACT: Joe Eskew
ADDRESS: 16770 SE 82nd Drive, Clackamas, OR 97015
PHONE: 503.723.2565
EMAIL: jeskew@crwater.com

COMMUNICATIONS
COMCAST
CONTACT: Todd Royer
ADDRESS:
PHONE: 971.801.5610
EMAIL: todd_royer@cable.comcast.com

CENTURY LINK/LUMEN
CONTACT: Martina Gettman
ADDRESS: 8021 SW Capitol Hill Rd, Portland, OR 97219
PHONE:
EMAIL: Martina.gettman@lumen.com

FIBER
CLACKAMAS BROADWAY EXCHANGE
CONTACT: Duke Dexter
ADDRESS: 121 Library Court, Oregon City, OR 97045
PHONE: 503.722.6663
EMAIL: DDexter@clackamas.us

Index of Sheets

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

LEGEND & ABBREVIATIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No. A02

Plot Stamp: 9/6/2024 9:40:10 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CDVA-COVER & INDEX-26766.dwg

Scale: 1" = 150'

150 75 0 150

PLAN SHEET LAYOUT

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

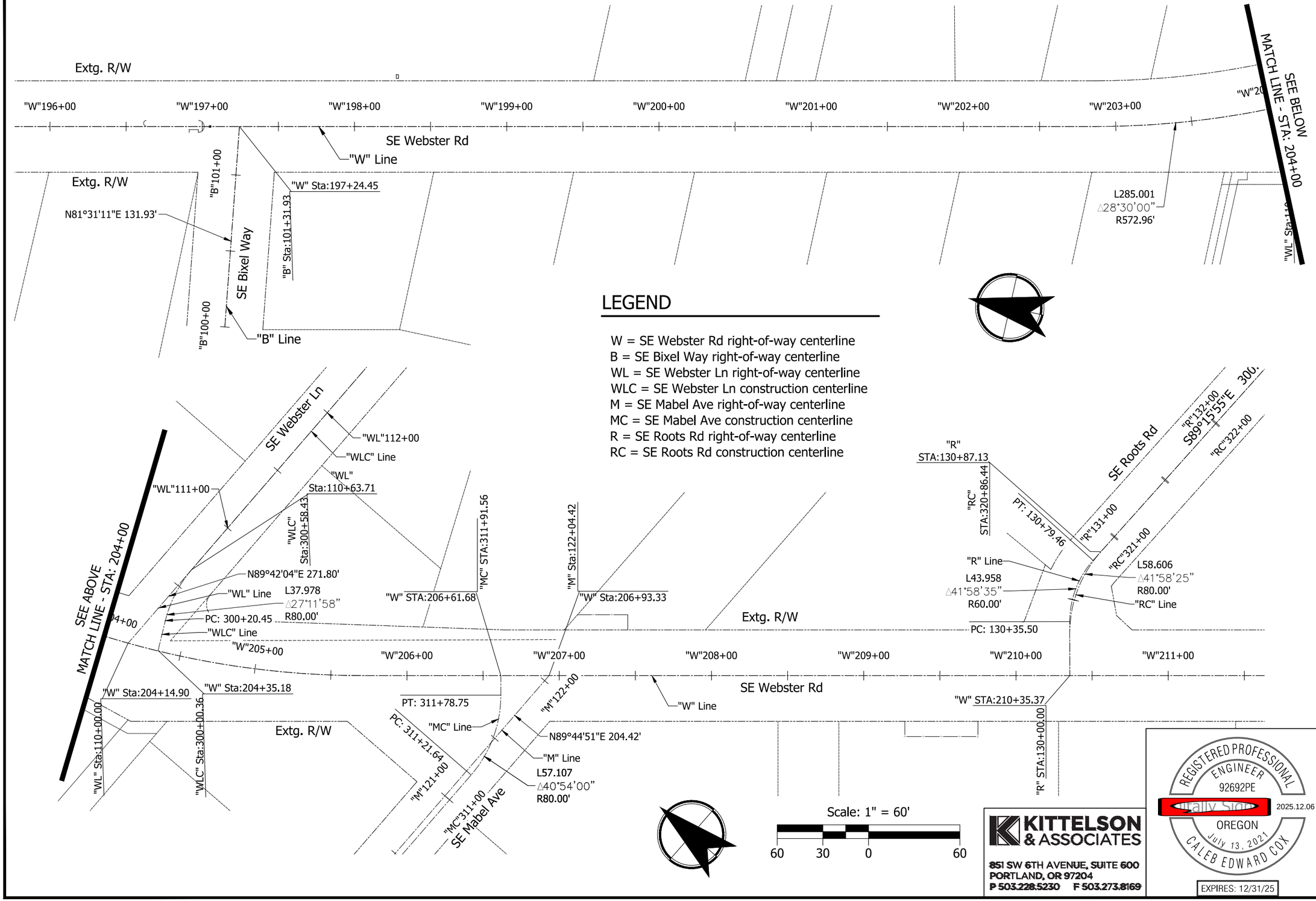
REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

Sheet No.
A03

03 of 73

Plot Stamp: 9/6/2024 9:40:15 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\A-COVER & INDEX-26766.dwg



SURVEY CONTROL DATA

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

HANGARTNER PROJECT MANAGER
JONATHAN HANGARTNER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

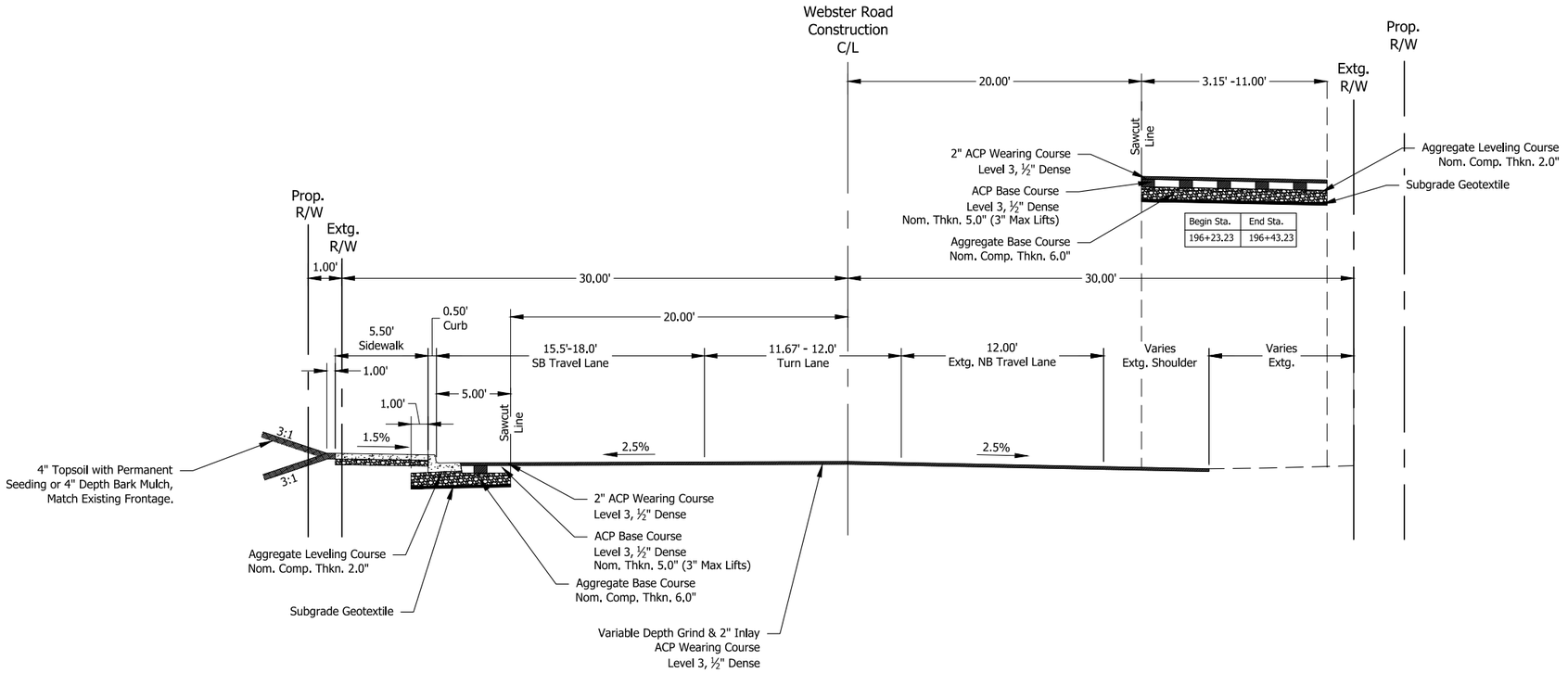
REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

REVISIONS

NO.	DATE:

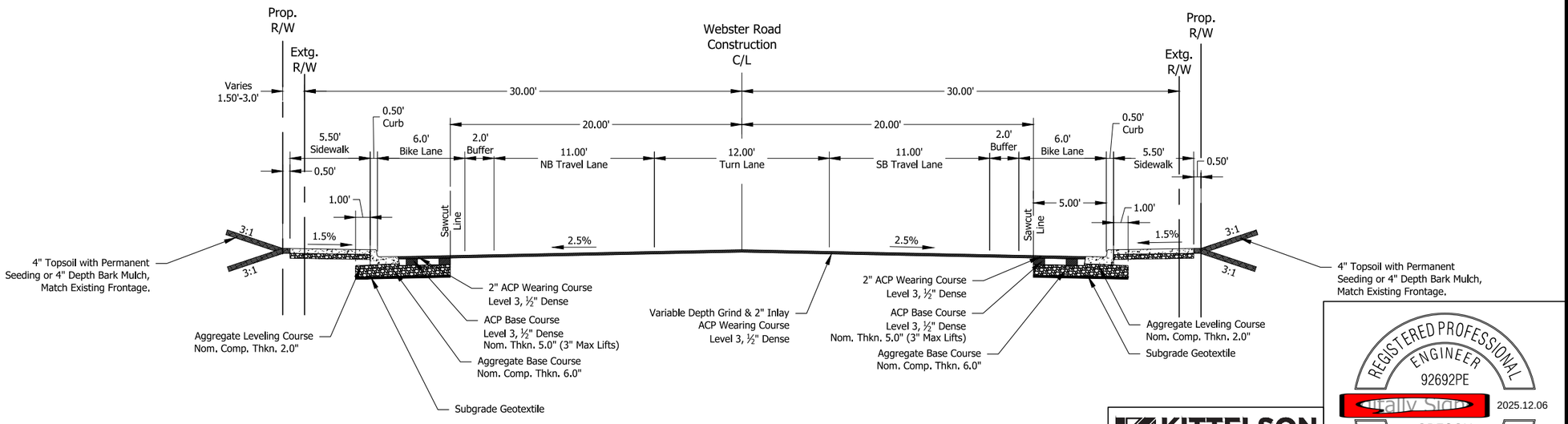
Sheet No.
A04
04 of 73

Plot Stamp: 9/6/2024 9:40:28 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\A-SURVEY CONTROL-26766.dwg



Webster Road

STA. 195+95.64 To STA. 196+43.23



Webster Road

STA. 196+43.23 To STA. 201+10.84

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

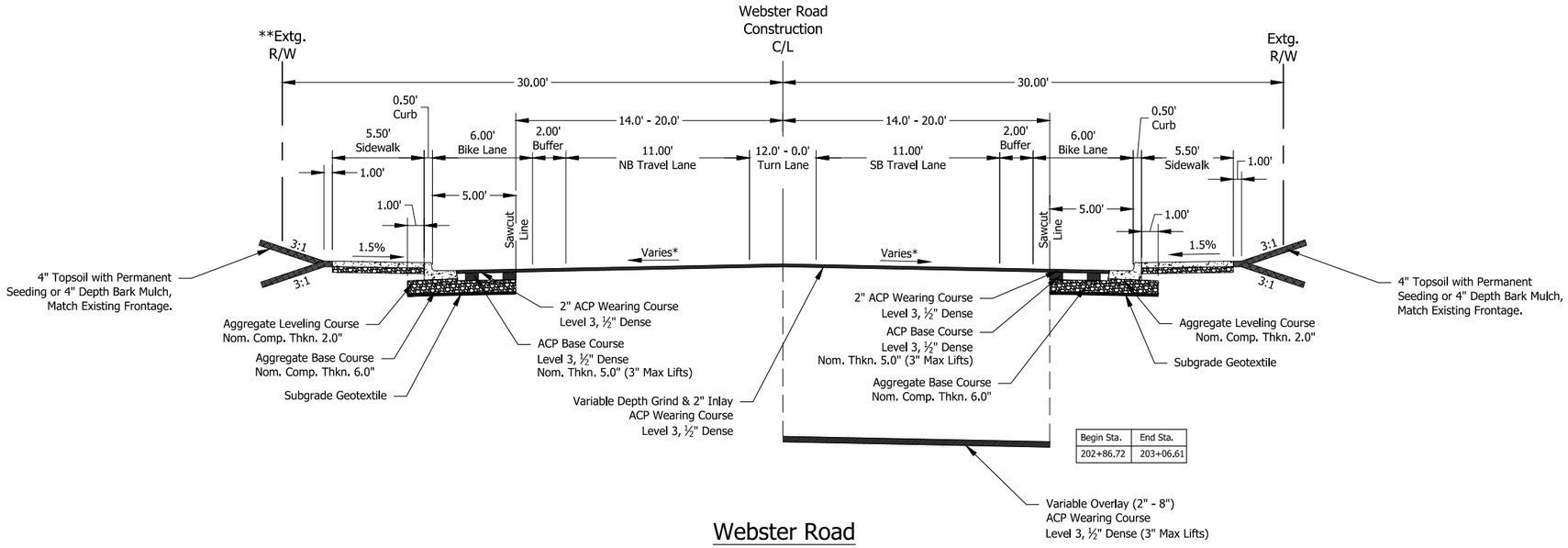
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BA01
05 of 73

Plot Stamp: 9/6/2024 9:40:40 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg

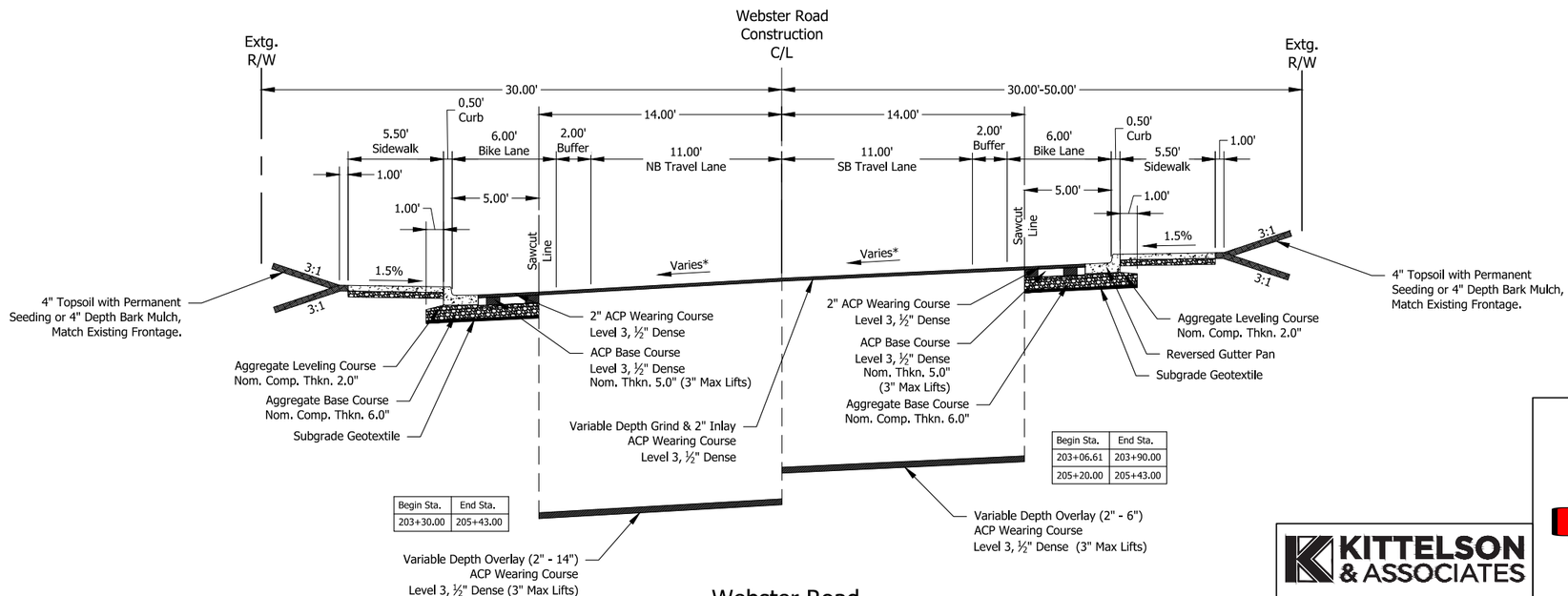


Webster Road

STA. 201+10.84 To STA. 203+06.61

*See General Construction Sht. Nos. C03 - C04 For Superelevation Details

**Proposed R/W varies and is 0.5 ft from new back of walk where needed. See C Series for Details.



Webster Road

STA. 203+06.61 To STA. 205+43.00

*See General Construction Sht. Nos. C03 - C04 For Superelevation Details

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

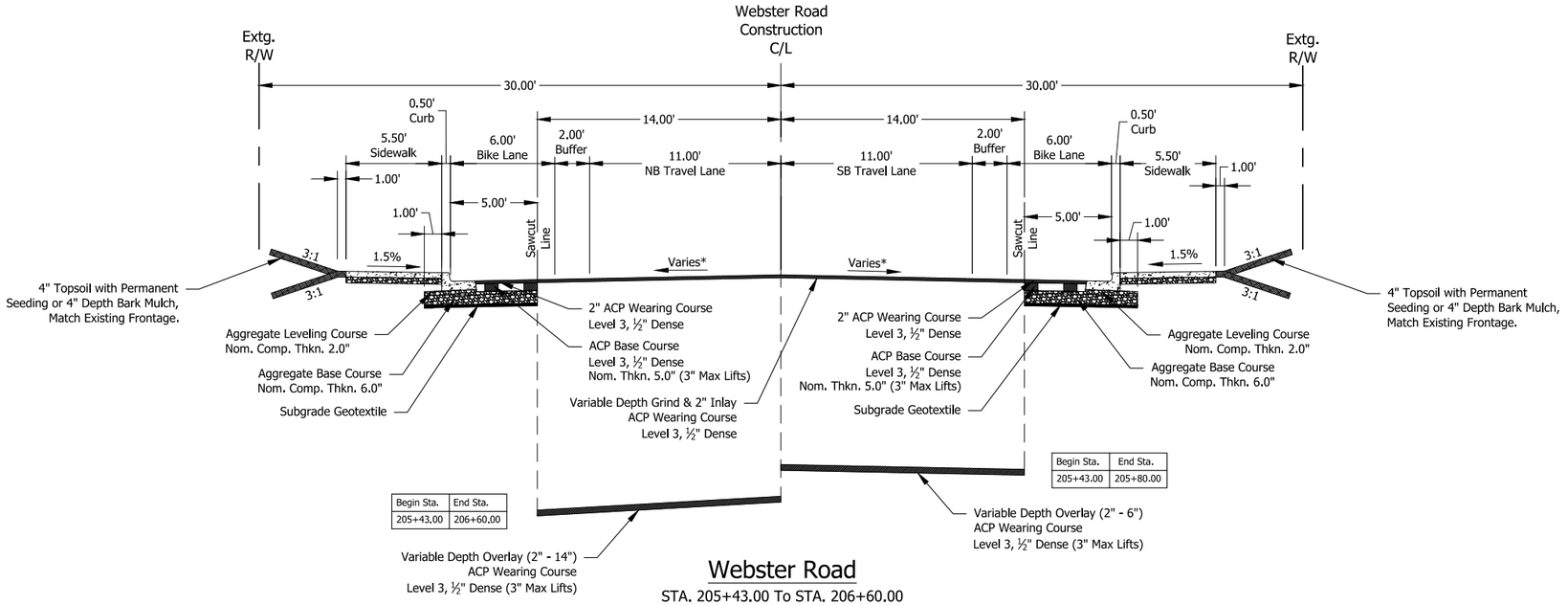
DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No. BA02

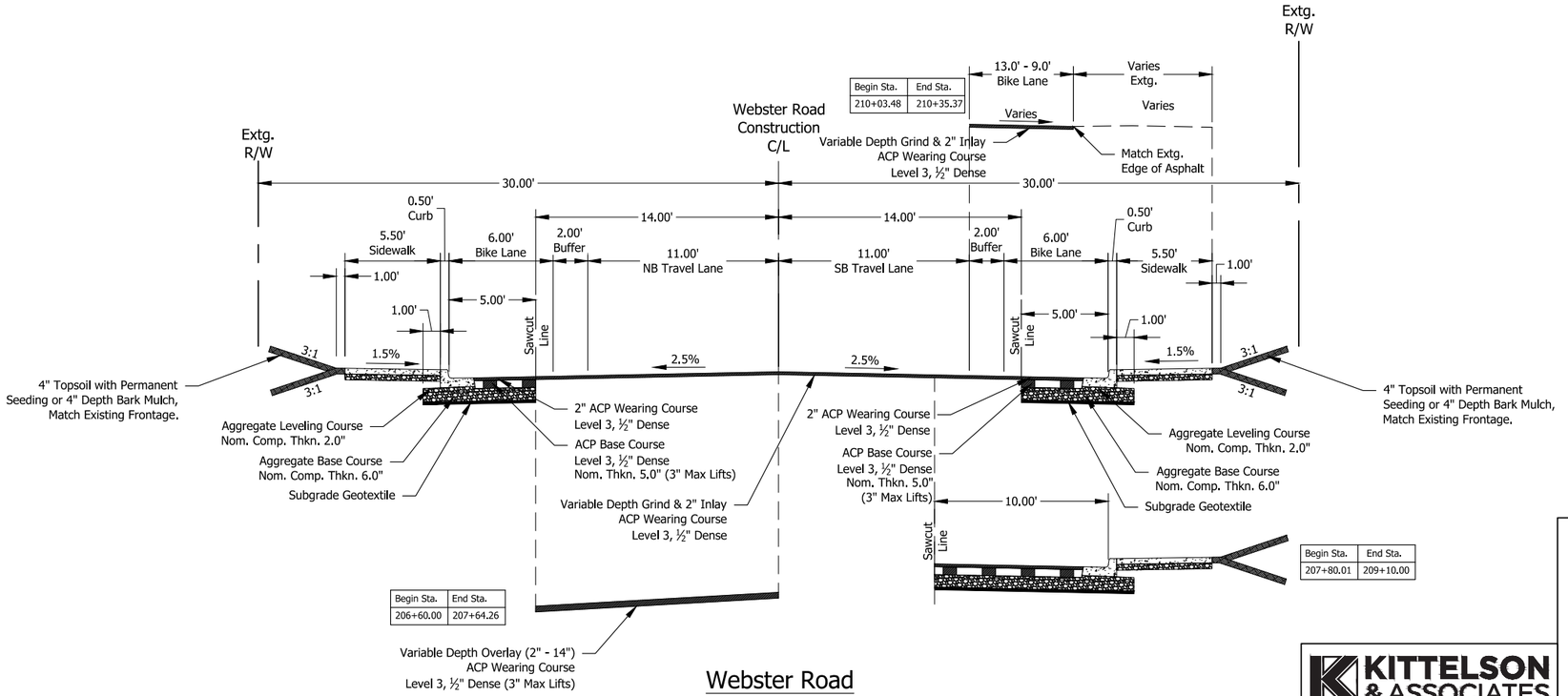
Plot Stamp: 9/6/2024 9:40:41 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



Webster Road

STA. 205+43.00 To STA. 206+60.00

*See General Construction Sht. Nos. C03 - C04 For Superelevation Details



Webster Road

STA. 206+60.00 To STA. 210+35.37

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

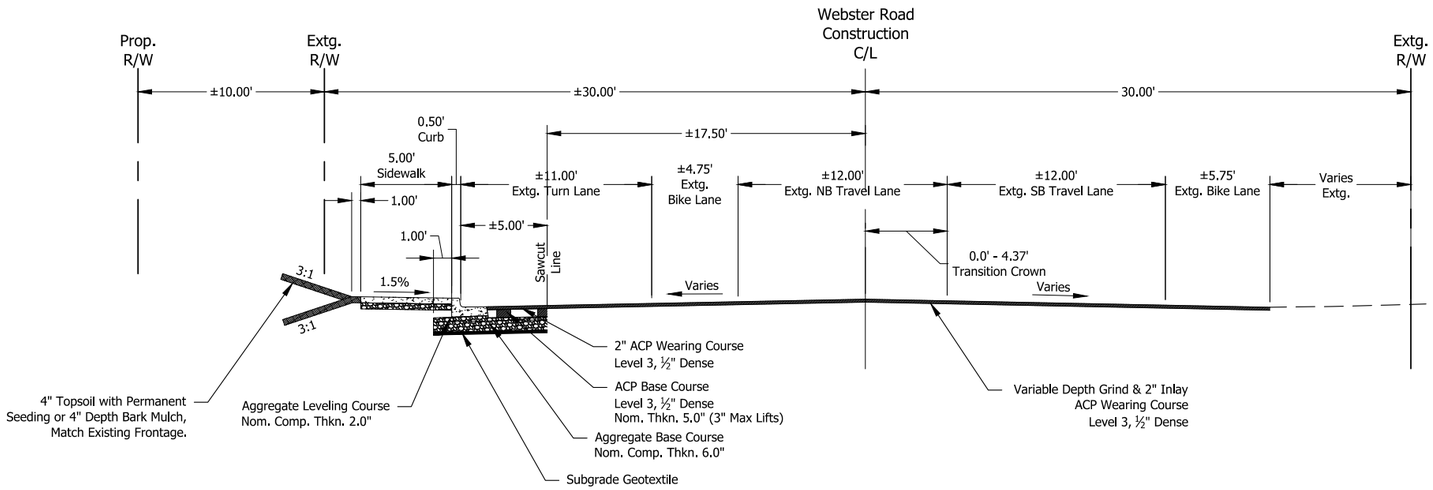
DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BA03

Plot Stamp: 9/6/2024 9:40:43 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



Webster Road

STA. 210+35.37 To STA. 211+02.13

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No. BA04

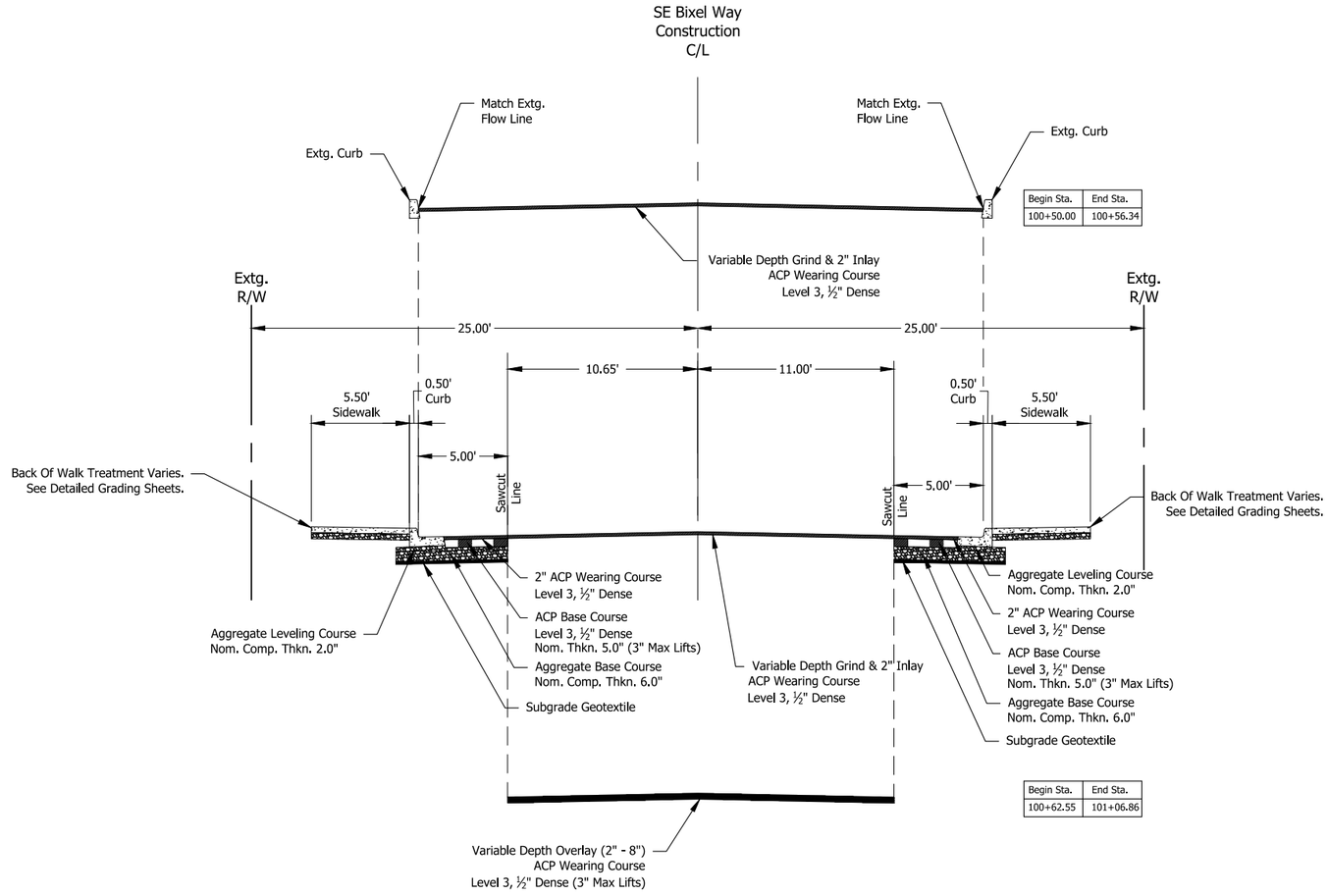
08 of 73

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

Plot Stamp: 9/6/2024 9:40:44 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



SE Bixel Way

STA. 100+50.00 To STA. 101+06.86

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

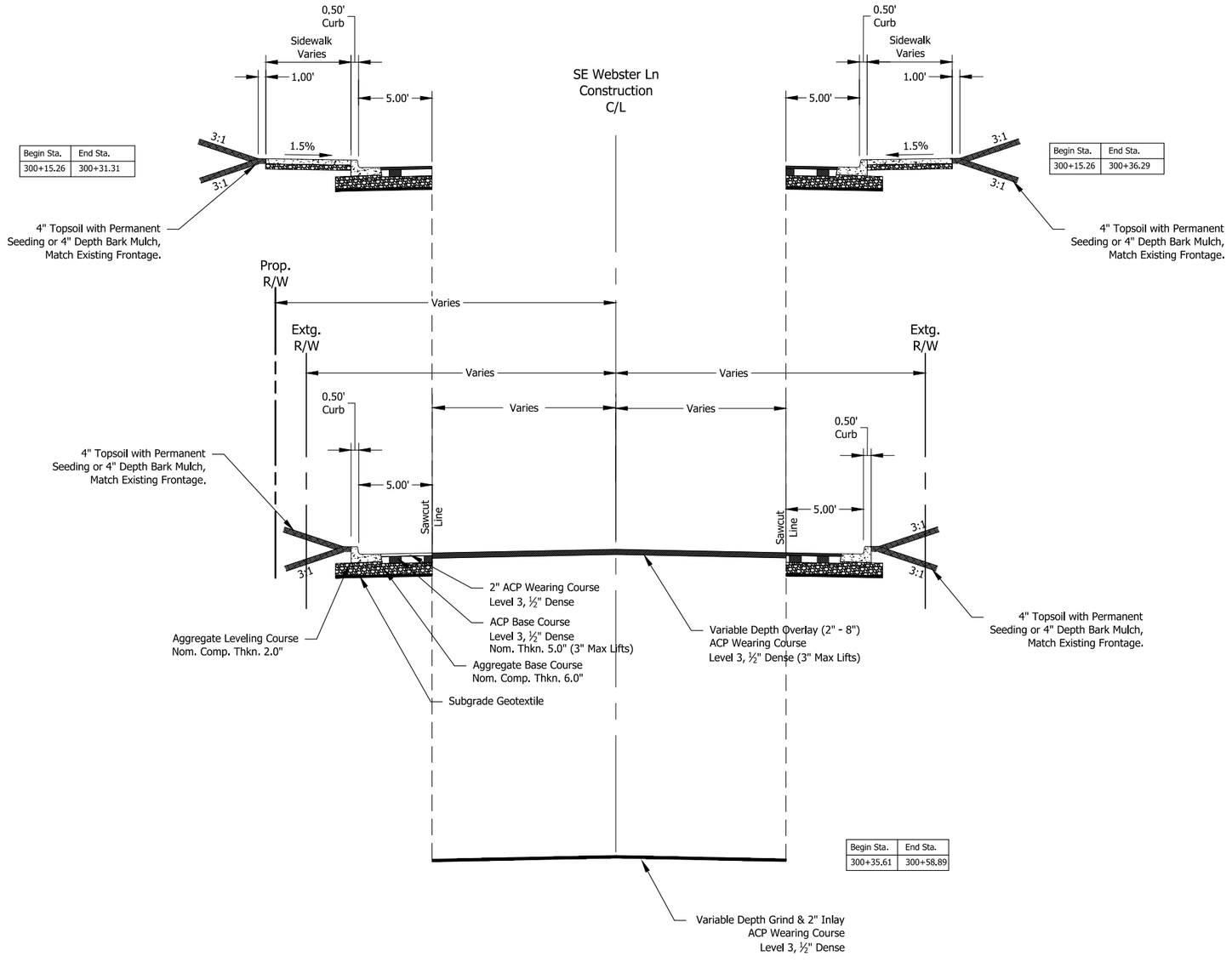
NO.	DATE:

Sheet No.
BA05
09 of 73

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

Plot Stamp: 9/6/2024 9:40:46 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



SE Webster Ln

STA. 300+00 To STA. 300+58.59

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

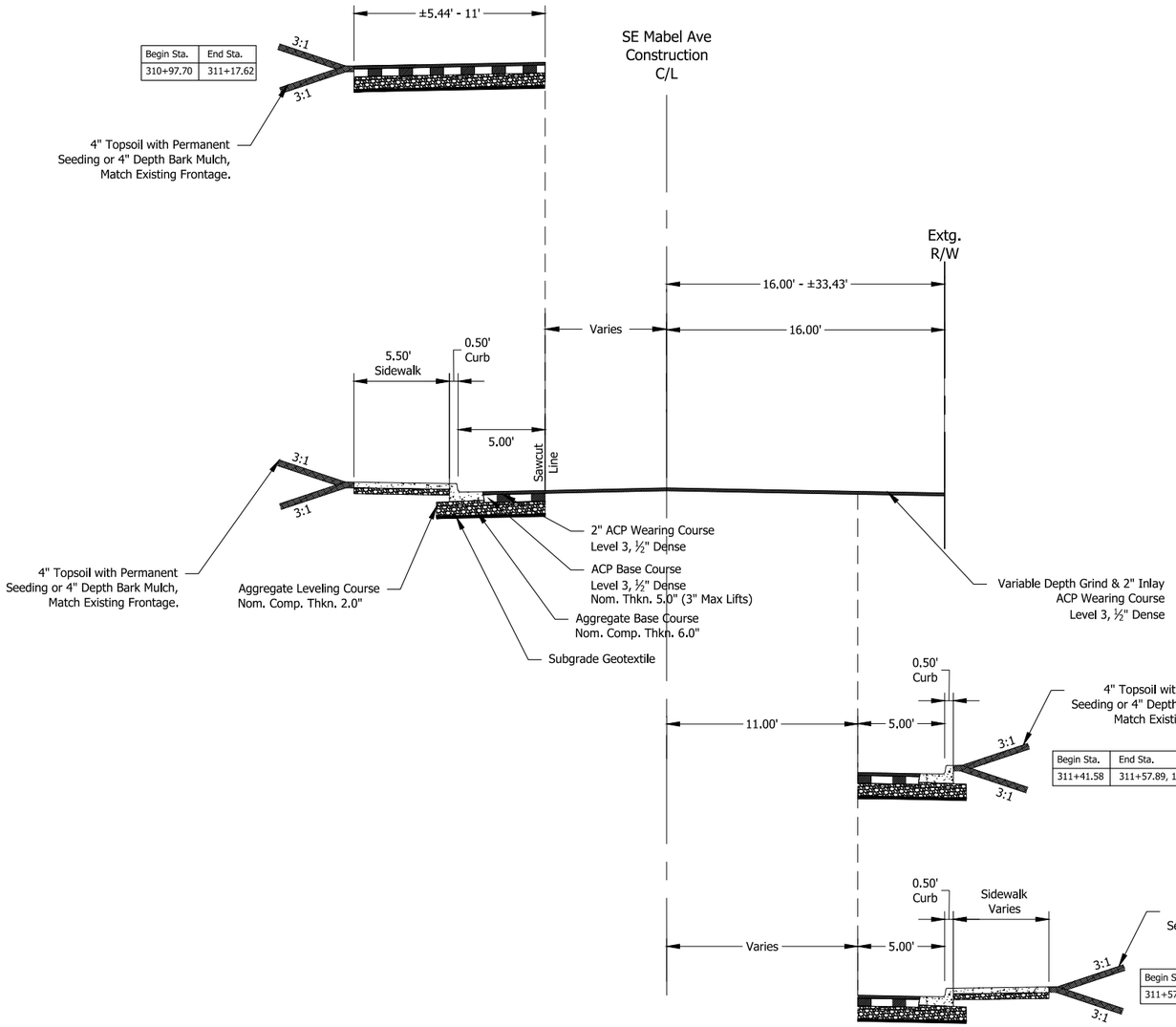
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BA06
10 of 73

Plot Stamp: 9/6/2024 9:40:47 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



SE Mabel Ave

STA. 310+97.70 To STA. 311+77.29

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER: JONATHAN HANGARTNER

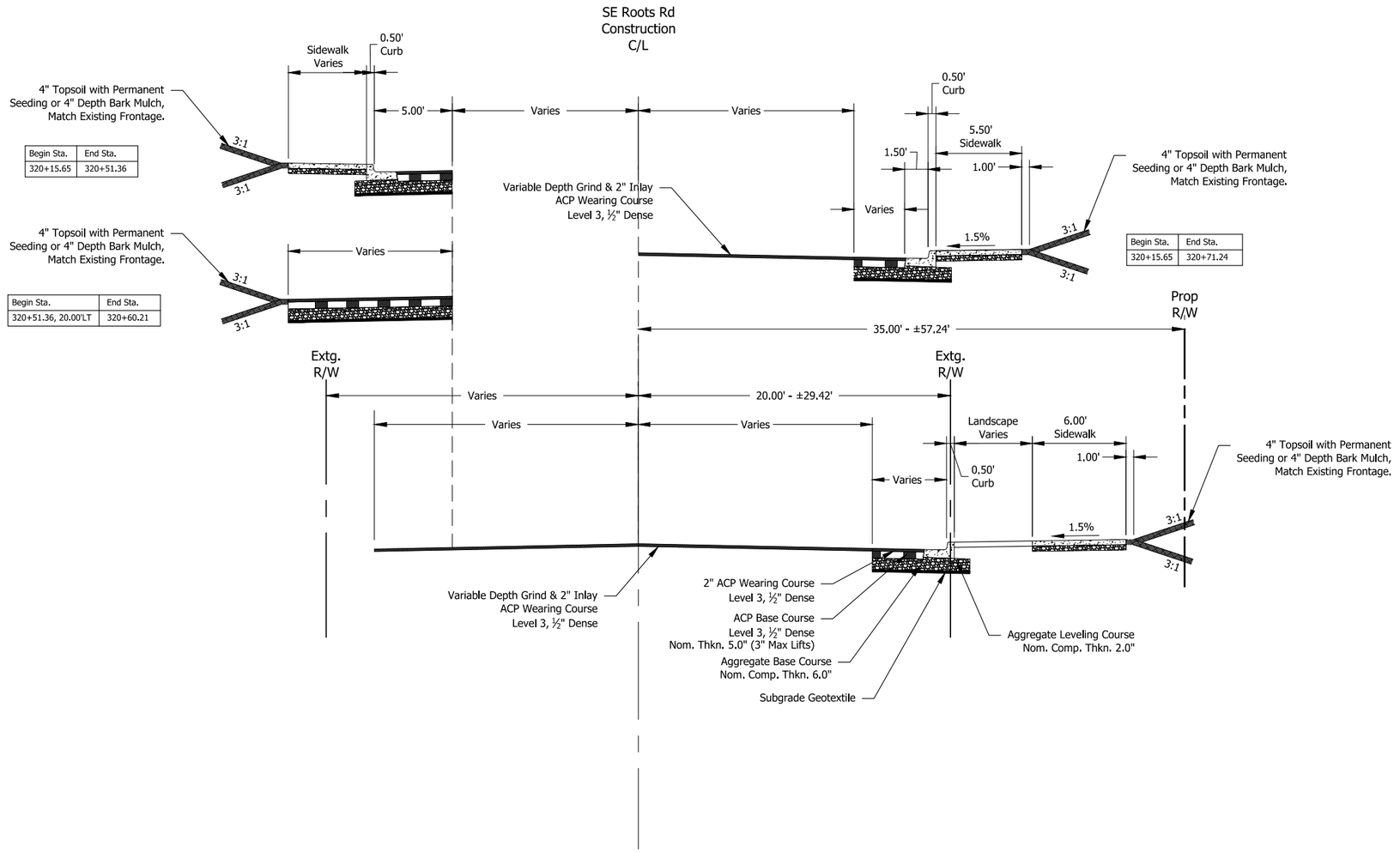
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BA07

Plot Stamp: 9/6/2024 9:40:48 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BA-TYPICAL SECTIONS-26766.dwg



SE Roots Rd

STA. 320+15.65 To STA. 321+15.50, 15.00'RT

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TYPICAL SECTIONS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER
JONATHAN HANGARTNER

CLACKAMAS COUNTY

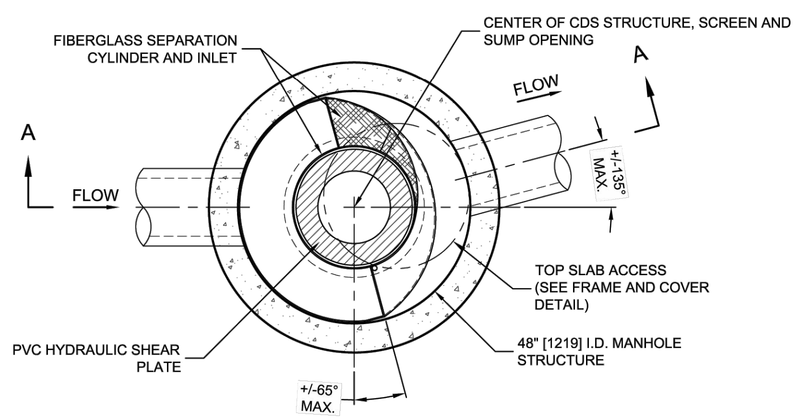
DESIGNED BY:	DRAFTED BY:	CHECKED BY:
C. COX	S. SEMENSKY	C. JESIC

REVISIONS

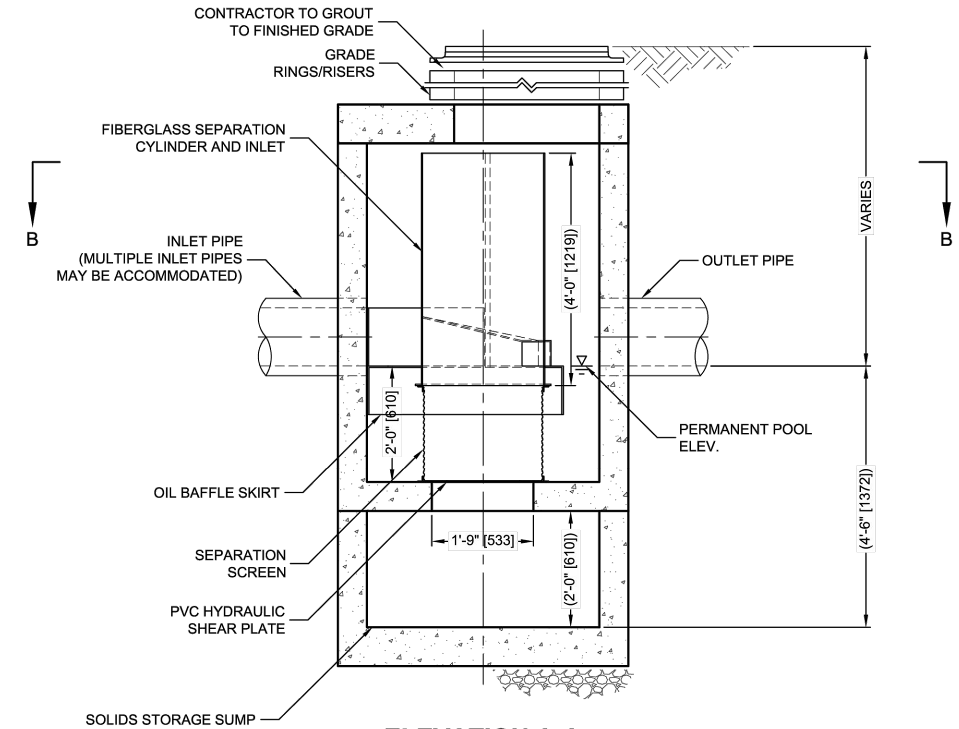
NO.	DATE:

Sheet No.
BA08

12 of 73



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

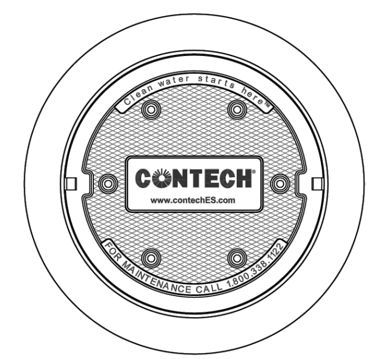
C:\USERS\SCHLACHTERH\DESKTOP\CDS DETAILS 180 MICRON SIZING\ACAD\CDS2015-4-C-DTL.DWG 5/19/2014 5:16 PM

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION

~~GRATED INLET ONLY (NO INLET PIPE)~~
~~GRATED INLET WITH INLET PIPE OR PIPES~~
~~CURB INLET ONLY (NO INLET PIPE)~~
~~CURB INLET WITH INLET PIPE OR PIPES~~
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
~~SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS~~



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SDMH-02
WATER QUALITY FLOW RATE (CFS ~~OR L/s~~)	0.47
PEAK FLOW RATE (CFS ~~OR L/s~~)	2.15
RETURN PERIOD OF PEAK FLOW (YRS)	25
SCREEN APERTURE (2400 ~~OR 4700~~)	2400

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	113.17'	HDPE	12"
INLET PIPE 2	-	-	-
OUTLET PIPE	113.17'	HDPE	12"

RIM ELEVATION	117.47'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* TO BE PROVIDED BY MANUFACTURER

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS*
STANDARD DETAIL

*OR EQUAL

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

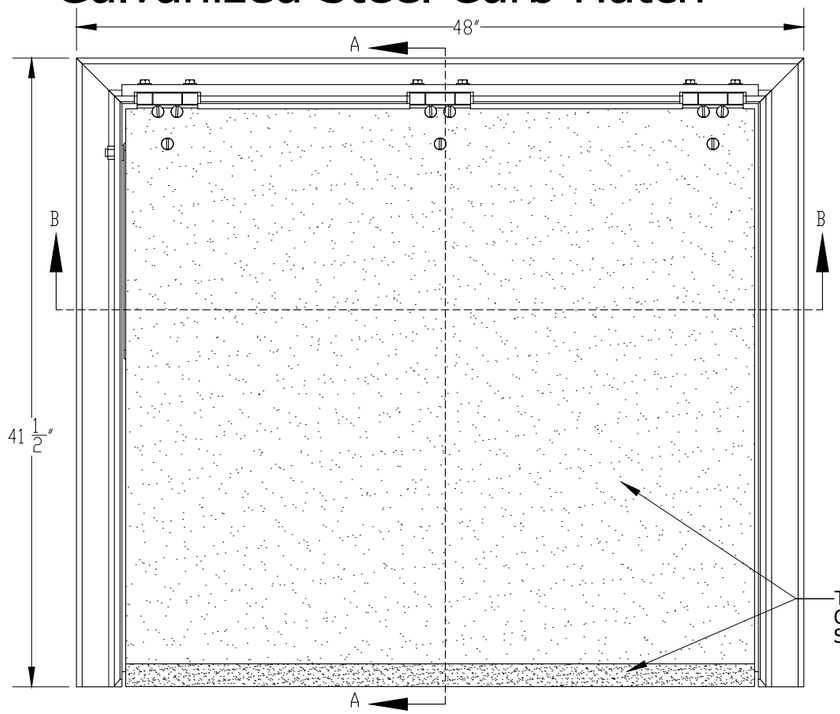
REVISIONS

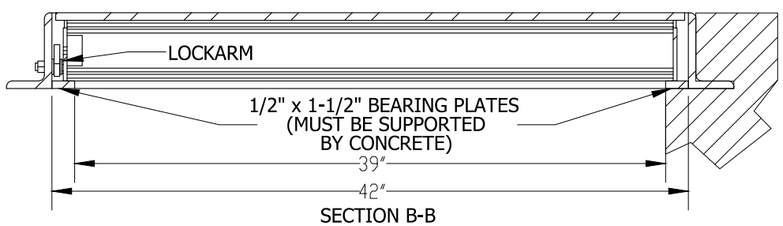
NO. DATE:

Sheet No.
BB01

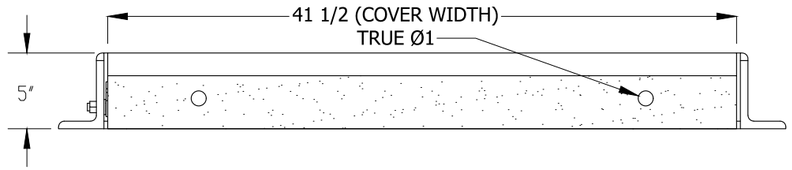
Plot Stamp: 9/6/2024 9:41:04 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BB-DETAILS-26766.dwg

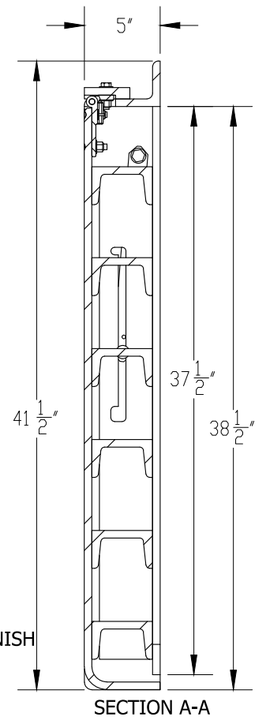
Galvanized Steel Curb Hatch





SECTION B-B





SECTION A-A

Product Number
H38395001

Design Features
-Materials
Steel-SEE NOTES
-Design Load
H20
-Open Area
N/A
-Coating
SSG
-√ Designates Machined Surface

Reference Material
-NPR19-003568
-PRN: 201910-12980
-Estimated Weight: 771 LBS.
-Country of Origin: USA
-Revision Level: +

NOTES:

1.) GALVANIZED STEEL CURB HATCH, AS MANUFACTURED BY EJ OR EQUAL.

2.) BEARING BAR MATERIAL SHALL BE HOT-ROLLED STEEL CONFORMING TO ASTM A572, GR.50. ALL OTHER MATERIAL SHALL BE HOT-ROLLED STEEL CONFORMING TO ASTM A36.

3.) UNIT DESIGNED FOR H20 LOAD (16, 000 LBS ON 10" x 20" FOOTPRINT), FOR NON-DELIBERATE TRAFFIC.

4.) COVER SHALL BE SUPPLIED WITH A STAINLESS STEEL LOCKARM, TO HOLD COVER OPEN IN 90 DEGREE POSITION.

5.) TOP OF COVER SHALL BE FINISHED WITH SAFETY SURE-GRIP FINISH, FOR SLIP-RESISTANCE.

Scale: 1" = 10'

10 5 0 10

A GALVANIZED STEEL CURB HATCH DETAIL

SCALE: NTS

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

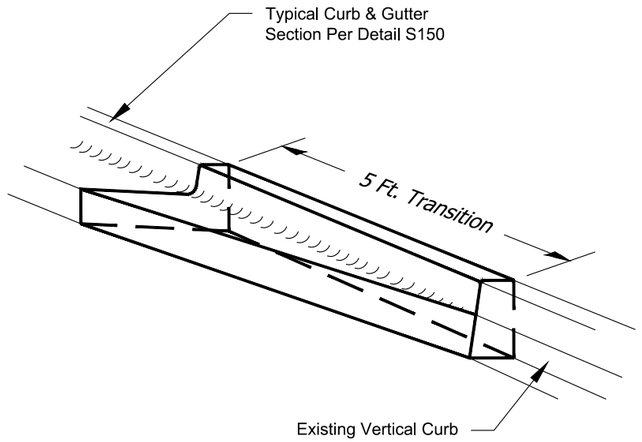
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

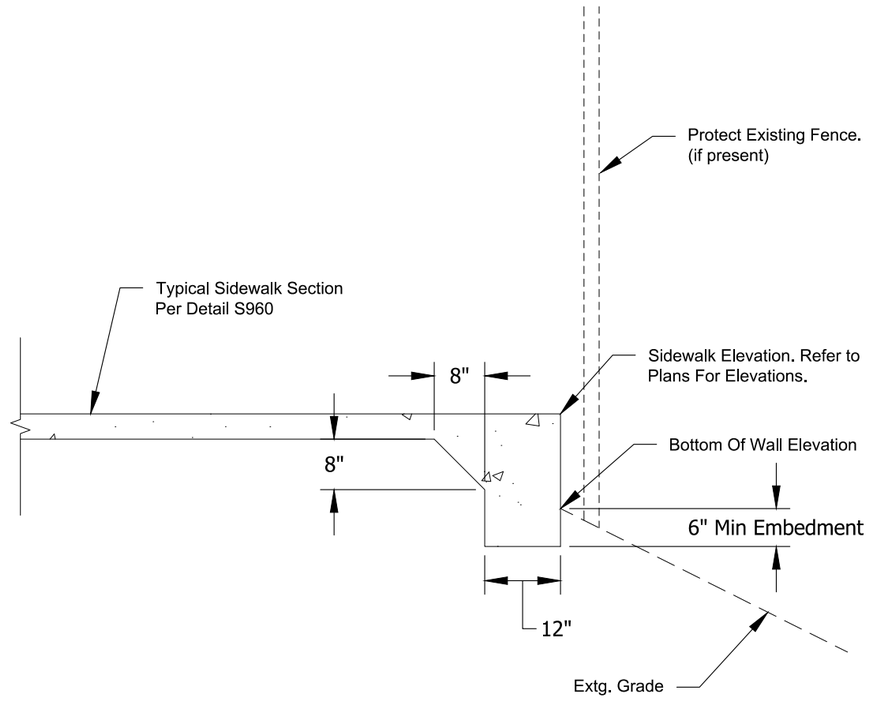
NO.	DATE:

Sheet No.
BB02



GUTTER TRANSITION DETAIL

Scale: NTS



NOTES

1. Refer To Clackamas County Standard Detail S960 For All Construction Notes.
2. Exposed Thickened Edge To Be Smooth Finish.
3. Maximum Allowed Drop-off Without Railing To Be 30" Per Oregon Structural Speciality Code Section 1013.1.

SIDEWALK THICKENED EDGE DETAIL

Scale: NTS

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

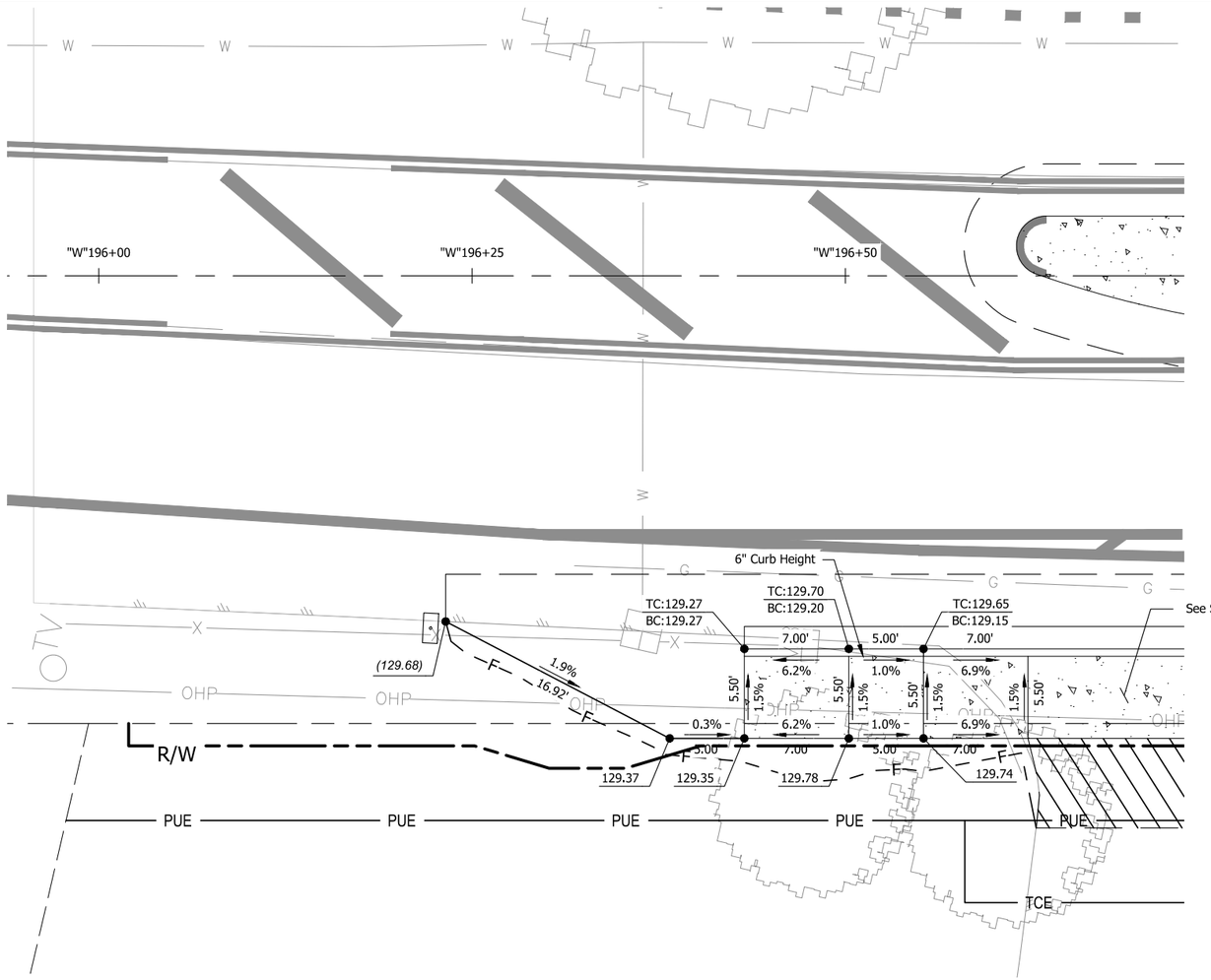
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BB03

Plot Stamp: 9/6/2024 9:41:05 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BB-DETAILS-26766.dwg



GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

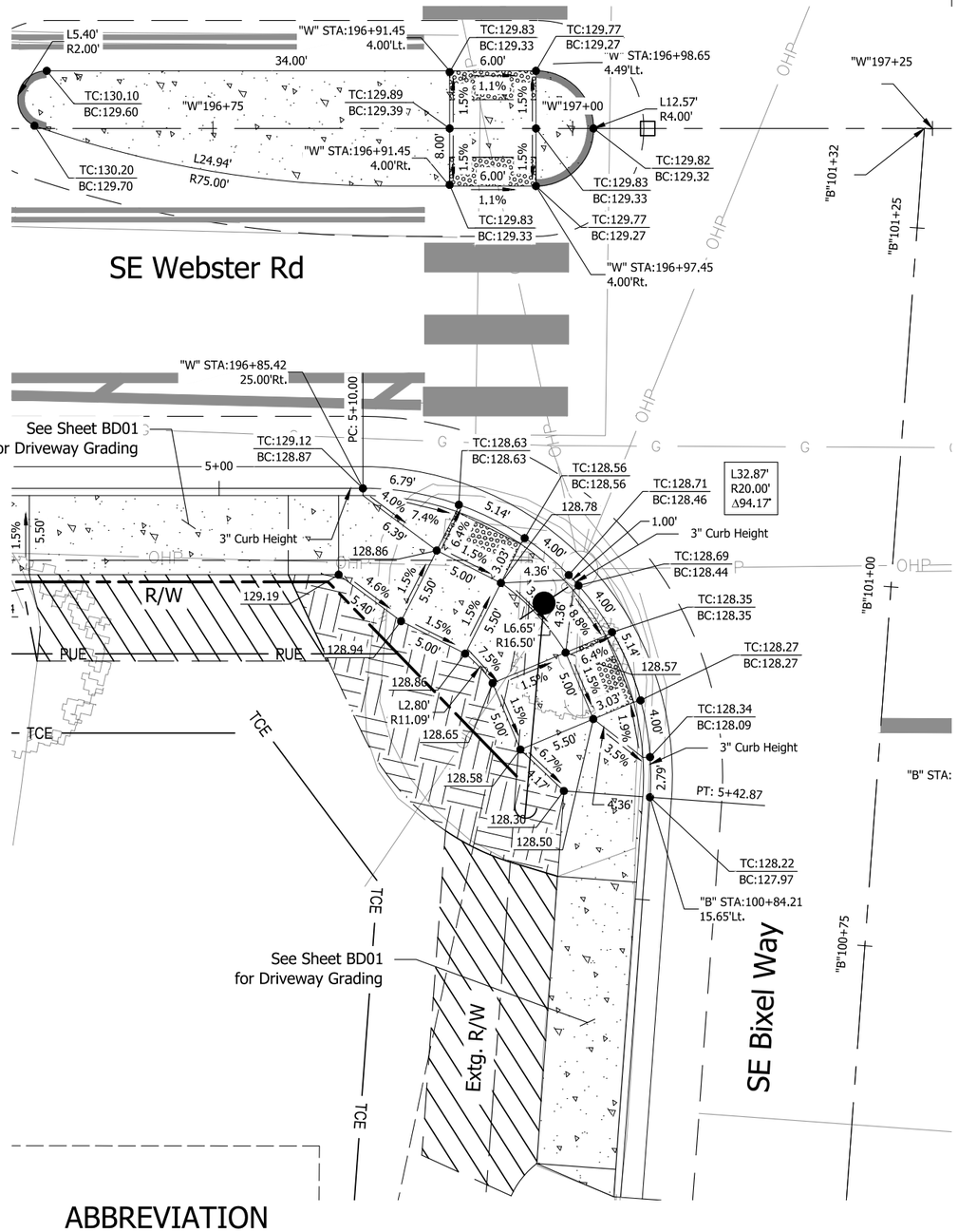
DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

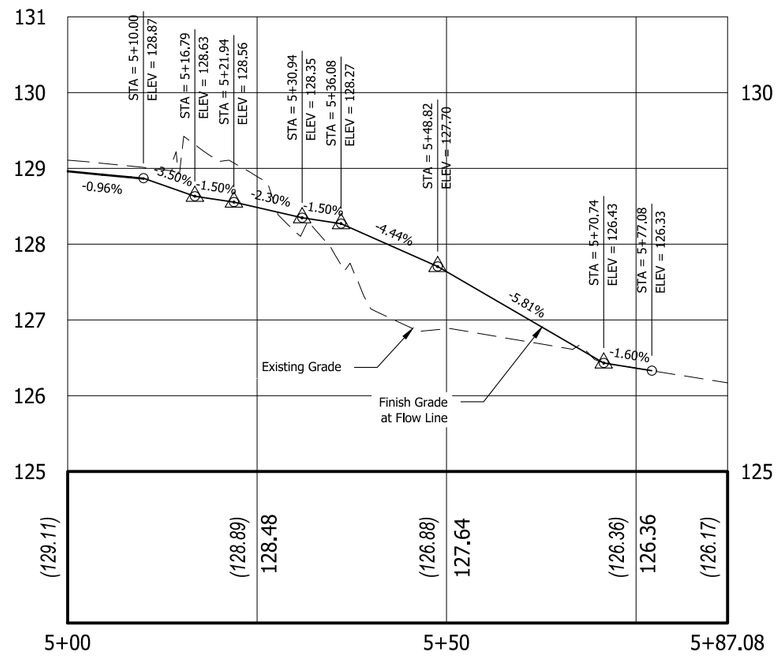
Sheet No.
BC01

Plot Stamp: 9/6/2024 9:41:24 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade



="W" Sta. 196+75.42, 25.00' RT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

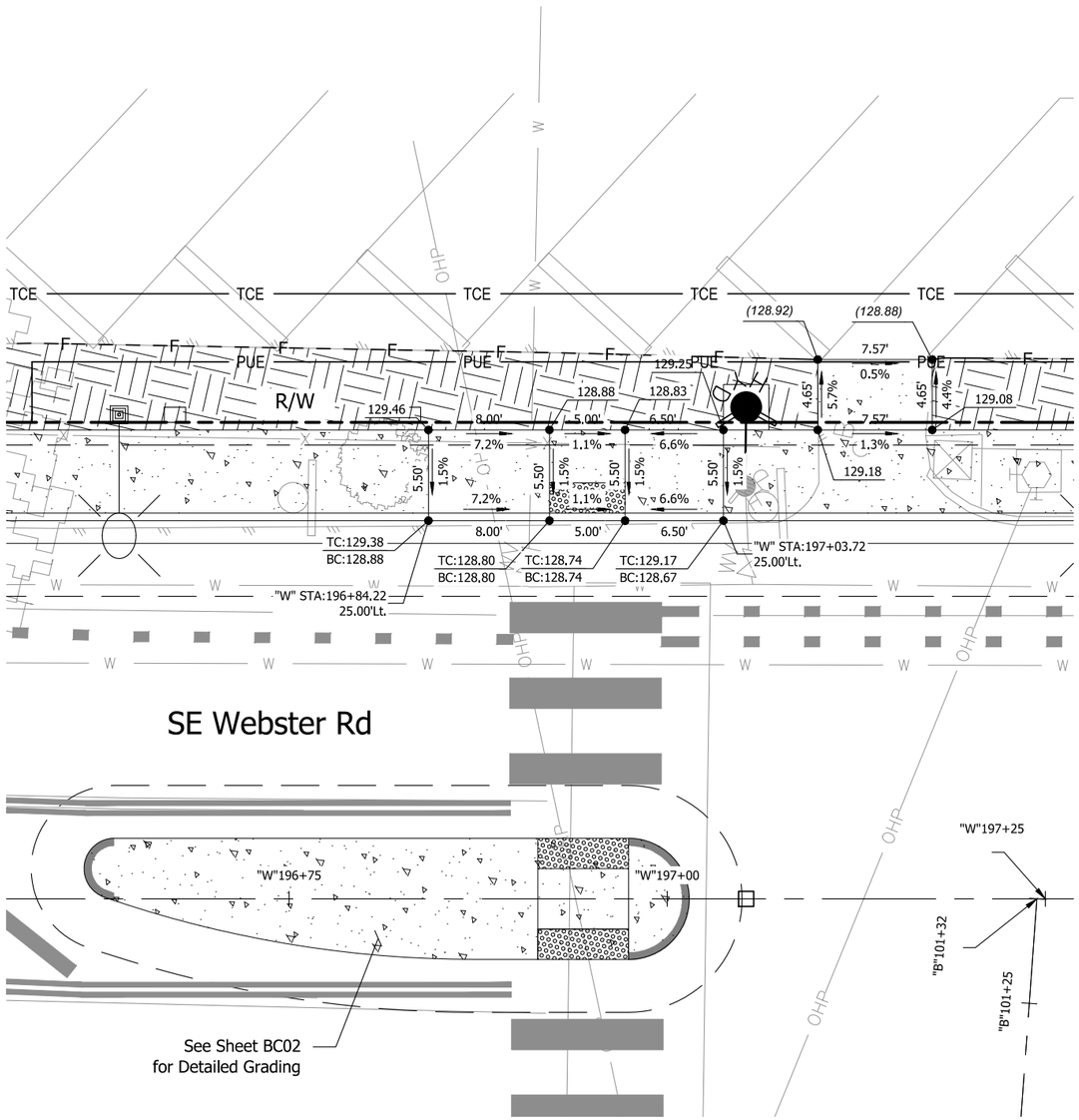
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC02
17 of 73

Plot Stamp: 9/6/2024 9:41:27 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

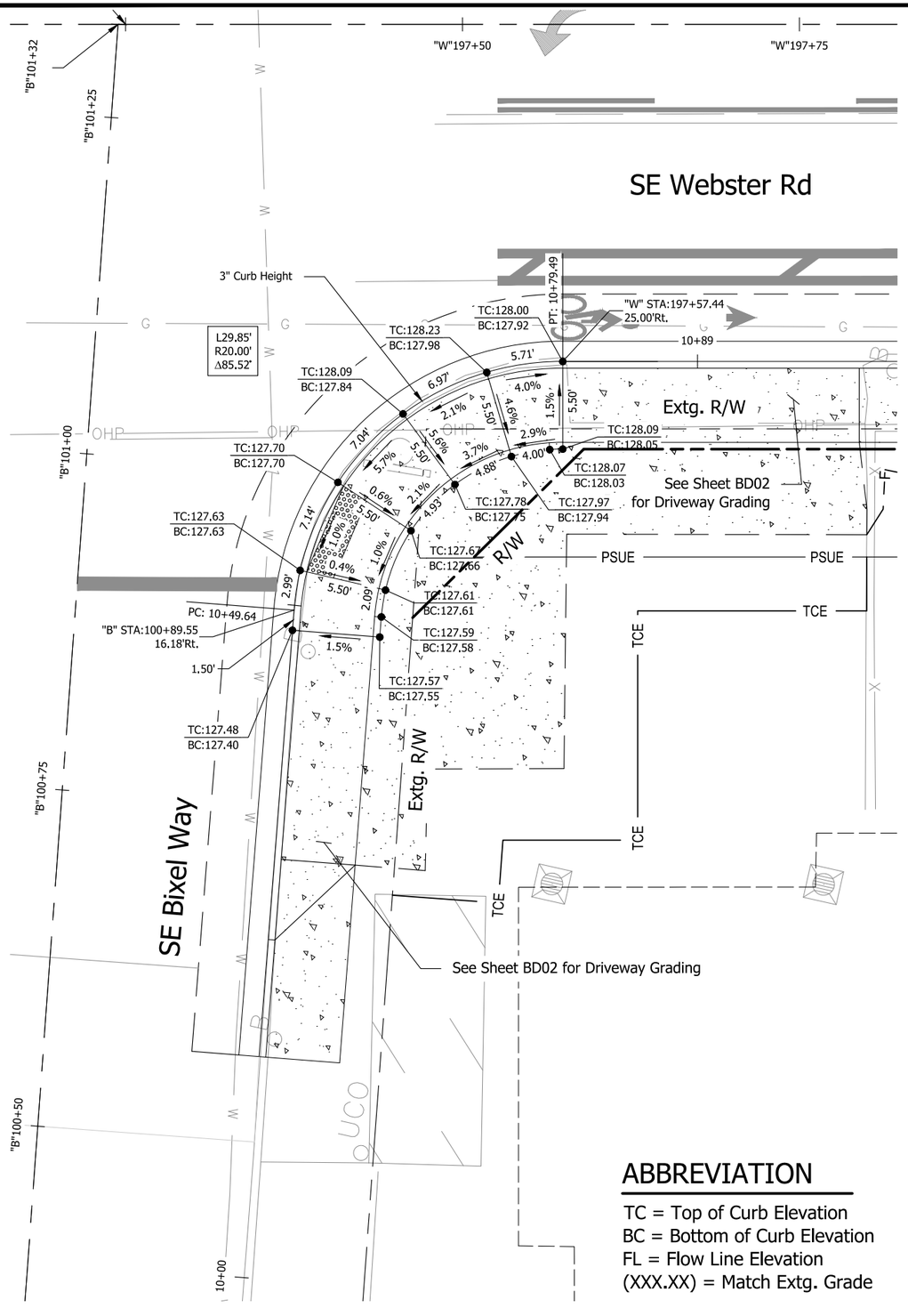
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

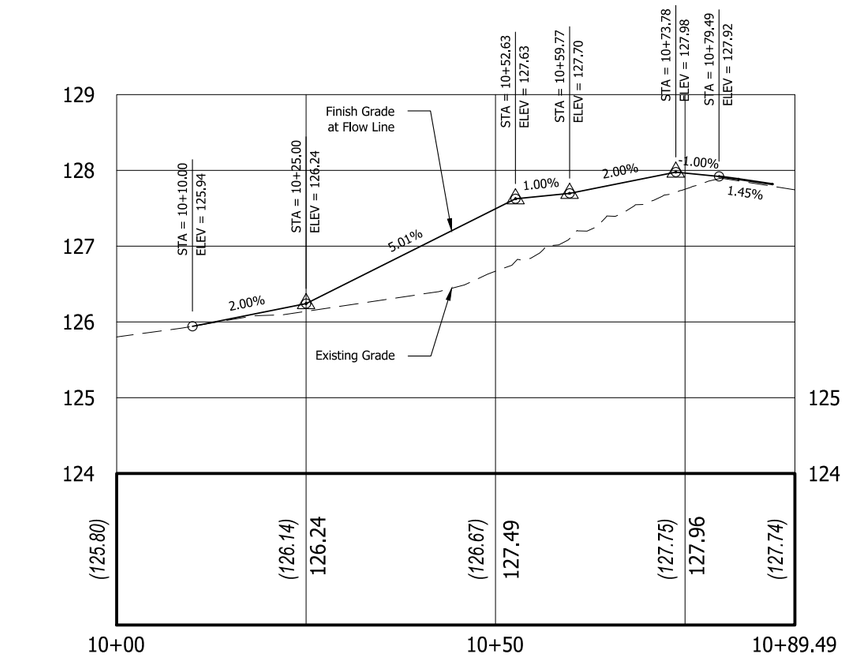
REVISIONS

NO.	DATE:

Sheet No.
BC03

Plot Stamp: 9/6/2024 9:41:30 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg





="B" Sta. 100+39.91, 6.09' RT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

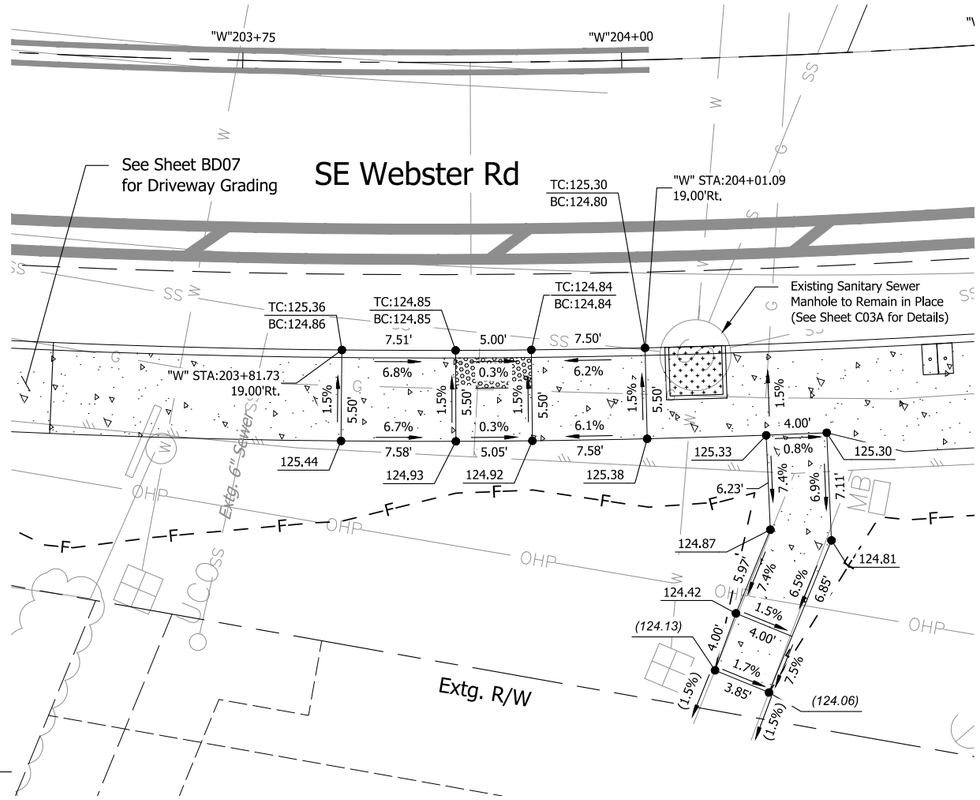
DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC04

Plot Stamp: 9/6/2024 9:41:33 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

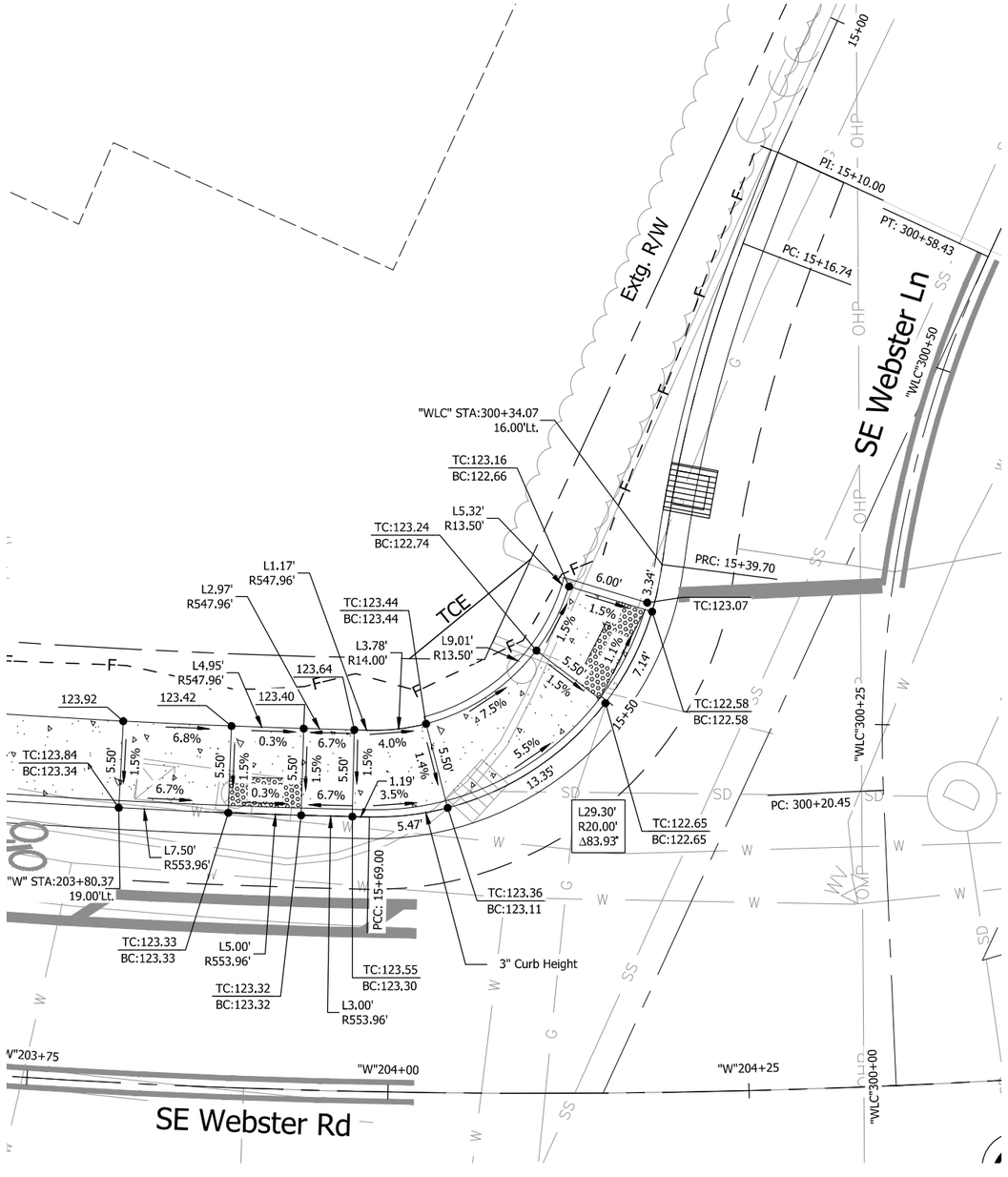
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

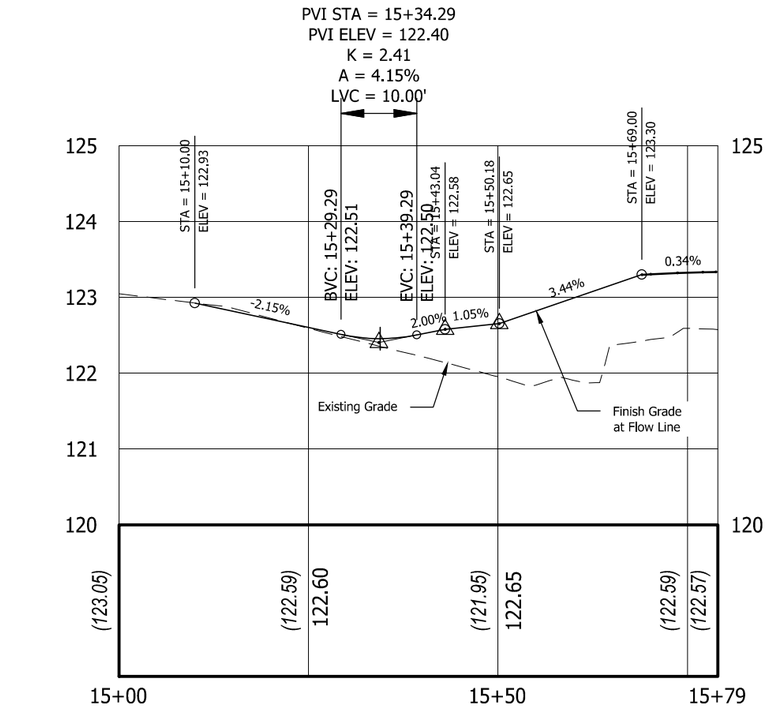
Sheet No.
BC05
20 of 73

Plot Stamp: 9/6/2024 9:41:36 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade



="WL" Sta. 300+68.89, 16.30' LT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

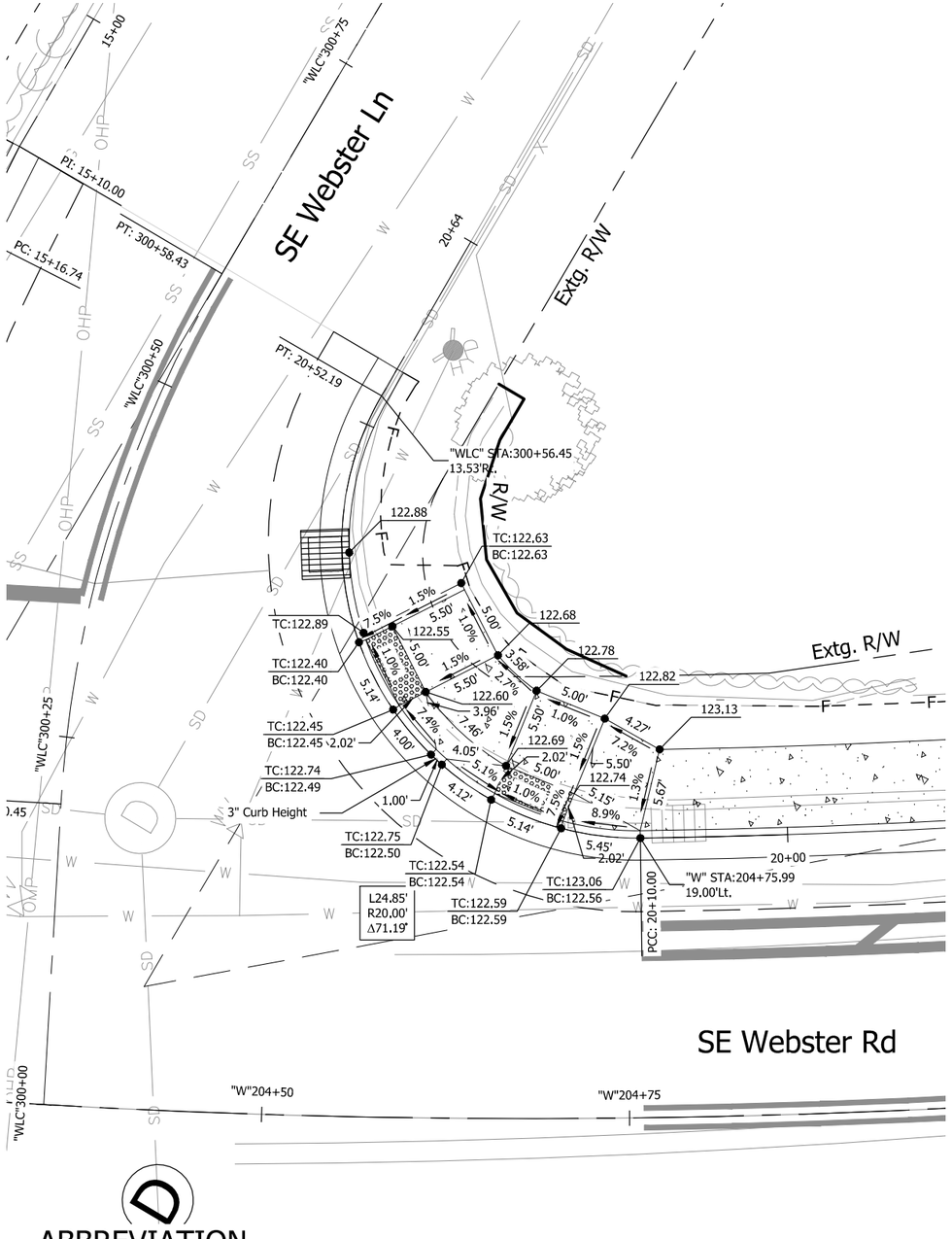
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

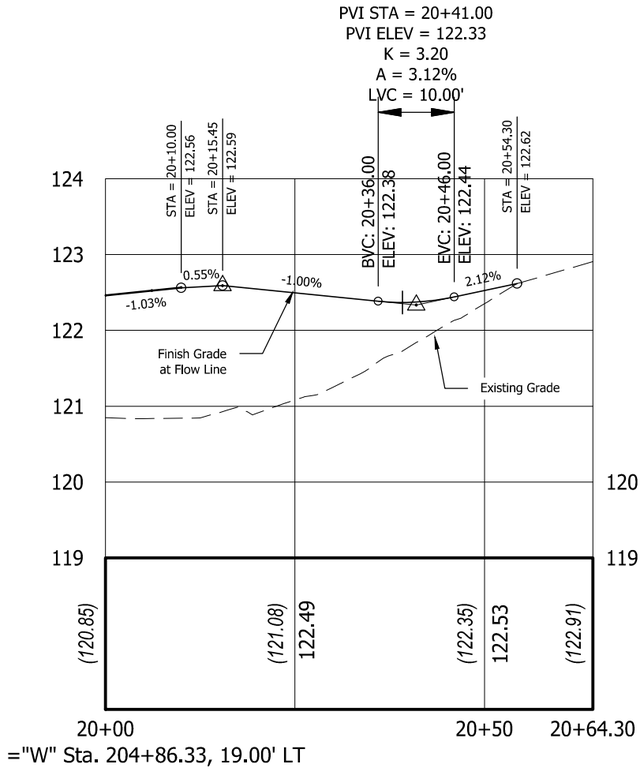
Sheet No.
BC06
21 of 73

Plot Stamp: 9/6/2024 9:46:40 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade



="W" Sta. 204+86.33, 19.00' LT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER: JONATHAN HANGARTNER

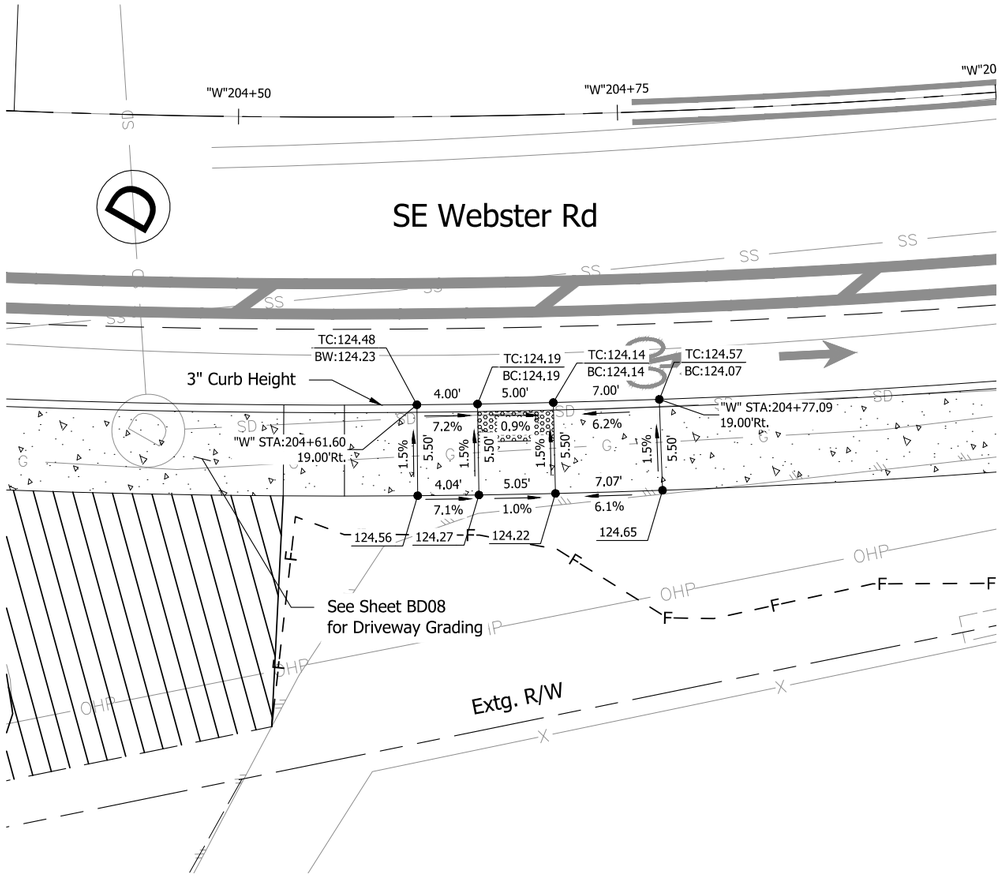
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC07

Plot Stamp: 9/6/2024 9:43:58 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY
JONATHAN HANGARTNER PROJECT MANAGER

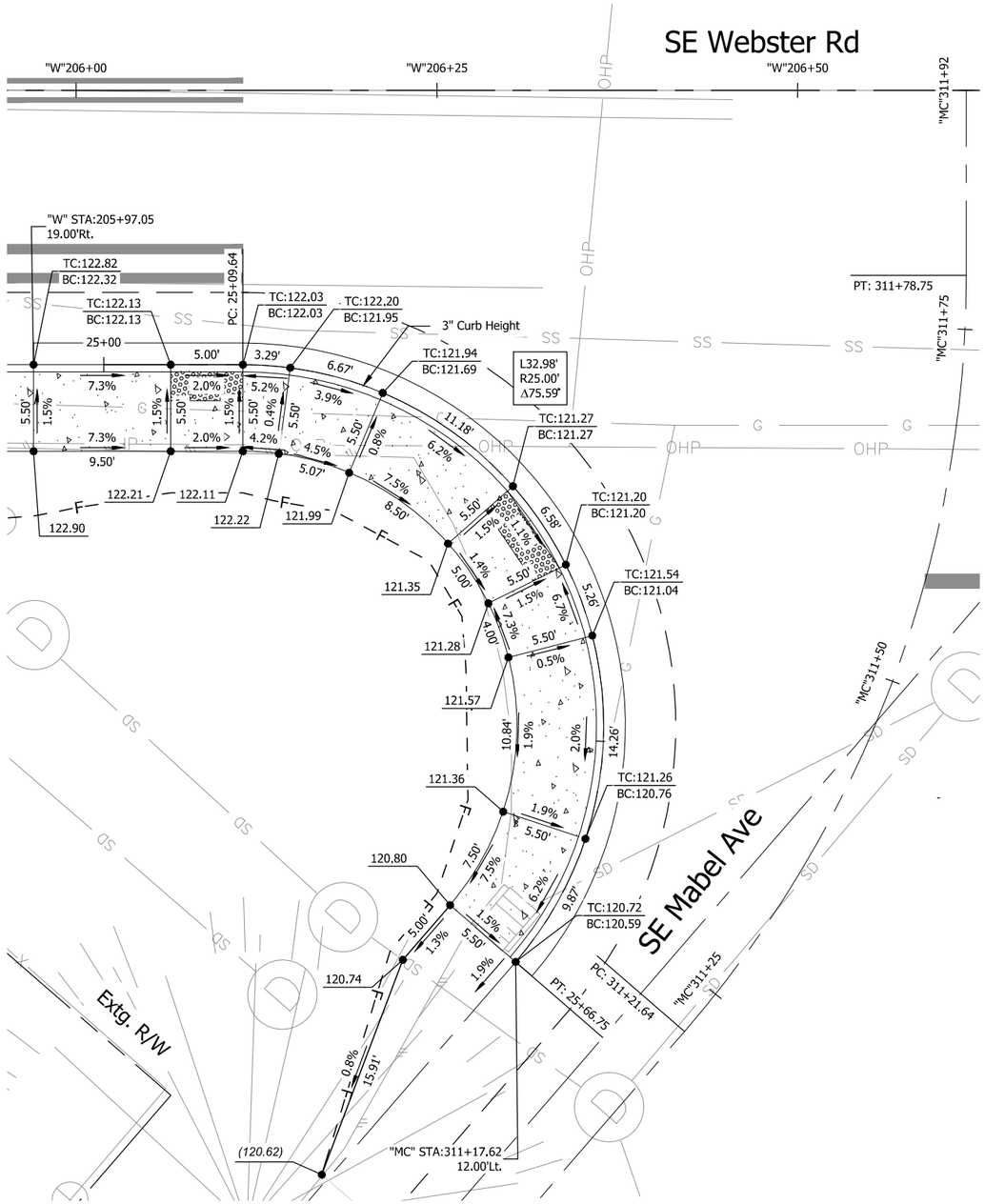
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

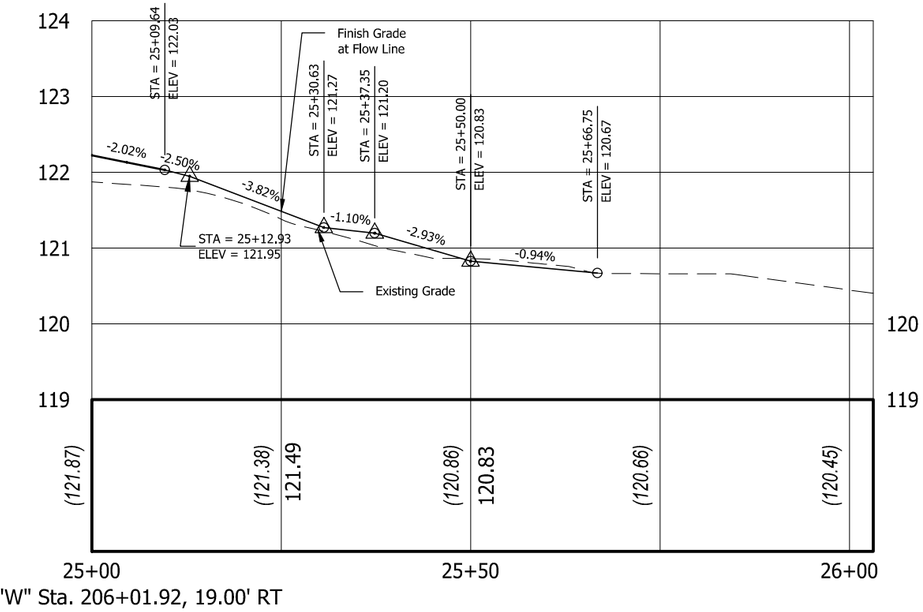
REVISIONS

NO.	DATE:

Sheet No.
BC08

Plot Stamp: 9/6/2024 9:41:45 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg





="W" Sta. 206+01.92, 19.00' RT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER: JONATHAN HANGARTNER

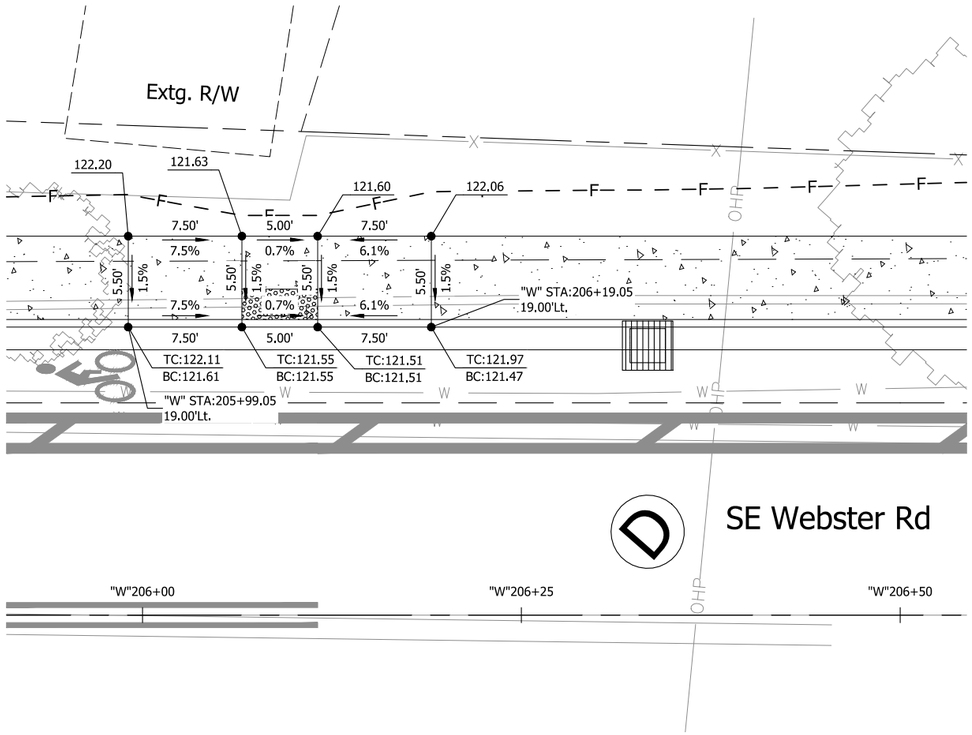
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC09

Plot Stamp: 9/6/2024 9:40:07 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

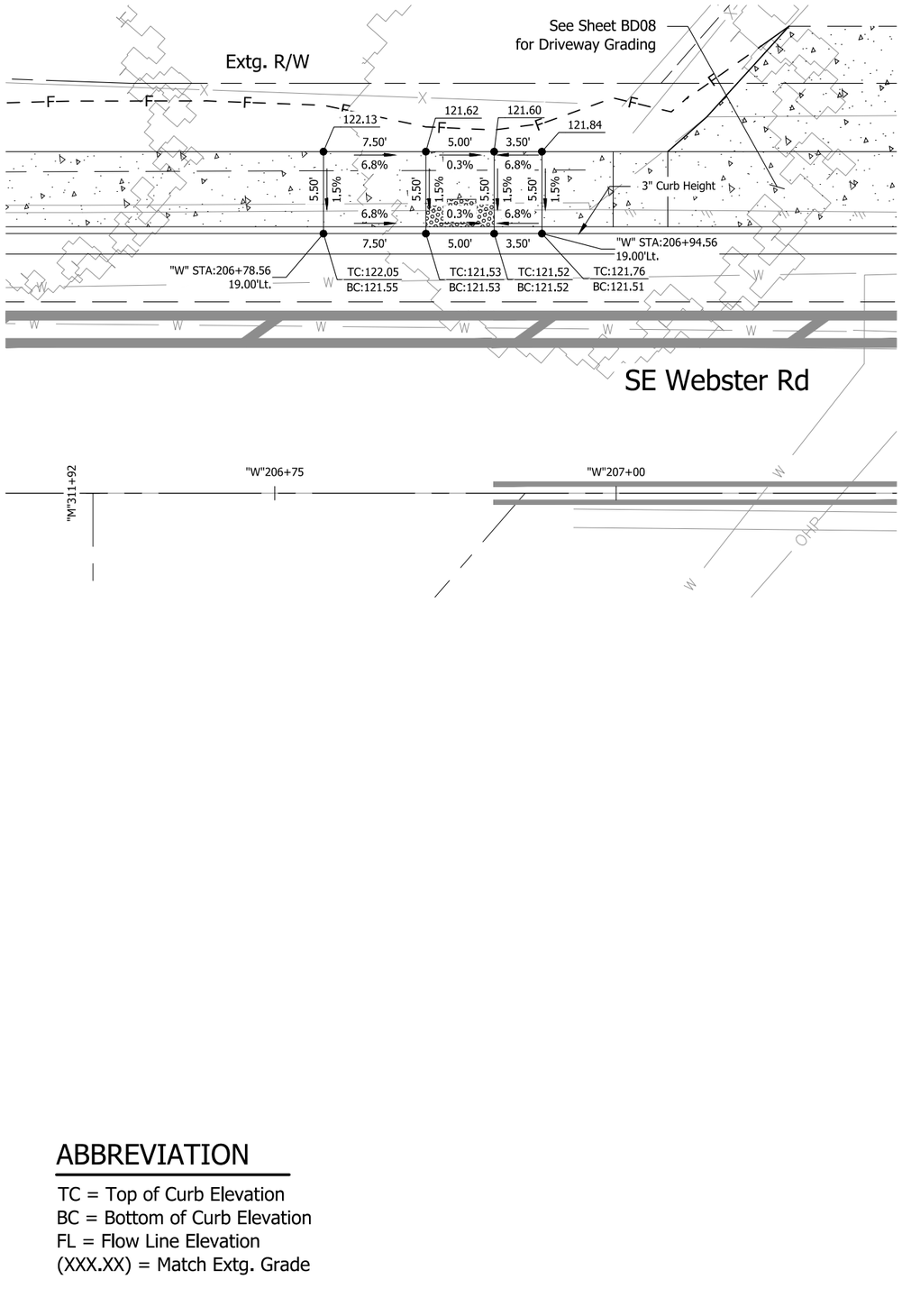
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC10

Plot Stamp: 9/6/2024 9:41:51 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

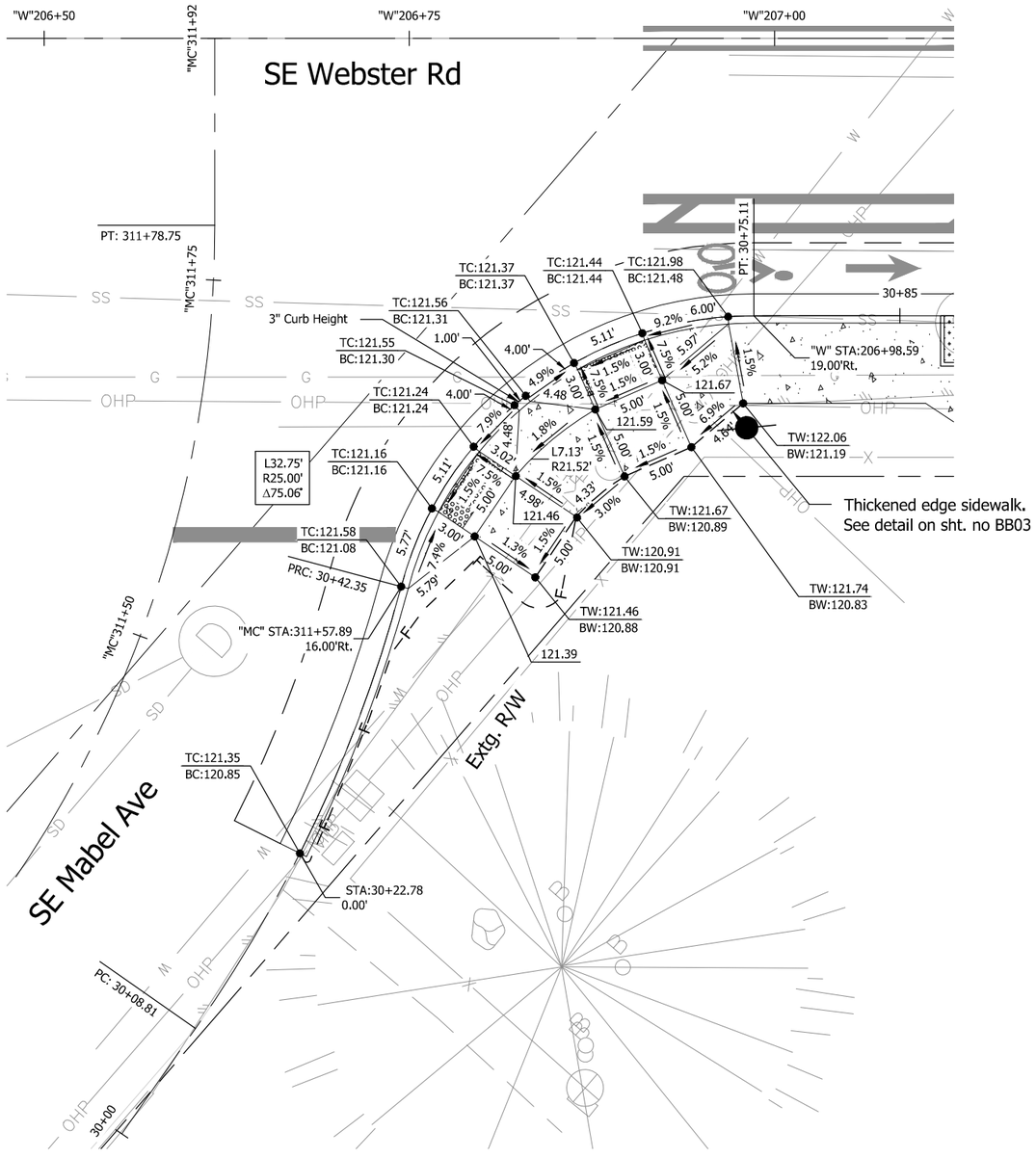
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

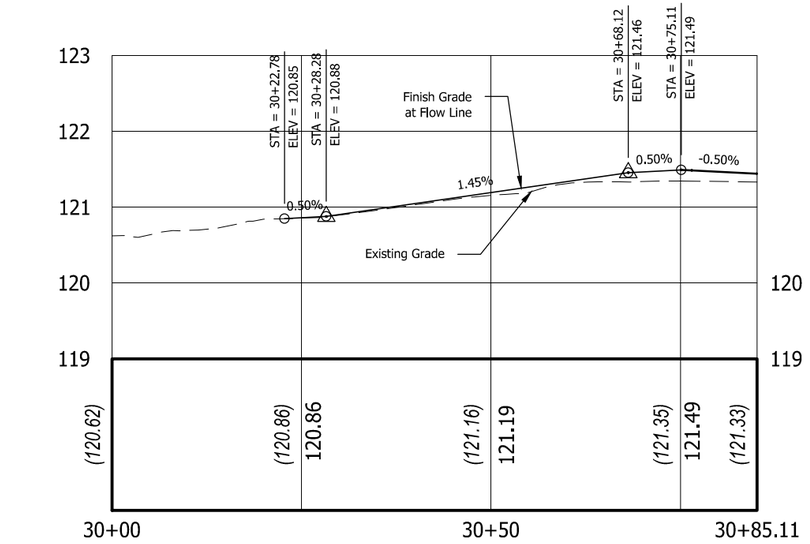
REVISIONS

NO.	DATE:

Sheet No.
BC11

Plot Stamp: 9/6/2024 9:41:53 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg





="M" Sta. 311+22.62, 16.40' RT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

ABBREVIATION

TC = Top of Curb Elevation	TW = Top of Wall Elevation (see thickened edge sidewalk detail on sht. no. BB03)
BC = Bottom of Curb Elevation	BW = Bottom of Wall Elevation (see thickened edge sidewalk detail on sht. no. BB03)
FL = Flow Line Elevation	
(XXX.XX) = Match Extg. Grade	

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

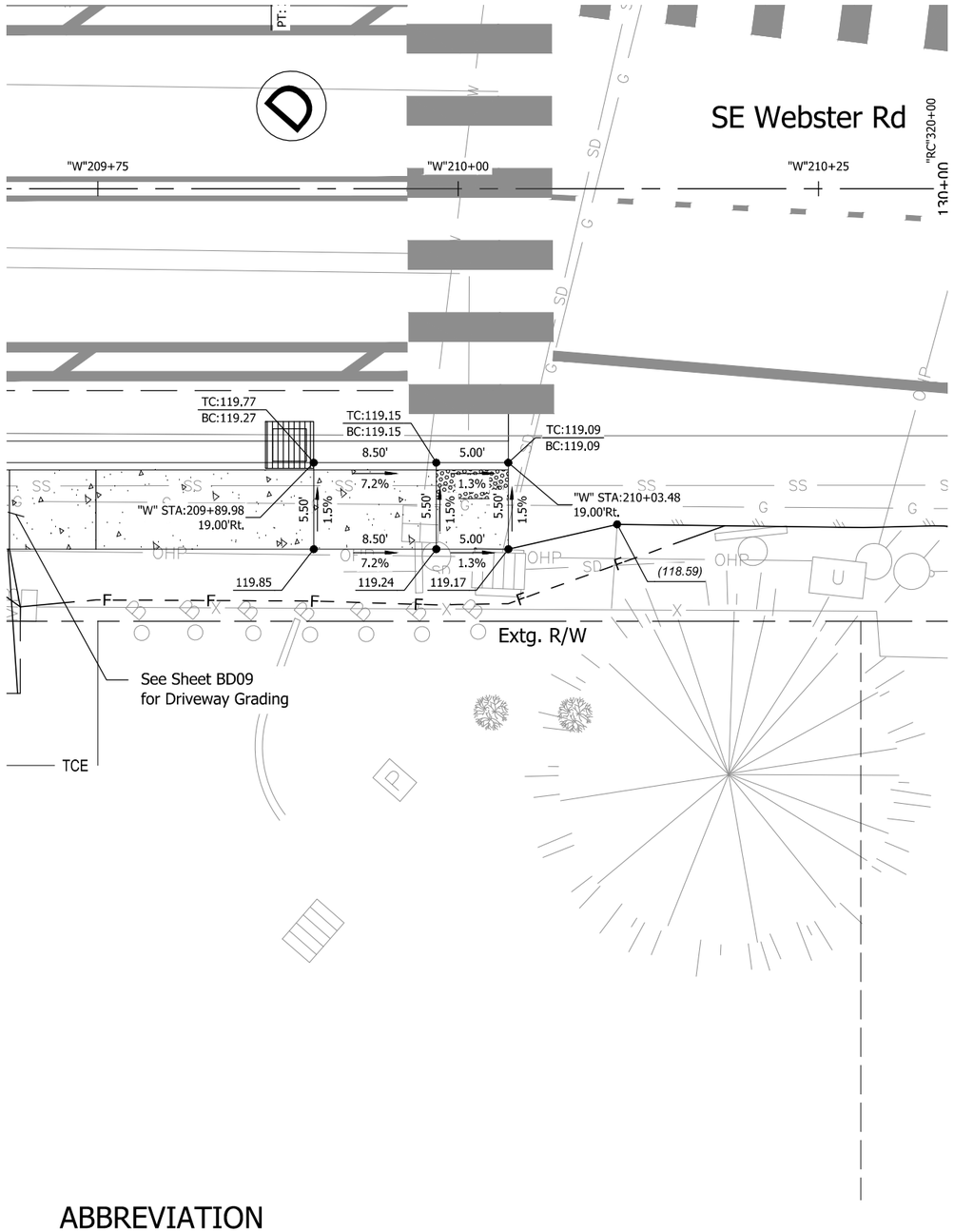
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC12

Plot Stamp: 9/6/2024 9:38:27 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg



ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY
JONATHAN HANGARTNER PROJECT MANAGER

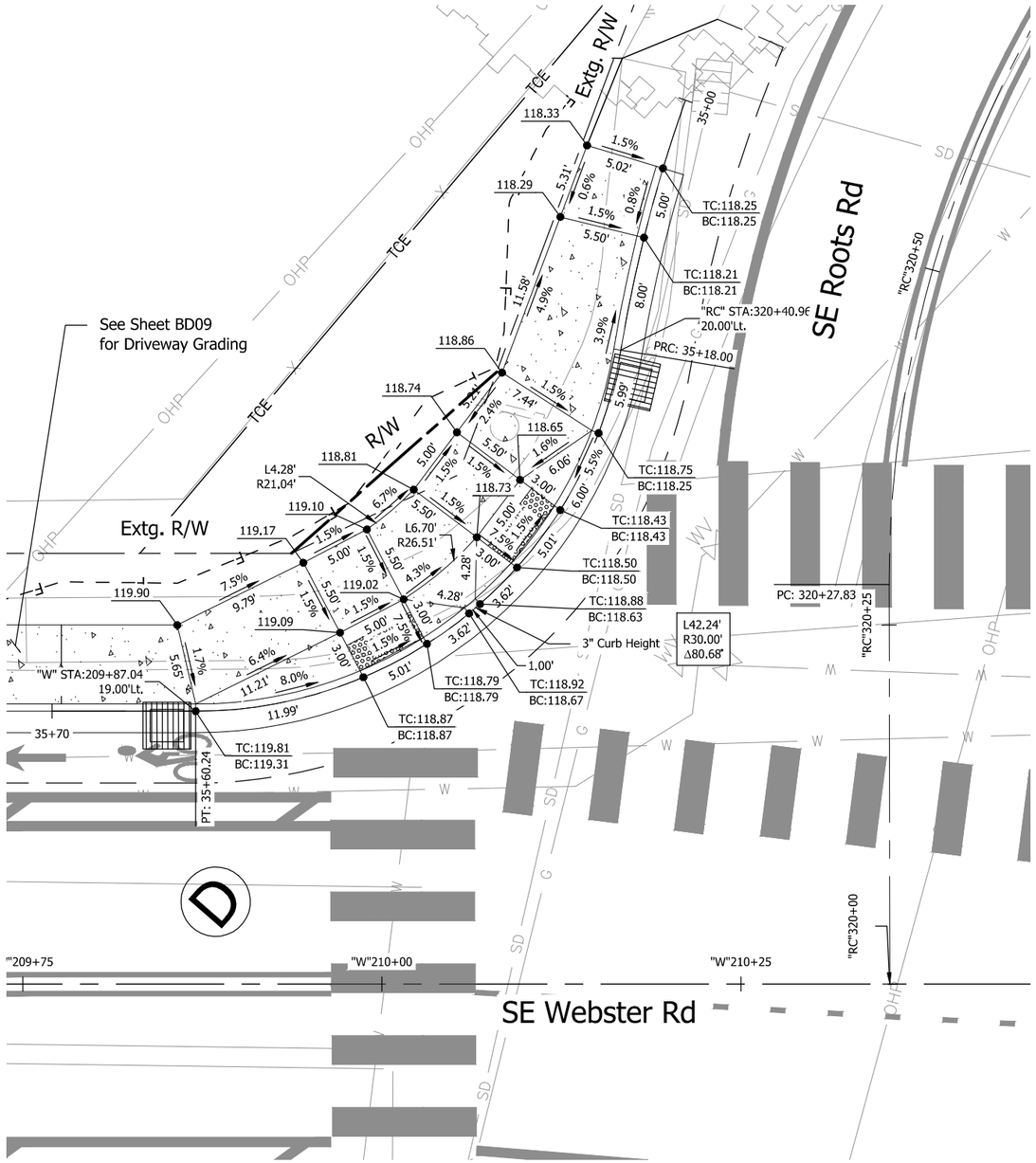
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

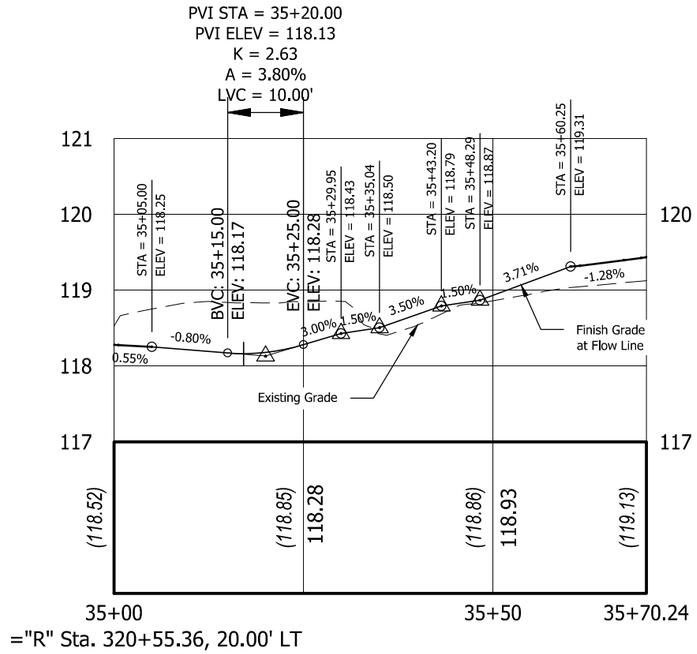
REVISIONS

NO.	DATE:

Sheet No.
BC13
28 of 73

Plot Stamp: 9/6/2024 9:48:44 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg





="R" Sta. 320+55.36, 20.00' LT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

Scale: 1" = 10'

10 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

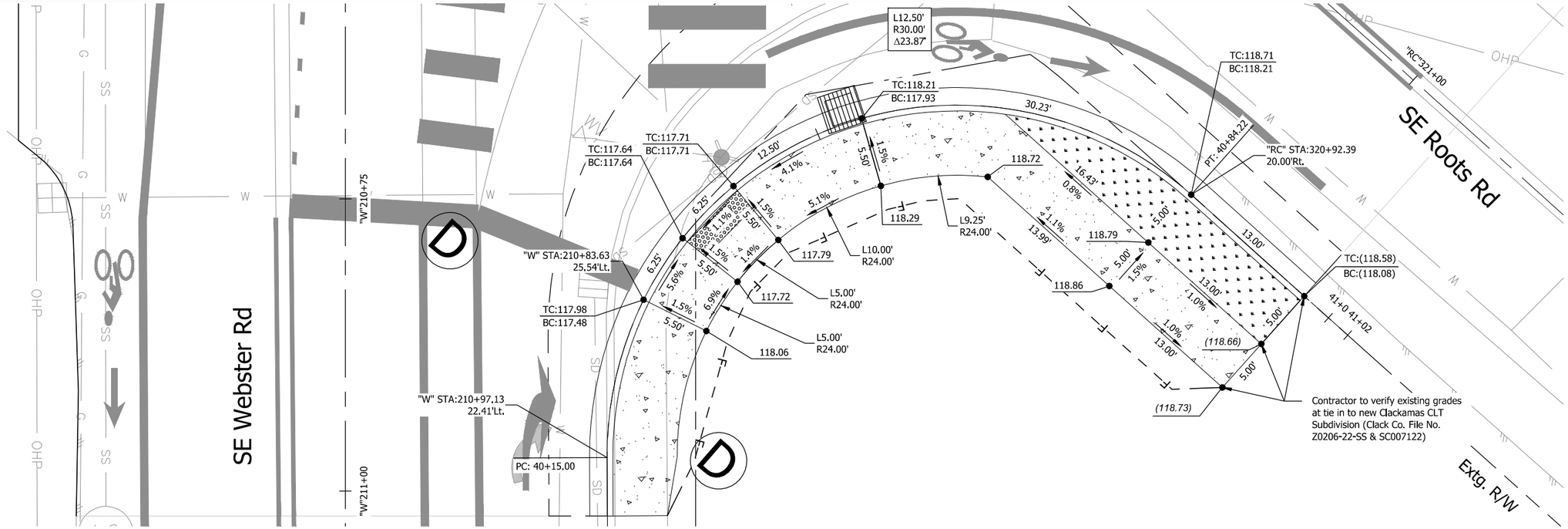
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

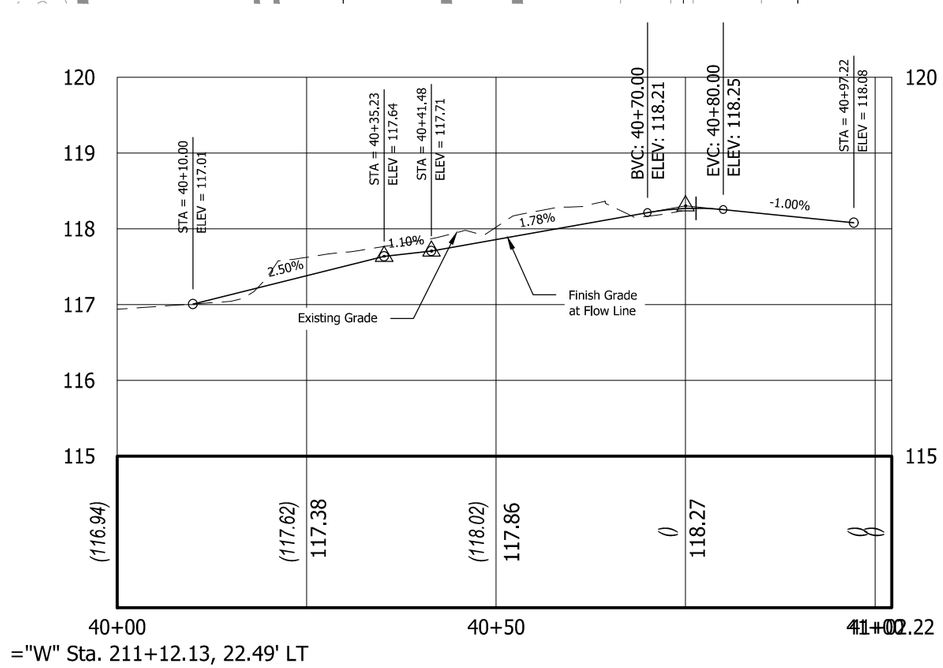
REVISIONS

NO.	DATE:

Sheet No.
BC14

Plot Stamp: 9/6/2024 9:49:10 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg





="W" Sta. 211+12.13, 22.49' LT

CURB RETURN PROFILE

Horizontal Scale: 1"=20'
Vertical Scale: 1"=2'

GENERAL NOTES

1. Slopes hold over elevations. Contractor shall take all necessary field measurements to verify plan design meets ADA compliance and notify the engineer prior to construction if the ramps cannot be constructed as shown. Refer to specification section 00759 for full requirements.

2. See ODOT std. Dwgs. RD 900 series for curb ramp construction.

3. Contractor shall keep the concrete structure free from contact, strain, and public traffic for at least 7 calendar days or longer as directed according to standard specification 00759.51.

4. Contractor shall notify Clackamas County once ramps are completed for a post ramp construction inspection.

ABBREVIATION

TC = Top of Curb Elevation
BC = Bottom of Curb Elevation
FL = Flow Line Elevation
(XXX.XX) = Match Extg. Grade

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

CURB RAMP DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

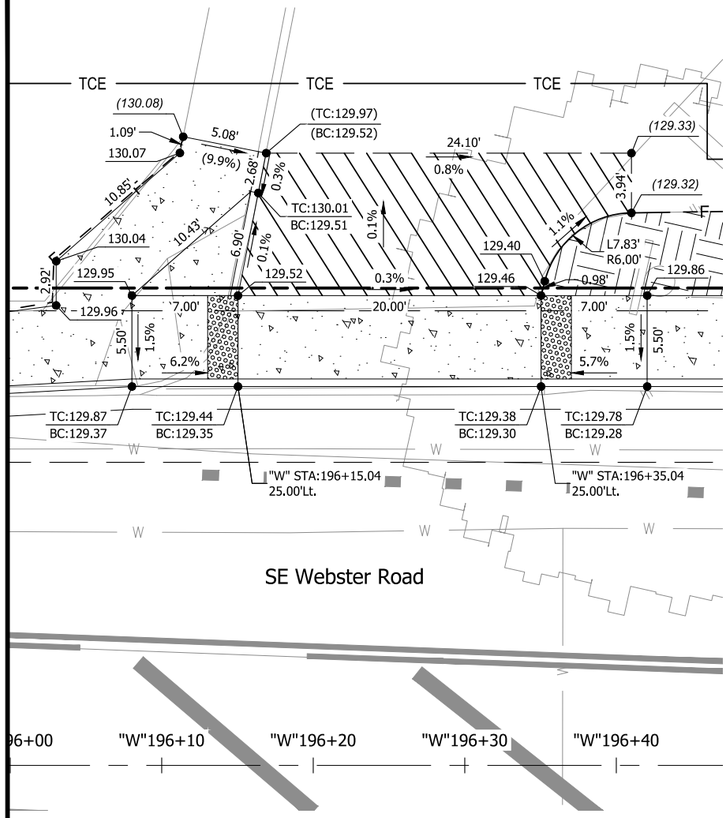
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BC15
30 of 73

Plot Stamp: 9/6/2024 9:49:40 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BC-CURB RAMP DETAILS-26766.dwg

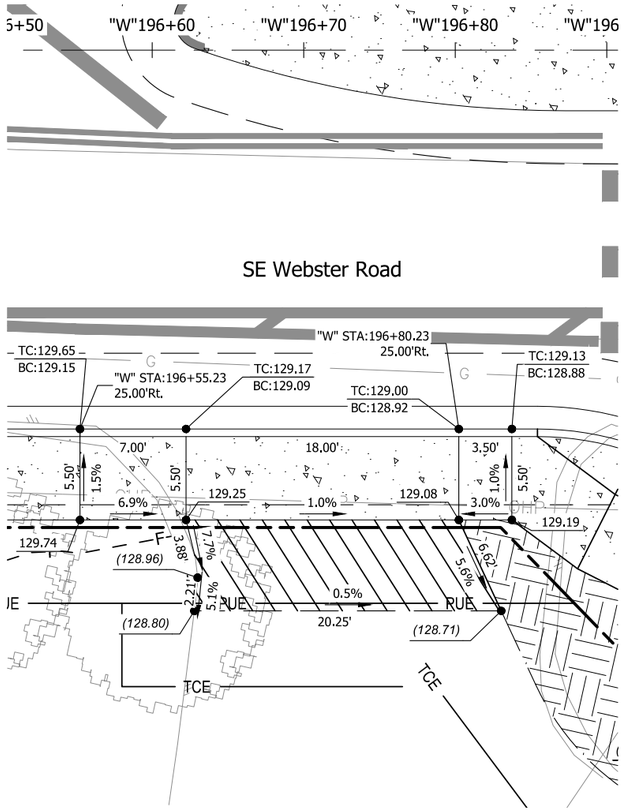


A C01 15708 SE Webster Rd - File 01
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
20.0	34.0	Asphalt	210.7	Concrete*	187.0

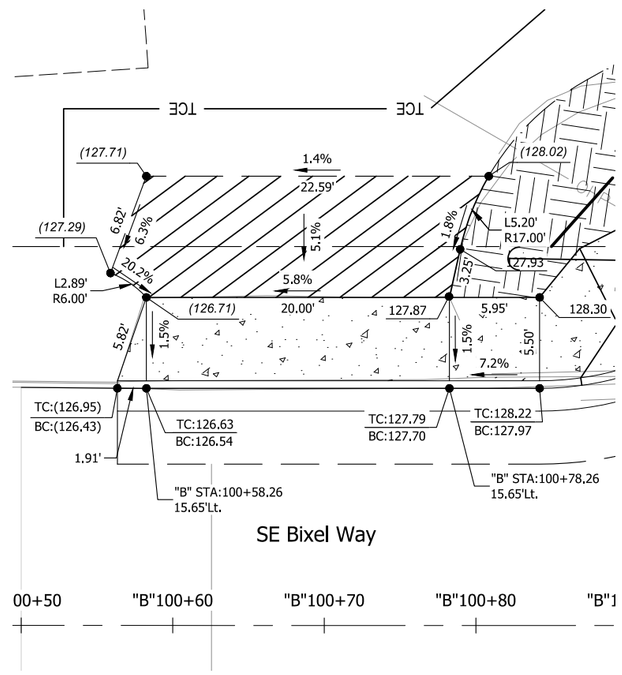
*Construct commercial reinforced driveway per Clackamas County Standard Dwg. D600



B C01 15615 SE Webster Rd - File 15
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
18.0	28.5	Asphalt	113.3	Concrete	156.75



C C01 15615 SE Webster Rd - File 15
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
20.0	29.9	Asphalt	177.6	Concrete	148.0

Asphalt
Concrete
Sawcut Line
Std. Curb

ABBREVIATION
BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'
10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

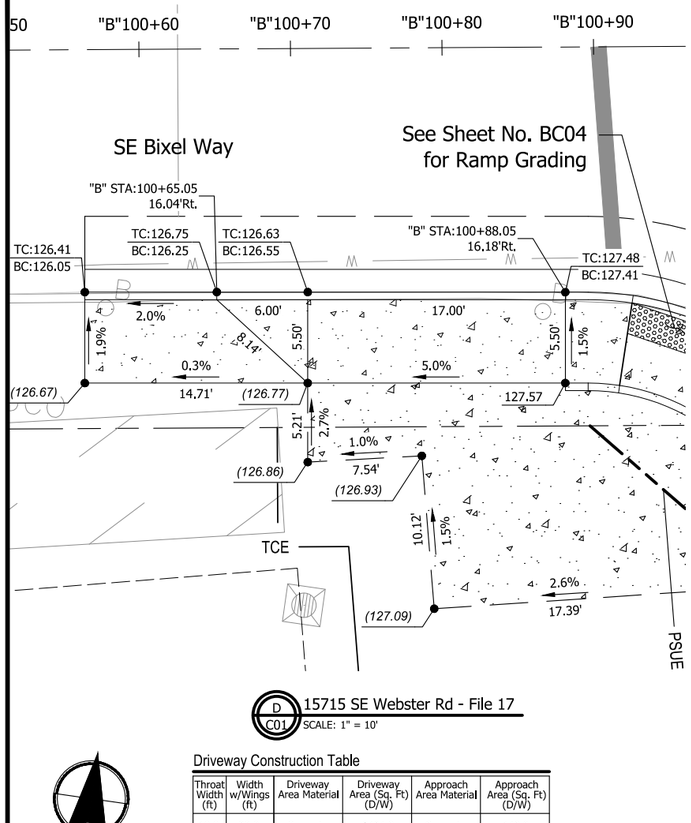
REVISIONS

NO.	DATE:

Sheet No.
BD01

31 of 73

Plot Stamp: 9/6/2024 9:42:27 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg

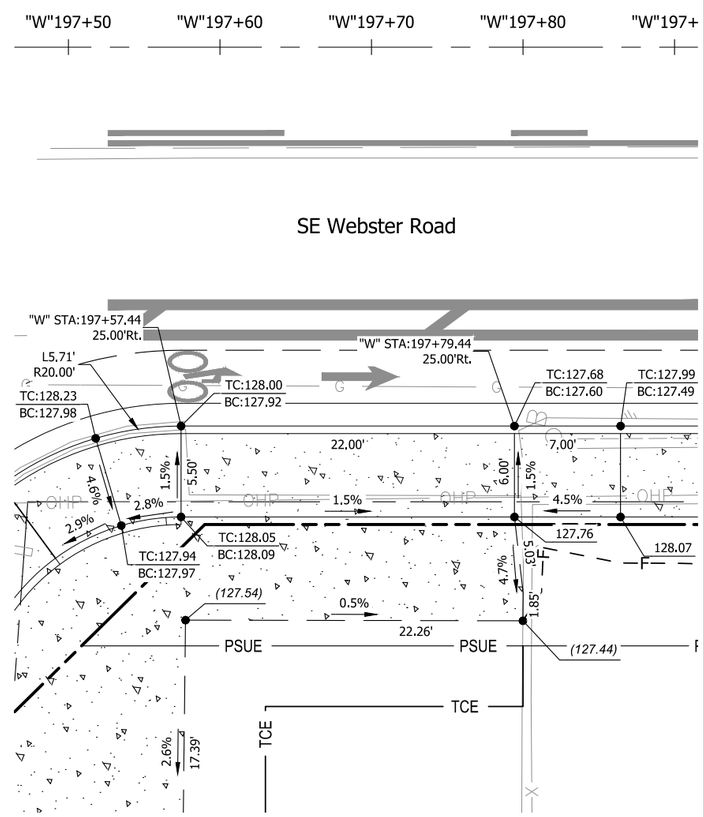


D C01 15715 SE Webster Rd - File 17
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
10.0	23.0	Concrete	*494.2	Concrete	148.0

*Area includes both driveway D and E

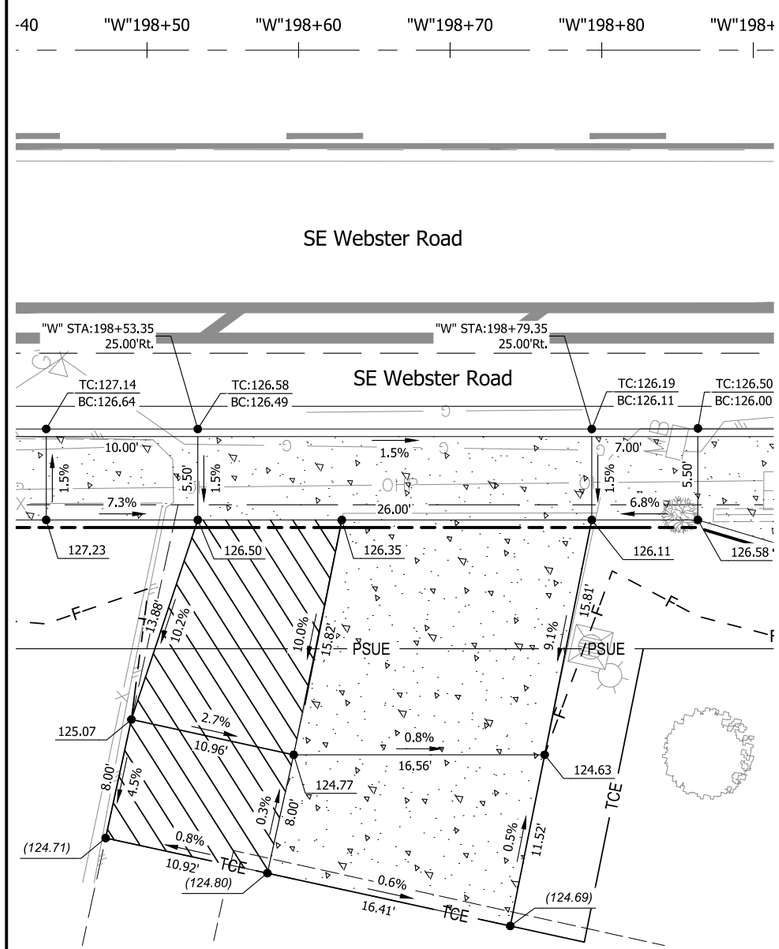


E C01 15715 SE Webster Rd - File 17
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
22.0	34.7	Concrete	*494.2	Concrete	185.8

*Area includes both driveway D and E



F C02 15715/15777 SE Webster Rd - File 18
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
26.0	43.0	Concrete	415.1	Concrete	236.5
		Asphalt	236.5		

Asphalt
Concrete
Sawcut Line
Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

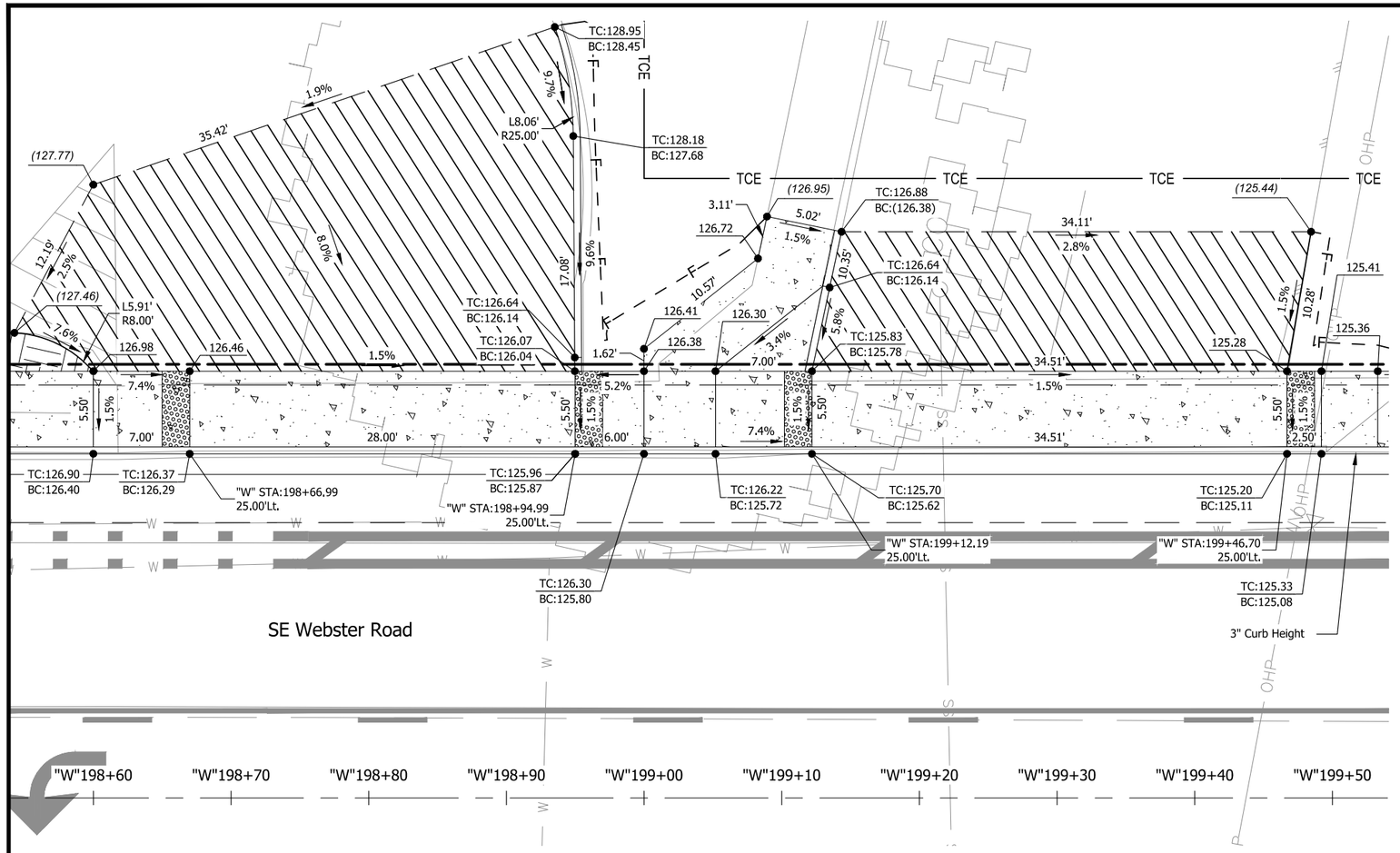
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD02

Plot Stamp: 9/6/2024 9:42:32 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg



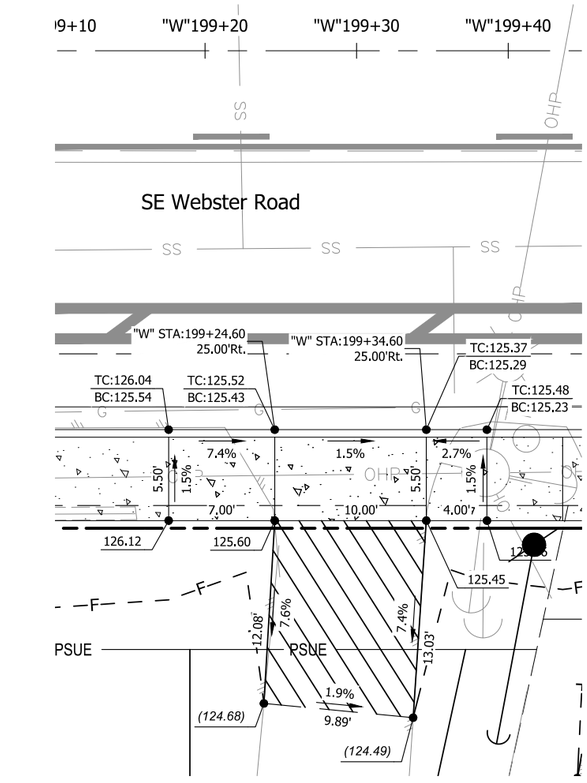
G C02 15708 SE Webster Rd - File 01

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
28.0	41.0	Asphalt	713.1	Concrete*	225.5

*Construct commercial reinforced driveway per Clackamas County Standard Dwg. D600



H C02 15708 SE Webster Rd - File 01

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
34.6	43.1	Asphalt	347.5	Concrete*	236.6

*Construct commercial reinforced driveway per Clackamas County Standard Dwg. D600

I C02 15777 SE Webster Rd - File 18

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
10.0	21.0	Asphalt	124.7	Concrete	115.5

Asphalt

Concrete

Sawcut Line

Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

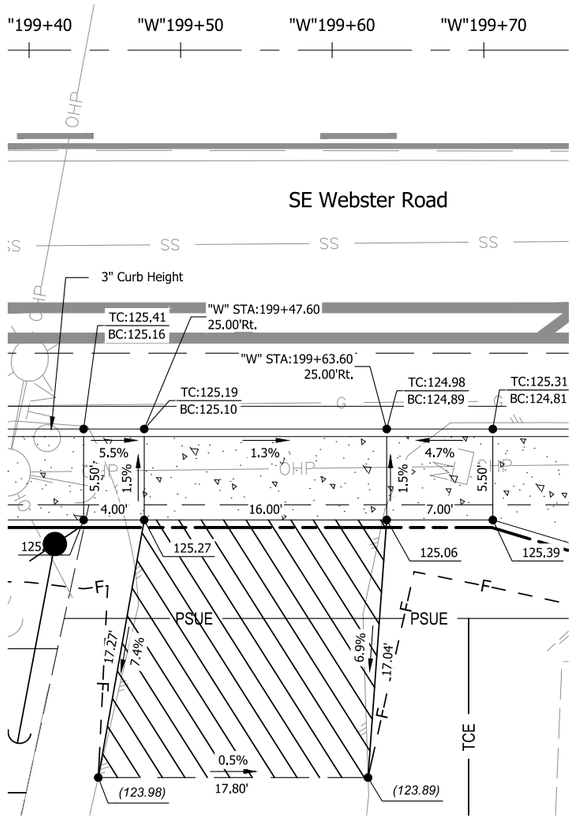
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD03

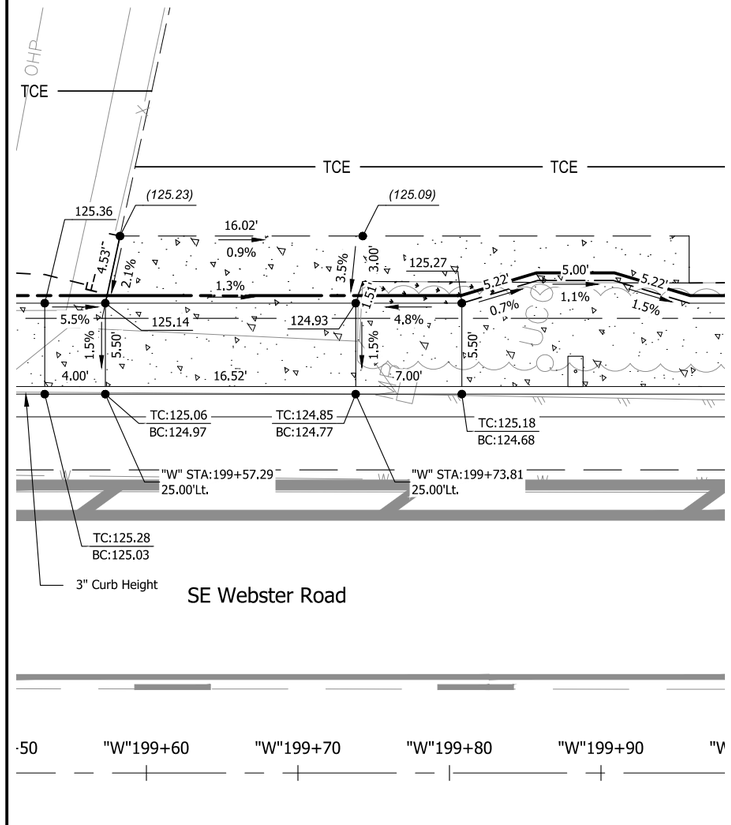
33 of 73



J C02 15809 SE Webster Rd - File 19
SCALE: 1" = 10'

Driveway Construction Table

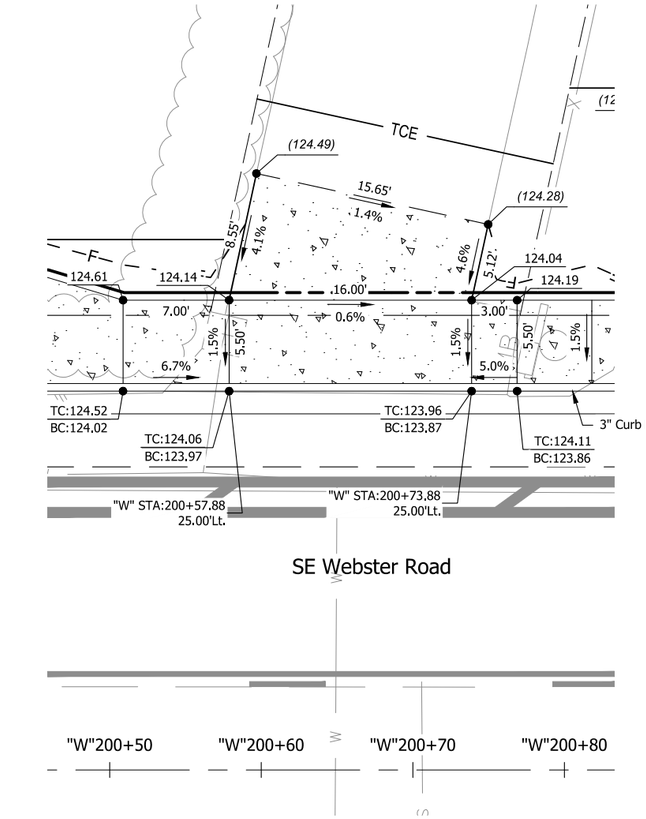
Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
16.0	27.0	Asphalt	287.3	Concrete	148.5



K C02 15710 SE Webster Rd - File 02
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
16.5	27.5	Concrete	137.7	Concrete	151.4



L C02 15742 SE Webster Rd - File 03
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
16.0	26.0	Concrete	106.9	Concrete	143.0

Asphalt

Concrete

Sawcut Line

Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY | JONATHAN HANGARTNER | PROJECT MANAGER

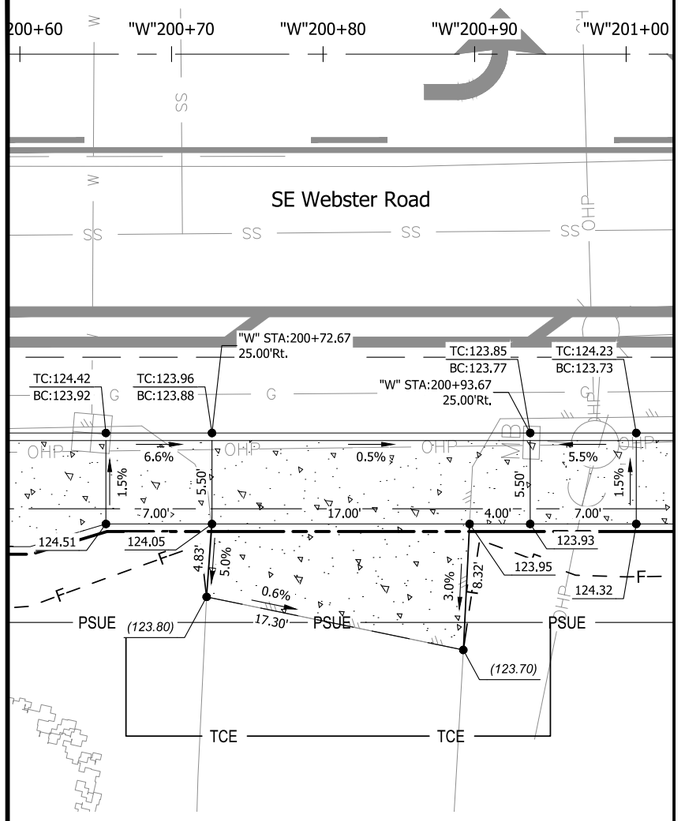
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD04

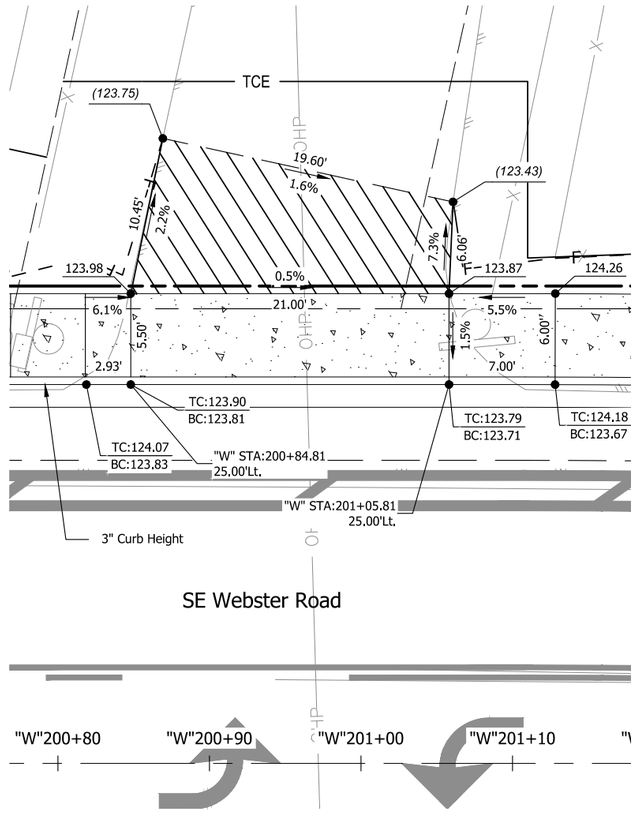
Plot Stamp: 9/6/2024 9:42:40 AM • Allison Winter
File: H:\26\26766 - Bilquist Elementary School • Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg



M / C02 15831 SE Webster Rd - File 20
SCALE: 1" = 10'

Driveway Construction Table

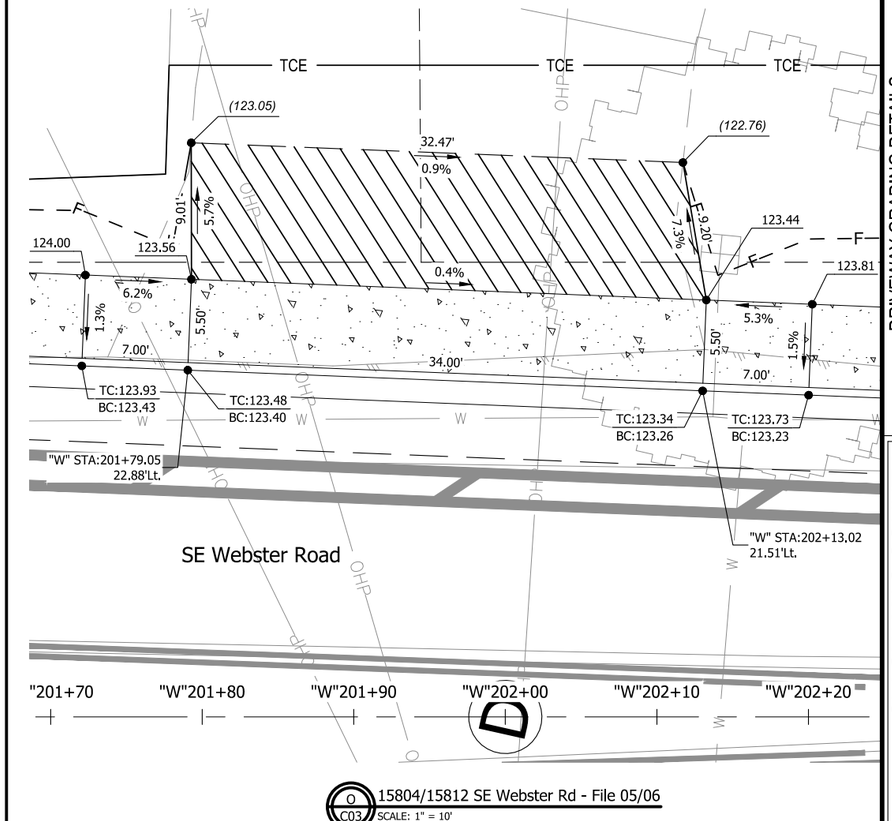
Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
17.0	35.0	Concrete	112.0	Concrete	192.5



N / C02 15708 SE Webster Rd - File 01
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
21.0	20.9	ASphalt	166.0	Concrete	170.6



O / C03 15804/15812 SE Webster Rd - File 05/06
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
34.0	48.0	Asphalt	299.1	Concrete	264.0

Asphalt
Concrete
Sawcut Line
Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

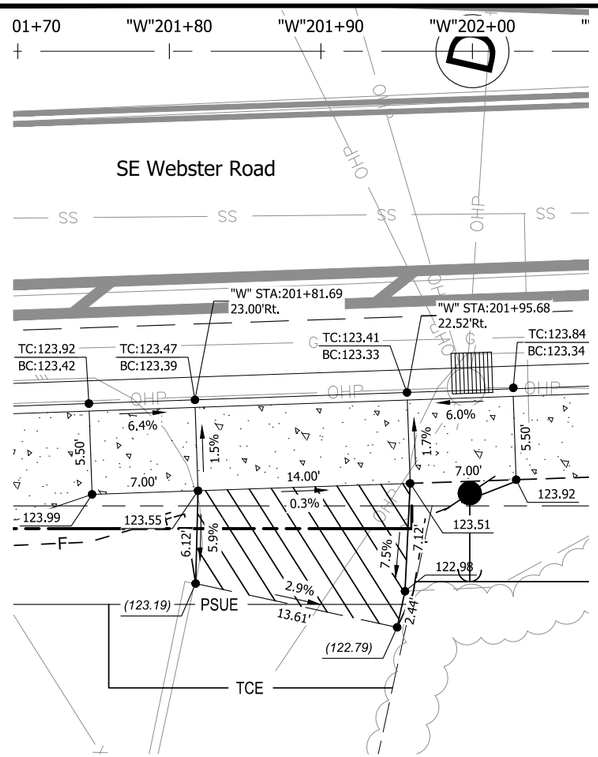
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD05

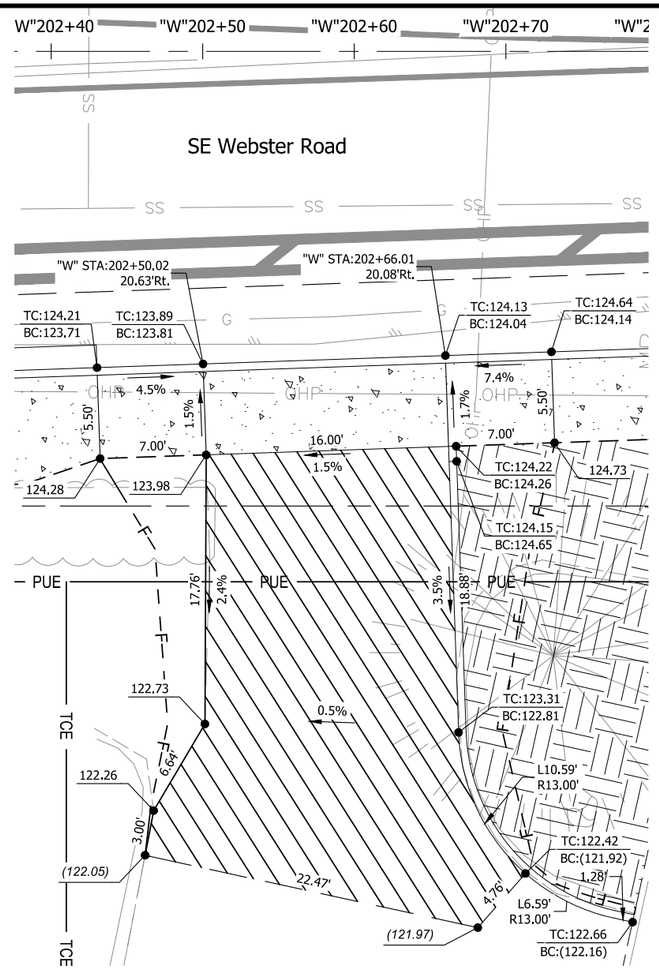
Plot Stamp: 9/6/2024 9:42:44 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg



P C03 15855 SE Webster Rd - File 21
SCALE: 1" = 10'

Driveway Construction Table

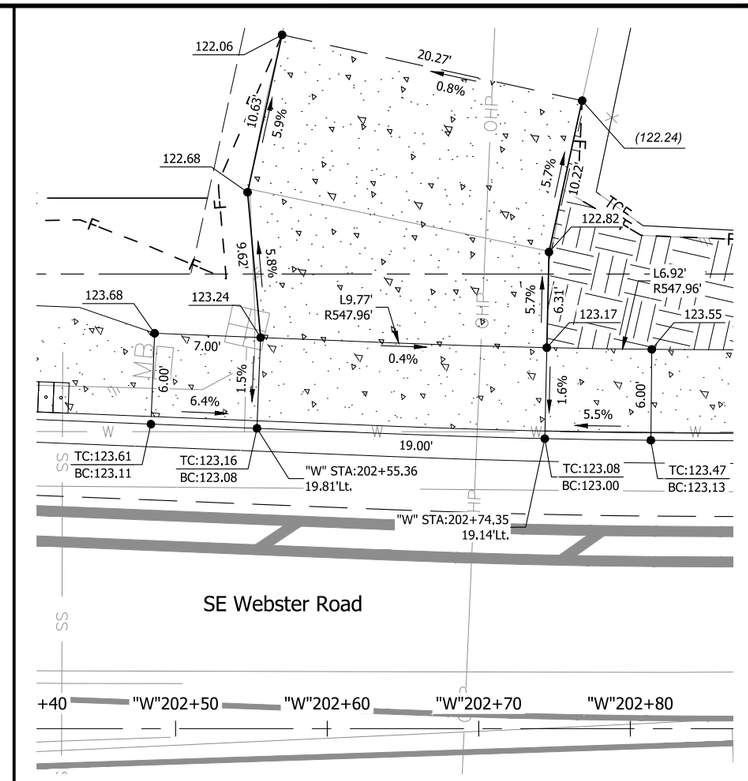
Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
14.0	28.0	Asphalt	108.6	Concrete	154.0



O C03 15893 SE Webster Rd - File 22
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
16.0	30.0	Asphalt	530.2	Concrete	165.0



R C03 15850 SE Webster Rd - File 07
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
19.0	33.0	Concrete	365.5	Concrete	180.9

Asphalt

Concrete

Sawcut Line

Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

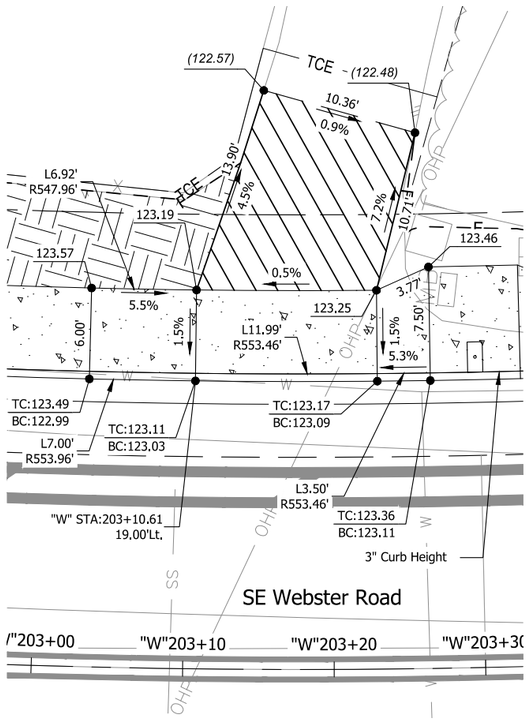
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD06

Plot Stamp: 9/6/2024 9:42:49 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg

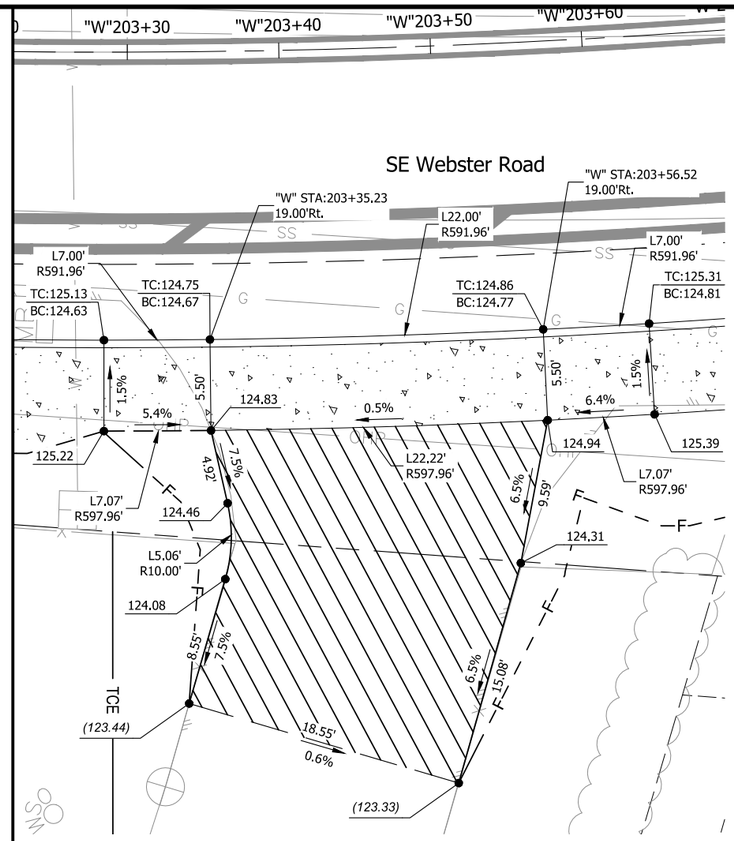


S C03 15850 SE Webster Rd - File 07

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
12.0	22.5	Asphalt	133.3	Concrete	125.6

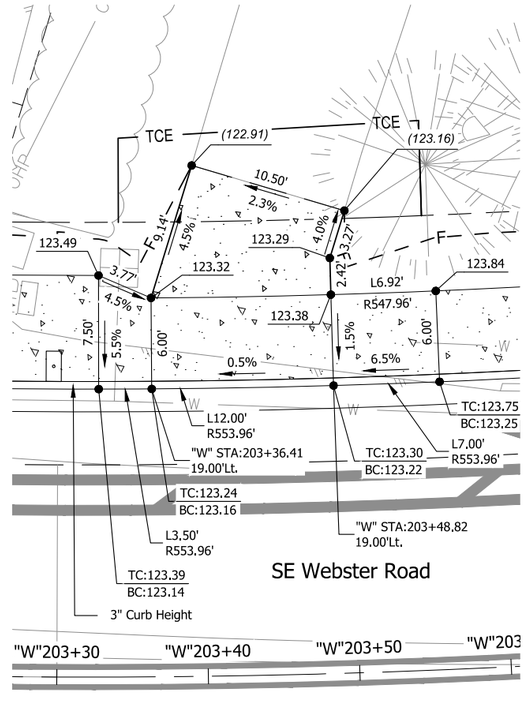


T C03 15929 SE Webster Rd - File 23

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
22.0	36.0	Asphalt	412.6	Concrete	199.1



U C03 15960 SE Webster Rd - File 08

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
12.0	22.5	Concrete	79.8	Concrete	125.6

Asphalt

Concrete

Sawcut Line

Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

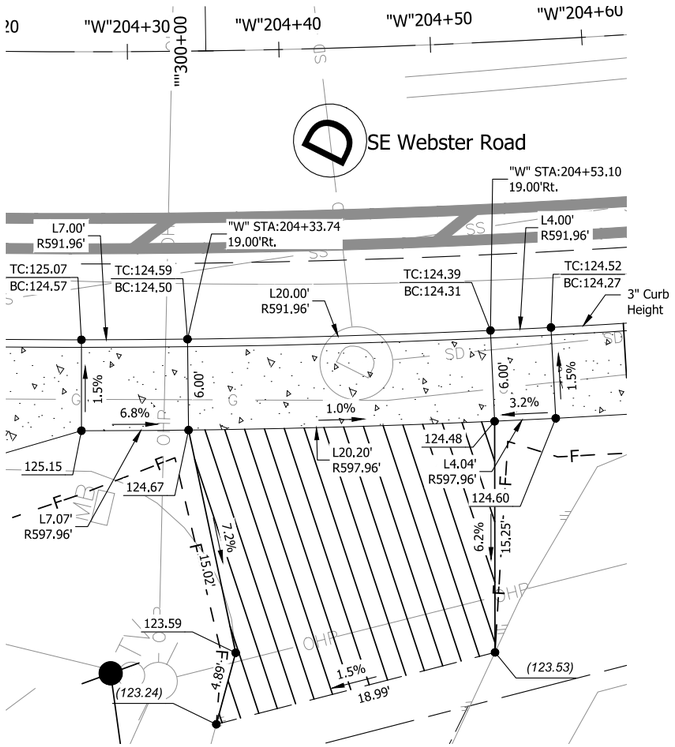
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD07

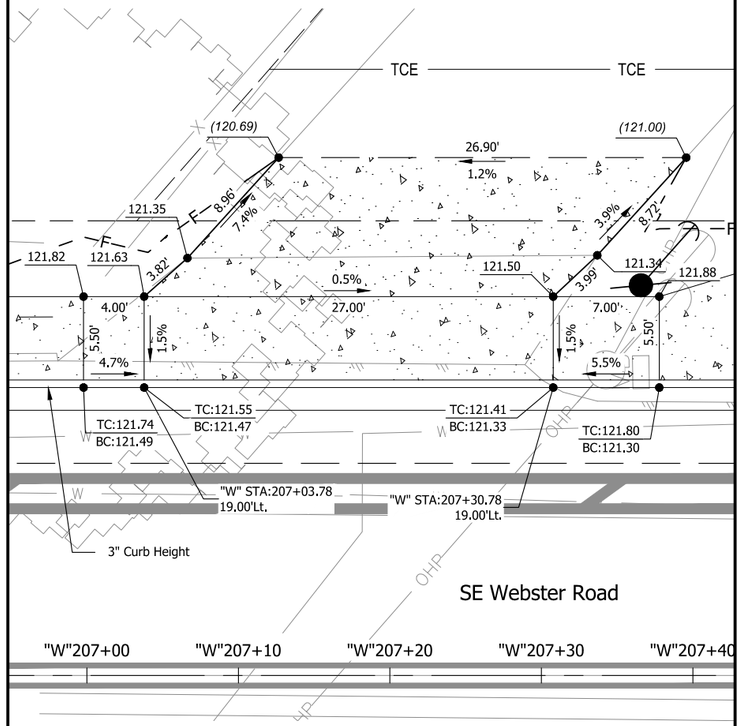
Plot Stamp: 9/6/2024 9:42:53 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg



V C03 7185 SE Mabel Ave - File 26
SCALE: 1" = 10'

Driveway Construction Table

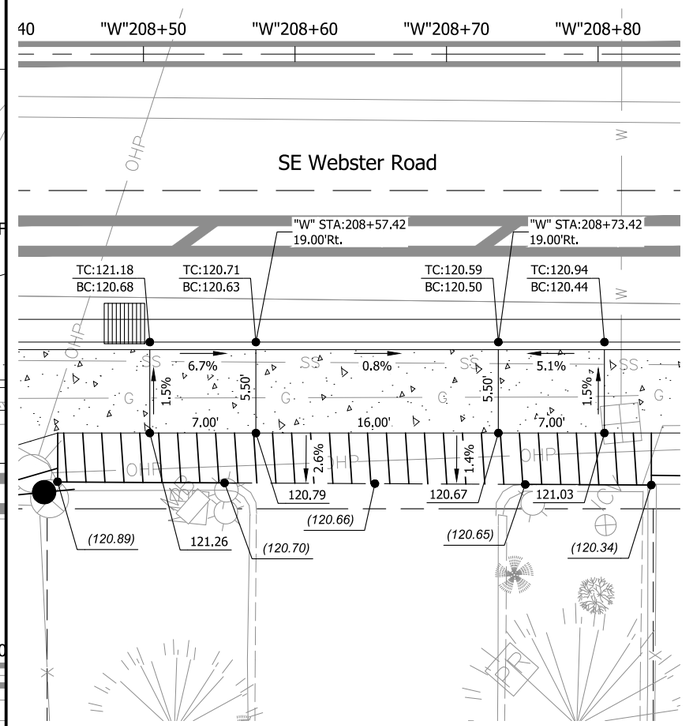
Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
20.0	31.0	Asphalt	318.92	Concrete	171.44



W C04 16016 SE Webster Rd - File 11
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
27.0	38.0	Concrete	246.7	Concrete	209.0



X C05 16085 SE Webster Rd - File 28
SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
16.0	30.0	Asphalt	130.55	Concrete	165.0

Asphalt
Concrete
Sawcut Line
Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

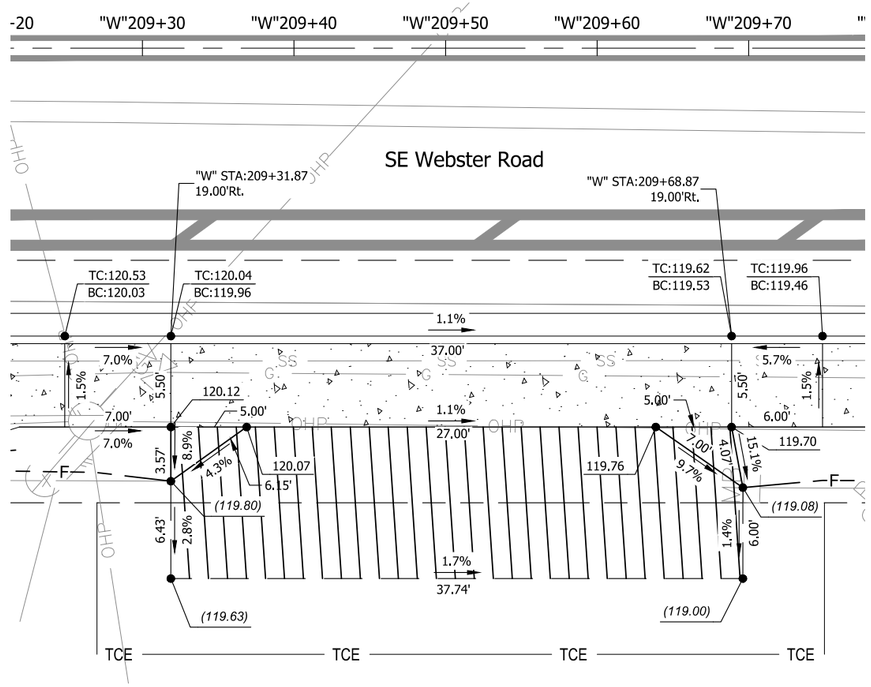
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
BD08

Plot Stamp: 9/6/2024 9:42:58 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg

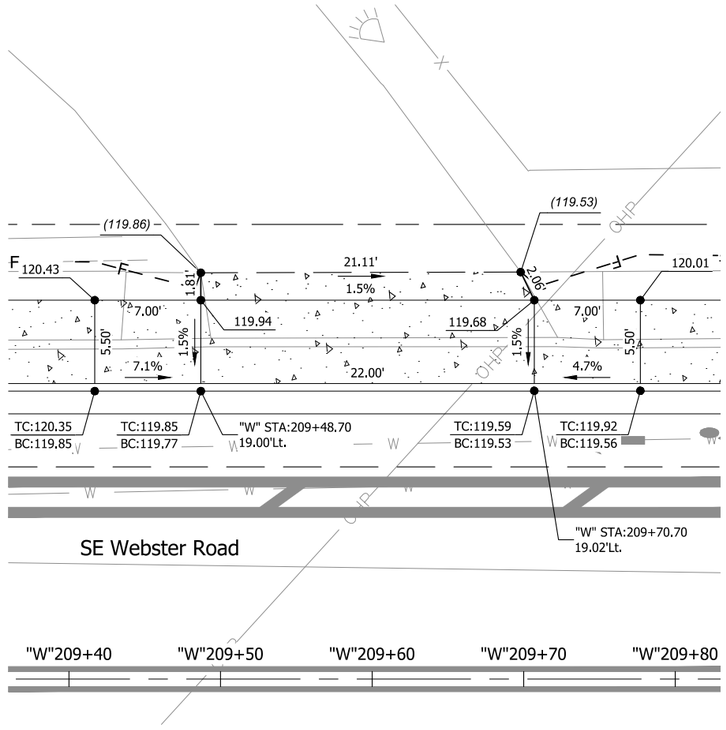


Y C05 16111 SE Webster Rd - File 29

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
27.0	38.0	Asphalt	376.0	Concrete	275.0



Z C05 7313 SE Roots Rd - File 12

SCALE: 1" = 10'

Driveway Construction Table

Throat Width (ft)	Width w/Wings (ft)	Driveway Area Material	Driveway Area (Sq. Ft) (D/W)	Approach Area Material	Approach Area (Sq. Ft) (D/W)
22.0	36.0	Concrete	39.5	Concrete	198.0

Asphalt

Concrete

Sawcut Line

Std. Curb

ABBREVIATION

BC = Bottom of Curb Elevation
TC = Top of Curb Elevation
(XXX.XX) = Match Extg. Grade
XXX.XX = Finish Grade
LX.XX' = Line Length
CX.XX' = Curve Length

Scale: 1" = 10'

10 5 0 10

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

DRIVEWAY GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

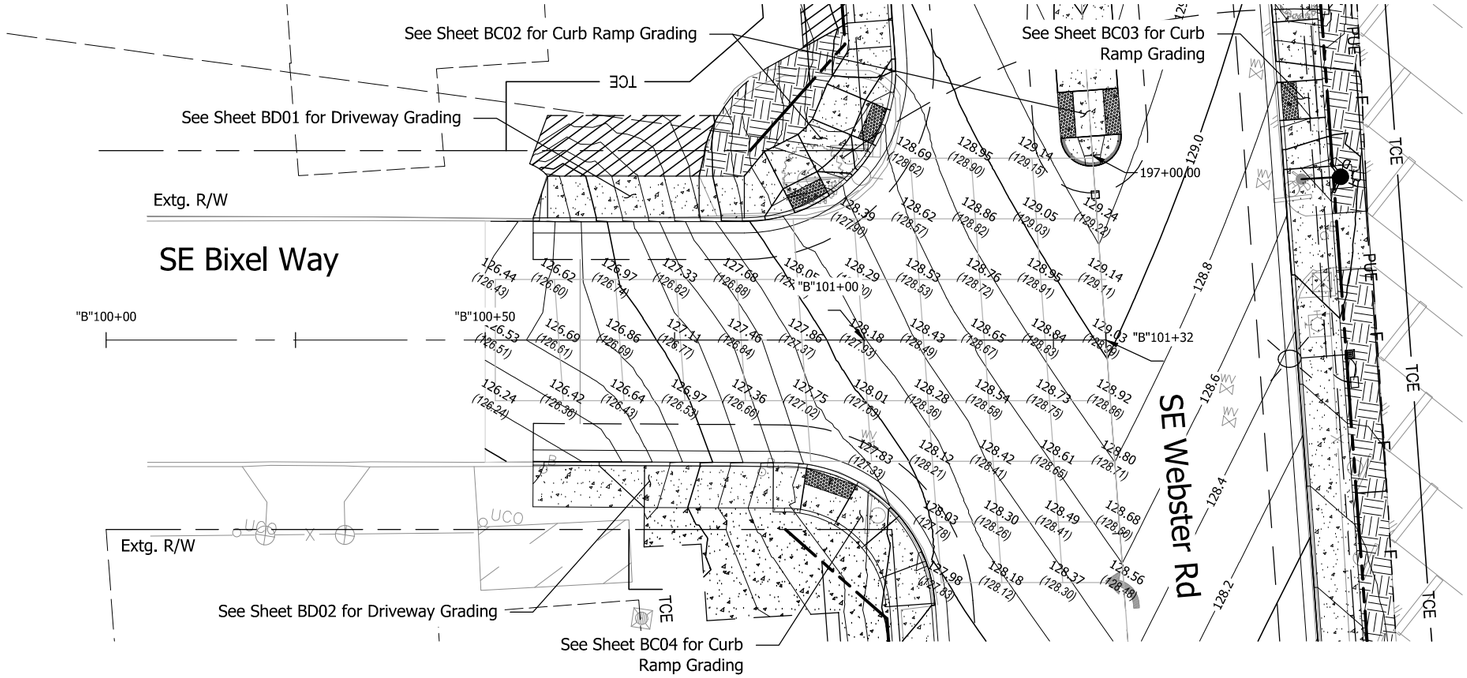
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

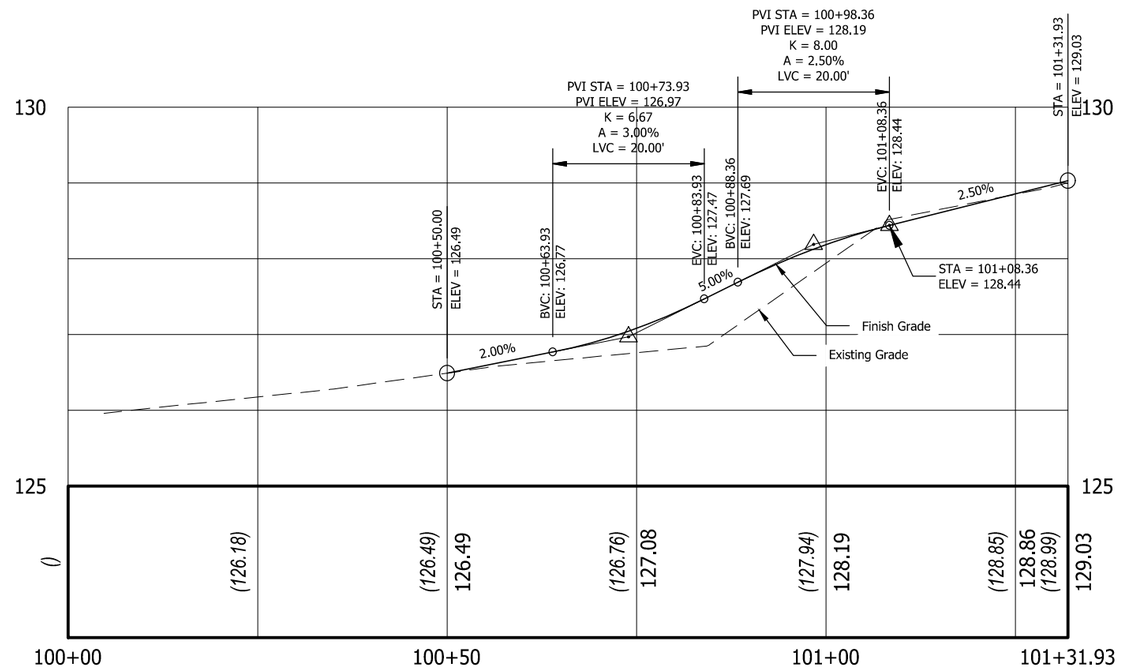
REVISIONS

NO.	DATE:

Sheet No.
BD09

Plot Stamp: 9/6/2024 9:43:01 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BD-DRIVEWAY GRADING DETAILS-26766.dwg





BIXEL WAY PROFILE

GENERAL NOTES

1. Elevations Are Top Of Pavement Finished Grade Unless Otherwise Noted
2. Contours Are Top Of Pavement Finished Grade
3. Grids are 8' Spacing
4. Prop. Grade Elevations = XXX.XX
   Extg. Grade Elevations = (XXX.XX)

Scale: 1" = 20'

20 10 0 20

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

INTERSECTION GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

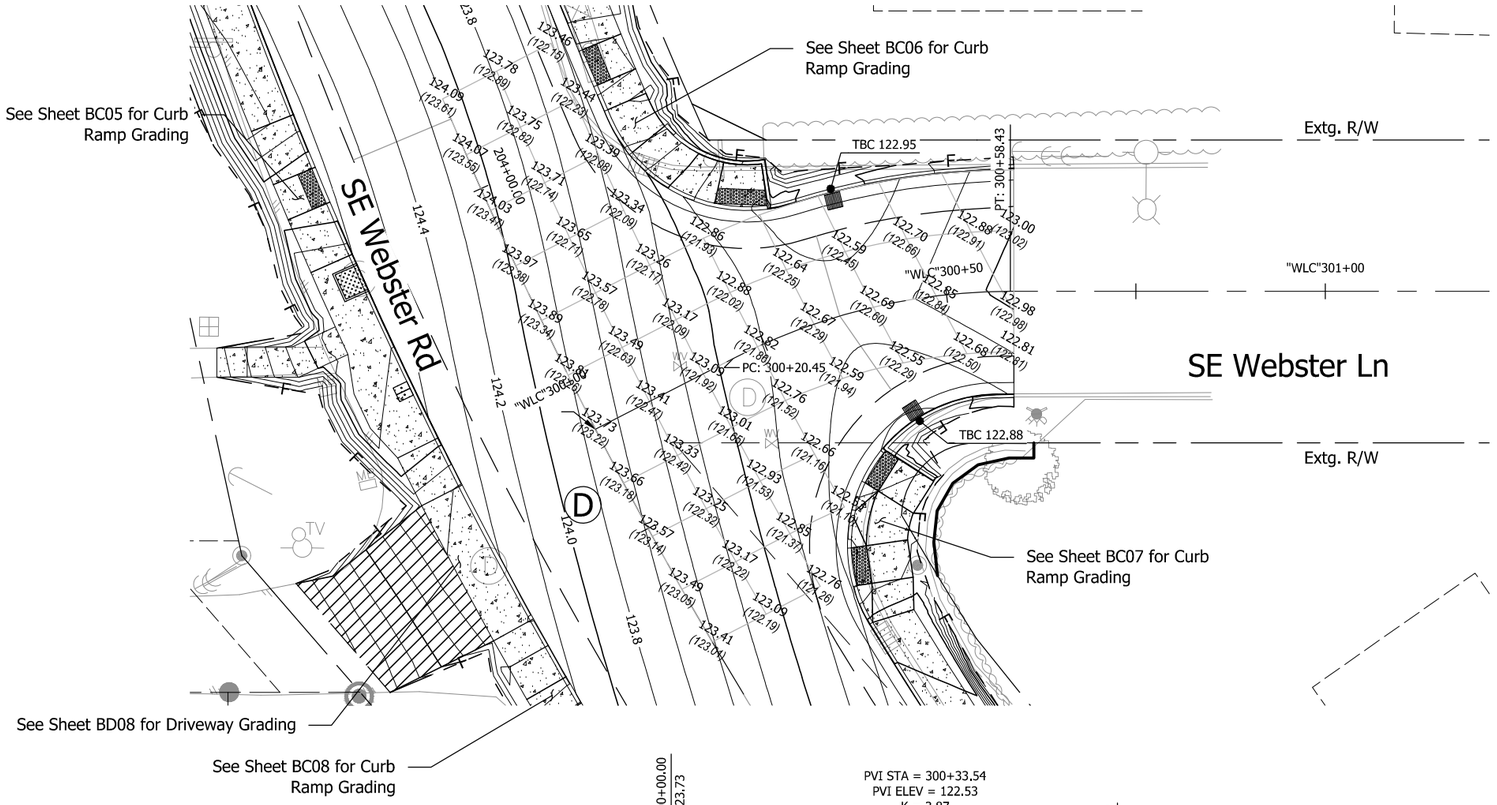
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

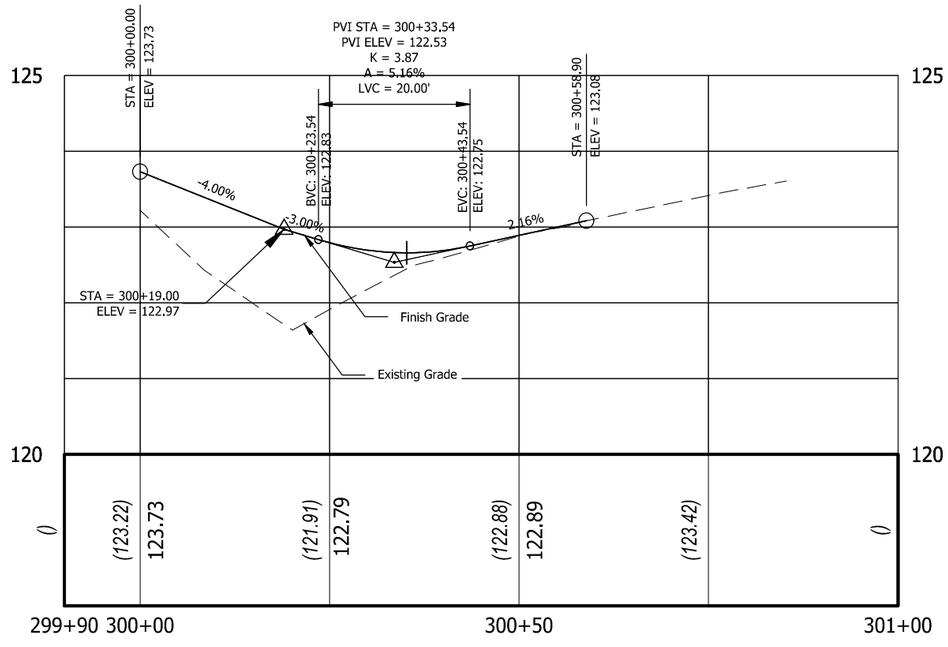
REVISIONS

NO.	DATE:

Sheet No.
BE01

Plot Stamp: 9/6/2024 10:08:28 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BE-INTERSECTION GRADING DETAILS-26766.dwg





WEBSTER LANE PROFILE

GENERAL NOTES

1. Elevations Are Top Of Pavement Finished Grade Unless Otherwise Noted
2. Contours Are Top Of Pavement Finished Grade
3. Grids are 8' Spacing
4. Prop. Grade Elevations = XXX.XX
   Extg. Grade Elevations = (XXX.XX)

Scale: 1" = 20'

20 10 0 20

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

INTERSECTION GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

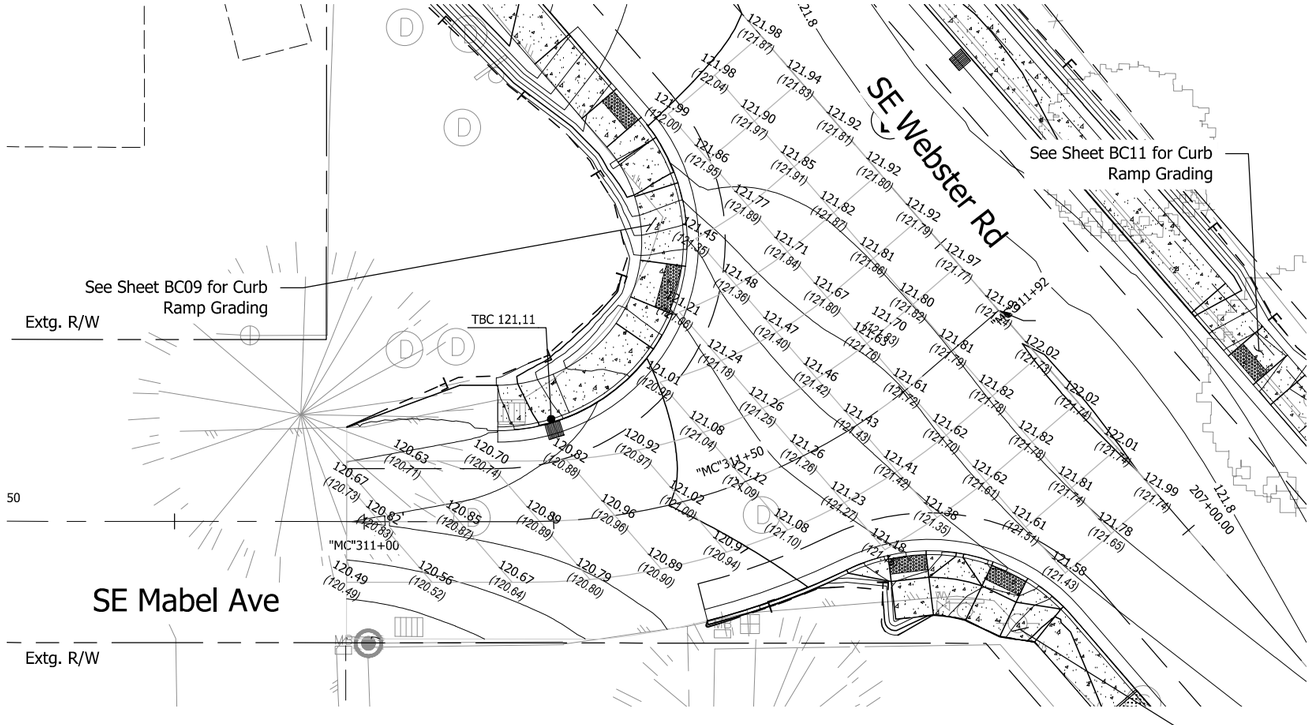
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

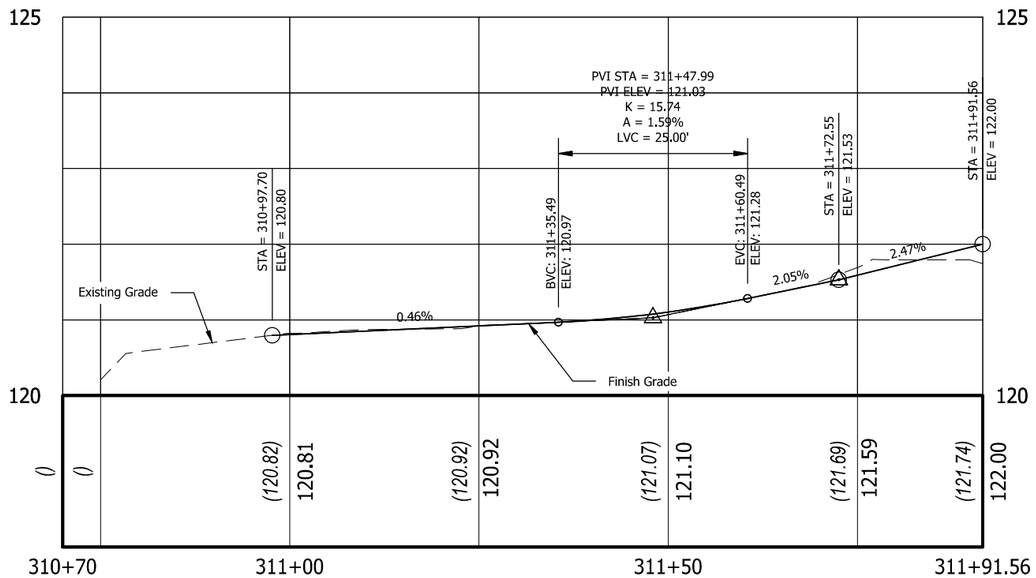
REVISIONS

NO.	DATE:

Sheet No.
BE02

Plot Stamp: 9/6/2024 10:08:54 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BE-INTERSECTION GRADING DETAILS-26766.dwg





MABEL AVENUE PROFILE

GENERAL NOTES

1. Elevations Are Top Of Pavement Finished Grade Unless Otherwise Noted
2. Contours Are Top Of Pavement Finished Grade
3. Grids are 8' Spacing
4. Prop. Grade Elevations = XXX.XX
   Extg. Grade Elevations = (XXX.XX)

Scale: 1" = 20'

20 10 0 20

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

INTERSECTION GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

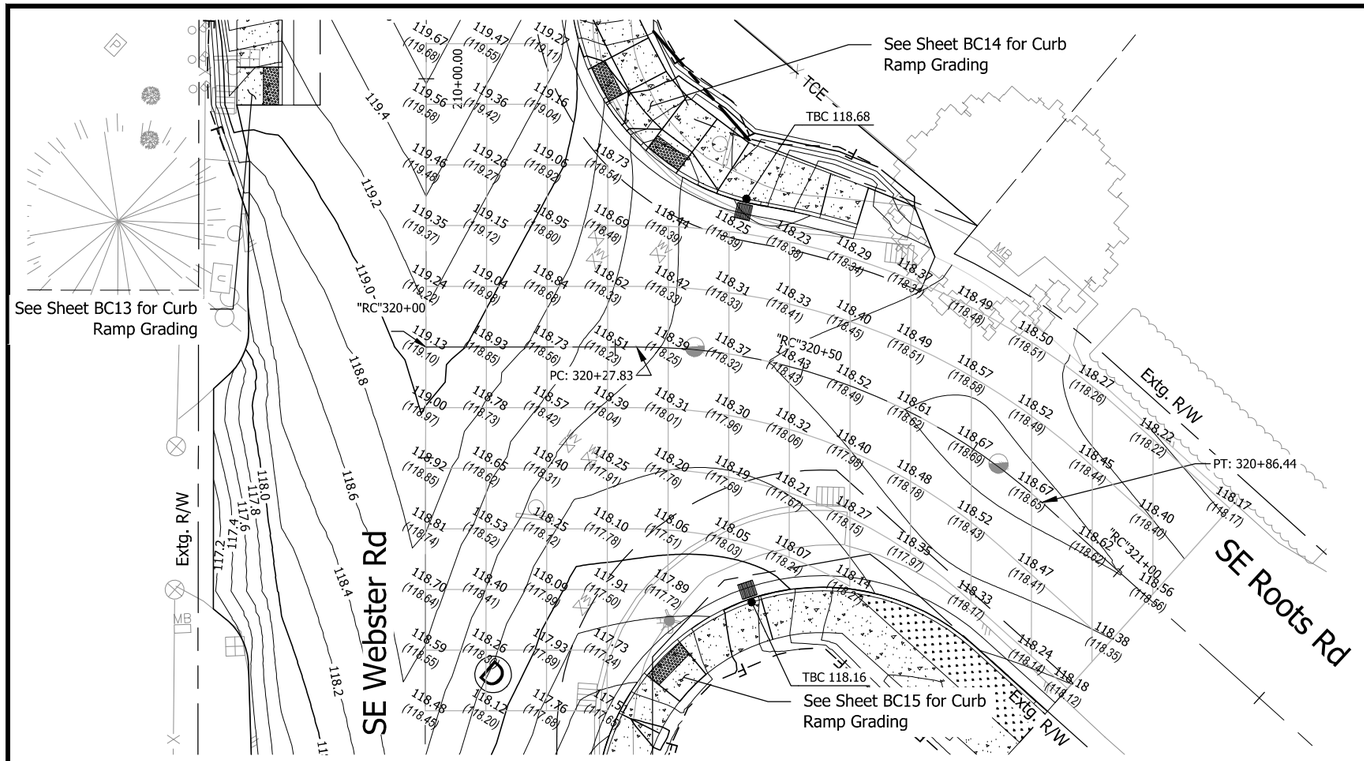
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

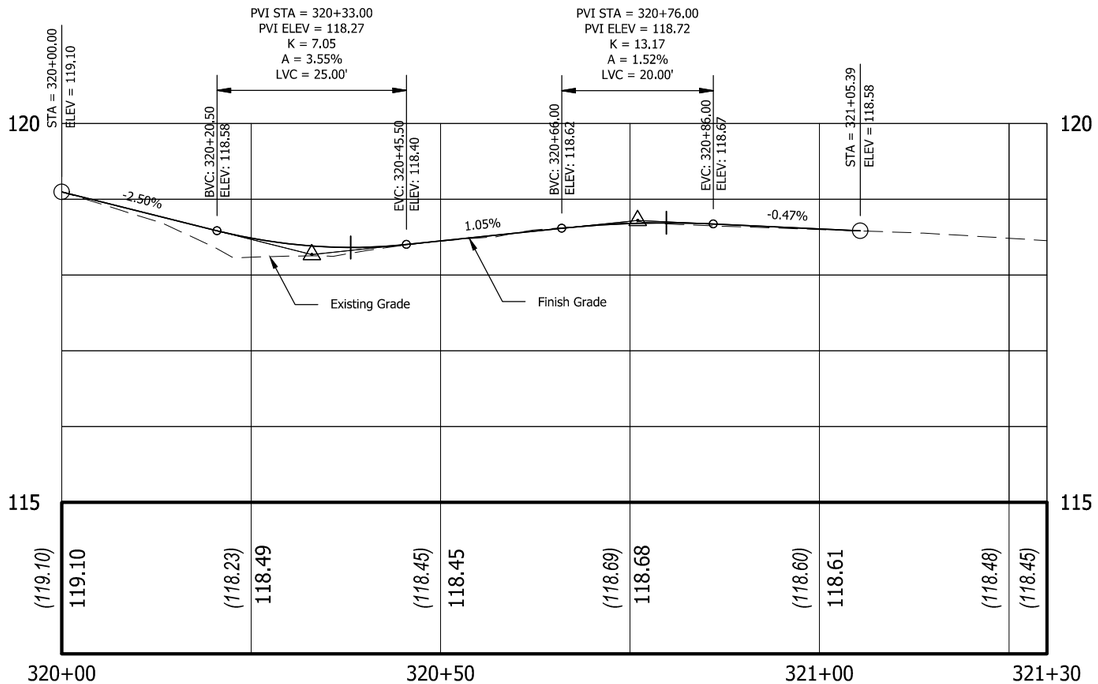
REVISIONS

NO.	DATE:

Sheet No.
BE03

Plot Stamp: 9/6/2024 10:09:25 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BE-INTERSECTION GRADING DETAILS-26766.dwg





ROOTS ROAD PROFILE

GENERAL NOTES

1. Elevations Are Top Of Pavement Finished Grade Unless Otherwise Noted
2. Contours Are Top Of Pavement Finished Grade
3. Grids are 8' Spacing
4. Prop. Grade Elevations = XXX.XX
   Extg. Grade Elevations = (XXX.XX)

Scale: 1" = 20'

20 10 0 20

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

INTERSECTION GRADING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

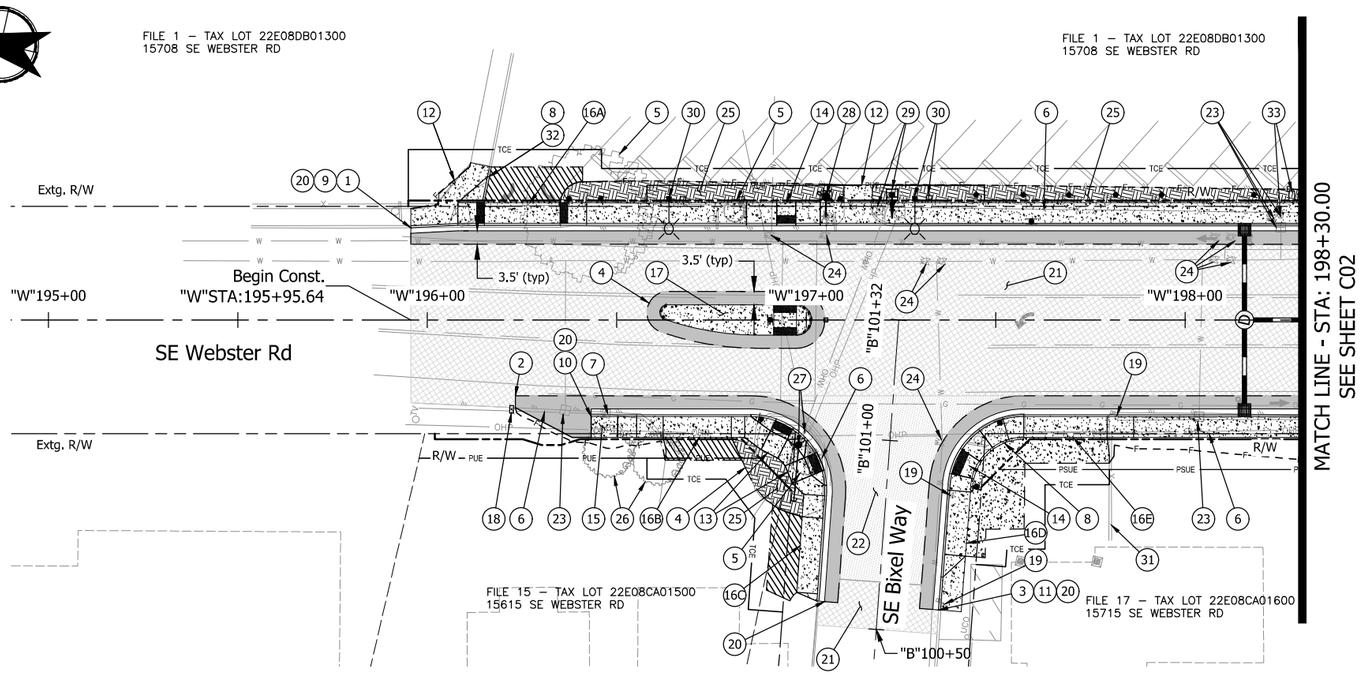
REVISIONS

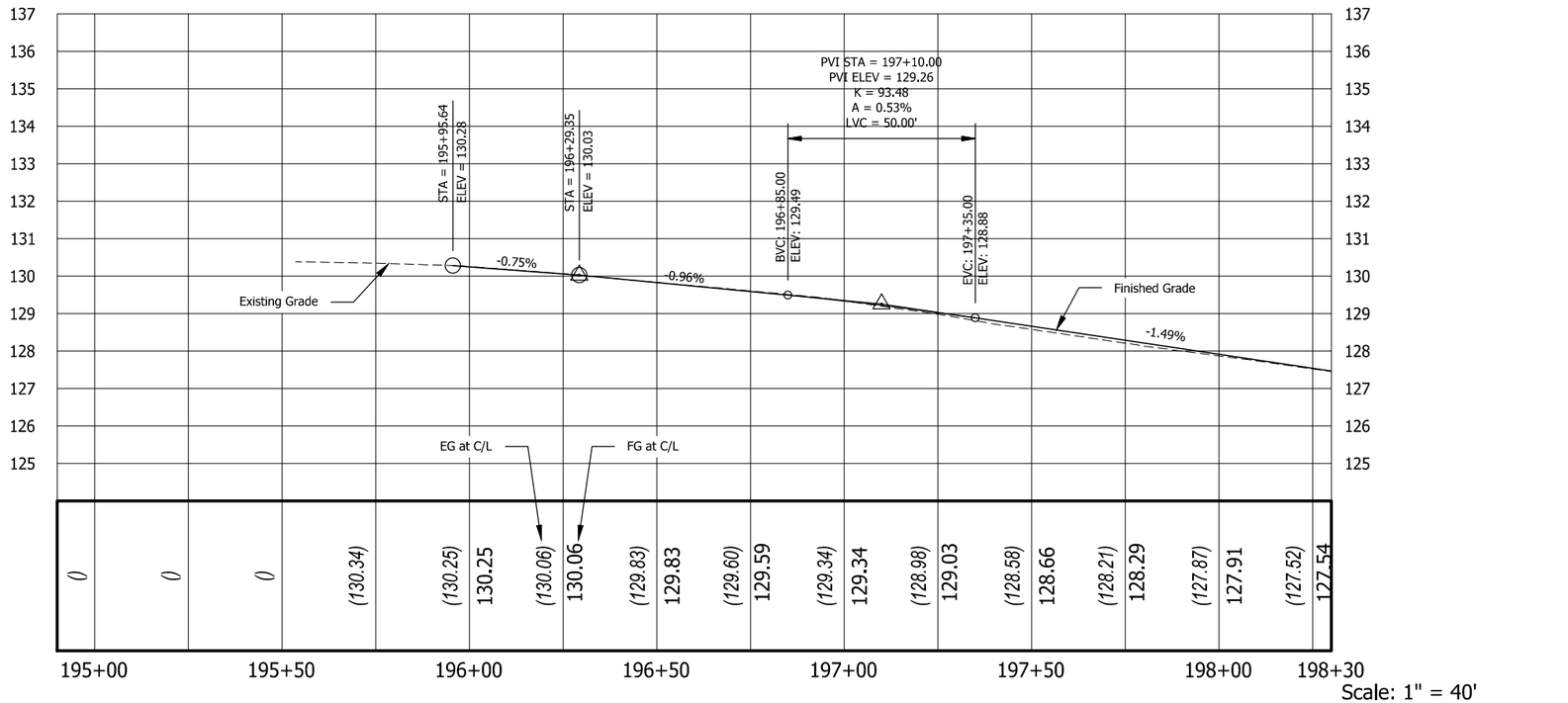
NO.	DATE:

Sheet No.
BE04

43 of 73

Plot Stamp: 9/6/2024 10:09:48 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\BE-INTERSECTION GRADING DETAILS-26766.dwg





Scale: 1" = 40'

40 20 0 40

WEBSTER RD PROFILE

CONSTRUCTION NOTES

1. Sta. "W" 195+95.64, 24.30' LT to Sta. "W" 204+29.11, 64.83' LT
   Sawcut & remove extg. pvmt., curb, & sidewalk
2. Sta. "W" 196+23.23, 20.00' RT to Sta. "W" 197+03.34, 74.24' RT
   Sawcut & remove extg. pvmt.
3. Sta. "W" 197+35.00, 76.55' RT to Sta. "W" 206+30.45, 60.37' RT
   Sawcut & remove extg. pvmt. & curb
4. Sawcut & remove extg. pvmt. (For details, see sht. BC02)
5. Remove tree
6. Remove fence within const. limits
7. Remove existing mailbox and support, reinstall mailbox on new support (See note 18)
8. Const. standard vertical curb (For details, see BC and BD series) (See Clack. Co. dwg. no. S100)
9. Sta. "W" 195+95.64, 24.30' LT to Sta. "W" 204+29.11, 64.83' LT
   Const. curb and gutter (See Clack. Co. dwg. no. S150)
   Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
   Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
10. Sta. "W" 196+43.23, 25.00' RT to Sta. "W" 197+03.34, 74.24' RT
    Const. curb and gutter (See Clack. Co. dwg. no. S150)
    Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
    Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
11. Sta. "W" 197+35.00, 76.55' RT to Sta. "W" 206+30.45, 60.37' RT
    Const. curb and gutter (See Clack. Co. dwg. no. S150)
    Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
    Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
12. Const. P.C. conc. sidewalk (see Clack. Co. dwg. no. S960)
    (For details see BC and BD Series)
13. Const. curb ramp, combination - 2 ea. (For details, see sht. BC02)
14. Const. curb ramp, parallel - 2 ea. (For details, see shts. BC03 thru BC04)
15. Const. end of walk curb ramp - 1 ea. (For details, see sht. BC01)
16. Const. P.C. conc. dwy. (For details, see shts. BD01 - BD02)
    (See Clack. Co. dwg. no. D600)
17. Const. Type "A" mountable conc. island. (For details, see sht. BC02)
    (See ODOT dwg. nos. RD705 & RD710)
18. Sta. "W" 196+22.22, 23.62'Rt
    Const. conc. collar & install single mailbox support - 1 ea.
    (See ODOT dwg. nos. RD100 & RD101)
19. Remove bollard - 3 ea.
20. Const. gutter transition (for details see sht. BB03)
21. Const. variable depth grind & 2" inlay per typical sections (see sht. no. BA01)
22. Const. variable depth asphalt overlay per typical sections (see sht. no. BA01)
23. Water meter to be relocated by utility
24. Adjust water valve box to grade - 11 ea.
25. Install bark mulch, 4" depth
26. Protect tree
27. Utility to be relocated by others
28. Sta. "CI" 197+05.22, 32.50'Lt.
    Fire hydrant to be relocated by others, top curb elev. =129.15'
29. Traffic signal equipment (see sht. no. M01)
30. Illumination equipment (see shts. P01 - P02)
31. Protect fence
32. Paint curb yellow
33. Sta: 198+27.46, 32' LT.
    Remove and install new 2.5" backflow assembly. See Clackamas River Water detail No. 112

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GENERAL CONSTRUCTION

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

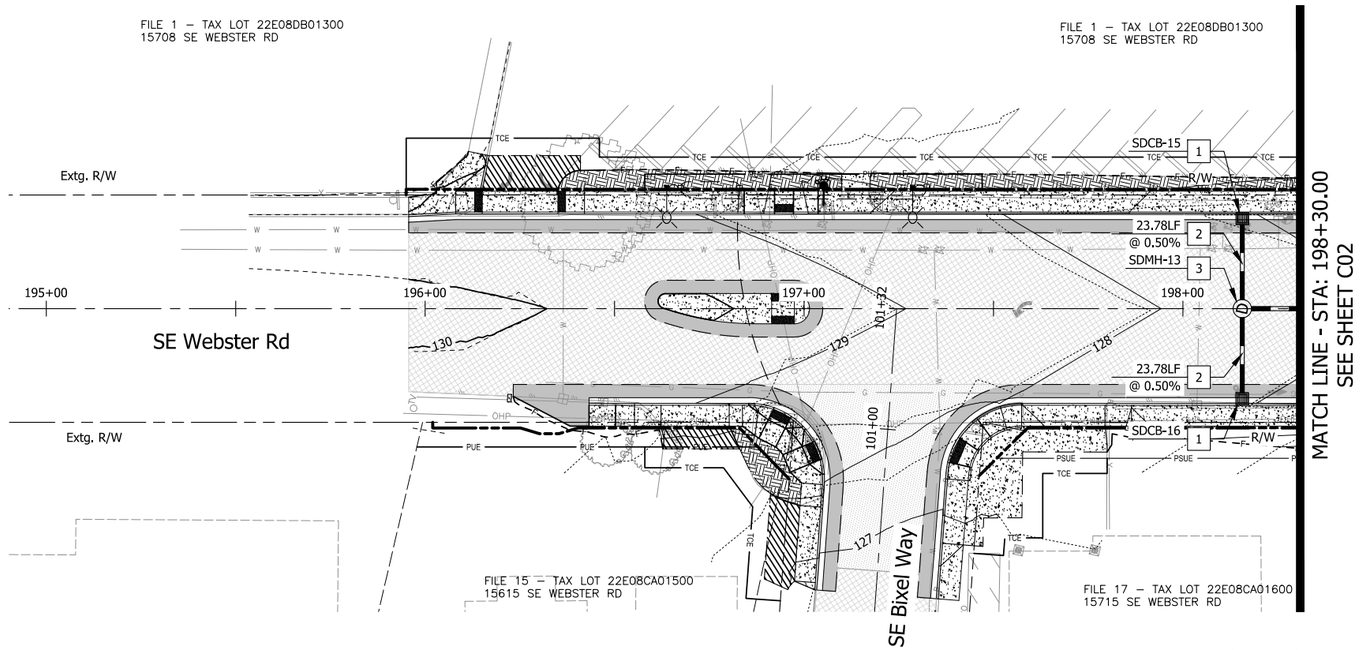
DESIGNED BY:	DRAFTED BY:	CHECKED BY:
C. COX	S. SEMENSKY	C. JESIC

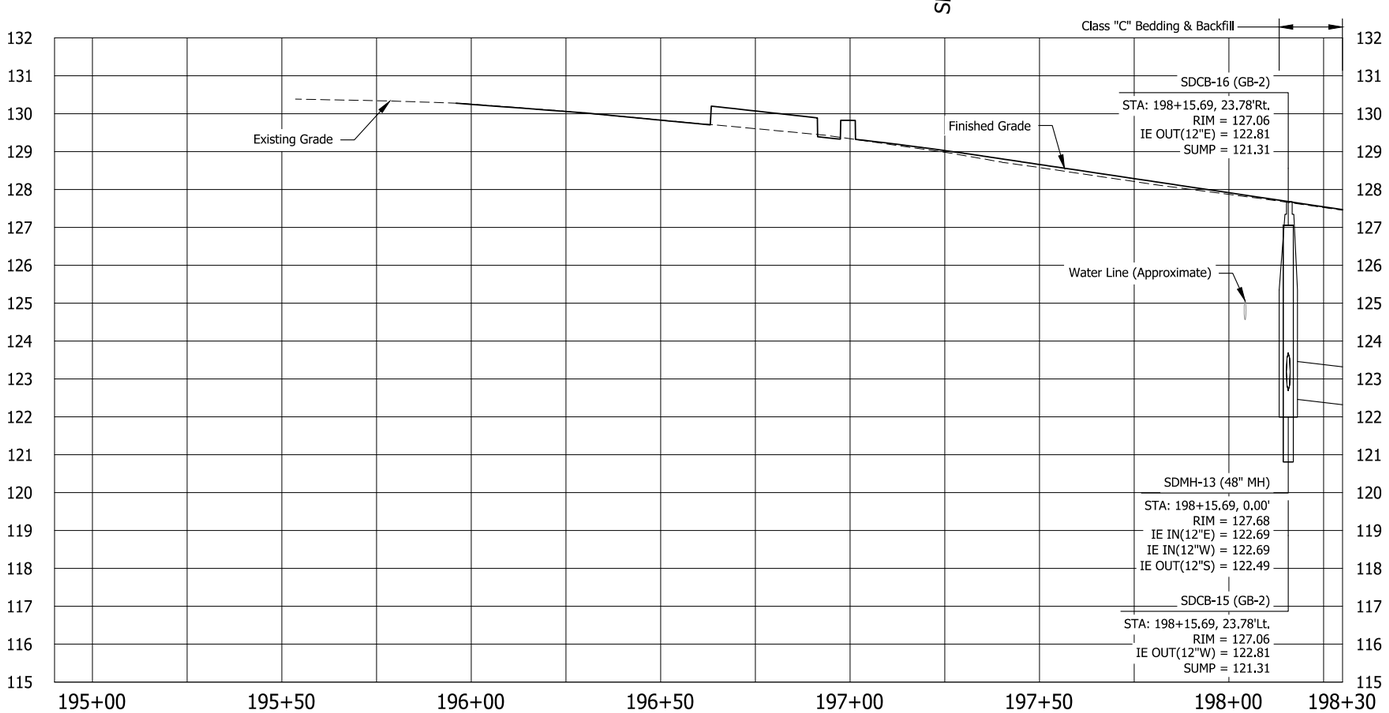
REVISIONS

NO.	DATE:

Sheet No.
C01

Plot Stamp: 10/2/2024 10:23:06 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\C-GENERAL CONSTRUCTION-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

STORMWATER

1. Install curb inlet with GB catch basin and 18" sump per WES Standard Drawing SWM-14 & SWM-18. See profile on this sheet for rim and invert elevations.
2. Install 12" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
3. Install 48" standard concrete manhole per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim and invert elevations.

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
101413PE
OREGON
Nov. 8, 2022
Daniel Evan Child
EXPIRES: 12/31/25

STORM & SANITARY PLAN AND PROFILE

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

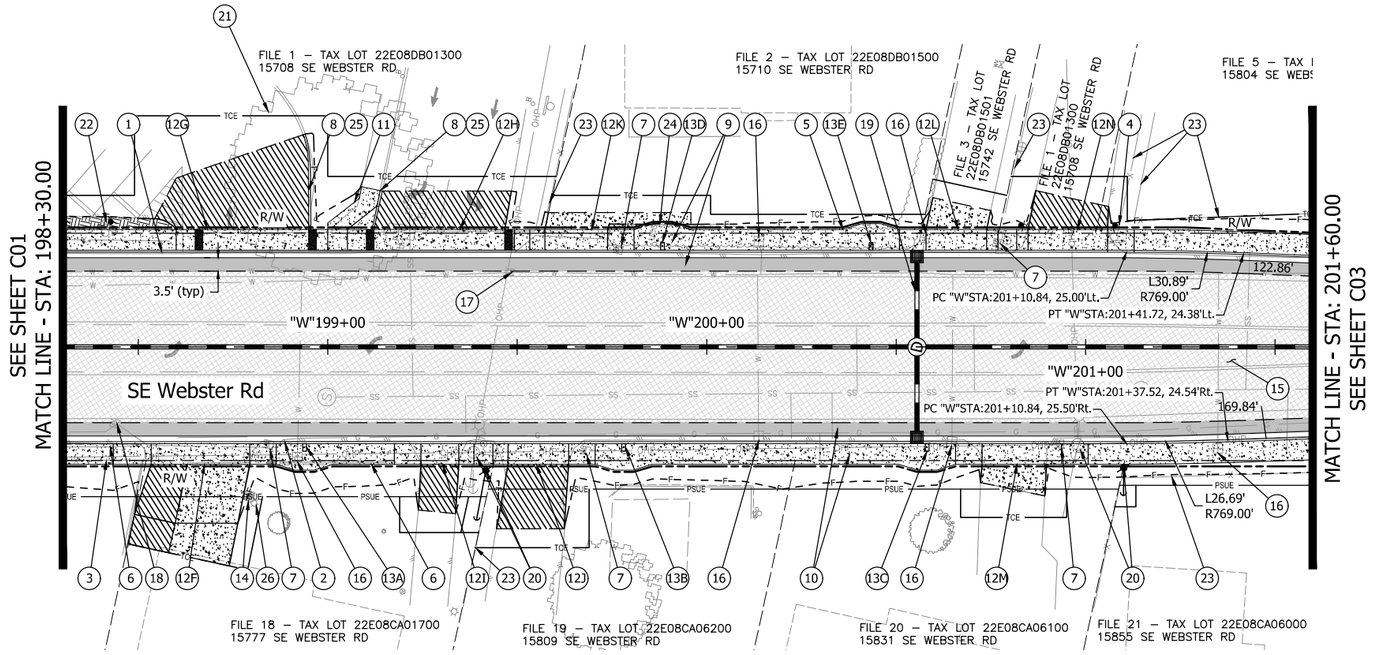
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

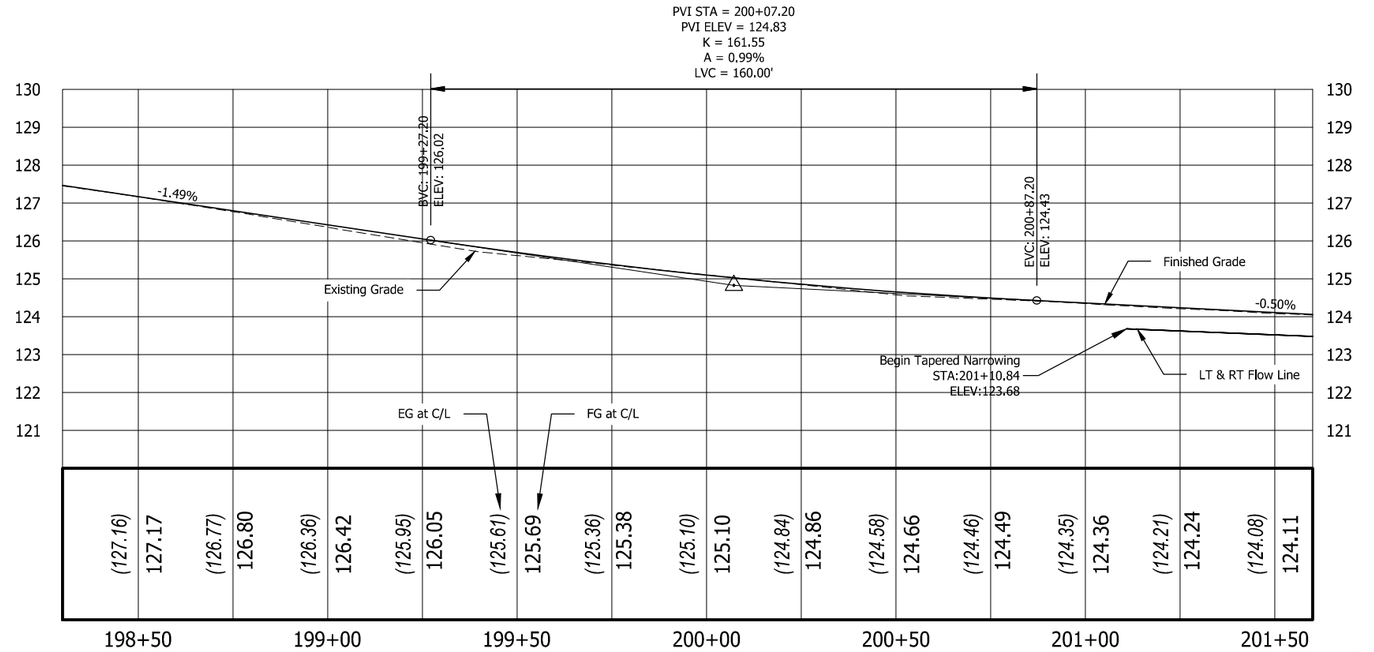
REVISIONS

NO.	DATE:

Sheet No.
C01A

Plot Stamp: 12/5/2024 7:55:41 AM - Daniel Child
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\DR-STORM PLAN AND PROFILE-26766.dwg





WEBSTER RD PROFILE

Scale: 1" = 40'

40 20 0 40

CONSTRUCTION NOTES

1. See Sht. C01, Note 1
   Sawcut & remove extg. pvmt., curb, & sidewalk
2. See Sht. C01, Note 3
   Sawcut & remove extg. pvmt., curb, & sidewalk
3. Remove fence
4. Remove chain link fence to grading limits, 1 panel
5. Remove hedge row within grading limits
6. Remove block wall
7. Remove existing mailbox and support, reinstall mailbox on new support (See note 13)
8. Const. standard vertical curb (For details, see BC and BD series) (See Clack. Co. dwg. no. S100)
9. See Sht. C01, Note 9
   Const. curb and gutter
   Const. P.C. conc. sidewalk
   Const. full depth A.C. per typ. sections
10. See Sht. C01, Note 11
    Const. curb and gutter
    Const. P.C. conc. sidewalk
    Const. full depth A.C. per typ. sections
11. Const. P.C. conc. sidewalk (see Clack. Co. dwg. no. S960)
    (For details, see sht. BD03)
12. Const. P.C. conc. dwy. (For details, see shts. BD02 - BD05)
    (See Clack. Co. dwg. no. D600)
13. A - Sta. "W" 198+93.85, 26.50' RT
    B - Sta. "W" 199+78.10, 26.50' RT
    C - Sta. "W" 200+58.17, 26.50' RT
    D - Sta "W" 199+88.32, 26.58' LT
    E - Sta "W" 200+43.38, 26.58' LT
    Const. conc. collar & install single mailbox support - 5 ea.
    Const. widened sidewalk around obstructions
    (See ODOT dwg. nos. RD100, RD101 & RD720)
14. Remove private drainage structure and perforated pipe
15. Const. variable depth grind & 2" inlay per typical sections (see sht. no. BA01)
16. Water meter to be relocated by utility
17. Adjust water valve box to grade - 1 ea.
18. Adjust gas valve box to grade - 1 ea.
19. Stormwater infrastructure (see sht. no. C02A)
20. Utility to be relocated by others
21. Protect tree
22. Protect existing private lighting equipment
23. Protect fence
24. Sta. "W" 199+80.82, 31.00'LT to Sta. "W" 199+95.82, 31.00'LT
    Thickened edge sidewalk. For details, see sht. BB03
25. Paint curb yellow
26. Protect lamp post and base

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GENERAL CONSTRUCTION

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

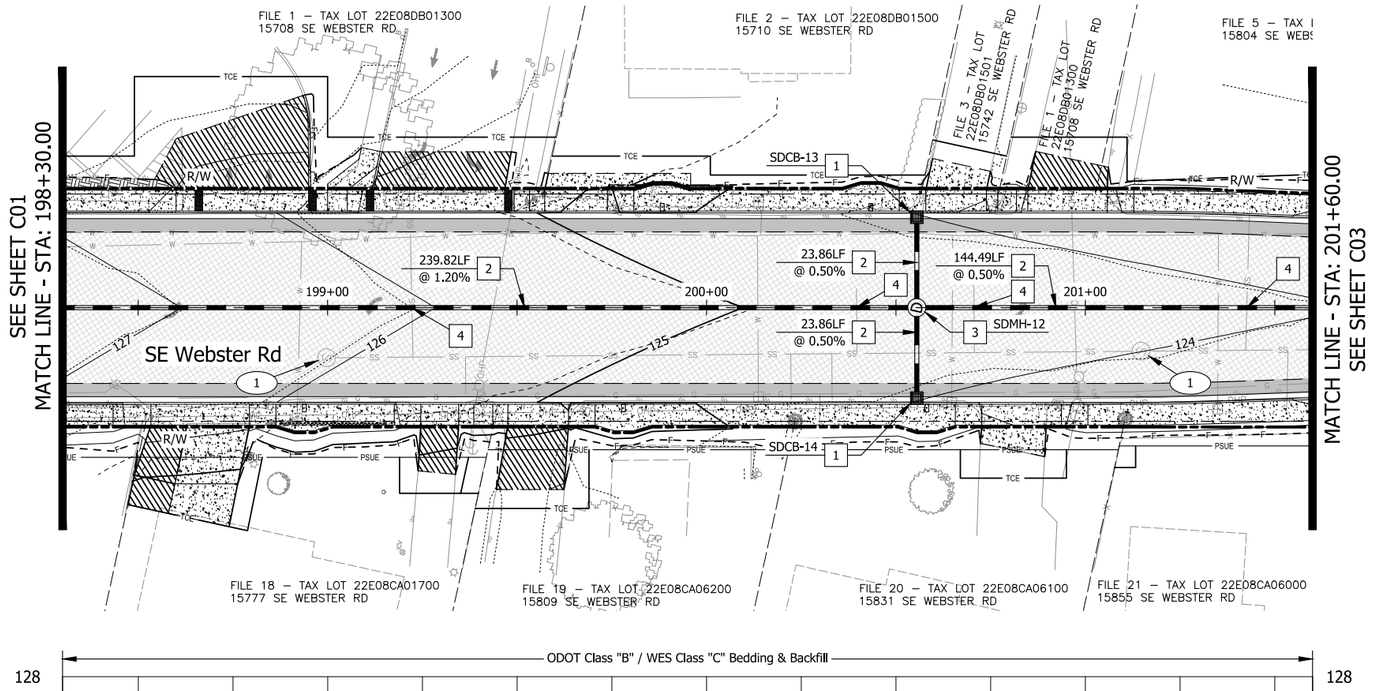
REVISIONS

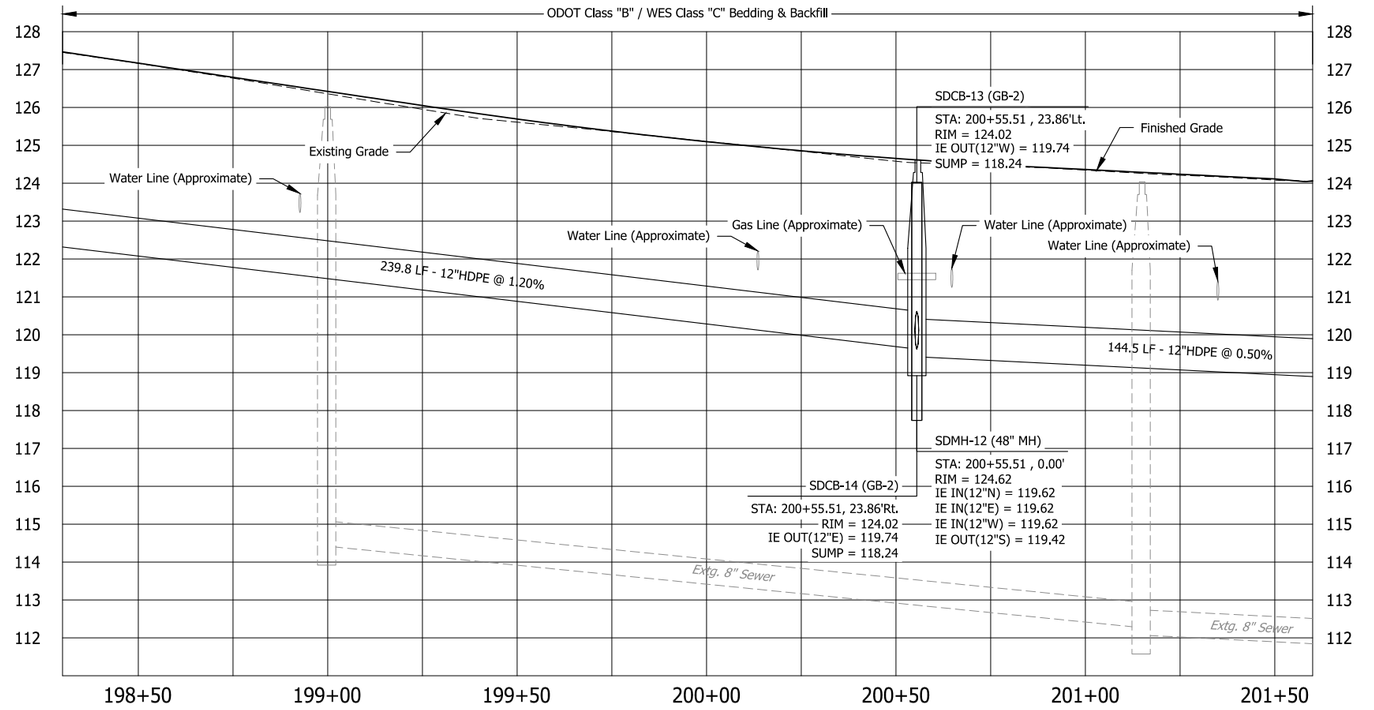
NO.	DATE:

Sheet No. C02

46 of 73

Plot Stamp: 10/2/2024 10:24:22 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\C-GENERAL CONSTRUCTION-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

STORMWATER

1. Install curb inlet with GB catch basin and 18" sump per WES Standard Drawing SWM-14 & SWM-18. See profile on this sheet for rim and invert elevations.
2. Install 12" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
3. Install 48" standard concrete manhole per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim and invert elevations.
4. Contractor to verify location of existing sanitary lateral prior to construction of storm pipe. In case of conflict, lateral to be reconstructed following WES Standard Drawing SAN-021.

SANITARY SEWER

(1) Adjust existing manhole rim to grade per WES Standard Drawing SAN-027.

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
101413PE
Digitally Signed 2025.12.06
OREGON
Nov. 8, 2022
Daniel Evan Child
EXPIRES: 12/31/25

STORM & SANITARY PLAN AND PROFILE

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

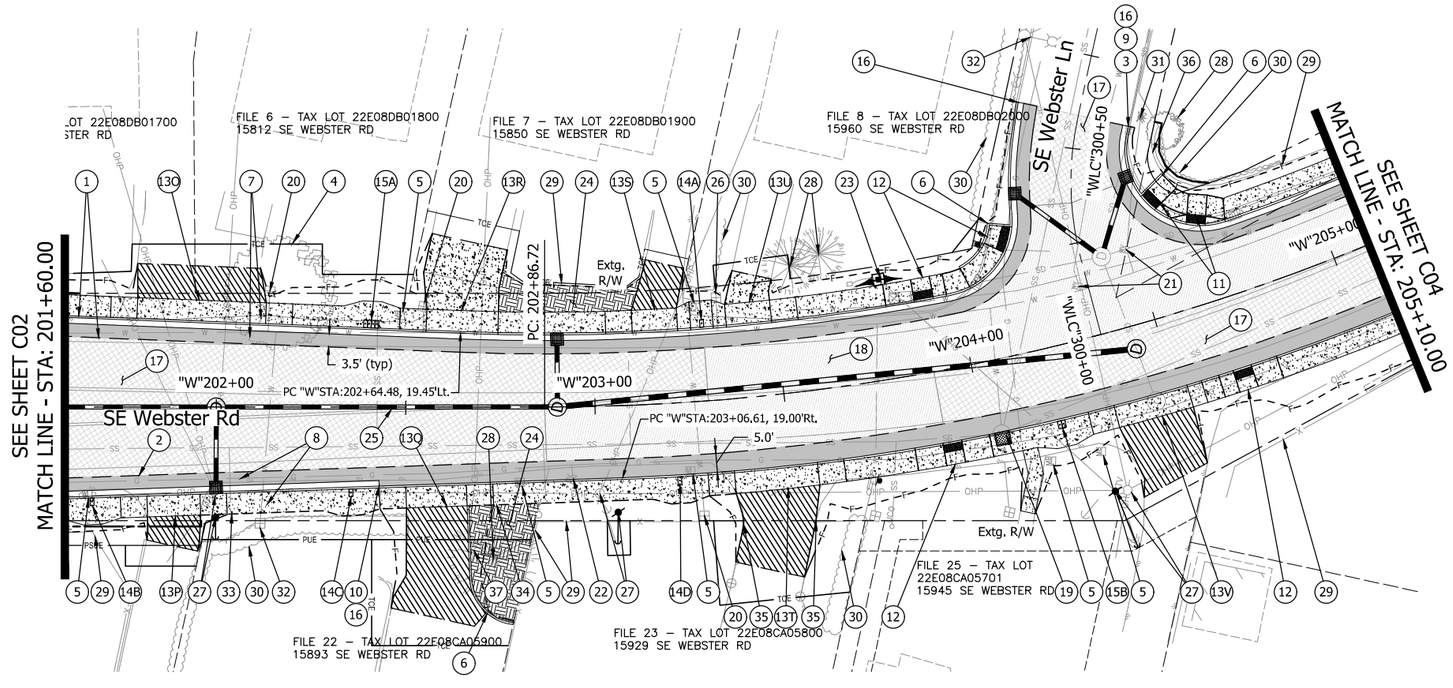
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

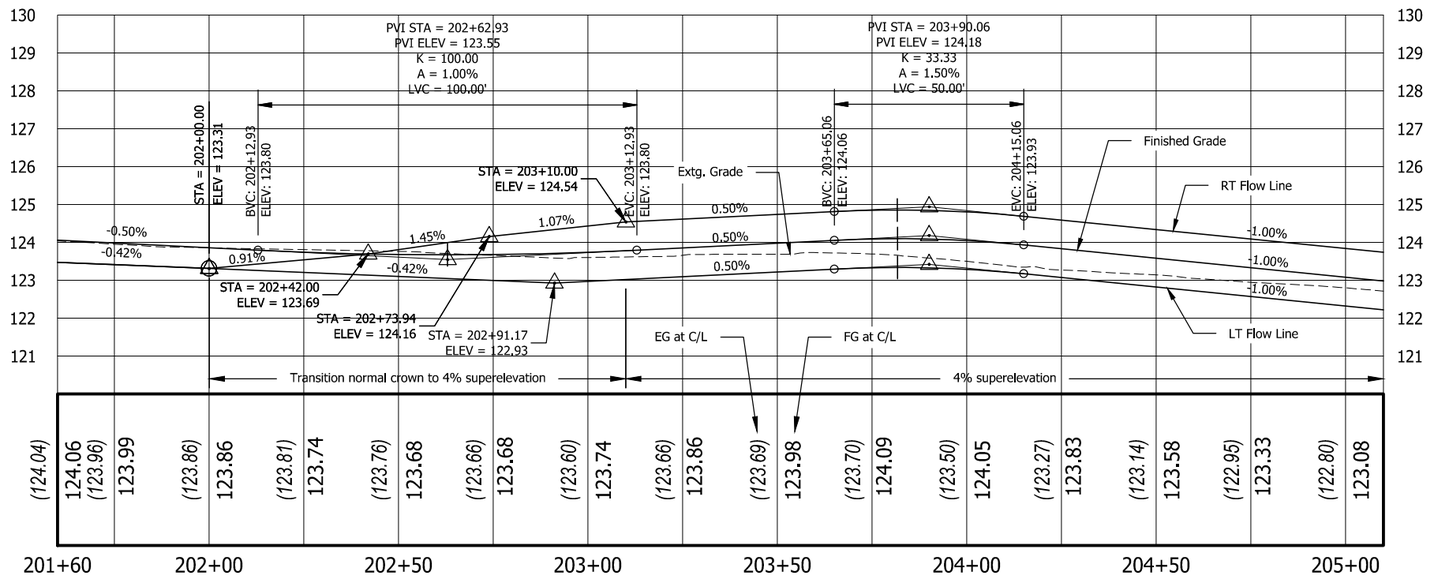
REVISIONS

NO.	DATE:

Sheet No.
C02A
47 of 73

Plot Stamp: 12/5/2024 7:56:26 AM • Daniel Child
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\DR-STORM PLAN AND PROFILE-26766.dwg





WEBSTER RD PROFILE

Scale: 1" = 40'

40 20 0 40

CONSTRUCTION NOTES

1. See Sht. C01, Note 1
   Sawcut & remove extg. pvmt., curb, & sidewalk
2. See Sht. C01, Note 3
   Sawcut & remove extg. pvmt., curb, & sidewalk
3. Sta. "W" 204+58.33, 50.82' LT to Sta. "W" 210+19.58, 56.80' LT
   Sawcut & remove extg. pvmt. & curb
4. Remove tree
5. Remove existing mailbox and support, reinstall mailbox on new support (See notes 14 and 15)
6. Const. standard curb (For details, see BC and BD series) (See Clack. Co. dwg. no. S100)
7. See Sht. C01, Note 9
   Const. curb and gutter
   Const. P.C. conc. sidewalk
   Const. full depth A.C. per typ. sections
8. See Sht. C01, Note 11
   Const. curb and gutter
   Const. P.C. conc. sidewalk
   Const. full depth A.C. per typ. sections
9. Sta. "W" 204+58.33, 50.82' LT to Sta. "W" 210+19.58, 56.80' LT
   Const. curb and gutter (See Clack. Co. dwg. no. S150)
   Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
   Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
10. Sta. "W" 202+43.03, 20.87' RT to Sta. "W" 205+97.05, 19.00' RT
    Const. Standard curb (See Clack. Co. dwg. no. S100)
    Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
    Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
11. Const. curb ramp, combination - 2 ea. (For details, see sht. BC07)
12. Const. curb ramp, parallel - 4 ea.
    (For details, see shts. BC05 - BC06)
13. Const. P.C. conc. dwy. (For details, see shts. BD05 - BD08)
    (See Clack. Co. dwg. no. D600)
14. A - Sta. "W" 203+29.71, 20.50' LT
    B - Sta. "W" 201+67.25, 25.01' RT
    C - Sta. "W" 202+35.58, 22.63' LT
    D - Sta. "W" 203+21.20, 20.50' RT
    Const. conc. collar & install single mailbox support - 4 ea.
    Const. widened sidewalk around obstructions (See ODOT dwg. nos. RD100, RD101 & RD720)
15. A - Sta. "W" 202+40.94, 21.89' LT
    B - Sta. "W" 204+19.71, 20.50' RT
    Const. conc. collar & install multiple mailbox support - 2 ea.
    Const. widened sidewalk around obstructions (See ODOT dwg. nos. RD100, RD101 & RD720)
16. Const. gutter transition (for details see sht. BB03)
17. Const. variable depth grind & 2" inlay per typical sections (see sht. no. BA01)
18. Const. variable depth asphalt overlay per typical sections (see sht. no. BA01)
19. Sanitary sewer infrastructure (see sht. C03A)
20. Adjust water meter to grade - 3 ea.
21. Adjust water valve box to grade - 2 ea.
22. Adjust gas valve box to grade - 1 ea.
23. Electrical equipment to be relocated (see sht. no. M01)
24. Install bark mulch, 4" depth
25. Stormwater infrastructure (see sht. C03A)
26. Water meter to be relocated by utility
27. Utility to be relocated by others
28. Protect tree
29. Protect fence
30. Protect hedge row
31. Protect existing fire hydrant
32. Protect utility
33. Sta. "W" 201+95.89, 28.51' Rt to Sta. "W" 202+50.23, 26.23' RT
    Thickened edge sidewalk
34. Sta. "W" 202+66.22, 26.07' RT to Sta. "W" 203+35.23, 25.00' RT
    Thickened edge sidewalk
35. Remove fence to grading limits
36. Protect block wall
37. Remove block wall

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GENERAL CONSTRUCTION

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

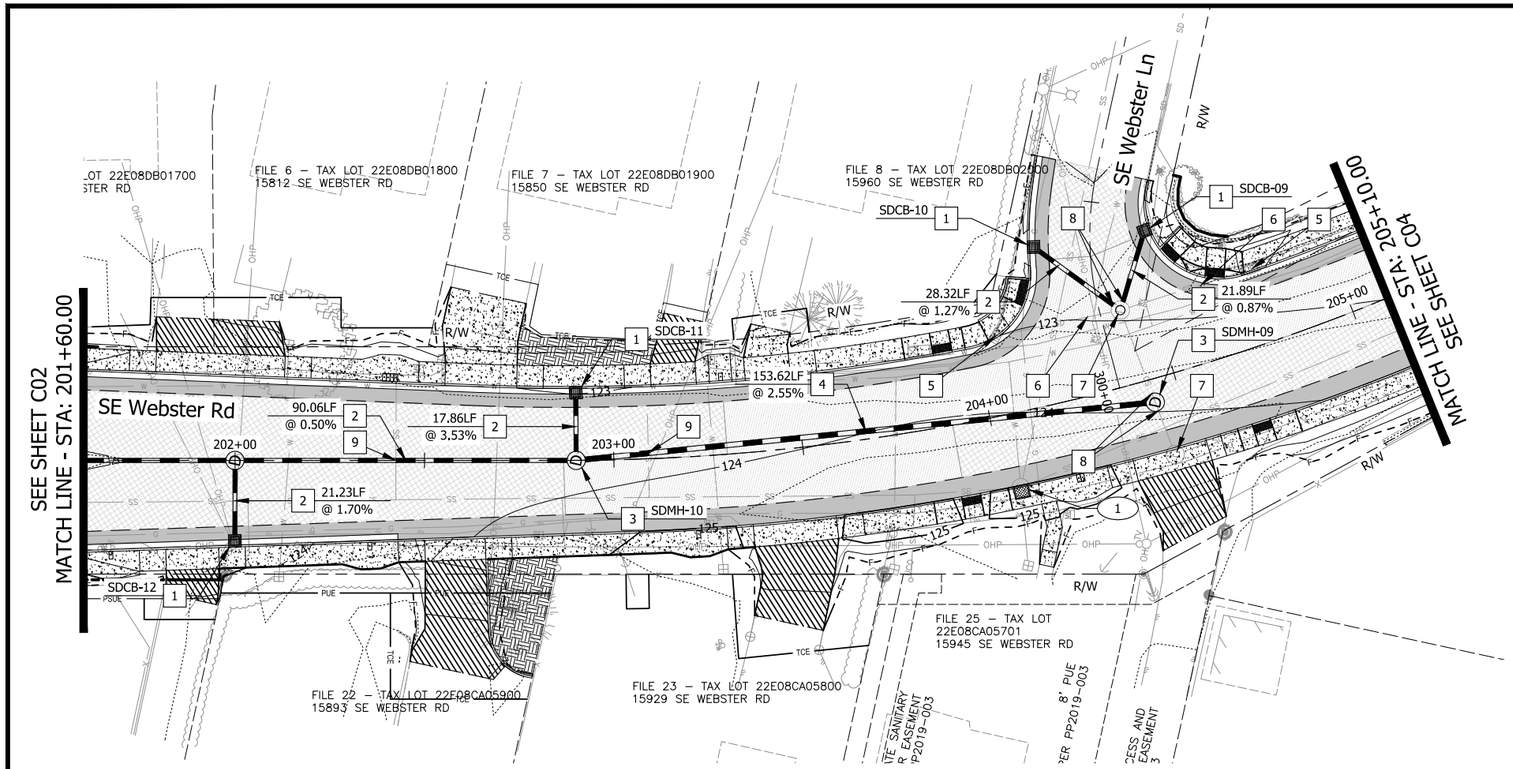
DESIGNED BY:	DRAFTED BY:	CHECKED BY:
C. COX	S. SEMENSKY	C. JESIC

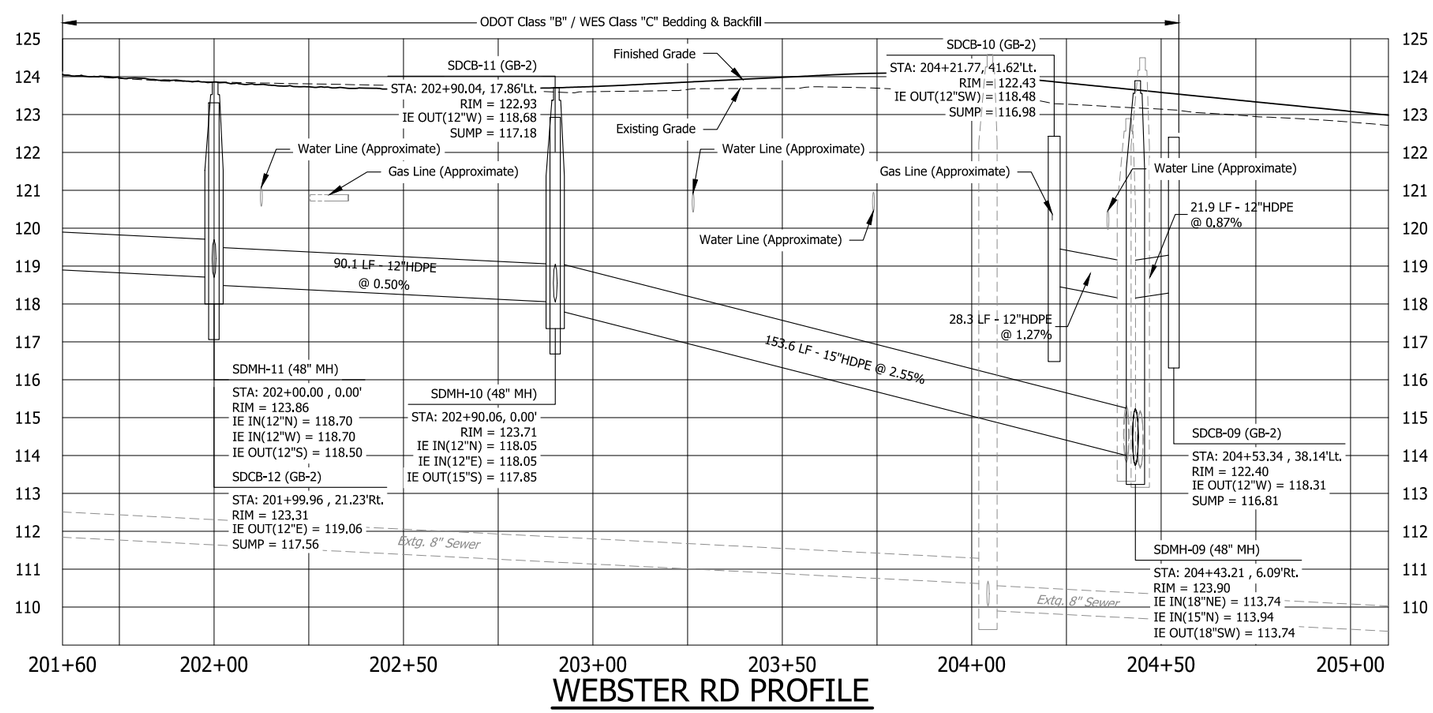
REVISIONS

NO.	DATE:

Sheet No.
C03

Plot Stamp: 10/2/2024 10:25:34 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\C-GENERAL CONSTRUCTION-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

STORMWATER

1. Install curb inlet with GB catch basin and 18" sump per WES Standard Drawing SWM-14 & SWM-18. See profile on this sheet for rim and invert elevations.
2. Install 12" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
3. Install 48" standard concrete manhole per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim and invert elevations.
4. Install 15" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
5. Remove existing storm drain inlet.
6. Abandon existing storm line after construction and acceptance of new storm sewer. Fill existing storm line with grout and abandon in place.
7. Protect existing structure in place. Adjust rim to match finished grade elevations as needed.
8. Connect pipe to storm manhole with a flexible connection per WES Standard Drawing SWM-29.
9. Contractor to verify location of existing sanitary lateral prior to construction of storm pipe. In case of conflict, lateral to be reconstructed following WES Standard Drawing SAN-021.

SANITARY SEWER

(1) Protect existing sanitary sewer manhole in place and install galvanized steel curb hatch per Detail A on Sheet BB02 or approved equal.

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
101413PE
Digitally Signed 2025.12.06
OREGON
Nov. 8, 2022
Daniel Evan Child
EXPIRES: 12/31/25

STORM & SANITARY PLAN AND PROFILE

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER: JONATHAN HANGARTNER

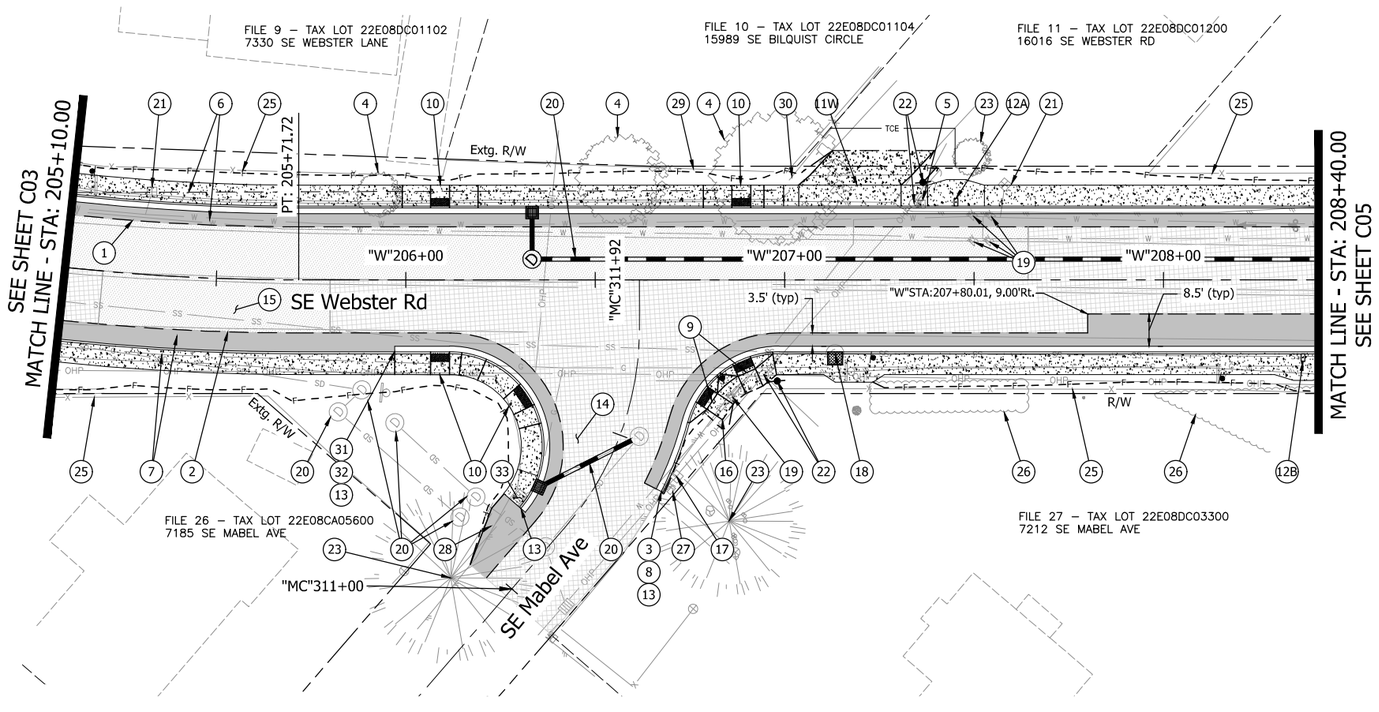
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

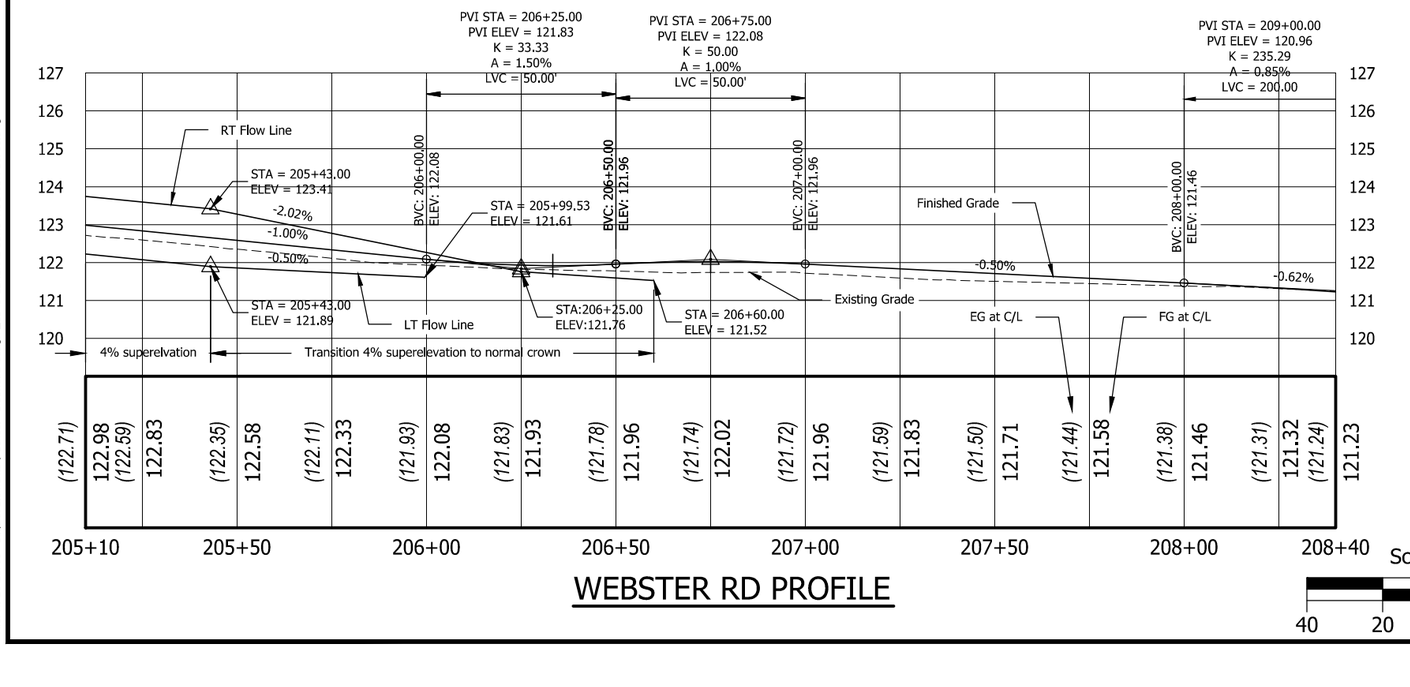
REVISIONS

NO.	DATE:

Sheet No. C03A

Plot Stamp: 12/5/2024 7:56:44 AM - Daniel Child
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\DR-STORM PLAN AND PROFILE-26766.dwg





WEBSTER RD PROFILE

Scale: 1" = 40'

40 20 0 40

CONSTRUCTION NOTES

1. See Sht. C03, Note 3
   Sawcut & remove extg. pvmt. & curb
2. See Sht. C01, Note 3
   Sawcut & remove extg. pvmt., curb, & sidewalk
3. Sta. "W" 206+67.51, 55.82' RT to Sta. "W" 210 +03.48, 19.00' RT
   Sawcut & remove extg. pvmt. & curb
4. Remove tree
5. Remove existing mailbox and support, reinstall mailbox on new support (See note 12)
6. See Sht. C03, Note 9
   Const. curb and gutter
   Const. P.C. conc. sidewalk
   Const. full depth A.C. per typ. sections
7. See Sht. C03, Note 10
   Const. curb
   Const. P.C. conc. sidewalk
   Const. full depth A.C. per typ. sections
8. Sta. "W" 206+67.51, 55.82' RT to Sta. "W" 210 +03.48, 19.00' RT
   Const. curb and gutter (See Clack. Co. dwg. no. S150)
   Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
   Const. full depth A.C. per typ. sections
9. Const. curb ramp, combination - 2 ea. (For details, see sht. BC12)
10. Const. curb ramp, parallel - 4 ea. (For details, see shts. BC09 - BC11)
11. Const. P.C. conc. dwy. (For details, see sht. BD08)
    (See Clack. Co. dwg. no. D600)
12. A - Sta. "W" 207+45.28, 20.50' LT
    B - Sta. "W" 208+36.84, 20.50' RT
    Const. conc. collar & install single mailbox support - 2 ea.
    Const. widened sidewalk around obstructions
    (See ODOT dwg. nos. RD100, RD101 & RD720)
13. Const. gutter transition (for details see sht. BB03)
14. Const. variable depth grind & 2" inlay per typical sections (see sht. BA01)
15. Const. variable depth asphalt overlay per typical sections (see sht. BA01)
16. Sta. "W" 206+67.51, 55.82' RT to Sta. "W" 206+83.62, 36.92' RT
    Const. thickened edge sidewalk (for details see sht. BB03)
17. Adjust water meter to grade - 1 ea.
18. Sanitary Sewer infrastructure (See sht. C04A)
19. Adjust water valve box to grade - 5 ea.
20. Stormwater infrastructure (see sht. C04A)
21. Water meter to be relocated by utility
22. Utility to be relocated by others
23. Protect tree
24. Protect utility
25. Protect fence
26. Protect hedge row
27. Protect mail box
28. Const. full depth A.C. per typ. sections (for grading details, see sht. BC09)
29. Protect fence. Replace damage due to tree removal.
30. Remove fence to grading limits
31. Sta. "W" 205+97.05, 19.00' RT to Sta. "W" 206+30.45, 60.37' RT
    Sawcut & remove extg. pvmt. & curb
32. Sta. "W" 205+97.05, 19.00' RT to Sta. "W" 206+30.45, 60.37' RT
    Const. curb and gutter (See Clack. Co. dwg. no. S150)
    Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
33. Const. end of walk curb ramp - 1 ea. (For details, , see sht. BC09)

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GENERAL CONSTRUCTION

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

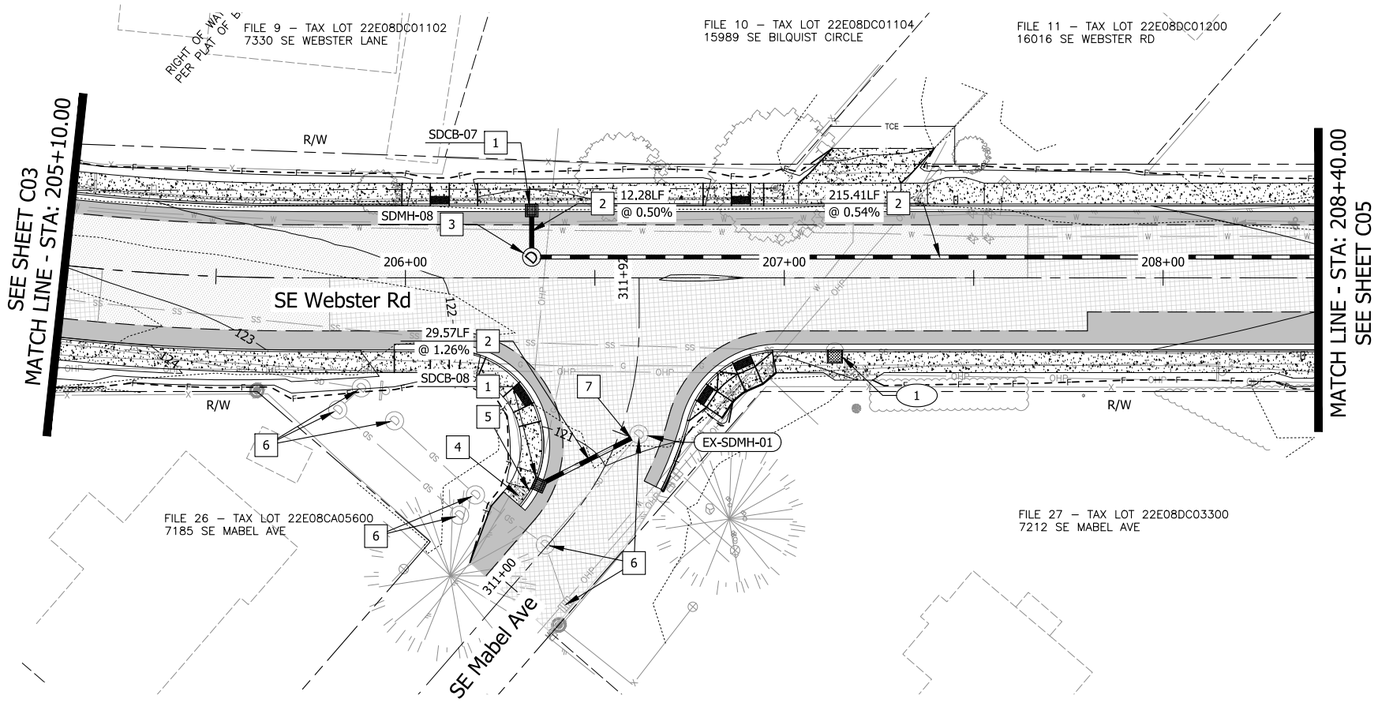
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

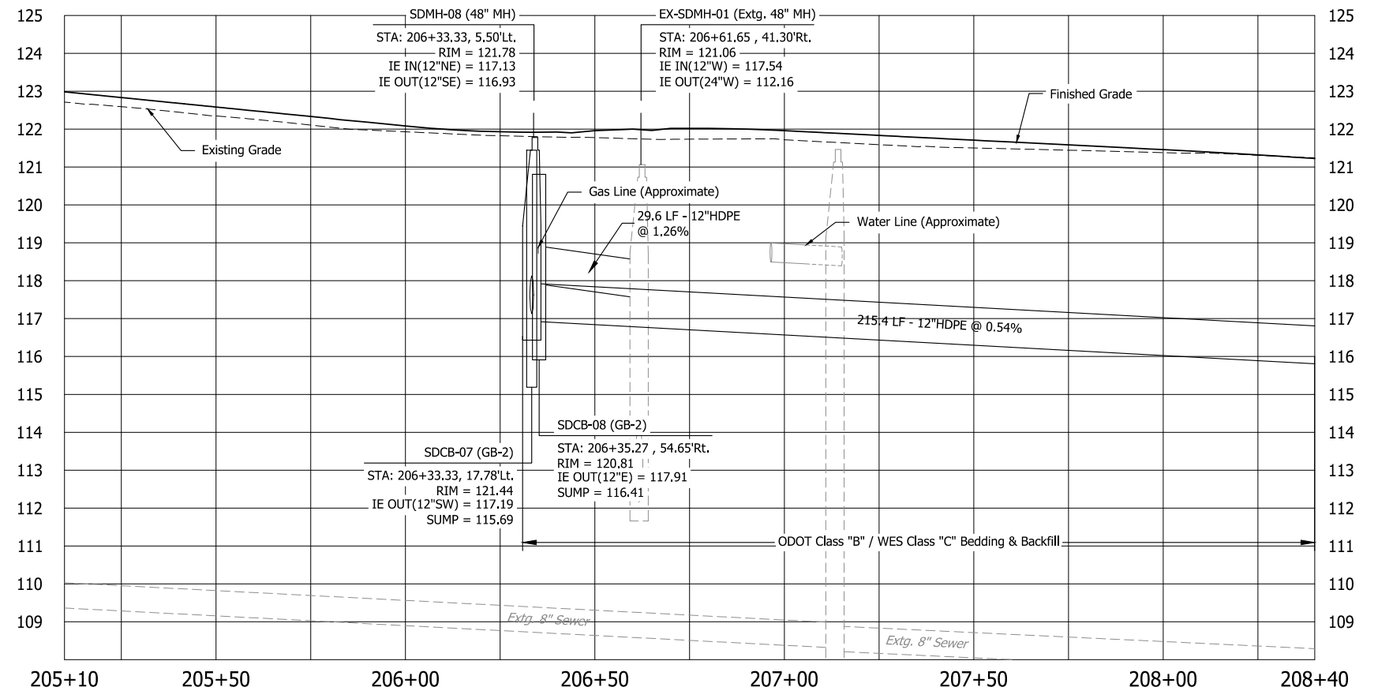
REVISIONS

NO.	DATE:

Sheet No.
C04

Plot Stamp: 10/2/2024 10:39:09 AM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\C-GENERAL CONSTRUCTION-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

STORMWATER

1. Install curb inlet with GB catch basin and 18" sump per WES Standard Drawing SWM-14 & SWM-18. See profile on this sheet for rim and invert elevations.
2. Install 12" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
3. Install 48" standard concrete manhole per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim and invert elevations.
4. Remove existing storm drain inlet.
5. Remove existing storm pipe.
6. Protect existing structure in place. Adjust rim to match finished grade elevations as needed.
7. Connect pipe to storm manhole with a flexible connection per WES Standard Drawing SWM-29.

SANITARY SEWER

(1) Protect existing sanitary sewer manhole in place and install galvanized steel curb hatch per Detail A on Sheet BB02 or approved equal.

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
101413PE
Digitally Signed 2025.12.06
OREGON
Nov. 8, 2022
Daniel Evan Child
EXPIRES: 12/31/25

STORM & SANITARY PLAN AND PROFILE

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

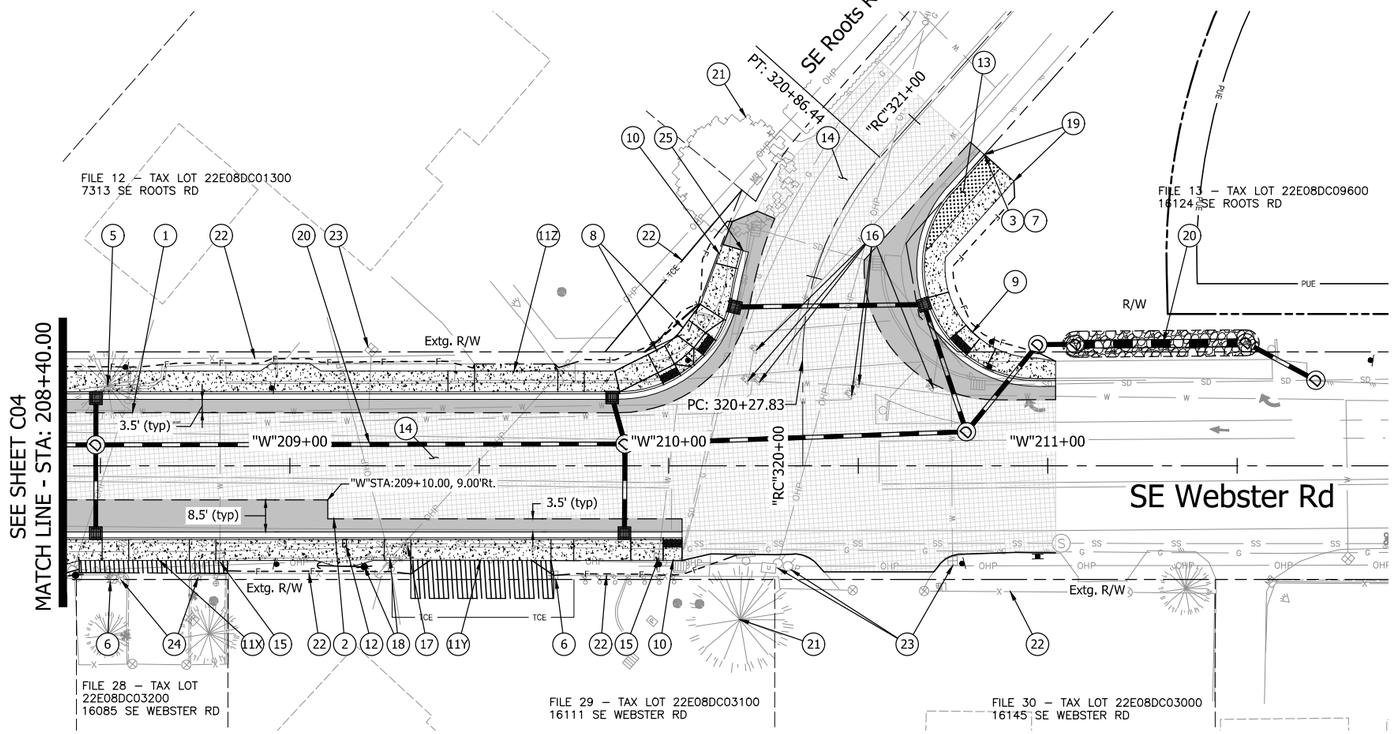
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

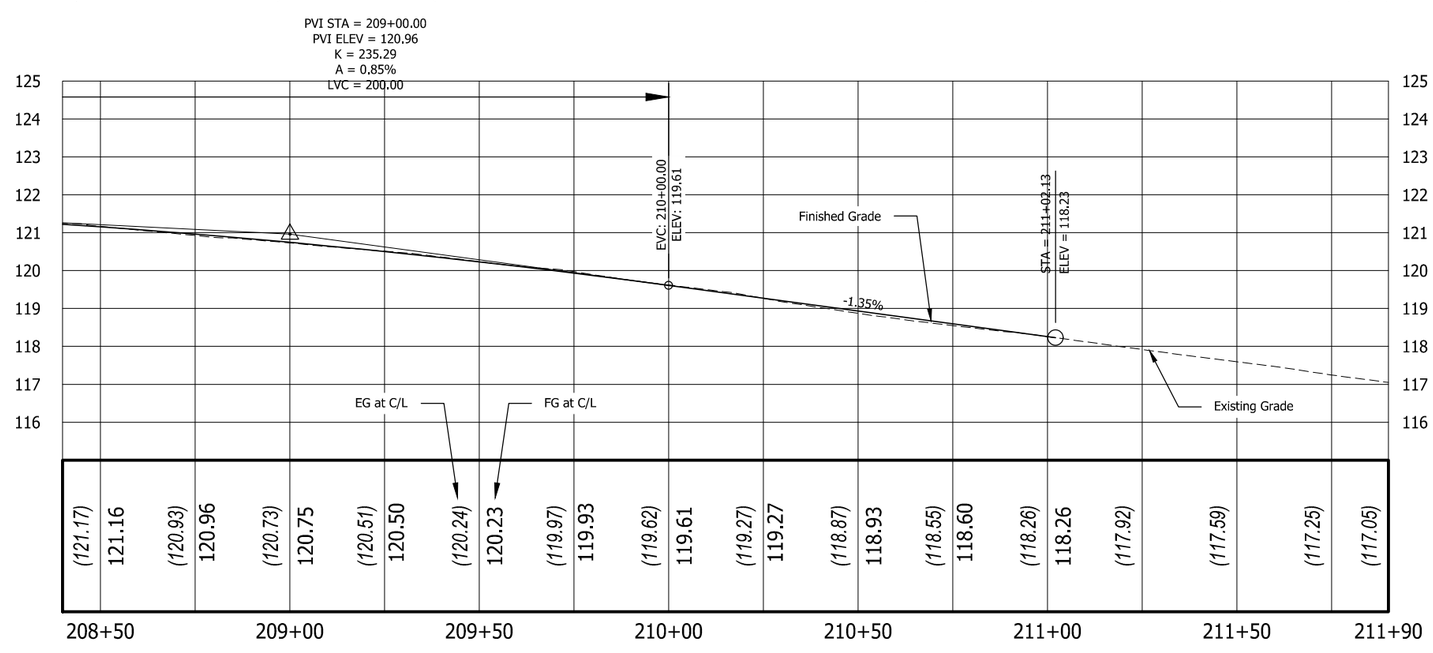
REVISIONS

NO.	DATE:

Sheet No.
C04A

Plot Stamp: 12/5/2024 7:56:55 AM - Daniel Child
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\DR-STORM PLAN AND PROFILE-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

1. See Sht. C03, Note 3
   Sawcut & remove extg. pvmt. & curb
2. See Sht. C04, Note 3
   Sawcut & remove extg. pvmt. & curb
3. Sta. "W" 210+83.31, 82.12' LT to Sta. "W" 211+02.13, 22.44' LT
   Sawcut & remove extg. pvmt. & curb
4. Note Not Used
5. Remove tree
6. Remove existing mailbox and support, reinstall mailbox on new support (See sht. C04 note 12 and sht. C05 note 12)
7. Sta. "W" 210+83.31, 82.12' LT to Sta. "W" 211+02.13, 22.44' LT
   Const. curb and gutter (See Clack. Co. dwg. no. S150)
   Const. P.C. conc. sidewalk (See Clack. Co. dwg. no S960)
   Const. full depth A.C. per typ. sections (See shts. BA01 - BA04)
8. Const. curb ramp, combination - 2 ea. (For details, see sht. BC14)
9. Const. curb ramp, parallel - 1 ea. (For details, see sht. BC13 and BC15)
10. Const. end of walk curb ramp - 2 ea. (For details, see shts. BC13 thru BC15)
11. Const. P.C. conc. dwy. (For details, see shts. BD08 - BD09)
    (See Clack. Co. dwg. no. D600)
12. Sta. "W" 209+14.37, 20.50' RT
    Const. conc. collar & install single mailbox support - 1 ea.
    Const. widened sidewalk around obstructions
    (See ODOT dwg. nos. RD100, RD101 & RD720)
13. Install perm. seeding over 4" topsoil
14. Const. variable depth grind & 2" inlay per typical sections (see sht. no. BA01)
15. Water meter to be relocated by utility
16. Adjust water valve box to grade -6 ea.
17. Adjust gas valve box to grade - 1 ea.
18. Utility to be relocated by others
19. Contractor to verify existing grades at tie in to new Clackamas CLT Subdivision (Clack Co. File No. Z0206-22-SS & SC007122)
20. Stormwater infrastructure (see shts. C05A)
21. Protect tree
22. Protect fence
23. Protect utility
24. Protect existing lighting equipment
25. Const. gutter transition (for details see sht. BB03)
26. Note Not Used

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GENERAL CONSTRUCTION

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

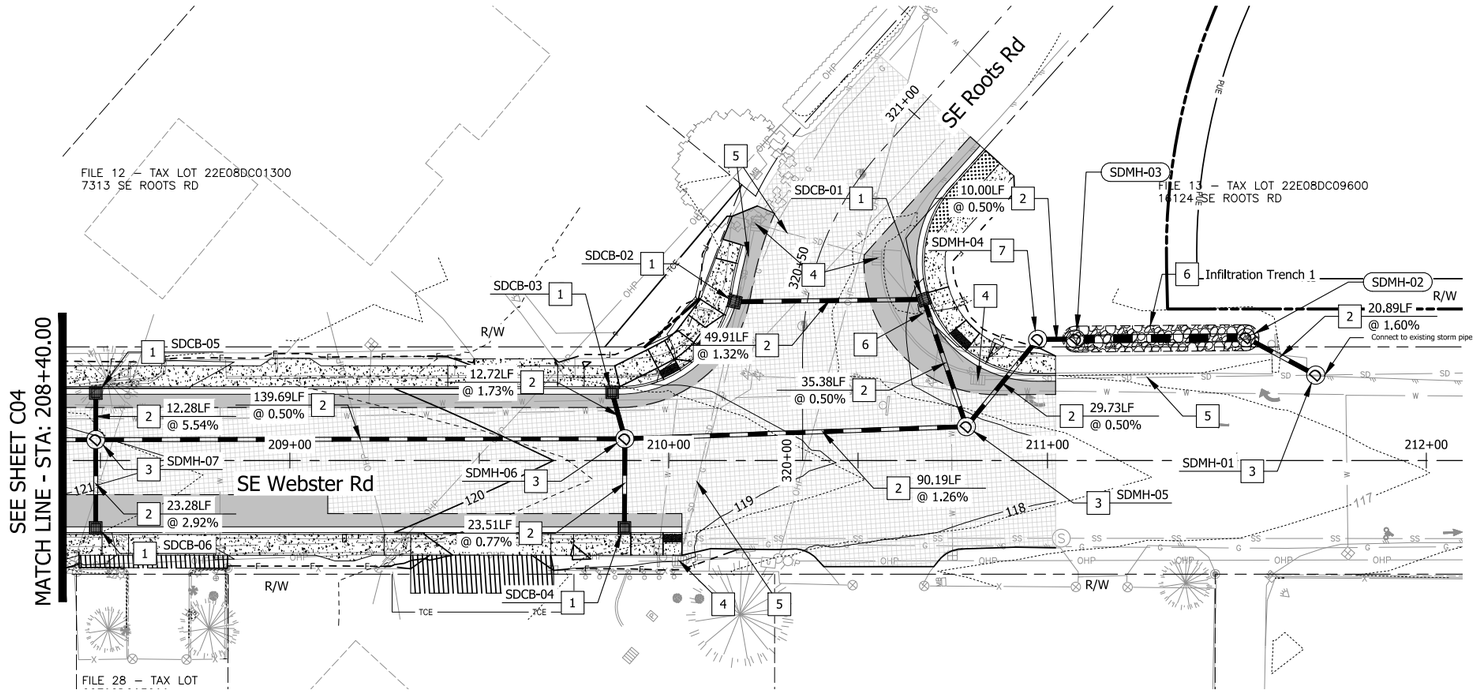
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

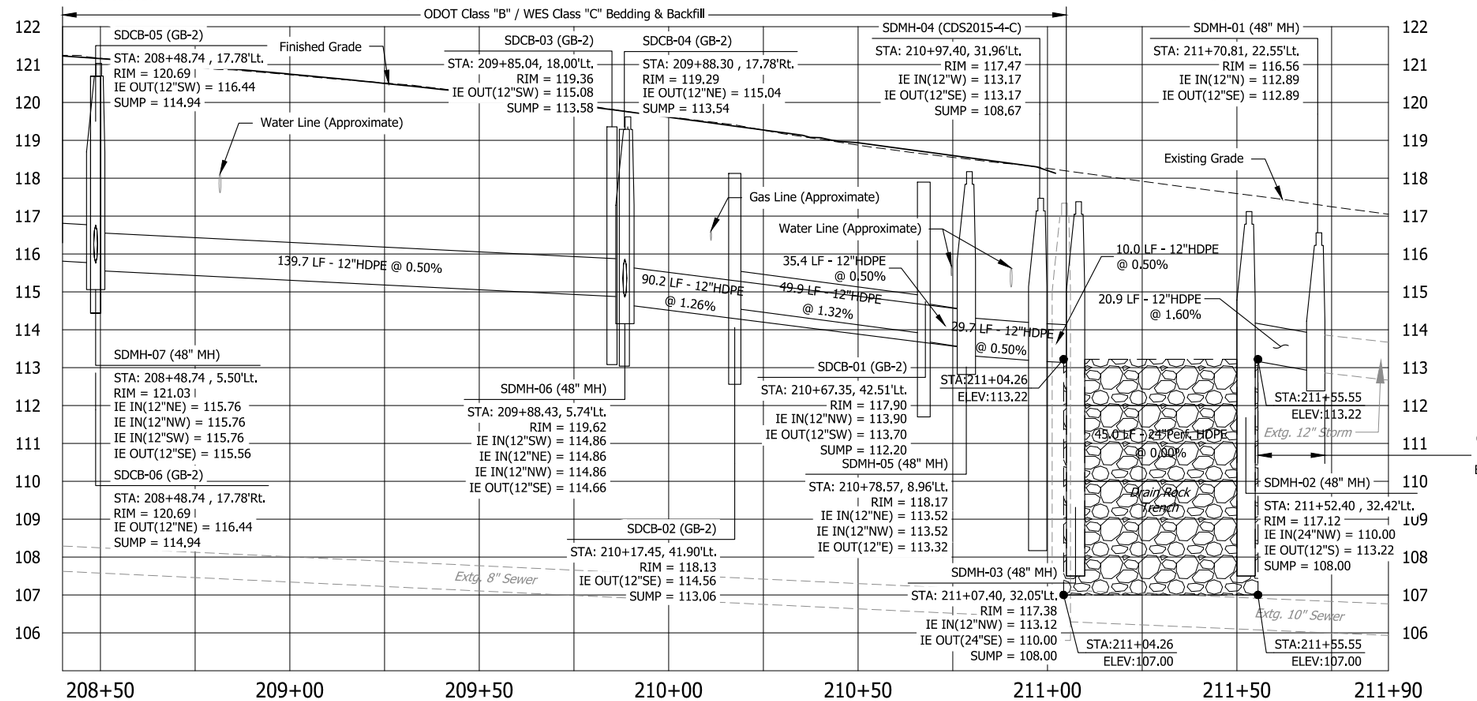
REVISIONS

NO.	DATE:

Sheet No.
C05

Plot Stamp: 12/4/2024 4:52:42 PM - Caleb Cox
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\C-GENERAL CONSTRUCTION-26766.dwg





WEBSTER RD PROFILE

CONSTRUCTION NOTES

STORMWATER

1. Install curb inlet with GB catch basin and 18" sump per WES Standard Drawing SWM-14 & SWM-18. See profile on this sheet for rim and invert elevations.
2. Install 12" HDPE N-12 pipe using open trench method. Length and slope of pipe to be as noted. Bedding and backfill per WES Standard Drawing SWM-38.
3. Install 48" standard concrete manhole per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim and invert elevations.
4. Remove existing storm drain inlet. Contractor to verify presence and location of private drain connections and reconnect to a proposed storm structure as needed.
5. Abandon existing storm line after construction and acceptance of new storm sewer. Fill existing storm line with grout and abandon in place.
6. Install two 48" concrete manholes per WES Standard Drawing SWM-33 & SWM-36. See profile on this sheet for rim, sump and invert elevations. Install 6"-3" clean round river drain rock trench between manholes. Total footprint area to be at least 345 SF. Trench to be wrapped with geotextile fabric per WES Standard Drawing SWM-27. See profile on this sheet for trench limits and elevations.
7. Install Contech CDS Manhole per Detail CDS2015-4-C on Sheet BB01 or approved equal. See profile on this sheet for rim, sump and invert elevations.

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
101413PE
Digitally Signed 2025.12.06
OREGON
Nov. 8, 2022
Daniel Evan Child
EXPIRES: 12/31/25

STORM & SANITARY PLAN AND PROFILE

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No. C05A

Plot Stamp: 12/5/2024 2:19:46 PM • Daniel Child
File: H:\26\26766 • Bilquist Elementary School - Sidewalks\design_CD\DR-STORM PLAN AND PROFILE-26766.dwg

Phase	Work Activity	Proposed Vehicle traffic control	Bicycles	Pedestrians	Applicable Plan Sheet or ODOT Standard Drawing
Phase 1	Construct storm sewer mainline, laterals, catch basins, manholes, and other underground utilities.	Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours.	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM841-Intersection Work Zone Details TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
Phase 2	Construct west side road widening on SW Webster Rd. including: sawcut, full depth pavement (minus top lift), curb, sidewalk, daylights, and driveway connections.	**Webster Rd, Bixel Way, Roots Rd:** Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours. **Webster Ln, Mabel Ave:** Temporary closure as needed with signed detour route.	Follow vehicles through workzone or detour route	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan Sheet EA03 -Detour Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
	Construct west side curb returns at sidestreets including sawcut, pavement, curb ramps, landscaping, and daylights. Construct only 1 corner at a time	**Webster Rd, Bixel Way, Roots Rd:** Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours. **Webster Ln, Mabel Ave:** Temporary closure as needed with signed detour route.	Follow vehicles through workzone or detour route	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan Sheet EA03 -Detour Plan TM841-Intersection Work Zone Details TM844-Temporary Pedestrian Access Routes
Phase 3	Install street lights, junction boxes, and conduit at SE Webster Rd/SE Bixel Way	Close NB lane for workzone and shift NB traffic to center lane to maintain 2-way traffic	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
	Construct east side road widening on SW Webster Rd. including: sawcut, full deptch pavement, curb, sidewalk, daylights, and driveway connections. *All work adjacent to Bilquist Elementary School from "W" Sta. 195+95.64 to "W" Sta. 199+75.00 shall be completed between June 15, 2025 - August 31, 2025	**Webster Rd, Bixel Way, Roots Rd:** Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours. **Webster Ln, Mabel Ave:** Temporary closure as needed with signed detour route.	Follow vehicles through workzone or detour route	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan Sheet EA03 -Detour Plan TM841-Intersection Work Zone Details TM844-Temporary Pedestrian Access Routes
	Construct east side curb returns at sidestreets including sawcut, pavement, curb ramps, landscaping, and daylights. Construct only one corner at a time	**Webster Rd, Bixel Way, Roots Rd:** Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours. **Webster Ln, Mabel Ave:** Temporary closure as needed with signed detour route.	Follow vehicles through workzone or detour route	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan Sheet EA03 -Detour Plan TM841-Intersection Work Zone Details TM844-Temporary Pedestrian Access Routes
Phase 4	Construct concrete median island in SW Webster Rd at SE Bixel Way	Close SB lane, Flaggers to maintain 1 lane of traffic in the NB lane on Webster Rd. Restore 2-way traffic after work hours	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
	Construct grind/inlay and overlay on SE Webster Rd and all sidestreets. Pave to within 2" of finish grade	Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours.	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
	Construct final pavement lift on SE Webster Rd and on each side street.	Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours.	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes
	Install final pavement markings, signs, and school zone flashers	Flaggers to maintain 1-lane of traffic during work hours and restore 2-lanes of traffic after work hours.	Follow vehicles through workzone	Provide temporary pedestrian detour routes wherever existing routes are blocked.	Sheet EA02-Traffic Control Plan TM854-2-lane, 2-way Roadways TM844-Temporary Pedestrian Access Routes

TRAFFIC CONTROL STRATEGY

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

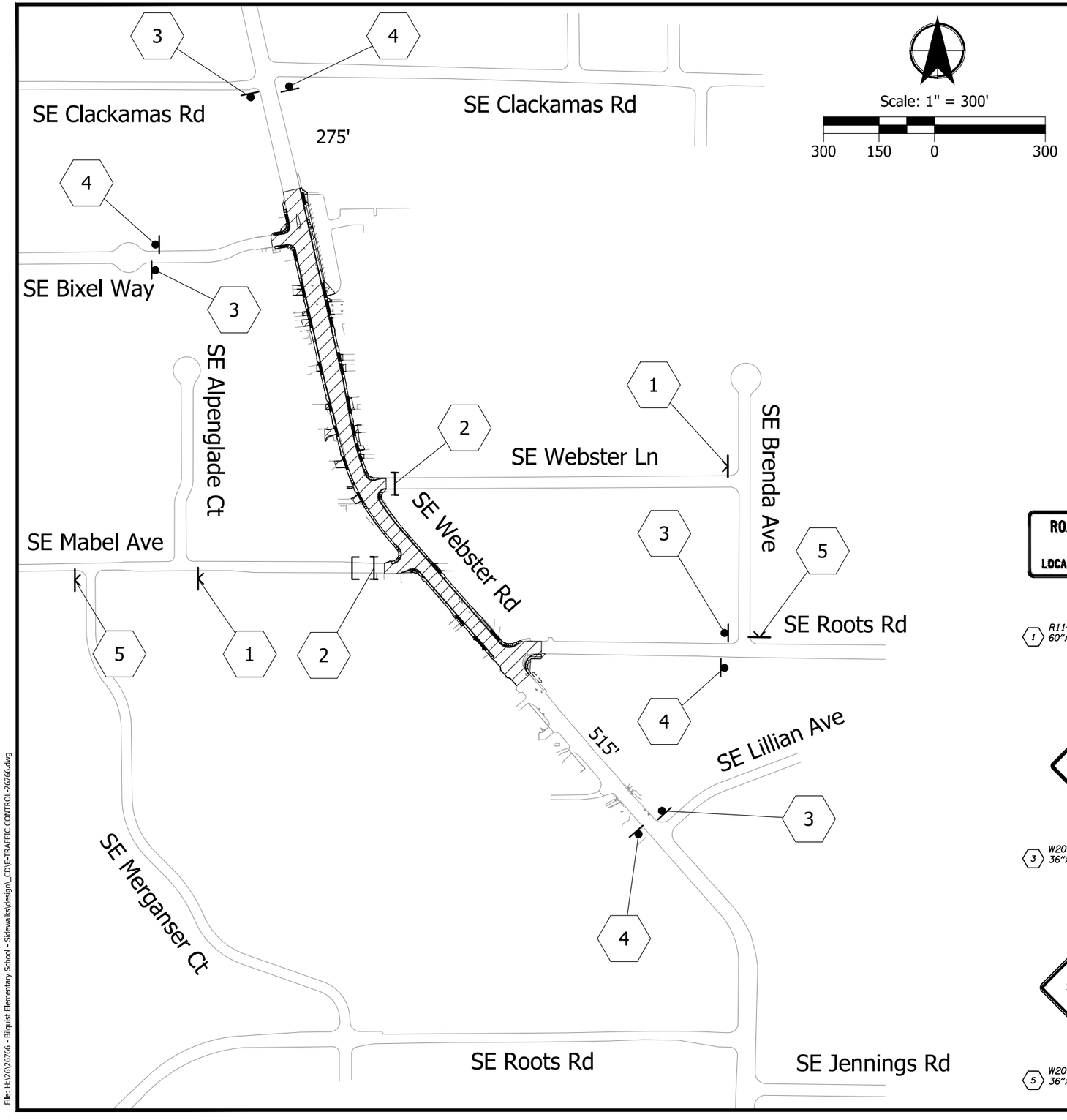
REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

REVISIONS

NO.	DATE:

Sheet No.
EA01



Scale: 1" = 300'

300 150 0 300

GENERAL NOTES

1. MAINTAIN ALL EXISTING REGULATORY AND WARNING SIGNS IN WORK AREA ON TEMPORARY SIGN SUPPORT (TSS) AS DIRECTED BY THE ENGINEER.
2. ALL TRAFFIC CONTROL IS TO BE IN ACCORDANCE WITH THE CURRENT MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES).
3. NIGHT WORK NOT ALLOWED.
4. REMOVE EXISTING CONFLICTING STRIPING AND MARKERS.
5. CONTRACTOR TO MAINTAIN DRIVEWAY ACCESSES.
6. CONTRACTOR TO USE ABRUPT EDGE DETAIL ODOT STANDARD DRAWING TM800 FOR SHOULDER DROP OFF.
7. PHASE I TRAFFIC CONTROL TO REMAIN IN PLACE FOR DURATION OF PROJECT EXCEPT AS MODIFIED BY PHASE II AND PHASE III TRAFFIC CONTROL PLANS.
8. CONTRACTOR SHALL SUBMIT TEMPORARY PEDESTRIAN ACCESS ROUTE PLANS (TPAR) TO CLACKAMAS COUNTY FOR APPROVAL PRIOR TO BEGINNING ANY WORK THAT WILL IMPACT EXISTING PEDESTRIAN FACILITIES.

LEGEND

- CONSTRUCTION UNDER TRAFFIC
- PORTABLE SIGN SUPPORT
- TSS SIGN SUPPORT AS SHOWN ON ODOT STANDARD DRG. TM821
- TYPE III BARRICADE
- POST MOUNTED CONSTRUCTION SIGN

1 R11-3a 60"x30"

2 R11-2 48"x30"

3 W20-1 36"x36"

4 G20-1 36"x18" (ALL STAGES)

5 W20-3 36"x36"

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

TRAFFIC CONTROL PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

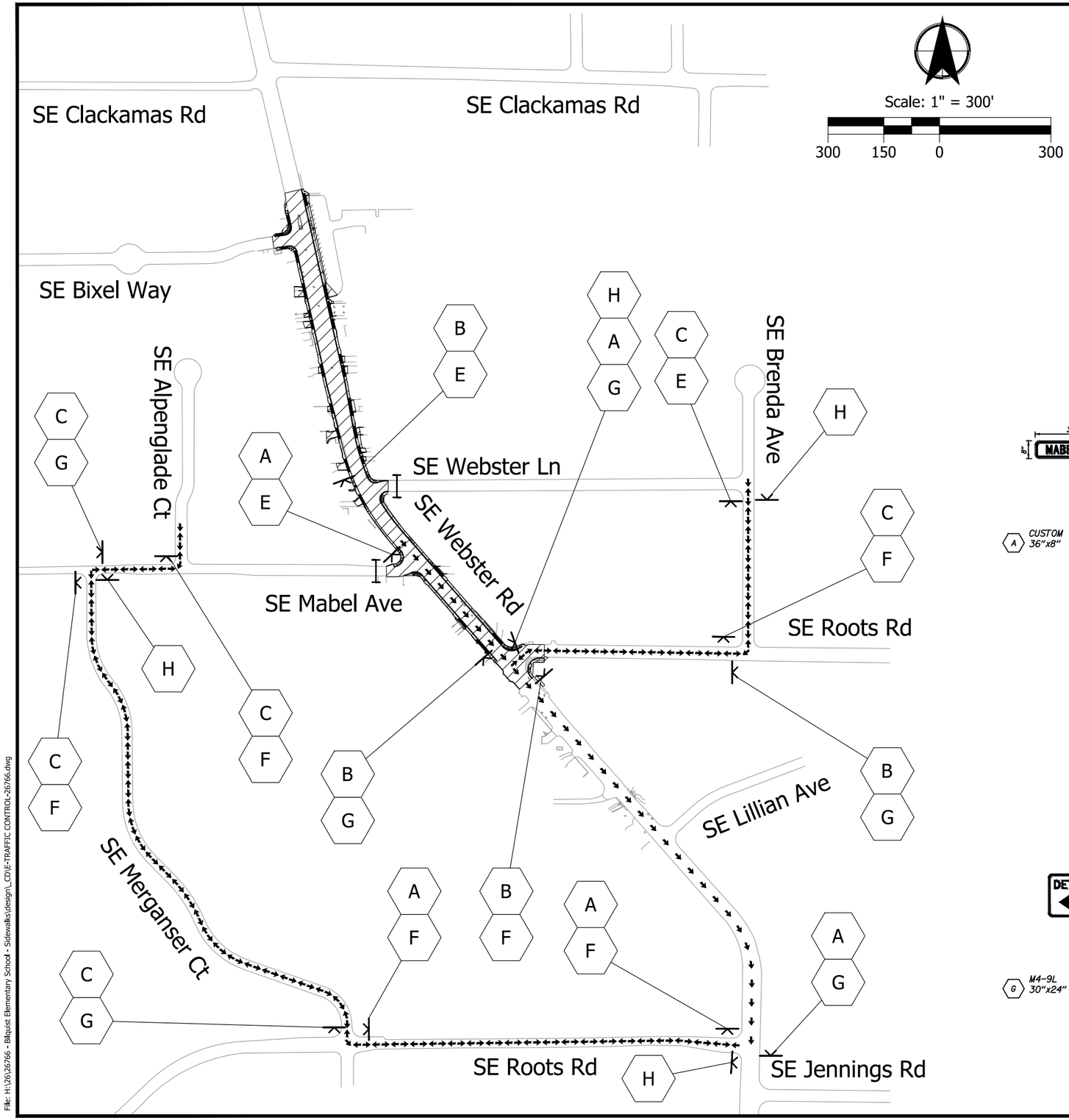
DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No. EA02

Plot Stamp: 9/6/2024 9:46:02 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\E-TRAFFIC CONTROL-26766.dwg

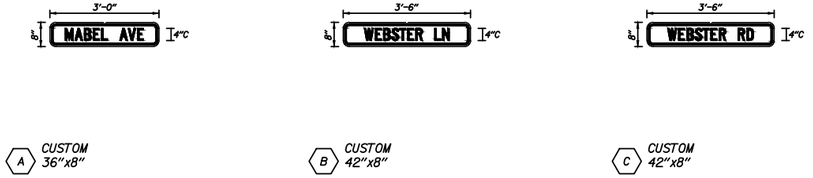


GENERAL NOTES

1. ALL TRAFFIC CONTROL IS TO BE IN ACCORDANCE WITH THE CURRENT MUTCD (MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES).
2. CLOSURES REQUIRING DETOURS SHALL BE IN PLACE DURING ACTIVE CONSTRUCTION HOURS ONLY. 2-WAY TRAFFIC SHALL BE MAINAINED ON ALL STREETS OUTSIDE OF WORKING HOURS.
3. CONTRACTOR SHALL SUBMIT TEMPORARY PEDESTRIAN ACCESS ROUTE PLANS (TPAR) TO CLACKAMAS COUNTY FOR APPROVAL PRIOR TO BEGINNING ANY WORK THAT WILL IMPACT EXISTING PEDESTRIAN FACILITIES.

LEGEND

- CONSTRUCTION UNDER TRAFFIC
- PORTABLE SIGN SUPPORT
- TSS SIGN SUPPORT AS SHOWN ON ODOT STANDARD DRG. TM821
- TYPE III BARRICADE
- POST MOUNTED CONSTRUCTION SIGN
- DETOUR TRAFFIC DIRECTION



A CUSTOM 36"x8"

B CUSTOM 42"x8"

C CUSTOM 42"x8"

E CG20-6 30"x36"

F M4-9R 30"x24"

G M4-9L 30"x24"

H M4-8A 24"x18"

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX

EXPIRES: 12/31/25

DETOUR PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

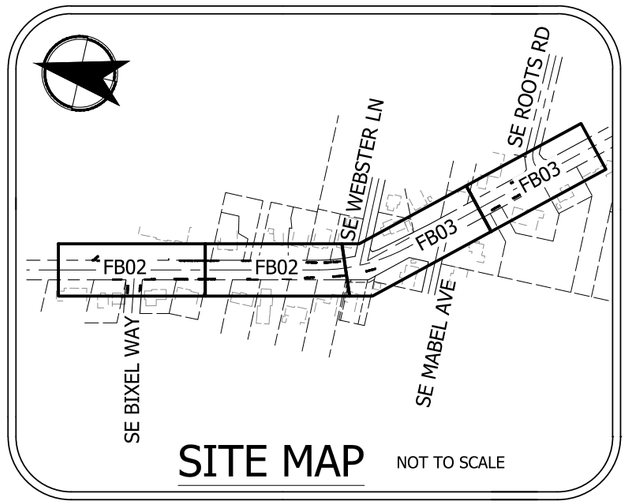
REVISIONS

NO.	DATE:

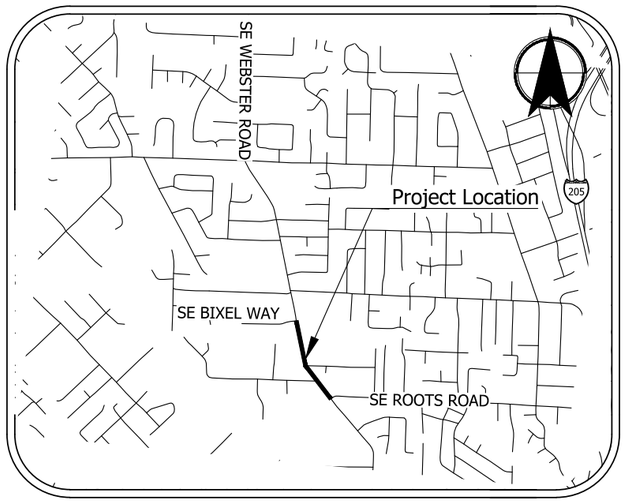
Sheet No. EA03

Plot Stamp: 9/6/2024 9:46:04 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\E-TRAFFIC CONTROL-26766.dwg

SE WEBSTER ROAD IMPROVEMENTS GRADING & EROSION CONTROL



SITE MAP NOT TO SCALE



VICINITY MAP NOT TO SCALE

Owner/Developer

Clackamas County
Contact: Jonathan Hangartner, PE
150 Beavercreek Rd
Oregon City, OR 97045
Phone: 503-742-4649
Email: JHangartner@clackamas.us

Surveyor

S&F Land Survey
Contact: Andrew Huston, PLS
4858 SW Scholls Ferry Road Suite A;
Portland, OR 97225
Phone: 541-797-0954
Email: andrew.huston@sflands.com

General Contractor

TBD

The Permittee is required to meet all the conditions of the 1200CN Permit. This ESCP and General Conditions have been developed to facilitate compliance with the 1200CN Permit requirements. In cases of discrepancies or omissions, the 1200CN Permit Requirements supercede requirements of this plan. Contractor is responsible for staging area & associated ESC measures.

Design Engineer/ESCP Preparer

Kittelson and Associates, Inc.
Contact: Cedomir Jesic, PE
851 SW 6th Ave., Suite 600
Portland, OR 97204
Phone: 503-535-7507
Email: cjesic@kittelson.com

Geotech Engineer

NV5
Contact: Shashwath Sreedhar
9450 SW Commerce Circle, Suite 300
Wilsonville, OR 97070
Phone: 503-726-3178
Email: Shashwath.Sreedhar@nv5.com

BMP Installer/Maintainer

TBD

Business Days/Hours

Monday - Friday	7:00-7:00
Saturday	-No Work-
Sunday	-No Work-

CESCL

Clackamas County
Contact: Jonathan Hangartner, PE
150 Beavercreek Rd
Oregon City, OR 97045
Phone: 503-742-4649
Email: JHangartner@clackamas.us

Site Information

1. Type of Development: Public Roadway Improvements
2. Construction Activity will Consist of:
   A) Curb, Asphalt Paving, & Sidewalk Construction
   B) Stormwater Drainage System (Piping & Treatment Facilities)
   C) Utility Relocations
3. Project Timeline:
   Beginning Date: Spring 2025
   Completion Date: Fall 2025
4. Project Offsite Areas:
   Total Area: 2.48 Acres
   Disturbed Area: 1.03 Acres
   Percent of Area Disturbed: 41.5%
   Extg. Impervious Area: 33,018 SF (0.758 Acres)
   Prop. Impervious Area: 41,382 SF (0.950 Acres)
5. Soil Types:
   45A - Woodburn Silt Loam, 0 to 3 Percent Slopes
   45B - Woodburn Silt Loam, 3 to 7 Percent Slopes
6. Receiving Water Bodies
   Kellogg Creek
7. Cut and Fill Data:
   Cut: 1,116 CY
   Fill: 420 CY

Erosion Control Inspection Frequency

Site Condition	Minimum Frequency
1. Active Period	On the initial date; Within 24 hours of any storm event, including runoff from snow melt, that results in discharge from the site. At least once every 14 days, regardless of whether stormwater runoff is occuring.
2. Inactive periods greater than fourteen (14) consecutive calendar days.	The Inspector may reduce the frequency of inspections in any area of the site where the stabilization steps in Section 2.2.20 have been completed to twice per month for the first month, no less than 14 calendar days apart, then once per month.
3. Periods during which the site is inaccessible due to inclement weather.	If safe, accessible and practical, inspections must occur daily at a relevant discharge point or downstream location of the receiving waterbody.
4. Periods during which construction activities are suspended and runoff is unlikely due to frozen conditions.	Visual monitoring inspections may be temporarily suspended. Immediately resume monitoring upon thawing, or when weather conditions make discharges likely.
5. Periods during which construction activities are are conducted and runoff is unlikely during frozen conditions.	Visual monitoring inspections may be reduced to once a month. Immediately resume monitoring upon thawing, or when weather conditions make discharges likely.

Project Location

SE Webster Rd between SE Bixel Wy and SE Roots Rd

Rain Guage

Eagle Creek
Hyperlink: https://www.weather.gov/wrh/timeseries?site=EGKO3

Sheet Index

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GRADING & EROSION CONTROL COVER SHEET

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

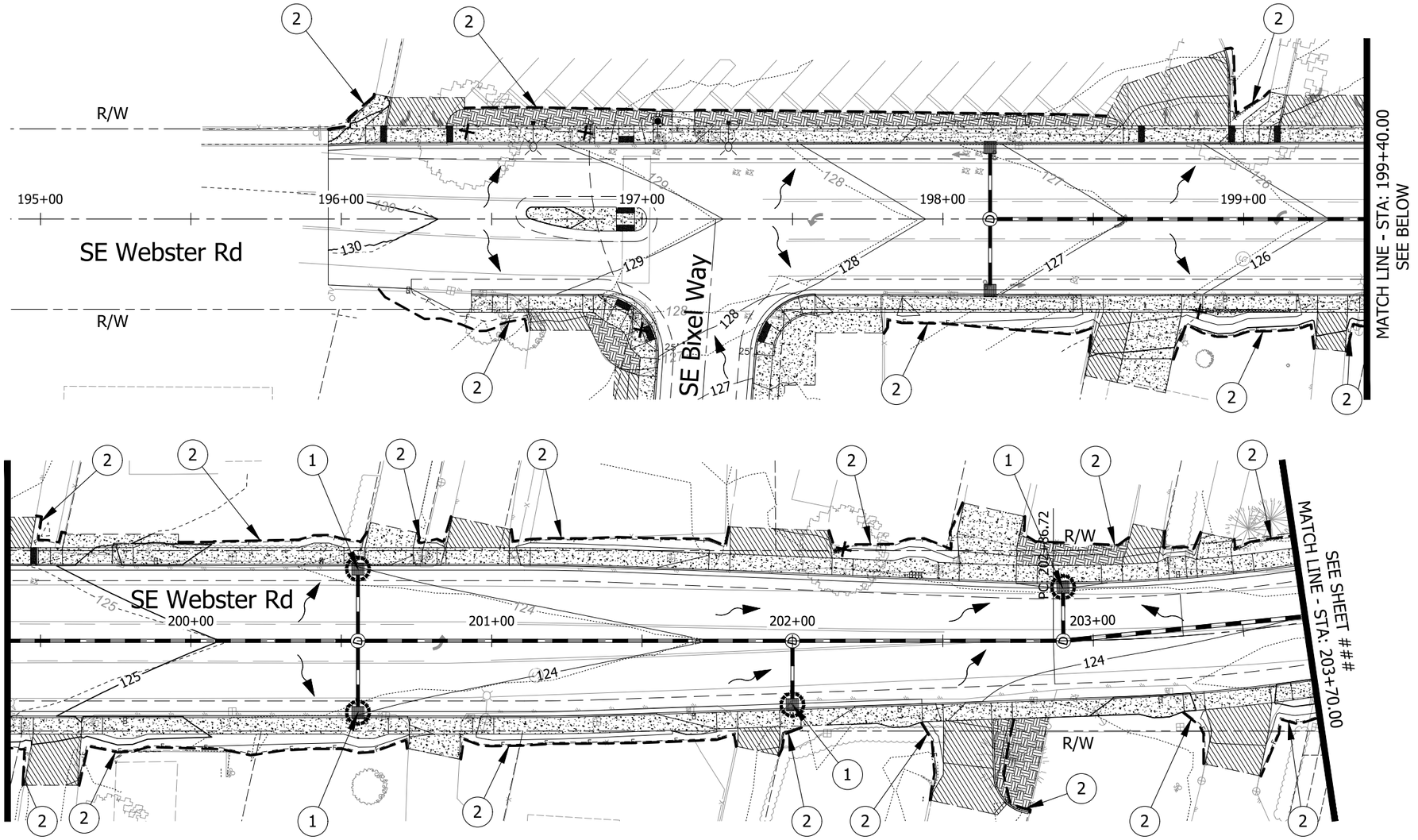
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
F01

Plot Stamp: 9/6/2024 9:46:20 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\F-GRADING & EC-26766.dwg



LEGEND

- Compost Sock
- Existing ROW Line
- Proposed ROW Line
- 250 Existing Major Contours
- 249 Existing Minor Contours
- 250 Proposed Major Contours
- 249 Proposed Minor Contours
- Extg./Proposed MH
- Extg./Proposed CB
- Inlet Protection
- Trees to Remain
- Trees to Removed (See Shts. C01 - C05)
- Flow Arrow

CONSTRUCTION NOTES

1. Install Inlet Protection, type 3. (See ODOT standard drawing RD1010)
2. Install Compost Sock, type 8. (See ODOT standard drawing RD1032)

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GRADING & EROSION CONTROL

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

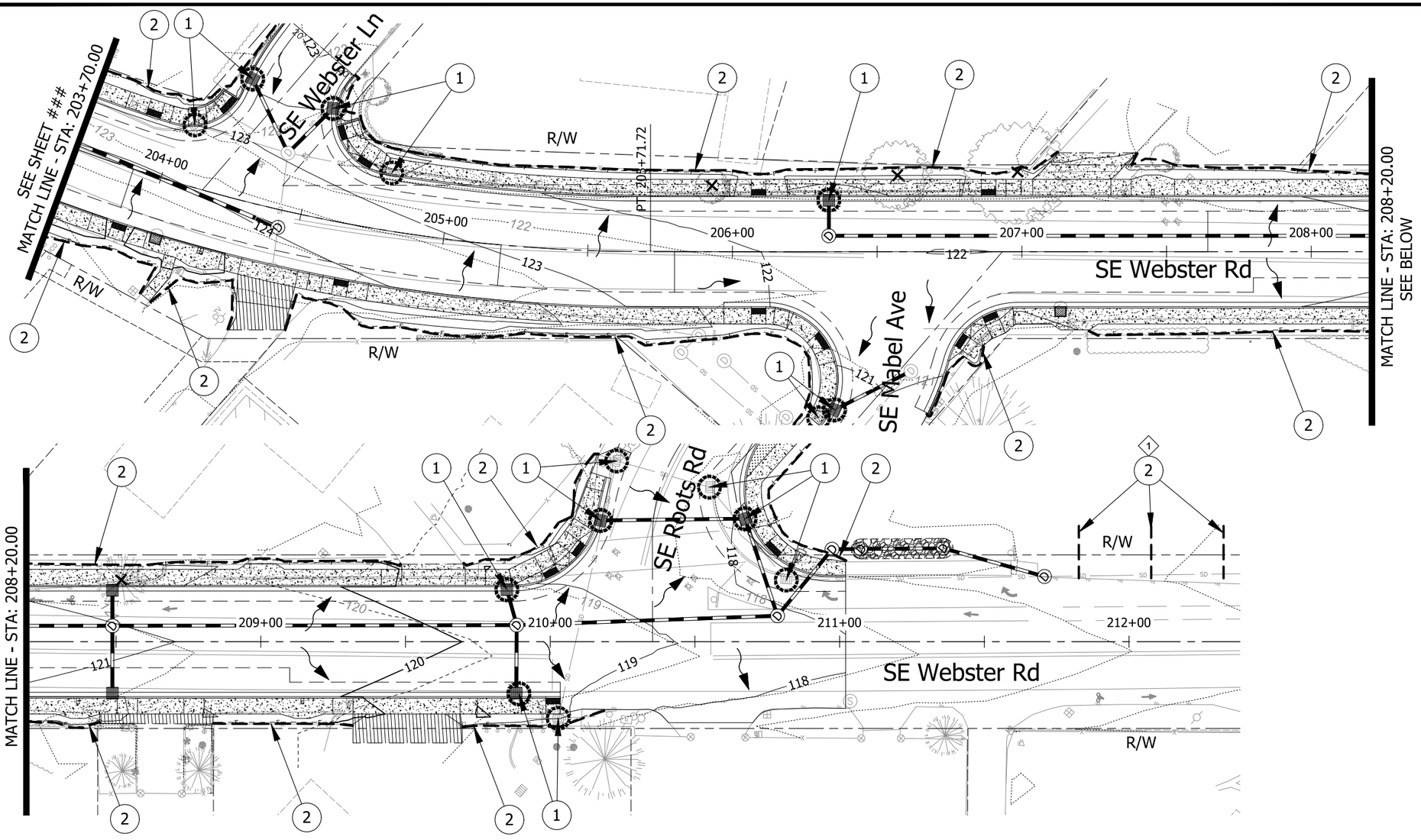
REVISIONS

NO.	DATE:

Sheet No. F02

58 of 73

Plot Stamp: 9/6/2024 9:46:23 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\F-GRADING & EC-26766.dwg



LEGEND

- Compost Sock
- Existing ROW Line
- Proposed ROW Line
- 250 Existing Major Contours
- 249 Existing Minor Contours
- 250 Proposed Major Contours
- 249 Proposed Minor Contours
- Extg./Proposed MH
- Extg./Proposed CB
- Inlet Protection
- Trees to Remain
- Trees to Removed (See Shts. C01 - C05)
- Flow Arrow

CONSTRUCTION NOTES

1. Install Inlet Protection, type 3. (See ODOT standard drawing RD1010)
2. Install Compost Sock, type 8. (See ODOT standard drawing RD1032)
◇1 Note: Install Compost Sock Check Dams in Existing Ditch (See ODOT standard drawing RD1006)

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

GRADING & EROSION CONTROL

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

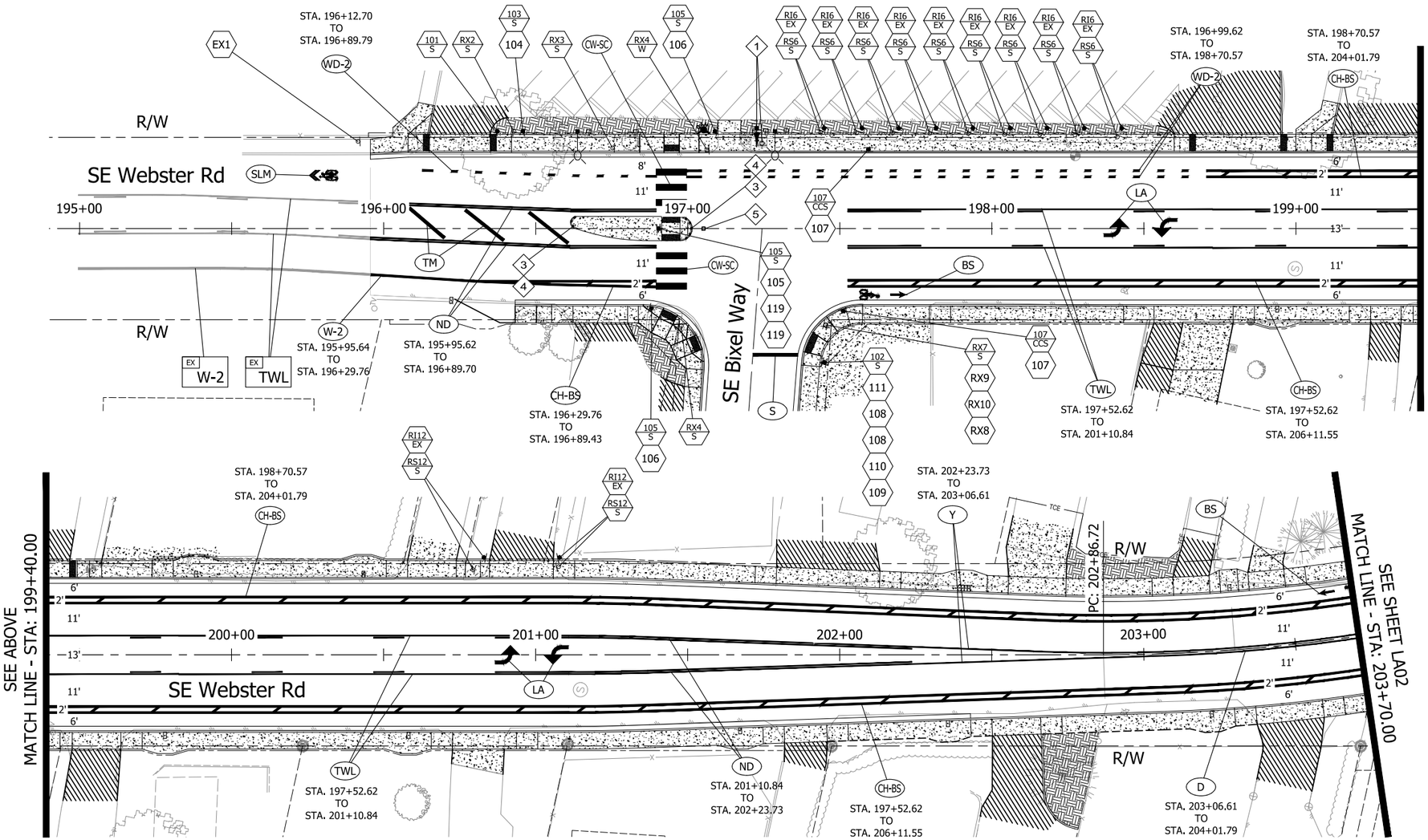
REVISIONS

NO.	DATE:

Sheet No. F03

59 of 73

Plot Stamp: 9/6/2024 9:46:26 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\F-GRADING & EC-26766.dwg



SIGN LEGEND

- EXN — RETAIN AND PROTECT EXISTING SIGN (N).
- N M — INSTALL NEW SIGN (N) ON NEW (M) SUPPORT.
- N — INSTALL NEW SIGN (N).
- RSN M — REMOVE AND SALVAGE EXISTING SIGN (N) AND (M) SUPPORT.
- RIN M — REINSTALL EXISTING SIGN (N) ON NEW (M) SUPPORT.
- RIN EX — REINSTALL EXISTING SIGN (N) ON EXISTING SUPPORT.
- RXN M — REMOVE EXISTING SIGN (N) AND (M) SUPPORT.
- RXN — REMOVE EXISTING SIGN (N).

N = SIGN POST NUMBER
M = MATERIALS, OPTION IS:
S = PERFORATED STEEL SQUARE TUBE
(SEE ODOT STD. DWG. TM687, 2" OPTIONAL ANCHOR DETAIL. FOR 2.5" POSTS, SEE TM688)
W = WOOD SQUARE POST
CCS = CROSSWALK CLOSURE SUPPORT (SEE DETAIL ON SHT. LB05)

SIGNING GENERAL NOTES

1. ALL SIGNING SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D) 2009 EDITION, AND THE OREGON SUPPLEMENT TO THE M.U.T.C.D.
2. THE LOCATIONS OF SIGN INSTALLATIONS SHOWN ARE APPROXIMATE WITH THE EXACT LOCATIONS TO BE DETERMINED IN THE FIELD.
3. EXISTING SIGNS NOT SHOWN ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED.
4. SIGNS LOCATED ON TRAFFIC SIGNAL POLES REFERENCE THE SIGNAL DESIGN PLANS.
5. TRAFFIC SIGN LEGEND AND MOUNTING DETAILS ARE SHOWN ON SHEETS LB01 THRU LB04.

STRIPING LEGEND

- (X) — INSTALL THERMOPLASTIC STRIPING PER ODOT STANDARD DRAWINGS TM500, TM501, AND TM503 (SEE SHEETS LC01 THRU LC03).
- EX X — MAINTAIN AND PROTECT EXISTING STRIPING AS DEFINED IN ODOT STANDARD DRAWINGS
- RX X — REMOVE EXISTING STRIPING AS DEFINED IN ODOT STANDARD DRAWINGS

CONSTRUCTION NOTES

1. SEE SIGNAL PLANS ON SHEET M01 FOR SCHOOL FLASHING BEACON AND SIGNING DETAILS
2. COORDINATE WITH TRIMET FOR REMOVAL AND REINSTALLATION OF SIGN
3. INSTALL YELLOW PAVEMENT REFLECTIVE (TYPE 1) MARKERS ON ISLAND NOSE AT 2 FOOT SPACING
4. INSTALL RETROREFLECTIVE SOLID YELLOW CURB MARKING ON MEDIAN NOSE PER DETAIL A OF FIGURE 281-A OF THE ODOT TRAFFIC LINE MANUAL
5. INSTALL BI-DIRECTIONAL BLUE TYPE IAR RAISED PAVEMENT MARKER. STA. 197+05.22, 0.00'LT

Scale: 1" = 40'

40 20 0 40

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGNING & STRIPING PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 30032302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

PROJECT MANAGER: JONATHAN HANGARTNER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

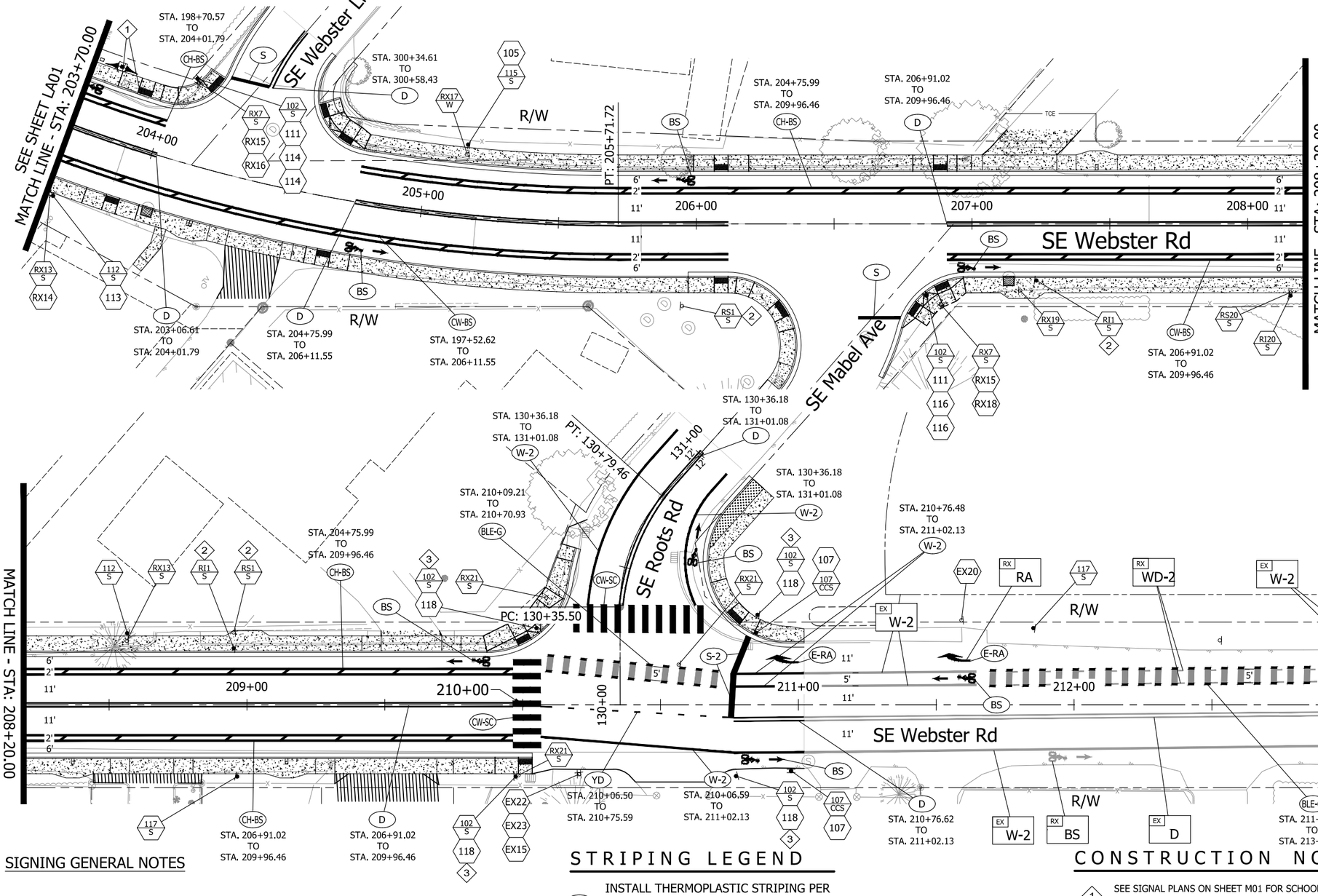
REVISIONS

NO.	DATE:

Sheet No. LA01

60 of 73

Plot Stamp: 9/6/2024 9:46:30 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg



SIGN LEGEND

- EXN — RETAIN AND PROTECT EXISTING SIGN (N).
- N / M — INSTALL NEW SIGN (N) ON NEW (M) SUPPORT.
- N — INSTALL NEW SIGN (N).
- RSN / M — REMOVE AND SALVAGE EXISTING SIGN (N) AND (M) SUPPORT.
- RIN / M — REINSTALL EXISTING SIGN (N) ON NEW (M) SUPPORT.
- RIN / EX — REINSTALL EXISTING SIGN (N) ON EXISTING SUPPORT.
- RXN / M — REMOVE EXISTING SIGN (N) AND (M) SUPPORT.
- RXN — REMOVE EXISTING SIGN (N).

N = SIGN POST NUMBER
M = MATERIALS, OPTION IS:
S = PERFORATED STEEL SQUARE TUBE (SEE ODOT STD. DWG. TM687,2" OPTIONAL ANCHOR DETAIL. FOR 2.5" POSTS, SEE TM688)
W = WOOD SQUARE POST
CCS = CROSSWALK CLOSURE SUPPORT (SEE DETAIL ON SHT. LB05)

SIGNING GENERAL NOTES

1. ALL SIGNING SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D) 2009 EDITION, AND THE OREGON SUPPLEMENT TO THE M.U.T.C.D.
2. THE LOCATIONS OF SIGN INSTALLATIONS SHOWN ARE APPROXIMATE WITH THE EXACT LOCATIONS TO BE DETERMINED IN THE FIELD.
3. EXISTING SIGNS NOT SHOWN ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED.
4. SIGNS LOCATED ON TRAFFIC SIGNAL POLES REFERENCE THE SIGNAL DESIGN PLANS.
5. TRAFFIC SIGN LEGEND AND MOUNTING DETAILS ARE SHOWN ON SHEETS LB01 THRU LB04.

STRIPING LEGEND

- (X) — INSTALL THERMOPLASTIC STRIPING PER ODOT STANDARD DRAWINGS TM500, TM501, AND TM503 (SEE SHEETS LC01 THRU LC03).
- EX / X — MAINTAIN AND PROTECT EXISTING STRIPING AS DEFINED IN ODOT STANDARD DRAWINGS
- RX / X — REMOVE EXISTING STRIPING AS DEFINED IN ODOT STANDARD DRAWINGS

Scale: 1" = 40'

40 20 0 40

CONSTRUCTION NOTES

1. SEE SIGNAL PLANS ON SHEET M01 FOR SCHOOL FLASHING BEACON AND SIGNING DETAILS
2. COORDINATE WITH TRIMET FOR REMOVAL AND REINSTALLATION OF SIGN
3. INSTALL REFLECTIVE WRAP TO THE POST OF THE STOP SIGN

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGNING & STRIPING PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX | DRAFTED BY: S. SEMENSKY | CHECKED BY: C. JESIC

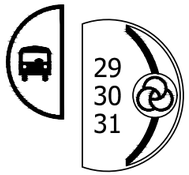
REVISIONS

NO.	DATE:

Sheet No. LA02

Plot Stamp: 9/6/2024 9:46:34 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

EXISTING SIGNS



1

2

3

4

5

6

7

8

9

10

11

12

13

14

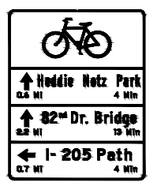
15

16

17

18

19



20

21

22

23

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGN DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LB01

Plot Stamp: 9/6/2024 9:46:37 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CDV_SIGNING & STRIPING-26766.dwg

PROPOSED SIGNS

101 R1-3
30"x30"
1 Required

102 R1-1
36"x36"
7 Required

103 W11-1
36"x36"
1 Required

104 OW11-1a
24"x18"
1 Required

105 S1-1
36"x36"
5 Required

106 W16-7PL
24"x12"
2 Required

107 OR22-7
24"x18"
8 Required

108 D3-1
54"x12"
2 Required

109 W14-1aR
36"x8"
1 Required

110 W14-1aL
36"x8"
1 Required

111 D3-1
60"x12"
3 Required

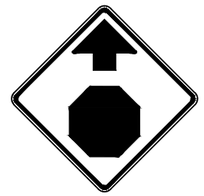
112 R2-1
30"x36"
2 Required

113 S5-3
24"x30"
1 Required

114 D3-1
60"x12"
2 Required

115 W16-9P
24"x12"
1 Required

116 D3-1
54"x12"
2 Required



117 W3-1
36"x36"
1 Required

118 R1-3P
18"x6"
4 Required

119 W16-7PR
24"x12"
2 Required

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGN DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LB02

Plot Stamp: 9/6/2024 9:46:38 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

SIGN POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (Clack. Co. Std. Dwg. T250)	SIGN DIMENSIONS		SUB-STRATE			COLOR 1/					LEGEND		SIGN NO. 2/	TYPE OF SUPPORT							POST		FOOTING		REMARKS
							BACKGROUND		LEGEND														SIZE	LENGTH	LOCATION 3/	MIN. DEPTH 5/	
		WIDTH	HEIGHT	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUM.	ASTM TYPE III or TYPE IV	ASTM TYPE IX OR TYPE XI	ASTM TYPE III or TYPE IV	ASTM TYPE IX OR TYPE XI	NON-REFLECTIVE	PERMANENT	DEMOUNTABLE		WOOD POST	SQ. TUBE SIGN SUPPORT (Clack. Co. Std. Dwg. T150, ODOT Std. Dwg. TM687, TM688)	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	MAST ARM SIGN MOUNT	CROSSWALK CLOSURE SUPPORT (See Sht. LB05)	CUSTOM VARIABLE SUPPORT	(BASED ON ESTIMATED LENGTH)	(MUST BE FIELD VERIFIED)	(See Clack. Co. Std. Dwg. T150)		
101	STA 196+37.40' Lt.	30"	30"		✓		R		W			✓		101		✓						2" x 12GA	12' 2"	7'	32"	
102	STA 209+97.48' Rt.	36"	36"		✓		R		W			✓		102		✓						2" x 12GA	13' 2"	7'	32"	
118	–	18"	6"		✓		R		W			✓		118												Mount below sign 102
102	STA 210+05.03' Lt.	36"	36"		✓		R		W			✓		102		✓						2" x 12GA	13' 2"	2.21'	32"	
118	–	18"	6"		✓		R		W			✓		118												Mount below sign 102
102	STA 210+77.40' Rt.	36"	36"		✓		R		W			✓		102		✓						2" x 12GA	13' 2"	2.5'	32"	
118	–	18"	6"		✓		R		W			✓		118												Mount below sign 102
102	STA 210+85.20' Lt.	36"	36"		✓		R		W			✓		102		✓						2" x 12GA	13' 2"	7'	32"	
118	–	18"	6"		✓		R		W			✓		118												Mount below sign 102
102	STA 197+44.98' Rt.	36"	36"		✓		R		W			✓		107		✓						2" x 12GA	14' 4"	7.5'	32"	
111	–	60"	12"		✓		G		W			✓		111												Mount with Post Top Slot Bracket per Standard Detail T150
108	–	54"	12"		✓		G		W			✓		108												Mount above sign 109 & 110 back to back with sign 108
108	–	54"	12"		✓		G		W			✓		108												Mount above sign 109 & 110, back to back with sign 108
110	–	36"	8"		✓		Y				BK	✓		110												Mount above sign 107, back to back with sign 109
109	–	36"	8"		✓		Y				BK	✓		109												Mount above sign 107, back to back with sign 110
102	STA 204+08.32' Lt.	36"	36"		✓		R		W			✓		107		✓						2" x 12GA	13' 8"	7.5'	32"	
111	–	60"	12"		✓		G		W			✓		111												Mount with Post Top Slot Bracket per Standard Detail T150
114	–	60"	12"		✓		G		W			✓		114												Mount above sign 107, back to back with sign 114
114	–	60"	12"		✓		G		W			✓		114												Mount above sign 107, back to back with sign 110
102	STA 206+83.51' Rt.	36"	36"		✓		R		W			✓		107		✓						2" x 12GA	13' 8"	1.44'	32"	
111	–	60"	12"		✓		G		W			✓		111												Mount with Post Top Slot Bracket per Standard Detail T150
116	–	54"	12"		✓		G		W			✓		116												Mount above sign 107, back to back with sign 116
116	–	54"	12"		✓		G		W			✓		116												Mount above sign 107, back to back with sign 116
103	STA 196+45.76' Lt.	36"	36"		✓		Y				BK	✓		103		✓						2" x 12GA	14' 2"	7'	32"	
104	–	24"	18"		✓		Y				BK	✓		104												Mount below sign 103
105	STA 196+88.08' Rt.	36"	36"		✓			YG			BK	✓		105		✓						2" x 12GA	13' 8"	1'	32"	
106	–	24"	12"		✓			YG			BK	✓		106												Mount below sign 105
105	STA 196+90.45'	36"	36"		✓			YG			BK	✓		105		✓						2" x 12GA	13' 8"	4' (center)	32"	
119	–	24"	12"		✓			YG			BK	✓		119												Mount below sign 105
105	–	36"	36"		✓			YG			BK	✓		105												Mount Back to Back with sign 105
119	–	24"	12"		✓			YG			BK	✓		119												Mount Back to Back with sign 119
105	STA 197+08.95' Lt.	36"	36"		✓			YG			BK	✓		105		✓						2" x 12GA	13' 8"	7'	32"	
106	–	24"	12"		✓			YG			BK	✓		106												Mount below sign 105
105	STA 205+14.55' Lt.	36"	36"		✓			YG			BK	✓		105		✓						2" x 12GA	13' 8"	7'	32"	
115	–	24"	12"		✓			YG			BK	✓		115												Mount below sign 105
107	STA 197+51.13' Rt.	24"	18"		✓		W				BK	✓		120							✓			1'		
107	–	24"	18"		✓		W				BK	✓		120												Mount Back to Back with sign 107
107	STA 197+59.44' Lt.	24"	18"		✓		W				BK	✓		120							✓			1'		
107	–	24"	18"		✓		W				BK	✓		120												Mount Back to Back with sign 107

1/
BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
P=PURPLE
R=RED
RB=RED-BLUE
W=WHITE
Y=YELLOW
YG=FLOURESCENT YELLOW-GREEN

2/
NOTE: L,C,R ARE LOCATIONS OF POSTS FACING THE SIGN.
L = LEFT POST
C = CENTER POST
R = RIGHT POST

3/
DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM600, TM602, AND TM635

4/
NOTE: THE LOCATIONS SHOWN ARE APPROXIMATE EXCEPT FOR SPEED ZONES, SCHOOL ZONES, OBJECT MARKERS AND MILEPOST MARKERS. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER

5/
MINIMUM DEPTH OF FOOTING FOR TRIANGULAR BASE BREAKAWAY AND MULTI-POST BREAKAWAY INSTALLATIONS IS FOR A 2' DIAMETER FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601 AND TM602.

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGN DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
CLACKAMAS COUNTY
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LB03

Plot Stamp: 9/6/2024 9:46:39 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CDs\L-SIGNING & STRIPING-26766.dwg

SIGN POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS		SUB-STRATE			COLOR 1/					LEGEND		SIGN NO. 2/	TYPE OF SUPPORT							POST		FOOTING		REMARKS
							BACKGROUND		LEGEND																	
		WIDTH	HEIGHT	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUM. (TM675)	ASTM TYPE III or TYPE IV	ASTM TYPE IX OR TYPE XI	ASTM TYPE III or TYPE IV	ASTM TYPE IX OR TYPE XI	NON-REFLECTIVE	PERMANENT	DEMOUNTABLE (TM230-TM233)		WOOD POST	SQ. TUBE SIGN SUPPORT (T150)	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	MAST ARM SIGN MOUNT	CROSSWALK CLOSURE SUPPORT (See Sht LB05)	CUSTOM VARIABLE SUPPORT	SIZE (BASED ON ESTIMATED LENGTH)	LENGTH (MUST BE FIELD VERIFIED)	LOCATION 3/	MIN. DEPTH 5/ (See Clack. Co. Std. Dwg. T150)	
107	STA 210+84.64' Lt.	24"	18"		✓		W				BK	✓		120						✓				1'		
107	-	24"	18"		✓		W				BK	✓		120												Mount Back to Back with sign 107
107	STA 210+97.37' Rt.	24"	18"		✓		W				BK	✓		120						✓				1'		
107	-	24"	18"		✓		W				BK	✓		120												Mount Back to Back with sign 107
112	STA 203+71.56' Rt.	30"	36"		✓		W				BK	✓		112		✓						2" x 12GA	15' 2"	7'	32"	
113	-	24"	30"		✓		W				BK	✓		113												Mount below sign 112
112	STA 208+56.55' Lt.	30"	36"		✓		W				BK	✓		112		✓						2" x 12GA	12' 8"	7'	32"	
117	STA 208+96.46' Rt.	36"	36"		✓		Y				BK	✓		117		✓						2" x 12GA	12' 8"	7'	32"	
117	STA 211+85.24' Lt.	36"	36"		✓		Y				BK	✓		117		✓						2" x 12GA	12' 8"	6'	32"	
EX6	STA 197+44.85' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 197+57.29' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 197+69.34' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 197+81.69' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 197+93.80' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 198+06.01' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 198+18.19' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 198+30.41' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX6	STA 198+42.69' Lt.	EX	EX		✓		W				BK	✓		EX6		✓						EX	EX	8'	32"	Reinstall Existing
EX12	STA 200+82.97' Lt.	EX	EX		✓		W				BK	✓		EX12		✓						EX	EX	7'	32"	Reinstall Existing
EX12	STA 201+07.85' Lt.	EX	EX		✓		W				BK	✓		EX12		✓						EX	EX	7'	32"	Reinstall Existing
EX20	STA 208+15.56' Rt.	EX	EX		✓		G		W			✓		EX20		✓						2" x 12GA	116" + EX	7'	32"	Reinstall Existing

1/
BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
P=PURPLE
R=RED
RB=RED-BLUE
W=WHITE
Y=YELLOW
YG=FLOURESCENT YELLOW-GREEN

2/
NOTE: L,C,R ARE LOCATIONS OF POSTS FACING THE SIGN.
L = LEFT POST
C = CENTER POST
R = RIGHT POST

3/
DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM600, TM602, AND TM635

4/
NOTE: THE LOCATIONS SHOWN ARE APPROXIMATE EXCEPT FOR SPEED ZONES, SCHOOL ZONES, OBJECT MARKERS AND MILEPOST MARKERS. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER

5/
MINIMUM DEPTH OF FOOTING FOR TRIANGULAR BASE BREAKAWAY AND MULTI-POST BREAKAWAY INSTALLATIONS IS FOR A 2' DIAMETER FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601 AND TM602.

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGN DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045
JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

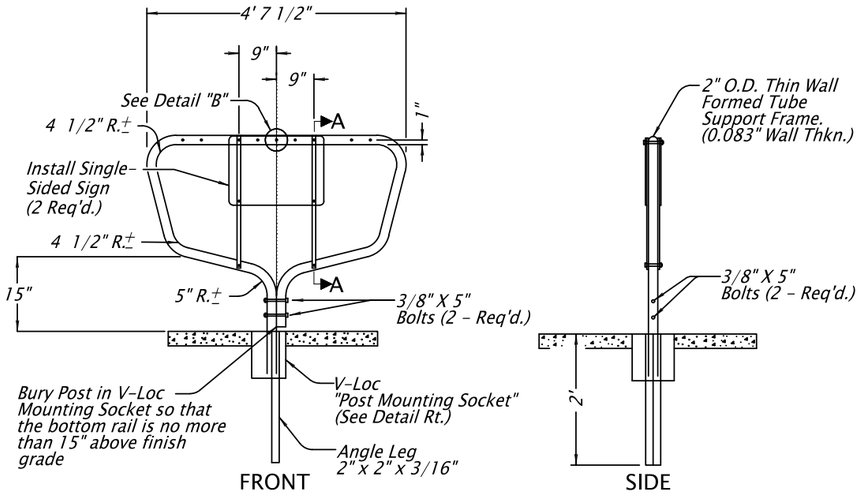
REVISIONS

NO.	DATE:

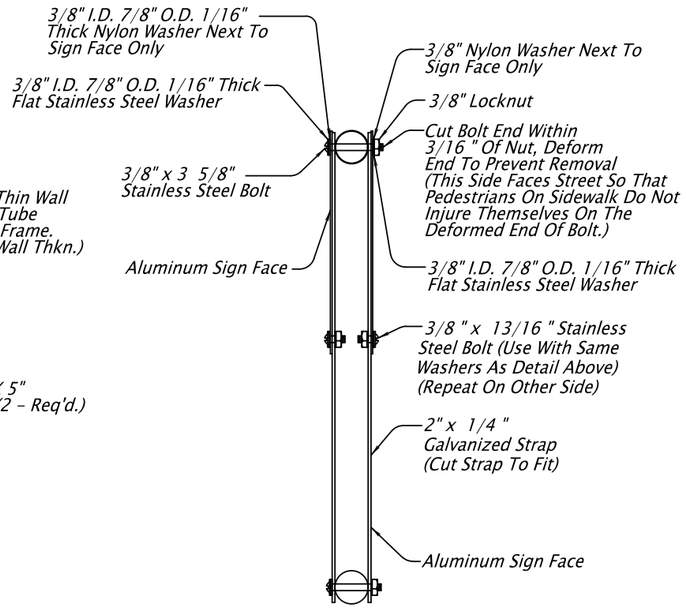
Sheet No.
LB04

Plot Stamp: 9/6/2024 9:46:40 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

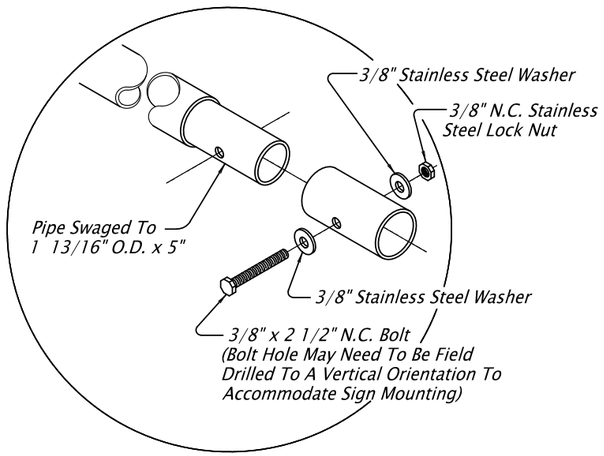
Crosswalk Closure Support



CROSSWALK CLOSURE SUPPORT DETAIL

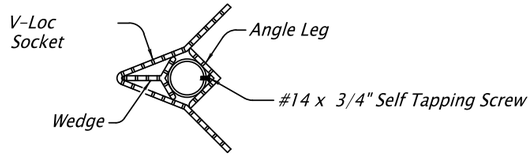


SECTION A-A



DETAIL "B"

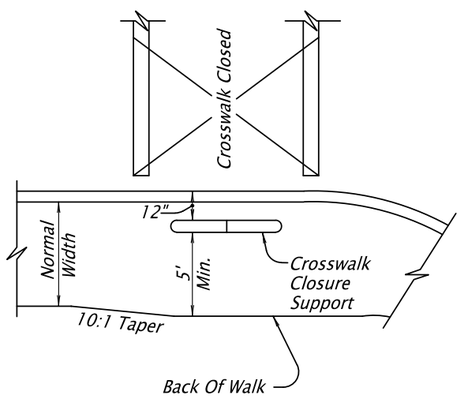
SIGN DETAIL
OR22-7
24" x 18"



POST MOUNTING SOCKET
For Additional Details See Standard Drg. No. RD100

NOTE:

Care Shall Be Taken That No Concrete Is Placed Within Mounting Socket.



PLAN VIEW

GENERAL NOTES:

1. All Holes In The Tube Support Frame To Be Predrilled By The Manufacturer. (1/32" Larger Than Mounting Bolt)
2. Pipe Swaged By The Manufacturer.

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGN DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LB05
66 of 73

Plot Stamp: 9/6/2024 9:46:42 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CDV_SIGNING & STRIPING-26766.dwg

W

4" WHITE LINE

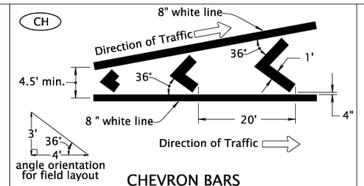
W-2

8" WHITE LINE

Y

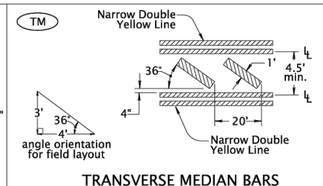
4" YELLOW LINE

CH



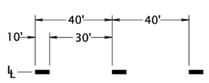
CHEVRON BARS
1' WHITE BARS AT 20' SPACING

TM



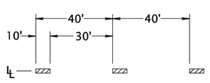
TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 20' SPACING

WB



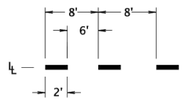
4" WHITE BROKEN LINE

YB



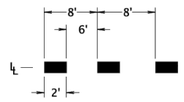
4" YELLOW BROKEN LINE

WD



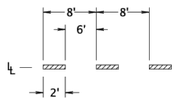
4" WHITE DOTTED LINE
For lane extensions

WD-2



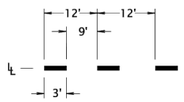
8" WHITE DOTTED LINE
For lane extensions and bike lane extensions

YD



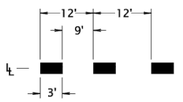
4" YELLOW DOTTED LINE
For lane extensions

DLL



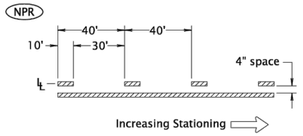
4" WHITE DOTTED LANE LINE
For lane lines in acceleration/deceleration lanes

DLL-2



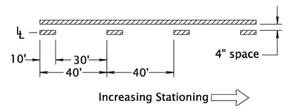
8" WHITE DOTTED LANE LINE
For lane lines in drop lanes

NPR



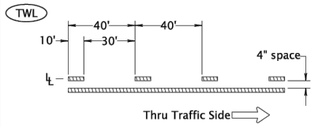
NO-PASS RIGHT
4" YELLOW LINES

NPL



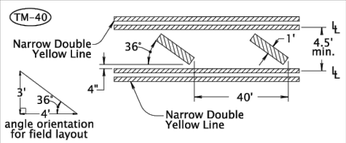
NO-PASS LEFT
4" YELLOW LINES

TWL



TWO-WAY LEFT TURN
4" YELLOW LINES

TM-40

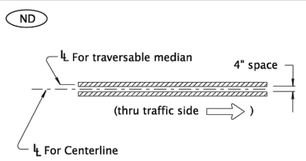


TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 40' SPACING
For use at painted medians where distance between left turn refuges exceeds 200'

D

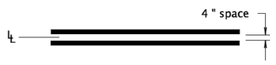
DOUBLE NO-PASS
TWO 4" YELLOW LINES

ND



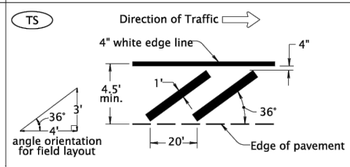
NARROW DOUBLE NO-PASS
TWO 4" YELLOW LINES

NDW



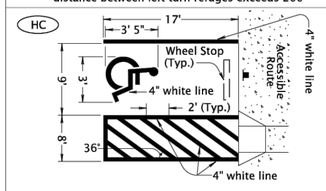
NARROW DOUBLE NO-LANE CHANGE
TWO 4" WHITE LINES

TS



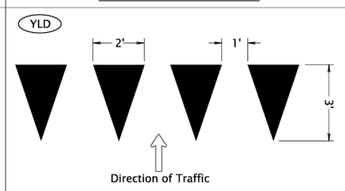
TRANSVERSE SHOULDER BARS
1' WHITE BARS AT 20' SPACING

HC



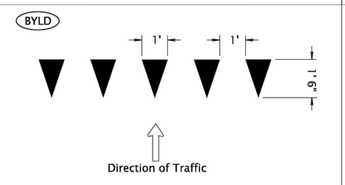
DISABLED PARKING DETAIL (white)

YLD



YIELD LINE (white)

BYLD



BICYCLE YIELD LINE (white)

LEGEND

Direction Of Traffic, Increasing Stationing Or Thru Traffic Side

Lane line dimensions are shown on the striping plans

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2020	Changed Min. widths for CH, TM, TM-40, and TS

CALC. BOOK NO. N/A | SDR DATE 07-01-2020 | **TM500**

Effective Date: June 1, 2024 - November 30, 2024

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

STRIPING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE-SEPTEMBER 2024 PROJECT NO.: 30032302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LC01

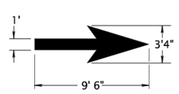
67 of 73

07-01-2020

TM500.dgn

Plot Stamp: 9/6/2024 9:46:43 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

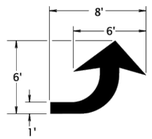
SA



STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

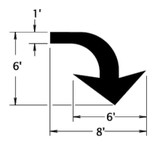
LA



LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

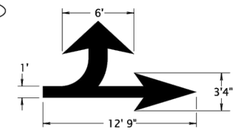
RA



RIGHT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

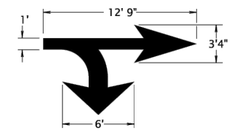
LSA



LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

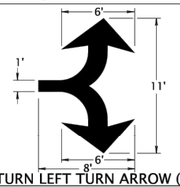
RSA



RIGHT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

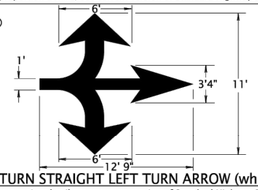
RALA



RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

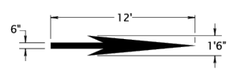
RSLA



RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

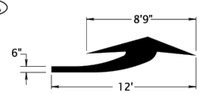
E-SA



ELONGATED STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

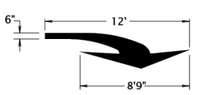
E-LA



ELONGATED LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

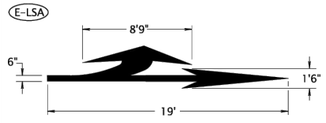
E-RA



ELONGATED RIGHT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

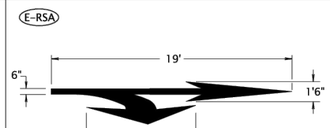
E-LSA



ELONGATED LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

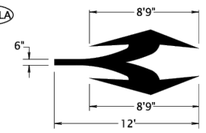
E-RSA



ELONGATED RIGHT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

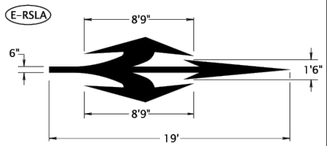
E-RALA



ELONGATED RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

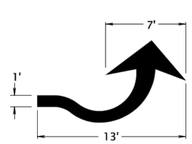
E-RSLA



ELONGATED RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

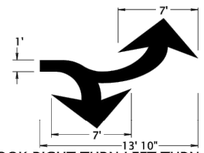
F-LA



FISH-HOOK LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

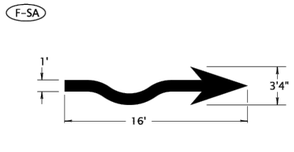
F-RALA



FISH-HOOK RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

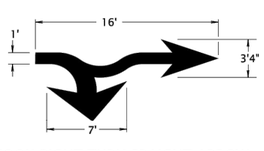
F-SA



FISH-HOOK STRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

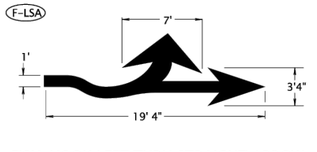
F-RSA



FISH-HOOK RIGHT TURN SRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

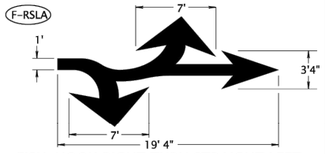
F-LSA



FISH-HOOK LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

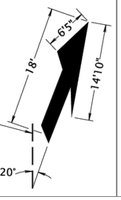
F-RSLA



FISH-HOOK RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

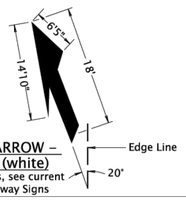
LRA-L



LANE REDUCTION ARROW – LEFT LANE ENDS (white)

For arrow proportion details, see current version of Standard Highway Signs

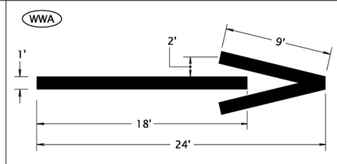
LRA-R



LANE REDUCTION ARROW – RIGHT LANE ENDS (white)

For arrow proportion details, see current version of Standard Highway Signs

WWA



WRONG-WAY ARROW (white)

General Note:

1. Center pavement markings within the lane width.
2. Arrow and letter dimensions nominal, excluding WWA.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2020	Some Detail Blocks moved to new Std. Drawing TM504
	Fish-hook Arrows added, LRA split into LRA-L and LRA-R
01-2022	Corrected bubble callout of LRA-L and typo in LRA-R

CALC. BOOK NO. N/A | SDR DATE 01-03-2022 | **TM501**

Effective Date: June 1, 2024 – November 30, 2024

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

STRIPING DETAILS

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
C. COX	S. SEMENSKY	C. JESIC

REVISIONS

NO.	DATE:

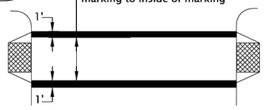
Sheet No.
LC02
68 of 73

01-03-2022

TM501.dgn

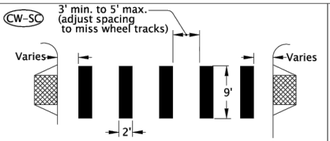
Plot Stamp: 9/6/2024 9:46:46 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

CW



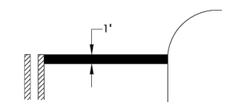
STANDARD CROSSWALK
TWO 1' WHITE BARS
Install per Standard Drawing TM530

CW-SC



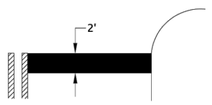
STAGGERED CONTINENTAL CROSSWALK
2' WHITE BARS
Install per Standard Drawing TM530

S



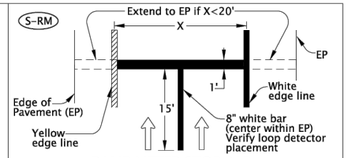
STOP BAR
1' WHITE BAR
Install per Standard Drawing TM530

S-2



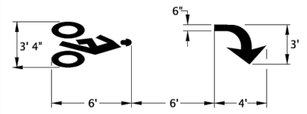
STOP BAR - LARGE
2' WHITE BAR
Install per Standard Drawing TM530

S-RM



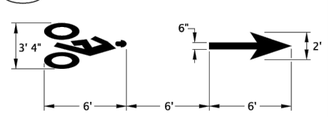
RAMP METER STOP BAR
1' & 8" WHITE BARS
For multi-lane ramp meter applications

BR



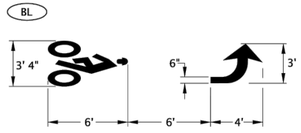
BIKE RIGHT TURN STENCIL (white)
Center marking within lane width
For proportion details, see current version of Standard Highway Signs

BS



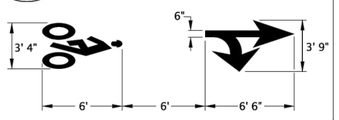
BIKE LANE STANDARD STENCIL (white)
Center marking within lane width
For proportion details, see current version of Standard Highway Signs

BL



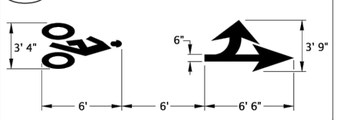
BIKE LEFT TURN STENCIL (white)
Center marking within lane width
For proportion details, see current version of Standard Highway Signs

BRS



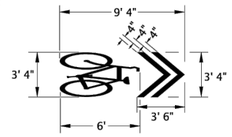
BIKE RIGHT TURN STRAIGHT STENCIL (white)
Center marking within lane width
For proportion details, see current version of Standard Highway Signs

BLS



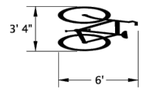
BIKE LEFT TURN STRAIGHT STENCIL (white)
Center marking within lane width
For proportion details, see current version of Standard Highway Signs

SLM



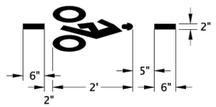
SHARED LANE MARKING (white)
Center marking within lane width or as shown
For proportion details, see current version of Standard Highway Signs

B



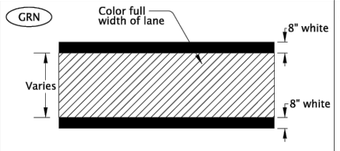
BIKE STENCIL (white)
Used for Intersection Bicycle Box applications
Place marking within bicycle box, ceneterd with motor vehicle lane width

BD



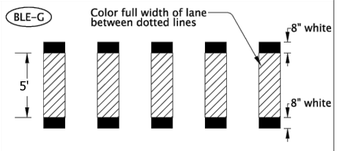
BICYCLE DETECTOR MARKING (white)
PLace Bicycle Detector Pavement Marking in optimum loction where bicycle acuates the traffic signal

GRN



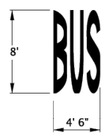
GREEN SUPPLEMENTAL BICYCLE LANE
SOLID LINE (green)

BLE-G



GREEN SUPPLEMENTAL BICYCLE LANE
DOTTED LINE EXTENSION (green)

BUS

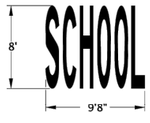


BUS (white)
Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

ON

ONLY (white)
Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

SCH



SCHOOL (white)
Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

SCH-LG

SCHOOL - LARGE (white)
Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

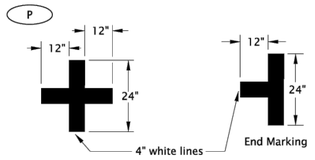
CRS-LG

CROSSING - LARGE (white)
Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

XNG

X-ING (white)
Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

P



ON-STREET PARKING DETAIL (white)

General Note:
1. Arrow, letter, and bike symbol dimensions nominal.

LEGEND
Direction of Trave

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

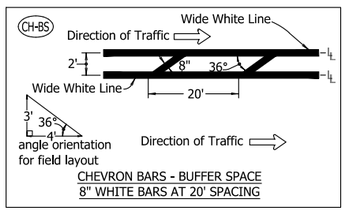
PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2022	Added note for measurement of Standard Crosswalk

CALC. BOOK NO. N/A | SDR DATE 07-08-2022 | **TM503**

CH-BS



CHEVRON BARS - BUFFER SPACE
8" WHITE BARS AT 20' SPACING

Effective Date: June 1, 2024 - November 30, 2024

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

STRIPING DETAILS

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
LC03

07-08-2022

TM503.dgn

Plot Stamp: 9/6/2024 9:46:47 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\L-SIGNING & STRIPING-26766.dwg

GENERAL NOTES

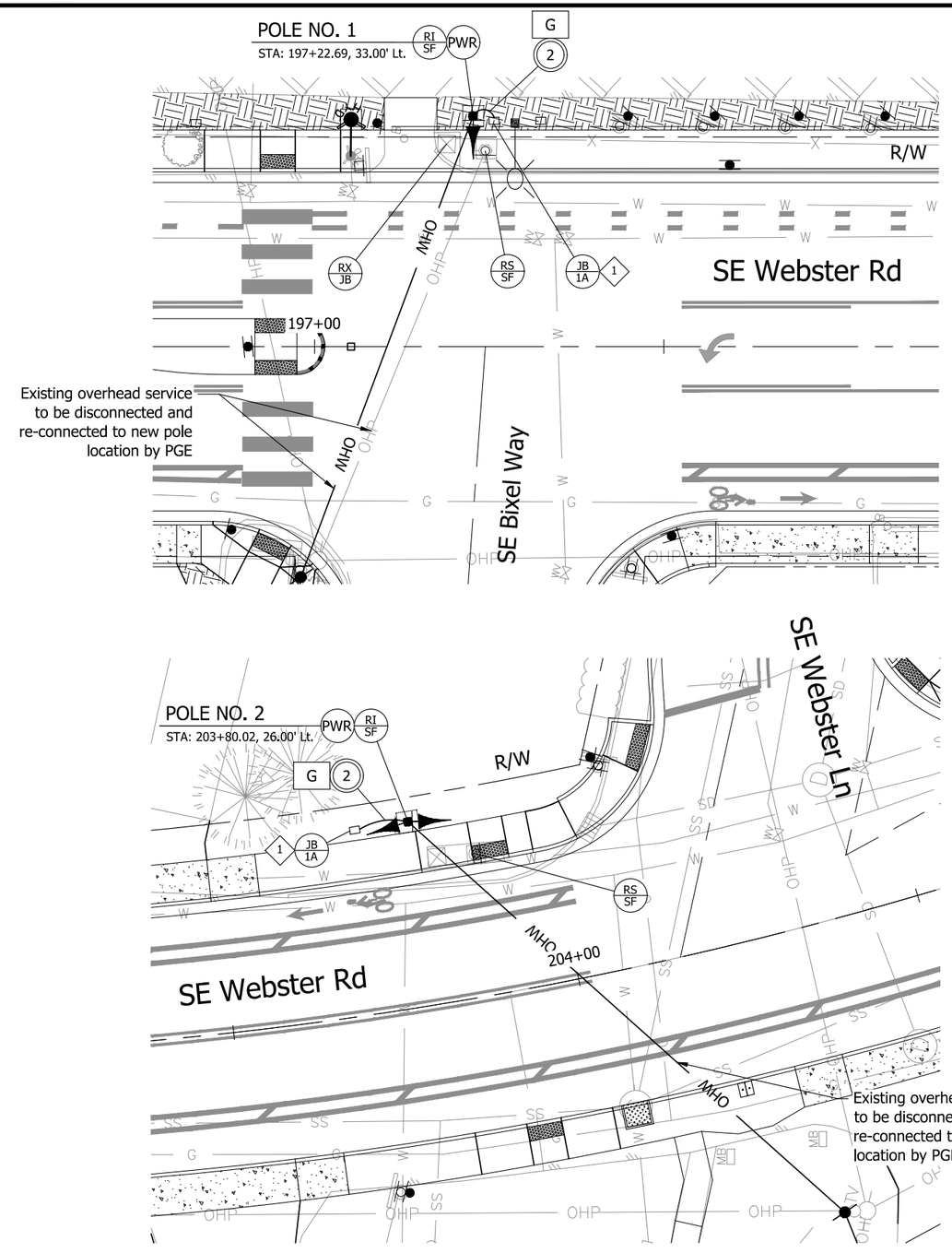
1. Contractor shall coordinate with PGE (Service Desk, 503-736-5450) for all power requirements. Contractor shall notify PGE two weeks in advance of electrical work being performed. PGE work order number M3343371.
2. Top of pole foundations shall match top of finished grade of sidewalk.
3. School zone beacons shall be relocated on a non-school day with no more than 1-day of down time.

LEGEND

- (RS / SF) Remove and save existing steel pole with frangible base and AC-powered school zone flasher beacon assembly. Abandon existing foundation.
- (RI / SF) Reinstall existing steel pole with frangible base on new foundation. Reinstall AC-powered school zone flasher beacon assembly. See detail on sheet M02.
- (PWR) PGE to connect overhead service.
- (JB / 1A) Install 17"x30"x18" (min. Dimension) precast concrete junction box with concrete apron.
- (S) Install (S=size) inch electrical conduit.
- [G] Install No. 6 AWG ground wire
- (RX / JB) Remove existing junction box

CONSTRUCTION NOTES

- ◇1 Install junction box with ground rod per school zone flasher detail on sheet M02.



KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SIGNAL PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 30032130Z

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

JONATHAN HANGARTNER PROJECT MANAGER

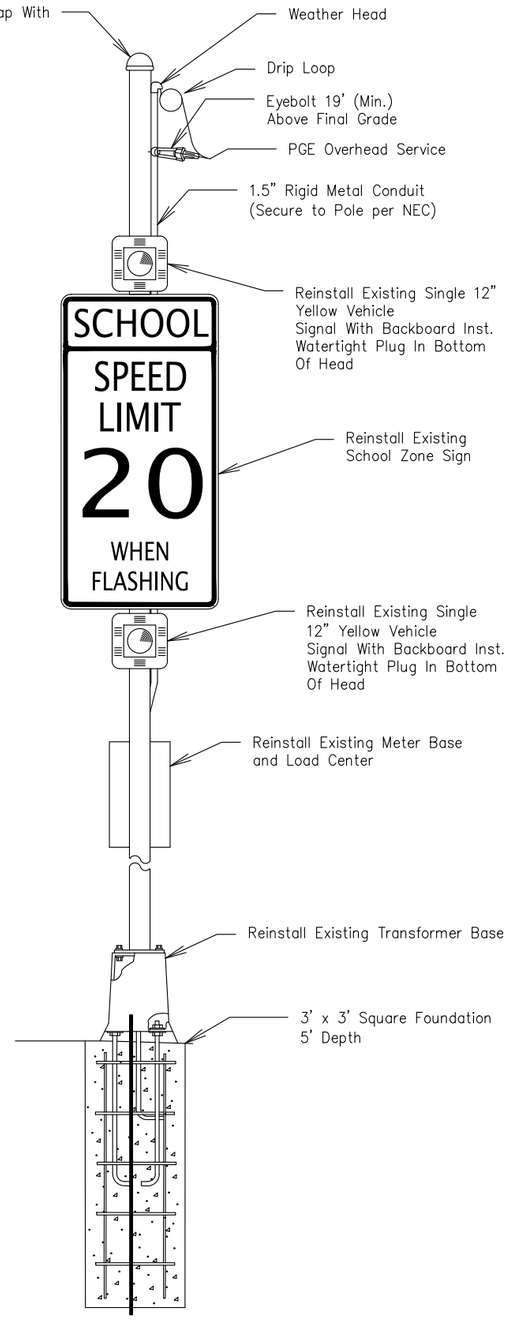
DESIGNED BY:	DRAFTED BY:	CHECKED BY:
C. COX	S. SEMENSKY	C. JESIC

REVISIONS

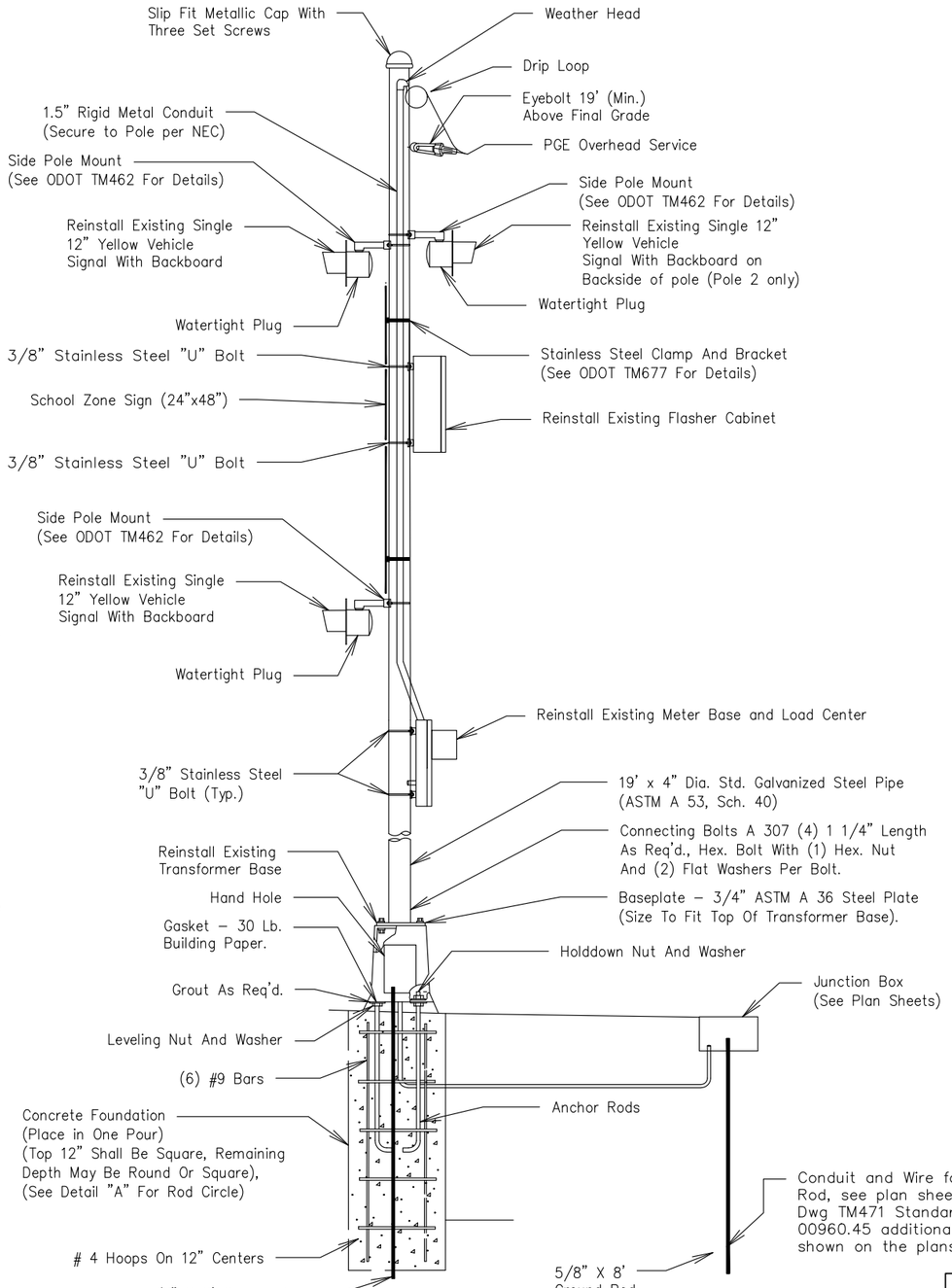
NO.	DATE:

Sheet No.
M01

Plot Stamp: 9/6/2024 9:46:50 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\PM-SIGNAL-26766.dwg



Typical Forward facing
N.T.S.



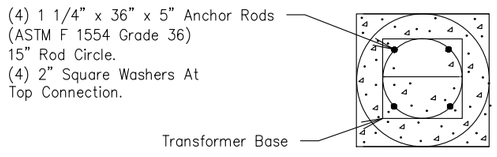
Typical
N.T.S.

GENERAL NOTES

1. ALL SCHOOL ZONE FLASHERS SHALL BE ACTIVATED ON THE SAME DAY.
2. COORDINATE INSPECTION AND TURN ON OF FLASHER UNITS WITH CLACKAMAS COUNTY. PROVIDE ONE WEEK NOTICE PRIOR TO TURN ON.
3. AIM FLASHER HEADS SO THEY ARE VISIBLE TO ONCOMING VEHICLE TRAFFIC.
4. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO 02560.20 AND BE GALVANIZED STEEL ACCORDING TO 02560.40 UNLESS NOTED OTHERWISE.
5. ALL ANCHOR RODS SHALL BE GALVANIZED STEEL CONFORMING TO 02560.30.
6. ALL POLE ENTRANCES CONTAINING WIRING SHALL BE SMOOTH.
7. INSTALL 1/4" THICK PREFORMED EXPANSION JOINT FILLER AROUND FOOTING IN SIDEWALK AREA AS PER TM653.
8. TOP OF FOUNDATIONS SHALL HAVE 0" – 1/4 " EXPOSURE ABOVE FINISH GRADE.
9. FLAT SIDE OF FOUNDATION SHOULD LINE UP WITH BACK OF SIDEWALK (WHERE SIDEWALK IS PRESENT).
10. SEE ODOT STANDARD DRAWING TM471 FOR ADDITIONAL CONDUIT INSTALLATION DETAILS.

COMMUNICATION REQUIREMENTS

1. For each school zone flasher assembly, provide flasher timer switch with cellular modem from Applied Information (AI) Part# AI-500-070. Includes Glance (Cloud Based) Perpetual License & Configuration and 5 years Cellular Data (10MB/month) with access to Clackamas County.



Detail "A"

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

SCHOOL FLASHER DETAIL

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

NO.	DATE:

Sheet No.
M02

71 of 73

Plot Stamp: 9/6/2024 9:46:51 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\M-SIGNAL-26766.dwg

L E G E N D

JB 1	Install 17"x30"x18" (min. Dimension) precast concrete junction box.
LP (N)	Install anchor base cobra head street light pole number (N) See lighting notes and light pole table on this sheet
S	Install (S=size) inch electrical conduit.
HDD	Install conduit with horizontal directional drilling.
PL	Install poly pull line

LIGHT LEVELS TABLE

LOCATION		AVG VERTICAL LIGHT LEVEL (FC)
CROSSWALK - SE Webster Rd/SE Bixel Way, Northbound	TARGET	>0.5
	ACHIEVED	1.0
CROSSWALK - SE Webster Rd/SE Bixel Way, Southbound	TARGET	>0.5
	ACHIEVED	0.7

APPROVED STREET LIGHTING EQUIPMENT

To be supplied and installed by the Contractor:

1. Junction boxes shall be PGE approved splice boxes. PGE approved boxes are:

Manufacturer:	Catalog Number:
New Basis	FCA173018T-00043
Quazite (Hubbell)	A42173018A017
Old Castle	17301726
Armorcast	A6001640TAX18
Highline	CHA173018HE1

To be supplied by PGE and installed by Contractor:

1. Anchor pole footing shall be PGE approved pre-cast concrete.

Manufacturer:	Catalog number:
Old Castle	5CL-LB

To be supplied and installed by PGE:

1. 35 ft aluminum street light pole and 8 ft luminaire arm shall be:

Manufacturer:	Catalog Number:
Valmont	3500-86108D4
Hapco	41-231PGE
P&K Poles	RTA8M35AAD1832D

2. Cobra head style lumunaires shall be:

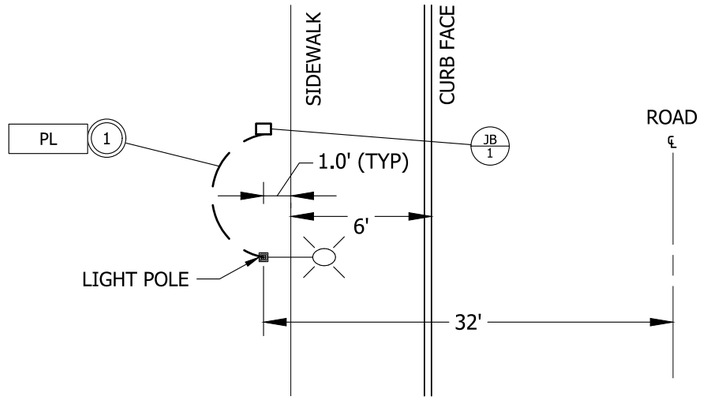
Manufacturer:	Catalog Number:
Leotek	GCM2-40H-MV-WW-2R-GY-700-PCR7-RWG-WL-FDC-PGE

3. The photoelectric control shall be PGE approved twistlock, fail-on, electronic, 105-300 VAC, 60 HZ, per ANSI 136.10, bronze housing, 1.5 lumen turn-on, rated 1000 W tungsten (1800 VA ballast), 1.5:1 turn-off/turn-on ration, solid brass plug blades, conformally coated CDS cell, 160 joule mov, 2-4 sec. Turn-off delay.

Manufacturer:	Catalog Number:
Ripley	RD8645
DTL	DLL1271.5J50
Intermactic	EK4536K

GENERAL NOTES:

1. All electrical equipment shall conform to the current standards of the National Electrical Manufacturers Association (NEMA) and the Underwriters Laboratories, Inc. (U.L.) wherever applicable. In addition to the requirements of the plans, standards specifications, and the special provisions, all materials and workmanship shall conform to the current requirements of the National Electrical Code (NEC) the National Electrical Safety Code, standards of the American National Standards Institute (ANSI), and any local ordinances which may apply.
2. All materials and workmanship shall conform to PGE Schedule 95, Option A specifications. All materials and installation shall be approved by PGE. Light pole bases, junction boxes, conduits, to be installed by Electrical Contractor.
3. Lighting contractor/installer is solely responsible for installation of correct material based on current PGE approved material list. Contractor to provide material submittals first to the Engineer and then to PGE for review and approval.
4. The contractor shall coordinate work with Han Le of PGE at 503-736-5712 to verify the power source for the system.
5. Location of illumination conduits and junction boxes are approximate. The contractor shall coordinate with PGE to obtain final illumination conduit plan prior to construction. Coordinate with other utilities to ensure proper installation.
6. 10 Install #12 stranded copper (orange) tracer wire in all conduits.
7. PGE will provide the grounding rod units for junction boxes for contractor to install.
8. PGE Field Construction Coordinator will review and approve all trench and conduit prior to backfilling.



TYPICAL STREET LIGHT DETAIL
(CURB TIGHT SIDEWALK)
NOT TO SCALE

LIGHT POLE LOCATION TABLE

POLE NO.	STREET	STATION	OFFSET	POLE STYLE	MOUNTING HEIGHT	ARM LENGTH	LUMINAIRE TYPE	WATTAGE	DISTRIBUTION	INITIAL LUMENS
1	SE WEBSTER RD	196+63.76	32.00' LT	COBRAHEAD	35'-0"	8'-0"	GCM2-40H-MV-WW-2R-GY-700	88W	TYPE 2	10,230
2	SE WEBSTER RD	197+28.69	32.00' LT	COBRAHEAD	35'-0"	8'-0"	GCM2-40H-MV-WW-2R-GY-700	88W	TYPE 2	10.230

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed
2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

ILLUMINATION LEGEND

BILQUIST ELEMENTARY
SCHOOL - SIDEWALKS

DATE:SEPTEMBER 2024 PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION
AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

JONATHAN HANGARTNER PROJECT MANAGER

DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

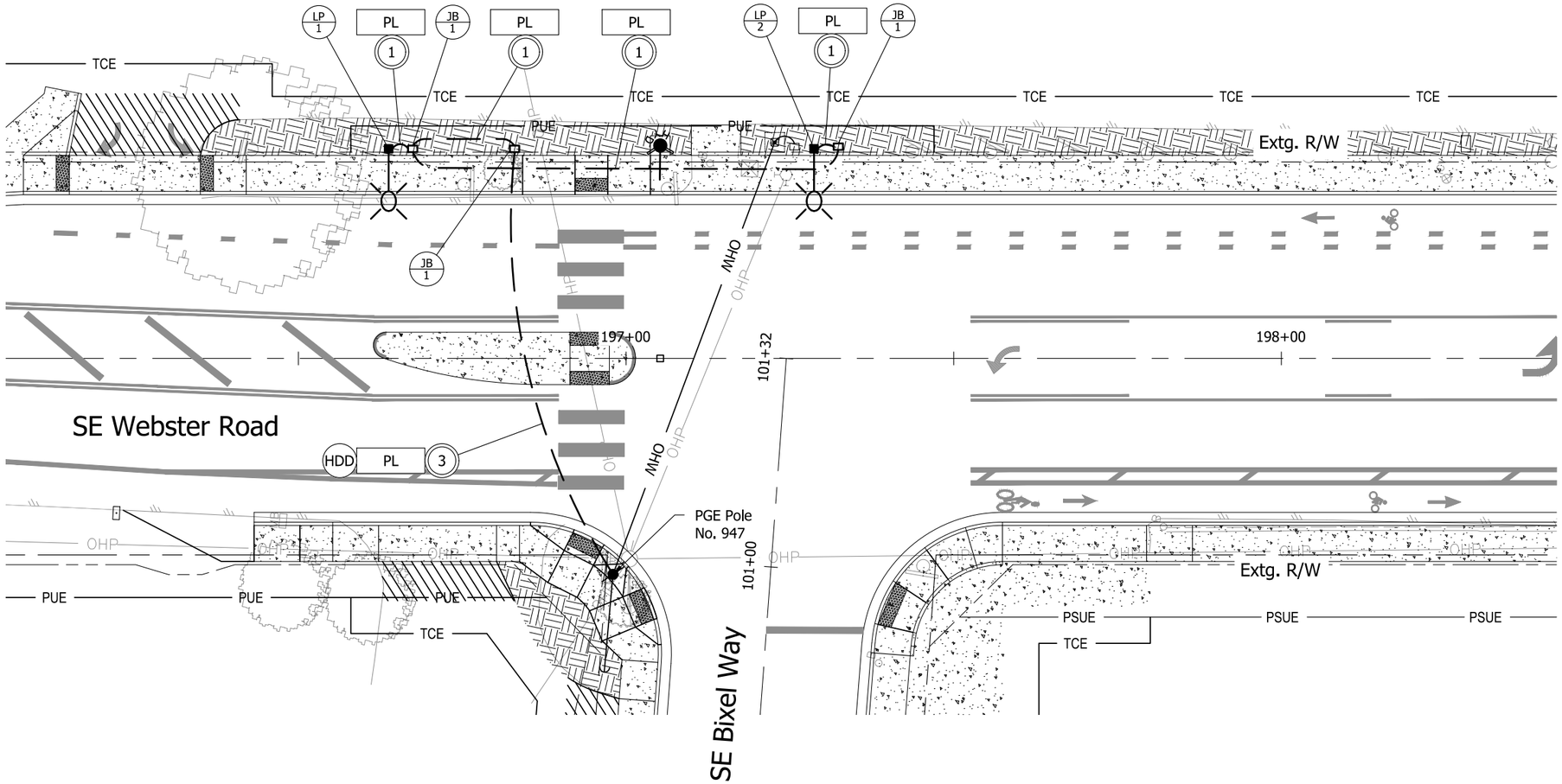
REVISIONS

NO.	DATE:

Sheet No.
P01
72 of 73

GENERAL NOTES

1. The contractor shall coordinate with PGE for power service connection. Work order number M3343371.



Scale: 1" = 20'

20 10 0 20

KITTELSON & ASSOCIATES
851 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

REGISTERED PROFESSIONAL ENGINEER
92692PE
Digitally Signed 2025.12.06
OREGON
July 13, 2021
CALEB EDWARD COX
EXPIRES: 12/31/25

ILLUMINATION PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS

DATE: SEPTEMBER 2024 | PROJECT NO.: 300321302

CLACKAMAS COUNTY
DEPT. OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

PROJECT MANAGER: JONATHAN HANGARTNER

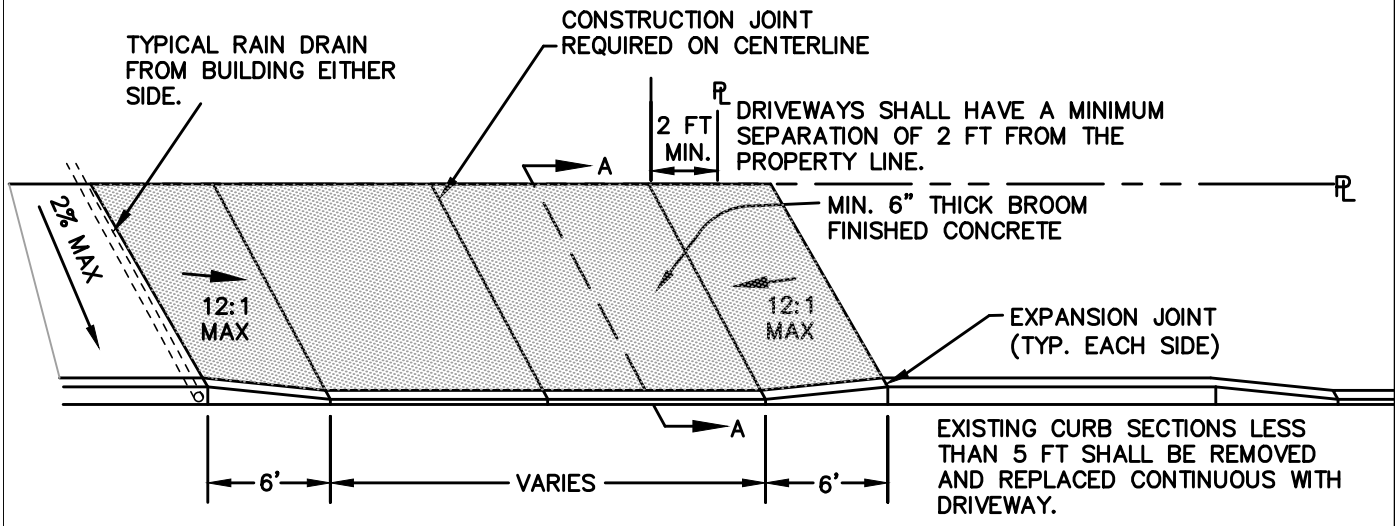
DESIGNED BY: C. COX
DRAFTED BY: S. SEMENSKY
CHECKED BY: C. JESIC

REVISIONS

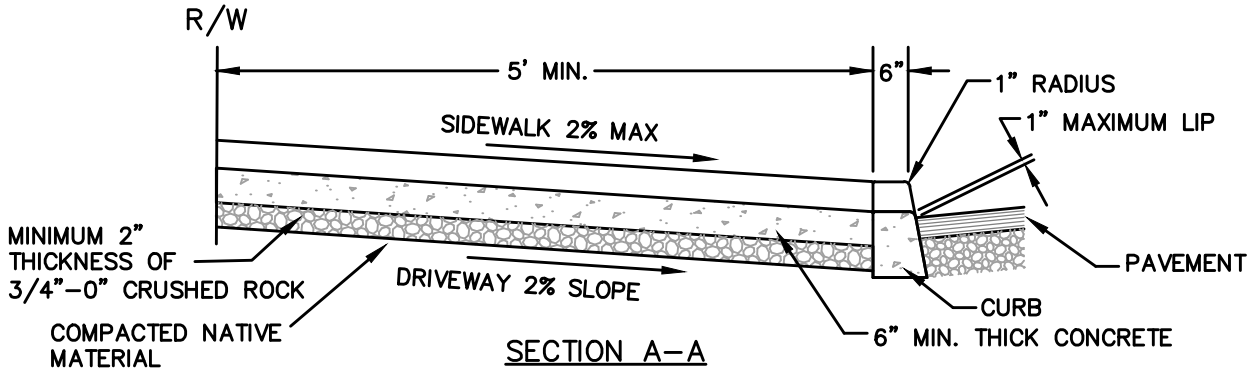
NO.	DATE:

Sheet No. P02

Plot Stamp: 9/6/2024 9:47:04 AM - Allison Winter
File: H:\26\26766 - Bilquist Elementary School - Sidewalks\design_CD\P-ILLUMINATION-26766.dwg



TYPICAL DRIVEWAY APRON



SECTION A-A

NOTES

1. LOCATION AND WIDTH TO BE APPROVED BY THE COUNTY ON A SITE SPECIFIC BASIS. PLACE A MARKER, AS INDICATED, AT THE CENTER OF THE PROPOSED DRIVEWAY FOR INITIAL INSPECTION BY THE COUNTY.

2. RESIDENTIAL DRIVEWAY WIDTH SHALL BE MIN. 12' TO 35' MAX.

3. COMMERCIAL DRIVEWAY WIDTH SHALL BE MINIMUM 28' FOR TWO LANES AND 42' FOR THREE LANES. THIS DETAIL CAN BE USED FOR COMMERCIAL ACCESS WHETHER OR NOT THE SIDEWALK IS CURB TIGHT. JUST BE SURE TO LOWER THE SIDEWALK PANELS TO THE DRIVEWAY TO MEET ADA STANDARDS.

4. MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT ODOT/APWA STANDARD SPECIFICATIONS.

5. AT CORNER LOTS, DRIVEWAY ENTRANCE SHALL BE PLACED ON THE SECONDARY ROADWAY AND NO PORTION OF THE DRIVEWAY SHALL BE PERMITTED WITHIN 25 FEET OF THE PROPERTY CORNER OR INTERSECTION OF RIGHT-OF-WAY LINES.

6. SEE SECTION 220 FOR ACCESS SPACING BETWEEN DRIVEWAYS, TO AN INTERSECTION AND TO A PROPERTY LINE ALSO FOR MULTIPLE ACCESSES TO ON PROPERTY.

7. SPECIFICATIONS FOR CONCRETE AND MISC. MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT ODOT/APWA STANDARD SPECIFICATIONS. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3300 P.S.I. IN 28 DAYS.

8. COMMERCIAL DRIVEWAYS SHALL HAVE 6" MINIMUM THICKNESS CONCRETE WITH #4 REBAR @ 12" O.C., ALL BARS TIED.

9. PROVIDE SIGHT DISTANCE PER SECTION 240.

REVISION	DATE	BY
REVISED	11/19	AAR

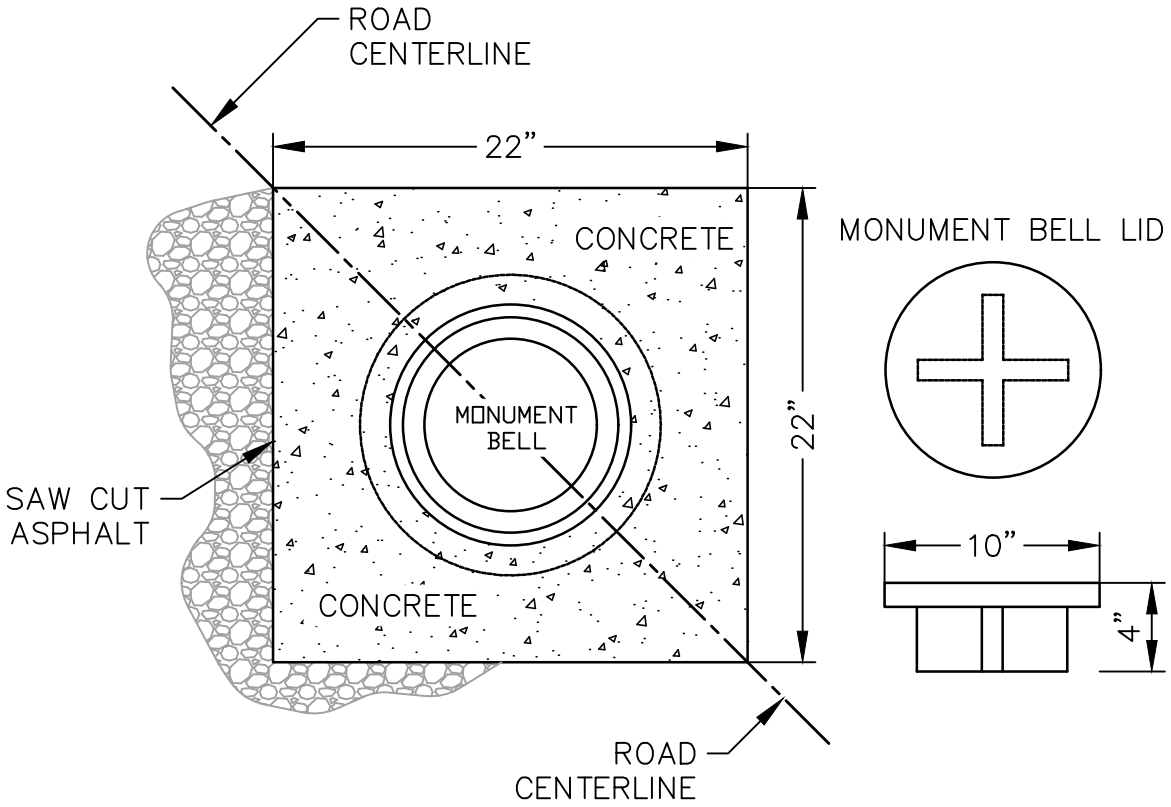
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

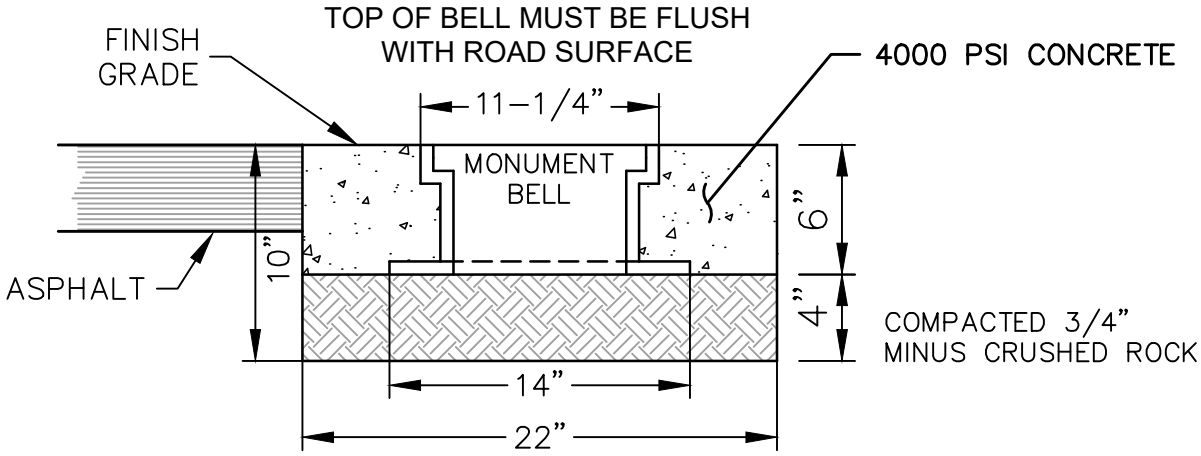
CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

STANDARD DRIVEWAY TO CURBED COUNTY ROADS WITH NO LANDSCAPE STRIP

STANDARD DRAWING
D600





NOTE:
MONUMENT BOXES TO BE CAST IRON OR ALLOY SUITABLE FOR HEAVY TRAFFIC LOADING. #1036 OR #1033 EAST JORDAN IRON WORKS #3680 OR EQUIVILANT.

REVISION	DATE	BY
REVISION	11/19	RM
REVISION	3/20	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

MONUMENT BOX
35 MPH OR LESS

STANDARD DRAWING

M100

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO THESE PLANS AND THE APPLICABLE PROVISIONS OF THE CLACKAMAS COUNTY ROADWAY STANDARDS. IMPROVEMENTS DEPICTED ON THESE PLANS ARE IN CONFORMANCE WITH COUNTY LAND USE ACTION CASEFILE _____. (INSERT PLANNING FILE NUMBER, EXAMPLE– Z0123–03–D).

2. IN ORDER TO PROTECT UNDERGROUND FACILITIES, EXCAVATORS PERFORMING THE WORK SET FORTH ON THESE PLANS MUST COMPLY WITH THE PROVISIONS OF ORS 757.557 (REQUIRES CONTRACTOR TO NOTIFY THE OREGON UTILITY NOTIFICATION CENTER AT LEAST TWO, BUT NO MORE THAN 10 BUSINESS DAYS, PRIOR TO ANY EXCAVATION).

3. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS IS APPROXIMATE AND SHOWN FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. NOTIFY ENGINEER AND DTD ENGINEERING OF ANY DISCREPANCIES PRIOR TO INITIATING THE CONSTRUCTION OF THE FACILITIES.

4. VERTICAL DATUM: (INSERT A LOCAL BENCH MARK ELEVATION).

5. TOPOGRAPHIC SURVEY BY: (INSERT LICENSED SURVEYOR'S OR ENGINEER'S COMPANY AND NAME).

6. VEGETATION AND TOPSOIL ARE TO BE STRIPPED TO MINERAL EARTH AND APPROVED BY THE PRIMARY INSPECTOR PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS.

7. THE COUNTY REQUIRES A PROOF ROLL TEST WITH A FULLY LOADED 10–YARD DUMP TRUCK (LOAD TICKET TO BE PROVIDED) TO CHECK FOR SOFT SPOTS IN THE SUBGRADE PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC AND GRANULAR BASE ROCK AND AGAIN AT THE COMPLETION OF THE PLACEMENT OF THE BASE ROCK FOLLOWED BY REQUIRED DENSITY TESTING PRIOR TO PAVING THE FIRST LIFT OF ASPHALT CONCRETE.

8. ACP MIX IS TO BE BATCHED FROM A MIX FORMULA APPROVED BY OSHD FOR MATERIAL USED. PAVING CONTRACTOR SHALL PROVIDE A CERTIFICATE OF COMPLIANCE FROM ACP PLANT. MIX DESIGN TO BE APPROVED PRIOR TO PAVING.

9. SUBSEQUENT SETTLEMENT OR CRACKING OF FINISHED SURFACE WITHIN THE WARRANTY PERIOD SHALL BE CONSIDERED TO BE A FAILURE OF THE SUBGRADE AND REPAIRED AT NO COST TO THE COUNTY AND IN A MANNER ACCEPTABLE TO THE COUNTY.

10. THE CONTRACTOR SHALL CONTROL TRAFFIC THROUGH THE PROJECT SITE IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND OREGON SUPPLEMENTS. THE CONTRACTOR SHALL, AT ALL TIMES, MAINTAIN LOCAL ACCESS FOR EMERGENCY VEHICLES, BUSINESSES, BUSES, AND HOMEOWNERS ALONG THE PROJECT SITE.

11. WHEN TRAFFIC DELAYS ARE TO BE EXPECTED, THE CONTRACTOR SHALL NOTIFY THE APPLICABLE AGENCIES, INCLUDING TRIMET, SCHOOL DISTRICT, EMERGENCY SERVICES, AND LOCAL BUSINESSES.

12. THE CONTRACTOR SHALL HAVE A MINIMUM OF ONE (1) SET OF APPROVED CONSTRUCTION PLANS ON THE JOB SITE AT ALL TIMES DURING THE CONSTRUCTION PHASES.

13. CONTRACTOR SHALL REMOVE AND DISPOSE OF TREES, STUMPS, BRUSH, ROOTS, TOPSOIL AND OTHER MATERIAL ENCOUNTERED DURING THE CONSTRUCTION OF THE ROADWAY AND WHERE INDICATED ON THE PLANS. MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, REGIONAL AND STATE REGULATIONS AT FACILITIES AUTHORIZED TO ACCEPT SUCH MATERIAL. FILL SITES SHALL BE LEVELED AND GRADED TO DRAIN. THE CONTRACTOR SHALL CORRECT ANY DEFICIENT FILL OR NON PERMITTED DISPOSAL OF MATERIALS.

14. CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL EARTHWORK, TRENCH BACKFILL AND ROAD CONSTRUCTION COMPACTION TESTS, AND GEOTECHNICAL REVIEWS WITH THE SOILS TESTING LAB AS REQUIRED FOR ACCEPTANCE OF PROJECT WORK BY CLACKAMAS COUNTY. COUNTY SHALL BE PROVIDED WITH ALL TEST RESULTS.

15. PROVIDE A PRE–CONSTRUCTION SURVEY TO CLACKAMAS COUNTY, DTD INDICATING ALL FOUND AND MISSING MONUMENTATION WITHIN THE PROJECT LIMITS PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.

16. CONTRACTOR SHALL CAREFULLY MAINTAIN BENCHMARKS, PROPERTY CORNERS, MONUMENTS, AND OTHER REFERENCE POINTS PURSUANT TO ORS 209.140 AND ORS 209.150. IF SUCH POINTS ARE DISTURBED OR DESTROYED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND PAY FOR THEIR REPLACEMENT BY EMPLOYING A PROFESSIONAL LAND SURVEYOR TO RESET PROPERTY CORNERS & OTHER SUCH MONUMENTS.

REVISION	DATE	BY
REVISED	12/12	RN
REVISED	11/19	BP
REVISED	4/21	RM
REVISED	3/22	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

APPROVAL DATE: 4/20/2021 SCALE: N.T.S.

STANDARD NOTES
GENERAL

STANDARD DRAWING
N100

GENERAL NOTES (CONTINUED)

17. AT THE PRECONSTRUCTION MEETING, PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL PRESENT A LIST OF SUBCONTRACTORS, A PROJECT SCHEDULE, A TRAFFIC CONTROL PLAN AND A LIST OF AT LEAST THREE PEOPLE, WITH PHONE NUMBERS, RESPONSIBLE FOR MAINTAINING TRAFFIC CONTROL DURING NON-WORK PERIODS.

18. FINAL CLEANUP – PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL CLEAN THE WORK SITE AND ADJACENT AREAS OF ANY DEBRIS, DISCARDED ACP, CONCRETE OR OTHER ITEMS DEPOSITED BY THE CONTRACTOR'S PERSONNEL DURING THE PERFORMANCE OF THIS CONTRACT.

19. THE LOCATION OF ABOVE GROUND IMPROVEMENTS (EXISTING AND PROPOSED) SHALL NOT CONFLICT WITH THE REQUIRED SIDEWALK WIDTHS, ROADWAY IMPROVEMENTS, AND REQUIRED SIGHT DISTANCE.

(ENGINEER TO ADD ADDITIONAL NOTES SPECIFIC TO THE PROJECT.)

GRADING NOTES

1. ALL FILLS ON PRIVATE PROPERTY MUST BE PLACED CONSISTENT WITH COUNTY CODE TITLE 9.03, EXCAVATION AND GRADING. SITE PREPARATION MUST INCLUDE THE REMOVAL OF VEGETATION, NON-COMPLYING FILL, TOPSOIL, OR OTHER UNSUITABLE MATERIAL PRIOR TO PLACEMENT OF THE FILL. FILL SLOPES SHALL NOT EXCEED A GRADE OF TWO HORIZONTAL TO ONE VERTICAL.

2. ALL CUTS ON PRIVATE PROPERTY SHALL BE MADE CONSISTENT WITH TITLE 9.03, EXCAVATION AND GRADING ORDINANCE. NO CUT SHALL EXCEED A GRADE OF TWO HORIZONTAL TO ONE VERTICAL UNLESS APPROVED BEFOREHAND BY THE PROJECT GEOTECHNICAL ENGINEER AND CLACKAMAS COUNTY.

3. ON PRIVATE PROPERTY, APPROPRIATE BENCHING OF FILLS IS REQUIRED FOR FILLS OVER FIVE FEET IN HEIGHT ON SLOPES IN EXCESS OF FIVE HORIZONTAL TO ONE VERTICAL. BENCHING MUST BE DONE IN ACCORDANCE WITH THE APPROVED PLANS. CLACKAMAS COUNTY SHALL INSPECT BENCHES PRIOR TO FILL PLACEMENT.

4. CUT AND FILL SLOPES AND ALL EXPOSED SOILS SHALL BE PROTECTED FROM EROSION AND BE IN COMPLIANCE WITH THE LOCAL SURFACE WATER AUTHORITY RULES, REGULATIONS, AND STANDARDS. SUCH CONTROL SHALL CONSIST OF TEMPORARY MEASURES DURING CONSTRUCTION AND PERMANENT MEASURES AT THE COMPLETION OF CONSTRUCTION ACTIVITIES; INCLUDING APPROPRIATE REVEGETATION OR OTHER ACCEPTABLE MEANS AND METHODS. TEMPORARY EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTHWORK OR SITE STRIPPING.

5. THE CONTRACTOR SHALL NOTIFY THE PRIMARY INSPECTOR, COUNTY INSPECTOR, AND GEOTECHNICAL ENGINEER 48 HOURS PRIOR, FOR ALL REQUIRED EROSION CONTROL AND STRUCTURAL FILL INSPECTIONS AT THE FOLLOWING STAGES OF CONSTRUCTION:

   A. EROSION CONTROL INSPECTION PRIOR TO INITIATING CONSTRUCTION ACTIVITIES;
   B. PROOF ROLL ON SUBGRADE AND
   C. AT EVERY ONE FOOT OF STRUCTURAL FILL OR 300 CUBIC YARDS AND
   D. AT COMPLETION OF STRUCTURAL FILL BEFORE GEOTEXTILE FABRIC AND BASE AGGREGATE IS PLACED AND
   E. AT COMPLETION OF BASE AGGREGATE COURSE FOLLOWED BY DENSITY TESTING ON THE FINAL BASE COURSE PRIOR TO PAVING.

6. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE RELOCATION (AS NECESSARY) OF EXISTING UTILITIES DUE TO ANY CUT/FILL OPERATIONS OR ROADWAY IMPROVEMENTS. COORDINATION SHALL TAKE PLACE PRIOR TO INITIATION OF WORK.

REVISION	DATE	BY
REVISED	11/19	BP
REVISED	3/20	RM
REVISED	4/21	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

APPROVAL DATE: 4/20/2021 SCALE: N.T.S.

STANDARD NOTES GENERAL (CONTINUED) & GRADING NOTES

STANDARD DRAWING

N200

STREET & STORM DRAINAGE NOTES

1. STREET AND STORM DRAIN IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CLACKAMAS COUNTY ROADWAY STANDARDS AND THE APPROPRIATE SURFACE WATER DISTRICT. ALL STORM SEWER PIPES SHALL HAVE RUBBER GASKETS, WHICH SHALL PROVIDE A WATER TIGHT CONNECTION.

2. ALL TRENCH EXCAVATION SHALL CONFORM TO THE WATER ENVIRONMENT SERVICE PUBLICATION TITLED *CLACKAMAS COUNTY SERVICE DISTRICT NO. 1 – STANDARD SURFACE WATER SPECIFICATION.*

3. PIPE BEDDING AND PIPE ZONE SHALL CONFORM THE THE EXCAVATION AND BACKFILL DETAILS, AND SHALL BE 3/4"–0" CRUSHED ROCK.

4. COMPACTION SHALL BE PER ODOT/APWA STANDARD SPECIFICATIONS PART 3. CONTRACTOR TO DETERMINE TYPE OF EQUIPMENT AND THE METHOD USED TO ACHIEVE REQUIRED COMPACTION.

5. TRENCH BACKFILL OUTSIDE OF RIGHT–OF–WAYS OR PAVED AREAS MAY BE EXCAVATED TRENCH MATERIAL. TRENCH BACKFILL IN PAVED AREAS SHALL BE AN APPROVED GRANULAR MATERIAL.

6. MATERIAL IN SOFT SPOTS WITHIN THE ROADWAY SHALL BE REMOVED TO THE DEPTH REQUIRED TO PROVIDE A FIRM FOUNDATION AND SHALL BE REPLACED WITH 1 1/2"–0" CRUSHED ROCK. THE ENTIRE SUBGRADE SHALL BE THOROUGHLY COMPACTED TO 95% AASHTO T–99

7. CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN SUBGRADE IS COMPLETE AND 24 HOURS PRIOR TO PLACEMENT OF BASE ROCK MATERIAL. CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER 24 HOURS PRIOR TO FINAL PAVING FOR AN INSPECTION OF THE WORK. CLACKAMAS COUNTY REQUIRES A PROOF ROLL WITH A FULLY OADED 10–YARD DUMP TRUCK TO CHECK SUBGRADE COMPACTION PRIOR TO PLACEMENT OF ROCK SUBBASE AND AGAIN AT THE COMPLETION OF THE PLACEMENT OF THE BASE ROCK PRIOR TO PAVING THE FIRST LIFT OF ASPHALTIC CONCRETE.

8. PRIVATE STORM WATER DETENTION SYSTEMS ARE NOT PERMITTED IN THE PUBLIC RIGHT–OF–WAY

UTILITY NOTES

1. TRENCHES WITHIN THE RIGHTS–OF–WAY SHALL BE BACKFILLED WITH LOW STRENGTH CONTROLLED DENSITY FILL (CDF) WHEN:

   - TRENCHES LESS THAN 100' WITHIN THE ROADWAY OF ALL ARTERIALS AND COLLECTOR CLASSIFIED ROADS;
   - THE AFFECTED ROADWAY SURFACE IS NEWER THAN FIVE (5) YEARS FROM THE TIME OF THE LAST OVERLAY, WITHOUT REGARD TO THE ROADWAY CLASSIFICATION;
   - DEEMED NECESSARY BY THE COUNTY ROAD OFFICIAL.

   WHEN TRENCHES ARE EXEMPT FROM USE OF CDF THE ROADWAY TRENCH SHALL BE BACKFILLED WITH AN APPROVED GRANULAR MATERIAL CONFORMING TO ODOT/APWA CLASS B SPECIFICATIONS AND PER THE COUNTY CODE TITLE 7.03.100 THROUGH 7.03.230 AND SECTION 710 OF THE CLACKAMAS COUNTY ROADWAY STANDARDS.

2. TRENCHES OUTSIDE OF RIGHTS–OF–WAY MAY BE BACKFILLED IN ACCORDANCE WITH NATIVE MATERIAL AND COMPACTION SPECIFICATIONS FOR ODOT/APWA CLASS A BACKFILL.

3. COPIES OF THE CDF MATERIAL DELIVERY SLIPS SHALL BE SUBMITTED FOR COUNTY RECORDS. SUBMIT ____ COPIES TO THE COUNTY INSPECTOR.

REVISION	DATE	BY
REVISED	12/20	RN
REVISED	4/21	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

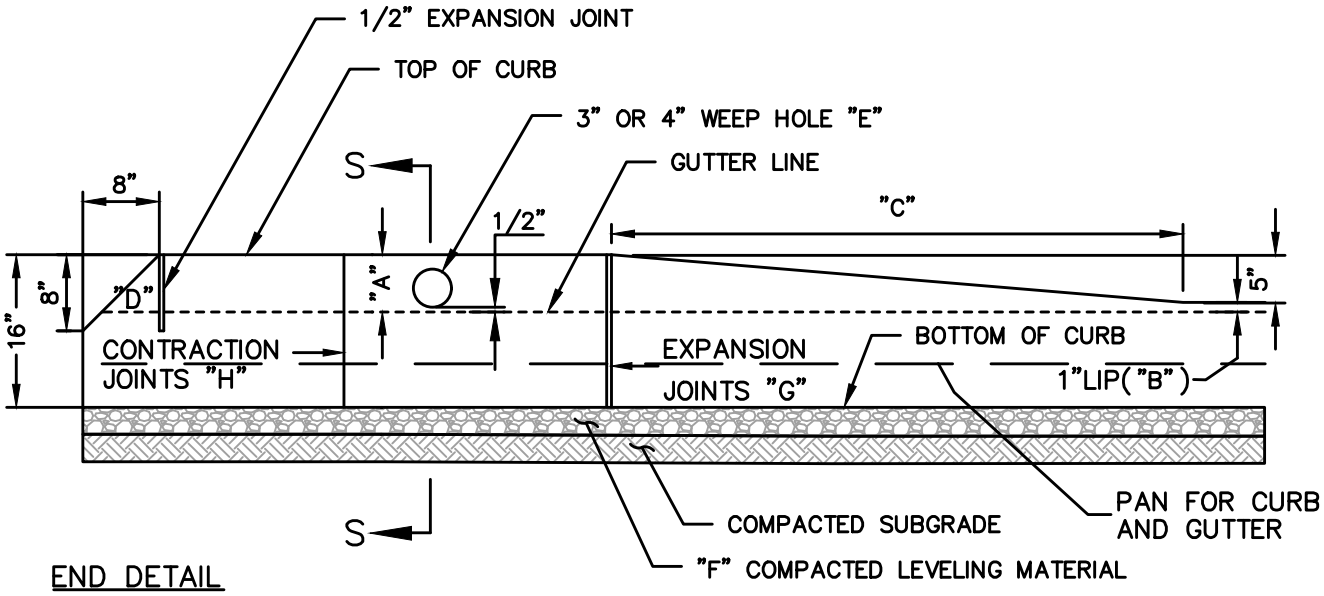
CLACKAMAS COUNTY

APPROVAL DATE: 4/20/2021 *SCALE:* N.T.S.

STANDARD NOTES
STREET, STORM, AND UTILTIY

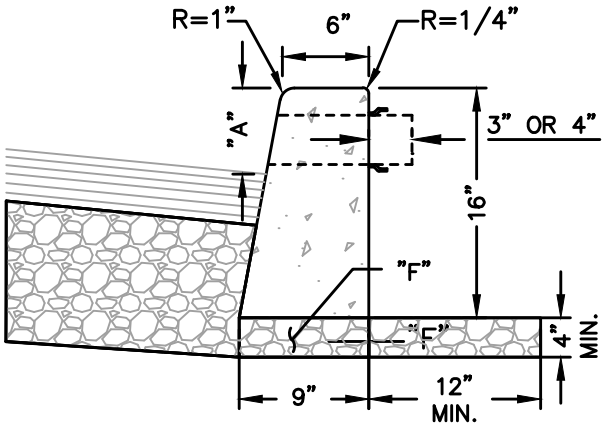
STANDARD DRAWING

N300



END DETAIL

APRON DETAIL



SECTION S–S

NOTES

1. "A" CURB EXPOSURE, STANDARD 6", VARY AS SHOWN ON TYPICAL SECTION, OR AS DIRECTED.
   "B" CURB EXPOSURE ADJACENT TO DRIVEWAY, STANDARD 1", OR AS DIRECTED.
   "C" DRIVEWAY APRON WING, STANDARD RESIDENTIAL & COMMERCIAL 5' MIN, OR AS DIRECTED.
   "D" END CURB SECTION, TOP TO BE REMOVED UPON EXTENSION OF CURB.
   "E" WEEP HOLE, 4" PLASTIC DRAIN PIPE OR APPROVED EQUIVALENT, LOCATED AS INDICATED ON THE PLANS OR AS DIRECTED. DRAIN PIPE SHALL HAVE A BELL OR A 3" EXTENSION, FOR FUTURE HOOK–UP.
   "F" AGGREGATE BASE, 3/4"–0" OR 1/2"–0", 4" MINIMUM
   "G" EXPANSION JOINTS, MAX. 45' SPACING AND AT BEGINNING AND END OF CURVES OR AS DIRECTED.
   "H" CONTRACTION JOINTS, MAX. 15' SPACING AND AT LOCATIONS AS DIRECTED.
2. CURB TO BE CLASS 3300 PORTLAND CEMENT CONCRETE.
3. CONCRETE AND MISC. MATERIALS USED IN CURB CONSTRUCTION SHALL CONFORM TO CURRENT OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.
4. FROM PC TO PT INSIDE THE UGB AND UNINCORPORATED COMMUNITIES, AND WHEN THE GUTTER SLOPE OR CURB LINE IS LESS THAN 1% STANDARD DWG. S150 SHALL BE USED, AT PUBLIC INTERSECTIONS.

REVISION	DATE	BY
EDIT NOTE 3	12/12	RN
REVISED	11/19	AAR

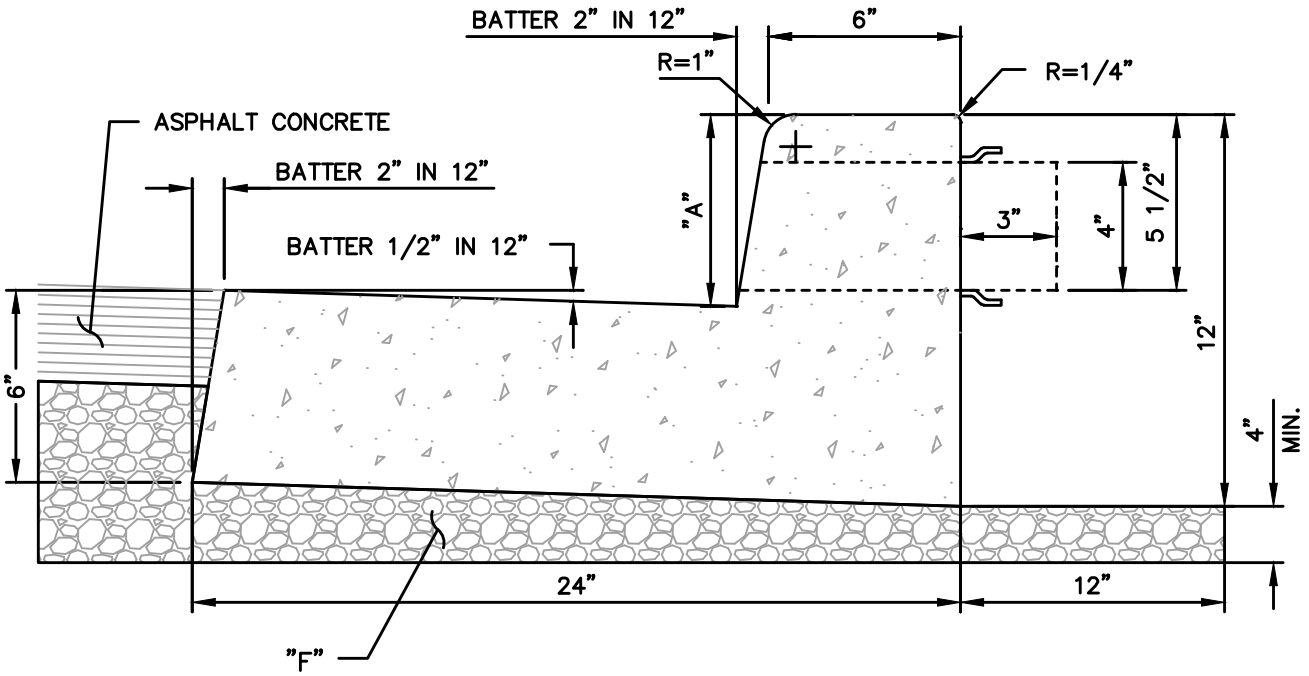
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

STANDARD TYPE 'C' VERTICAL CURB AND CURB DETAILS

STANDARD DRAWING
S100



NOTES

1. SPECIFICATIONS FOR CONCRETE AND MISCELLANEOUS MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3300 PSI IN 28 DAYS, 2" TO 4" SLUMP.
3. 4" PLASTIC PIPE SHALL HAVE A BELL OR A 3" EXTENSION, FOR FUTURE HOOK-UP.
4. EXPANSION JOINTS, MAX. 45' SPACING AND AT BEGINNING AND END OF CURVES OR AS DIRECTED.
5. CONTRACTION JOINTS, MAX. 15' SPACING AND AT LOCATIONS AS DIRECTED.
6. USE FROM PC TO PT AT PUBLIC INTERSECTIONS INSIDE THE UGB AND UNINCORPORATED COMMUNITIES. ALSO USE WHEN THE GUTTER SLOPE OR CURB LINE IS LESS THAN 1% ON ALL PUBLIC ROADS.
7. SEE NOTES ON DETAIL S100.

REVISION	DATE	BY
EDIT NOTE 1	12/12	RN
REVISED	11/19	AAR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

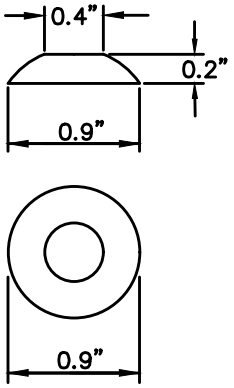
CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

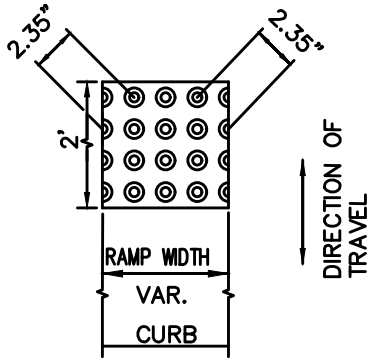
STANDARD CURB AND GUTTER

STANDARD DRAWING

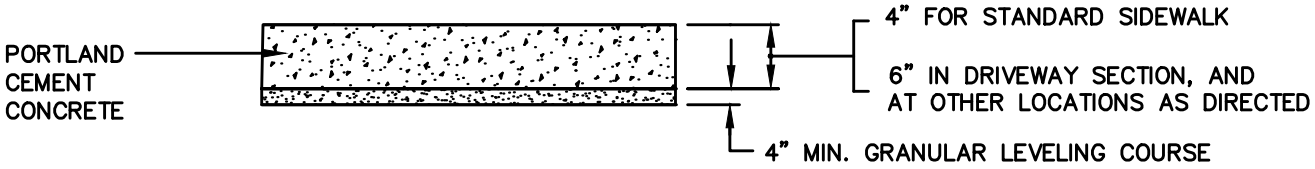
S150



TRUNCATED DOME DETAIL



RAMP TEXTURE PATTERN (TRUNCATED DOMES) DETAIL



SIDEWALK SURFACING DETAIL

NOTES

1. CONCRETE AND MISC. MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION. DETECTABLE WARNINGS ON WALKING SURFACES AS PER ADA REQUIREMENTS.

2. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 in (23 mm) A HEIGHT OF NOMINAL 0.2 in (5 mm) AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35in (60mm) AND YELLOW IN COLOR. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND–ON–CANE CONTACT.

3. EXPANSION JOINT SPACING EVERY 45' MIN. OR AT EQUAL INTERVALS CORRESPONDING TO CURB LINE. JOINTS SHALL BE PROVIDED PER ODOT STD. DWG. RD722.

4. THE SURFACE FINISH SHALL BE CROSS BROOMED.

5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3300 PSI IN 28 DAYS.

REVISION	DATE	BY
EDIT NOTE 1	12/12	RN
EDIT NOTE 6	12/12	RN
REVISION	11/19	BP
REVISION	3/20	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

STANDARD SIDEWALK & CURB RAMP NOTES & DETAILS

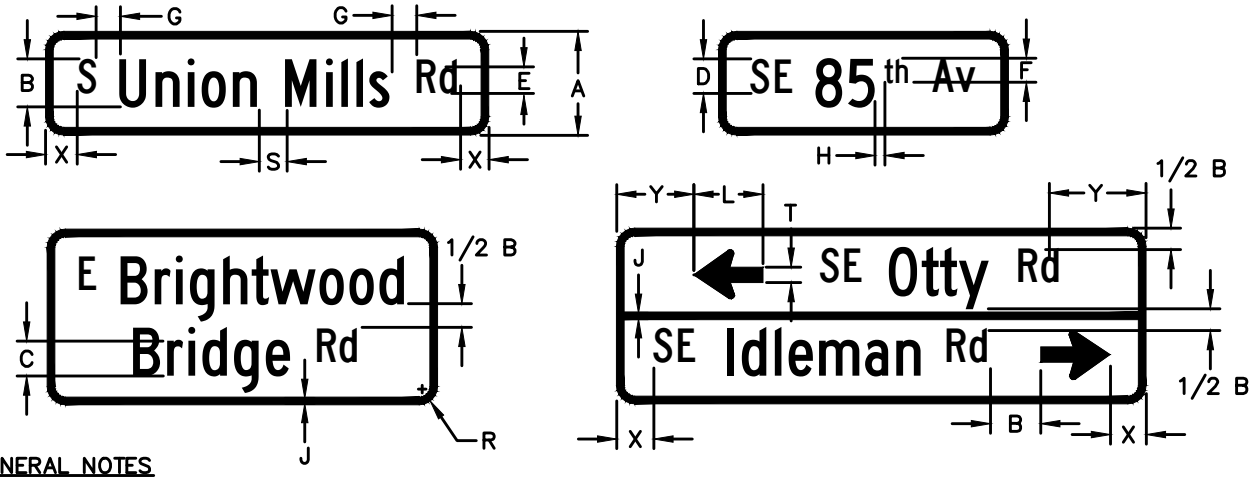
STANDARD DRAWING

S960

LEGEND DIMENSIONING TABLE

LOCATION	STREET CLASSIFICATION	POSTED SPEED (MPH)	PANEL HT.	PRIMARY LETTER HT.	LOWER-CASE LETTER HT.	SUPPLEMENTAL LETTERING SIZE		SUPER-SCRIPT HT.			BORDER/ DIVIDER THICK-NESS	BOR-DER RAD.	ARROW TAIL THICK-NESS	ARROW LENGTH
						UPPER	LOWER							
			A	B	C	D	E	F	G	H	J	R	T	L
GROUND MOUNT	ARTERIAL/COLLECTOR 4+ LANES	> 40	15	8	6	5	3 3/4	4	3 1/8	1	1/2	1 1/2		
	ARTERIAL/COLLECTOR 4+ LANES	≤ 40	12	6	4 1/2	4	3	3	2 1/2	3/4	1/2	1 1/2		
	ARTERIAL/COLLECTOR 2-3 LANES	ALL												
	LOCAL	> 25												
	ALTERNATE *		10	5	4	4	3	2 1/2	2	1/2	1/2	1 1/2		
	STACKED LEGEND	ALL	21	6	4 1/2	4	3	3	2 1/2	3/4	1/2	1 1/2	2 1/4	9
	LOCAL/CONNECTOR	≤ 25	8	5	3 3/4	3	1 7/8	2 1/2	1 1/2	1/2				
	PRIVATE	ALL												
OVERHEAD MAST ARM	ALL	ALL	21	12	9	8	6	6	5	1 3/4	1	3		
	ALTERNATE **		18	10	8	6	4 1/2	5	3 3/4	1 1/4	1	3		
	STACKED LEGEND	ALL	30	8	6	5	3 3/4	4	3 1/8	1	1	3	3	12

NOTES: ALL UNITS IN INCHES UNLESS SHOWN OTHERWISE.
S = SPACE BETWEEN WORDS = 5/8 B.
X, Y = 1/2 OF REMAINING SPACE. SHOULD BE APPROXIMATELY EQUAL TO LETTER HT (B) AND NO LESS THAN 1/2 B.
* GROUND MOUNTED: MAY BE USED IF 6" LETTERS YIELD SIGNS GREATER THAN 60" LENGTH.
** OVERHEAD: MAY BE USED IF 12" LETTERS YIELD SIGNS GREATER THAN 12' LENGTH.



GENERAL NOTES

1. ALL SIGN CORNERS SHALL BE ROUNDED.
2. BORDERS SHALL BE FLUSH WITH EDGE OF SIGN. BORDERS ARE NOT REQUIRED ON 8" PANELS.
3. LEGEND HEIGHT FOR ALL SIGNS AT AN INTERSECTION DICTATED BY THE HIGHEST CLASSIFICATION ROADWAY.
4. SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEERING FOR REVIEW PRIOR TO INSTALLATION.
5. SEE T130 FRO ADDITIONAL REQUIREMENTS.

SIGN LEGEND

1. ALL LEGENDS ARE SUBJECT TO THE ENGINEER'S APPROVAL PRIOR TO FABRICATION.
2. LETTERING SHALL BE FHWA SERIES C AT 100% WIDTH UNLESS SPECIFIED OTHERWISE.
3. THE PREFIX SHALL BE ABBREVIATED UPPER-CASE LETTERS.
4. THE STREET NAME SHALL CONSIST OF LOWER-CASE LETTERS WITH AN INITIAL UPPER-CASE LETTER.
5. THE SUFFIX SHALL BE ABBREVIATED AND CONSIST OF AN INITIAL UPPER-CASE LETTER FOLLOWED BY LOWER-CASE LETTER(S).
6. THE DESCENDERS OF LOWERCASE LETTERS SHALL NOT BE USED IN THE VERTICAL SPACING OF THE LEGEND.

MATERIALS

1. ALL SIGN MATERIALS SHALL CONFORM TO THE CURRENT MUTCD AND ODOT STANDARD SPECIFICATIONS.
2. GROUND MOUNTED: GREEN TYPE III OR TYPE IV BACKGROUND WITH SILVER-WHITE TYPE III OR TYPE IV PERMANENT LEGEND, OR SILVER-WHITE TYPE III OR TYPE IV SHEETING BACKGROUND OVERLAID WITH GREEN TRANSPARENT PASTE BACKGROUND WITH RETROFLECTIVE SILVER-WHITE SCREENED LEGEND.
3. OVERHEAD MOUNTED: GREEN TYPE III OR TYPE IV SHEETING BACKGROUND WITH WHITE TYPE IX PERMANENT LEGEND.
4. PRIVATE STREETS: SILVER-WHITE TYPE III OR TYPE IV SHEETING BACKGROUND WITH BLACK NONREFLECTIVE SCREENED, CUT-OUT PERMANENT LEGEND.

REVISION	DATE	BY
BORDER THICKNESS	1/13	CLS
suffix ltr. upper/lwr	1/13	CLS
	11/19	BP

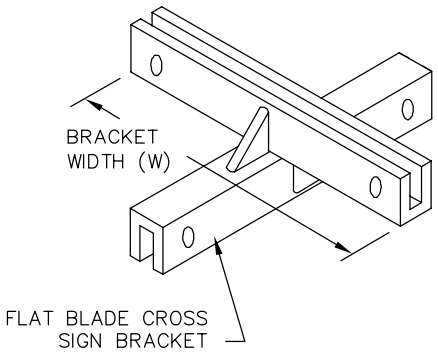
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

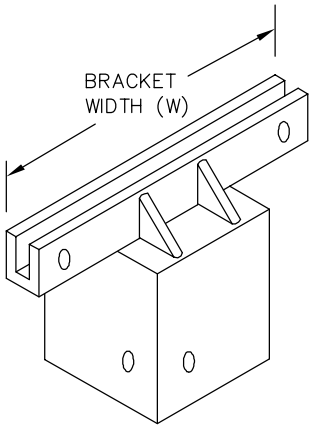
CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

STREET NAME SIGNS & DETAILS

STANDARD DRAWING
T100





FLAT BLADE SIGN BRACKETS

SIGN BRACKET SIZE

SIGN WIDTH (IN.)	MOUNTING
< 30	POST TOP BRACKET, W = 5 ¼"
30 TO 48	POST TOP BRACKET, W = 12"
> 48	RIVET TO POST

OVERHEAD MOUNTING

1. SIGNS TO BE MOUNTED USING REUSABLE BANDING TYPE ADJUSTABLE BRACKET (SKY BRACKET OR APPROVED EQUAL) UNLESS OTHERWISE SPECIFIED.
2. NEW PROJECTS: SIGNAL MAST ARM SIGNS TO BE INCLUDED ON SIGNING PLANS.
3. EXISTING SIGNAL POLES: PERFORM POLE STRUCTURAL ANALYSIS PRIOR TO ADDING OR ENLARGING SIGNS.

ABBREVIATIONS FOR STREET NAME SUFFIXES

AV = Avenue CT = Court LN = Lane PKWY = Parkway RD = Road TER = Terrace
BLVD = Boulevard DR = Drive LP = Loop PL = Place ST = Street WY = Way
CIR = Circle

S:\Engineering\Roadway Standards\2010 Roadway Standards\2010 Standards for Publish\Drawings\DWGs\ T100-T250.dwg

REVISION	DATE	BY

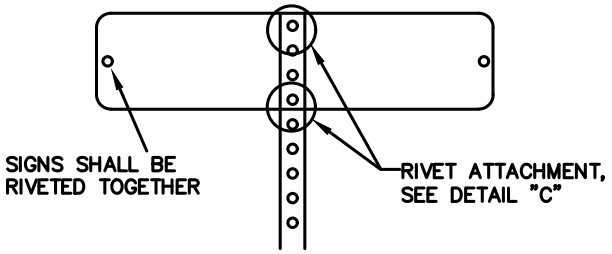
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

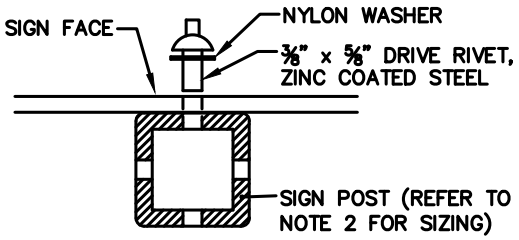
CLACKAMAS COUNTY

APPROVAL DATE: 1/1/10 SCALE: N.T.S.

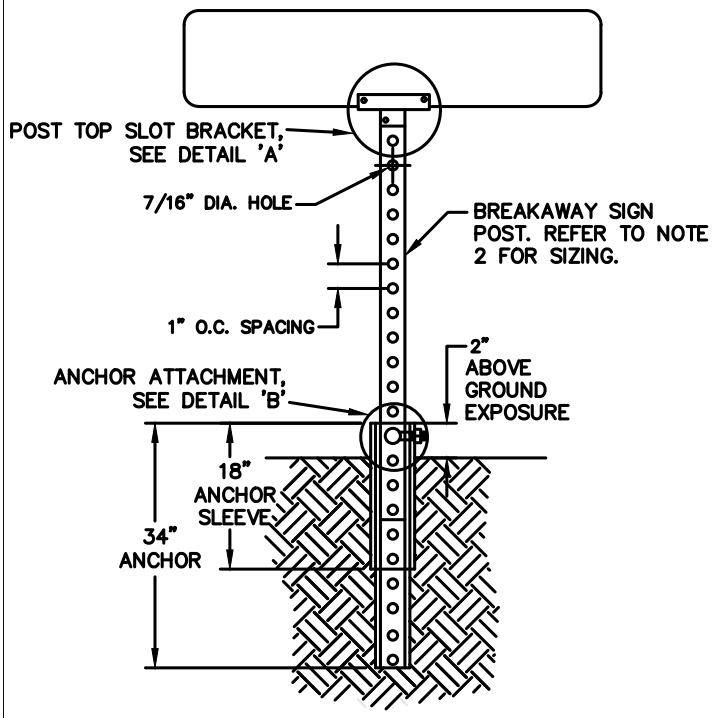
STREET NAME SIGNS & DETAILS (CONTINUED)

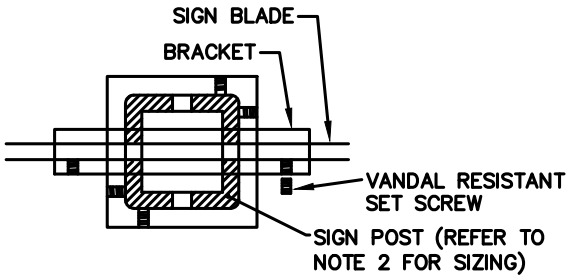
STANDARD DRAWING
T130



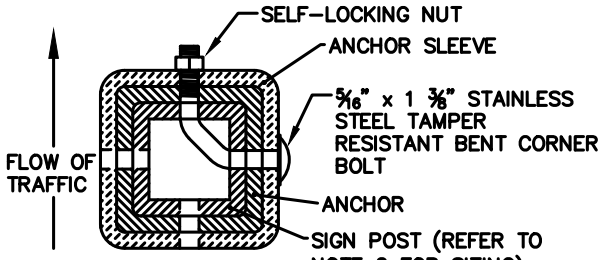


RIVET ATTACHMENT
(DETAIL 'C', TOP VIEW)





POST TOP BRACKET ATTACHMENT
(DETAIL 'A', TOP VIEW)



ANCHOR ATTACHMENT
(DETAIL 'B', TOP VIEW)

NOTES

1. SIGN COMBINATION AND MINIMUM SIGN MOUNTING HEIGHT SHALL DETERMINE POST LENGTH. A 10' (MIN.) POST SHALL BE USED. A COMBINATION OF SIGNS GREATER THAN 36" IN HEIGHT SHALL REQUIRE A 12' (MIN.) POST.
2. SIGN POST SIZING SHALL BE BASED ON OREGON STANDARD DRAWING TM681 (PERMANENT PERFORATED STEEL SQUARE TUBE TABLE – 85 MPH). THE MINIMUM POST SIZE SHALL BE 2" X 2" 12-GA. SQUARE TUBE. IF SIGN PANEL AREA IS GREATER THAN THAT ALLOWED BY A 2.5" X 2.5" 12-GA. SQUARE TUBE, THEN A 2.5" X 2.5" 10-GA. SQUARE TUBE POST SHALL BE USED, WITH A SLIP BASE FOUNDATION PER OREGON STANDARD DRAWING TM688.
3. SIGN POSTS IN CONCRETE AREAS SHALL BE INSTALLED ON SURFACE-MOUNTED BREAKAWAY BASES.
4. NYLON SPACERS SHALL BE USED TO PREVENT CONTACT BETWEEN GALVANIZED STEEL AND ALUMINUM MATERIAL SURFACES.

REVISION	DATE	BY
REV 1	11/19	BP
REVISION	3/20	RM

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

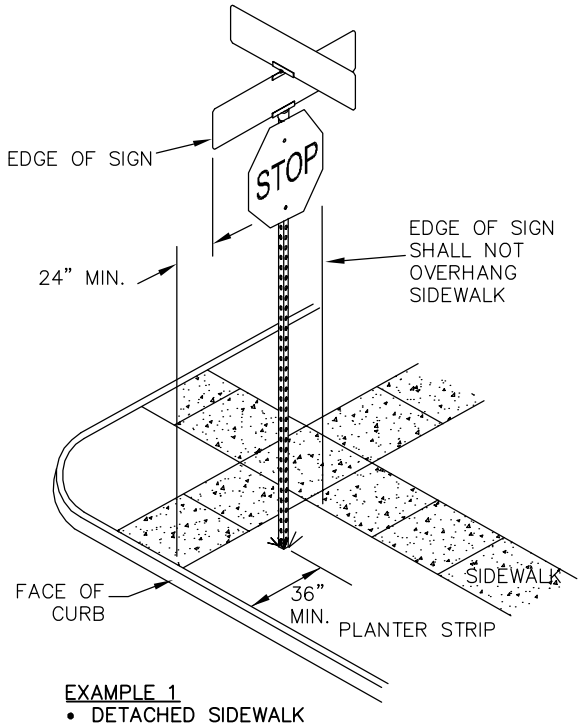
CLACKAMAS COUNTY

APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

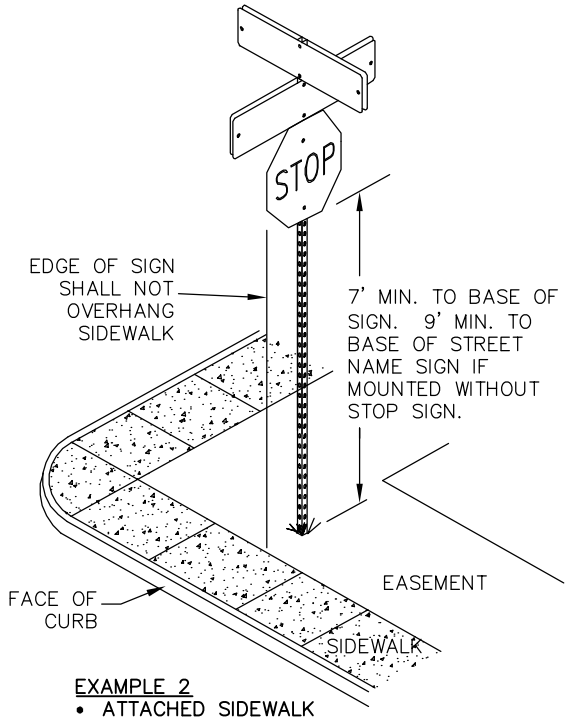
SIGN MOUNTING AND ATTACHMENTS

STANDARD DRAWING

T150

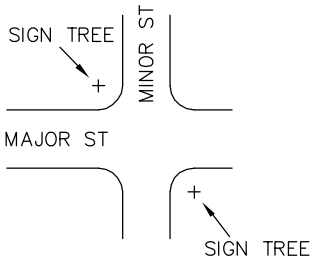


EXAMPLE 1
- DETACHED SIDEWALK
- POST TOP FLAT BLADE BRACKET WITH CROSS BRACKET

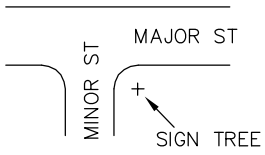


EXAMPLE 2
- ATTACHED SIDEWALK
- DOUBLE SIGNS RIVETED TO POST

TYPICAL SIGN INSTALLATIONS



4–LEG INTERSECTION



T INTERSECTON

TYPICAL STREET NAME SIGN LOCATIONS

S:\Engineering\Roadway Standards\2010 Roadway Standards\2010 Standards for Publish\Drawings\DWGs\ T100-T250.dwg

REVISION	DATE	BY

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

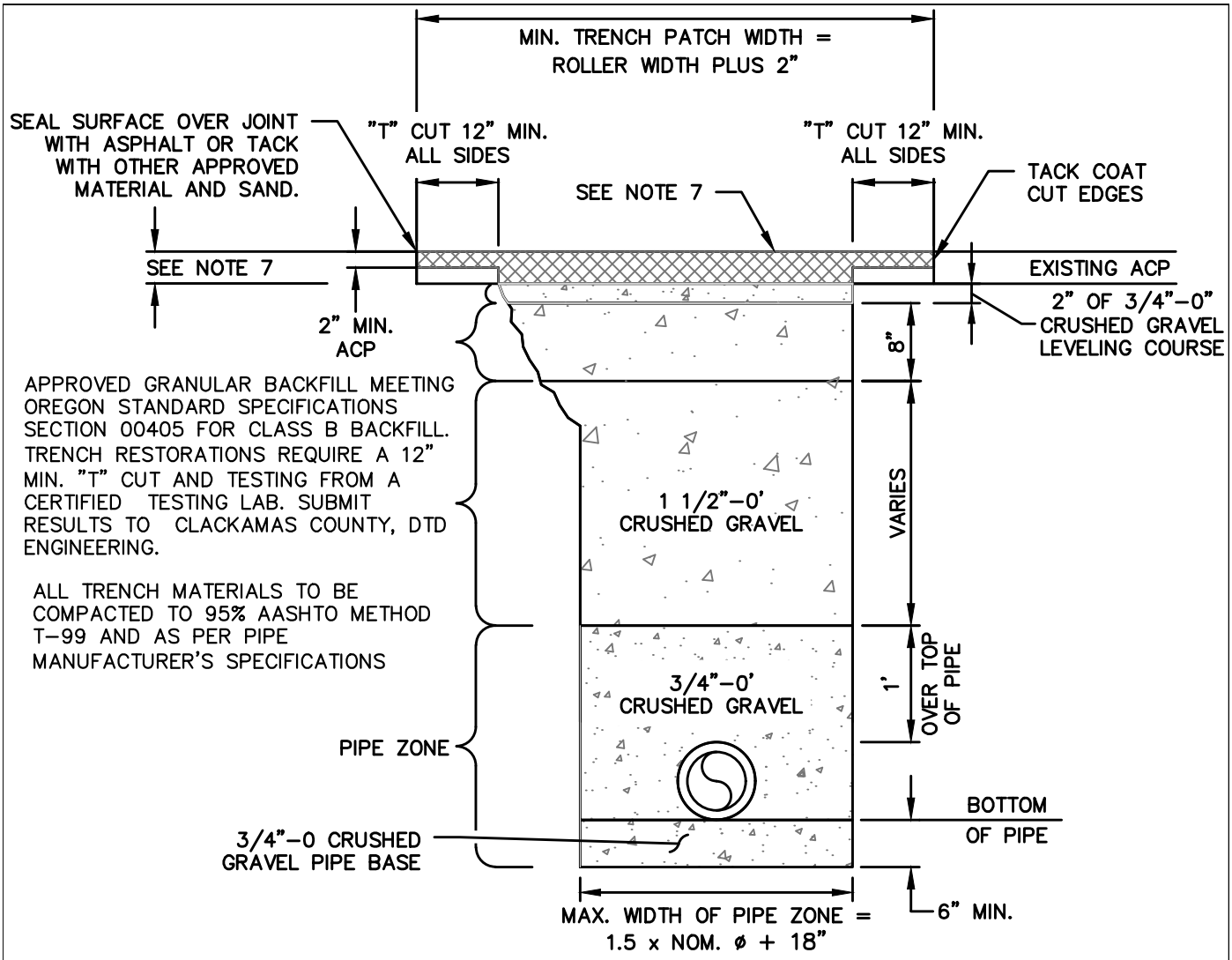
CLACKAMAS COUNTY

APPROVAL DATE: 1/1/10 SCALE: N.T.S.

SIGN INSTALLATIONS

STANDARD DRAWING

T250



1. THE USE OF U200 SHALL BE DETERMINED BY SECTION 710.8. THE USE OF CONTROL DENSITY FILL SHALL BE DETERMINED BY SECTION 710.8. WHEN USED, REFER TO STANDARD DRAWING U250A.
2. THE EXISTING ACP SHALL BE SAWCUT THROUGH ENTIRE ACP SECTION PRIOR TO EXCAVATION.
3. BACKFILL IN PIPE ZONE SHALL BE PLACED IN MAXIMUM 6" LIFTS AND COMPACTED.
4. TRENCH BACKFILL SHALL BE PLACED IN MAXIMUM 12" LIFTS TO 95% DENSITY.
5. SAWCUT EDGES TO BE TACKED WITH HOT LIQUID ASPHALT.
6. WORK RESULTING IN IRREGULAR TRENCH WIDTHS OR INCIDENTAL DAMAGE TO THE ROADWAY SURFACE WILL REQUIRE ANOTHER SAWCUT AND SUBSEQUENT REMOVAL OF ACP. THE SAWCUT LINE SHALL BE APPROVED BY CLACKAMAS COUNTY PRIOR TO THE PERMANENT ACP REPAIR.
7. RESTORE ACP SECTION WITH 4" OF HMAC LEVEL 3, PG 64-22, 1/2" DENSE GRADED AGGREGATE OR AN EQUAL THICKNESS OF THAT REMOVED WHICHEVER IS GREATER. ASPHALTIC CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF OREGON STANDARD SPECIFICATIONS SEC. 00744.40. ACP TO BE PLACED IN LIFTS BETWEEN 2 INCHES AND 3 INCHES IN THICKNESS.
8. ACP JOINTS/SEAMS SHALL BE SEALED WITH HOT LIQUID ASPHALT, OR APPROVED EQUAL, AND SANDED.
9. CLACKAMAS COUNTY SHALL BE NOTIFIED FOR INSPECTION.
10. TRENCHES SHALL BE PROTECTED WITH STEEL PLATING CAPABLE OF CARRYING A MINIMUM OF H-20 LOADING. EACH PLATE SHALL BE SECURED IN PLACE WITH APPROACH RAMPS OF COLD MIX A.C. LIGHTED BARRICADES SHALL BE MOUNTED WITH BUMP AND CONSTRUCTION AHEAD SIGNS. REFLECTIVE SHEETING FOR NIGHT VISION SHALL BE PLACED AHEAD OF AND ADJACENT TO THE PLATING.
11. TRAFFIC SIGNAL DETECTOR LOOPS IN SIGNALIZED INTERSECTIONS, DAMAGED AS A RESULT OF WORK DONE UNDER THE PERMIT, SHALL BE REPLACED IN THEIR ENTIRETY. NO SPLICING OF TRAFFIC LOOPS IS ALLOWED. ANY TRAFFIC LOOP THAT IS TUNNELED UNDER WILL REQUIRE A FULL DEPTH TRENCH BACKFILL WITH FLUID 150 PSI MAXIMUM STRENGTH CDF (CONTROLLED DENSITY FILL) A MINIMUM WIDTH OF 18" ON EACH SIDE OF THE TRAFFIC LOOP WIRE. ANY TRAFFIC LOOP WORK DONE UNDER THIS PERMIT WILL BE WARRANTED FOR A PERIOD OF TWO YEARS FROM THE DATE OF SUCH WORK.
12. COMPLY WITH SMOOTHNESS REQUIREMENTS OF ODOT STANDARD SPECIFICATIONS.

REVISION	DATE	BY
TEE-CUT ADDED	05/18	DC
TEE-CUT MOD.	09/18	RM
REVISED	12/19	AAR

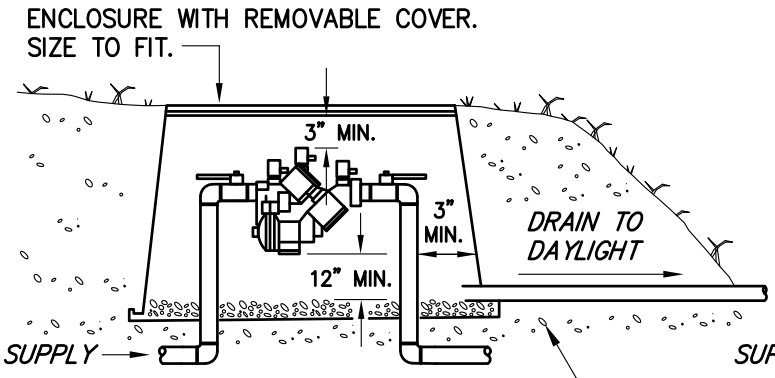
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

CLACKAMAS COUNTY

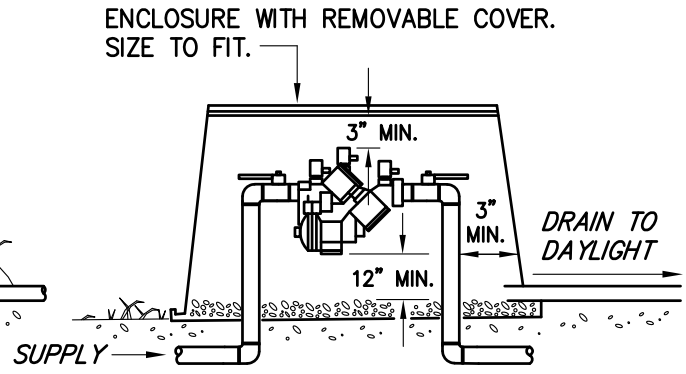
APPROVAL DATE: 6/1/2020 SCALE: N.T.S.

STANDARD TRENCH AND BACKFILL

STANDARD DRAWING
U200



RPBA - BELOW GROUND
DRAINED TO DAYLIGHT

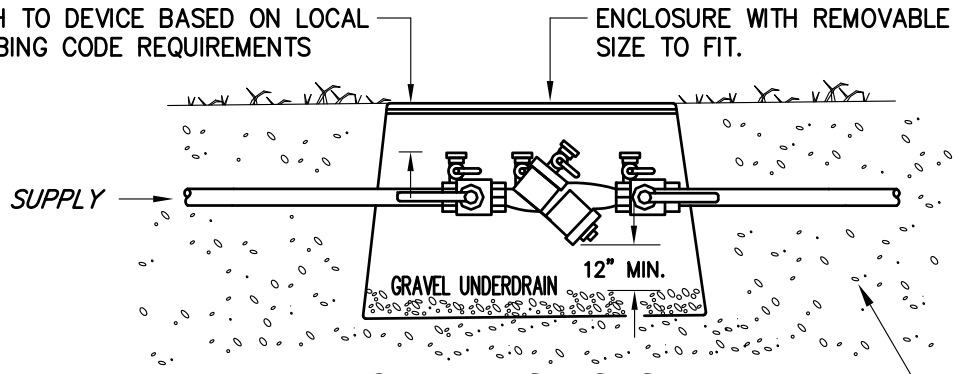


APPROVED BACKFILL, TYP.

RPBA - ABOVE GROUND

NOTES:

1. REFERENCE CRW TECHNICAL SPECIFICATION SECTION 15200.
2. BOTTOM AND SIDE CLEARANCES APPLY WHEN ASSEMBLIES ARE INSTALLED INSIDE VAULT. ACCESS DOORS MAY BE PROVIDED ON SIDE OF ABOVE GROUND VAULT.
3. RPBAs SHALL ALWAYS BE INSTALLED HORIZONTALLY. VERTICAL INSTALLATIONS SHALL ONLY BE BY DISTRICT APPROVAL AND AS ALLOWED BY MANUFACTURER RECOMMENDATIONS.
4. RPBAs SHALL ALWAYS BE INSTALLED ABOVE THE 100-YEAR FLOOD LEVEL UNLESS OTHERWISE APPROVED BY CRW.
5. RELIEF VALVES SHALL NEVER BE EXTENDED OR PLUGGED.
6. PROTECTION FROM FREEZING SHOULD BE PROVIDED.
7. A PROVISION FOR AN AIR GAPPED DRAIN SHALL BE PROVIDED.
8. RPBAs SHALL NOT BE INSTALLED IN AN ENCLOSED VAULT OR BOX UNLESS A PROPERLY SIZED BORE SIGHTED DRAIN TO DAYLIGHT IS PROVIDED AND WATERTIGHT BRASS OR PLASTIC PLUGS ARE INSTALLED ON ALL TEST PORTS.
9. MINIMUM CLEARANCE FOR ASSEMBLIES 2 INCHES OR SMALLER MAY BE REDUCED PROVIDED THAT THEY ARE ACCESSIBLE FOR TESTING AND REPAIRING AND APPROVED BY THE DISTRICT. THE MINIMUM 12" UNDER THE RELIEF VALVE MUST BE MAINTAINED.
10. MAXIMUM HEIGHT FOR ABOVE GROUND INSTALLATION SHALL NOT EXCEED 5 FEET UNLESS THERE IS A PERMANENTLY INSTALLED PLATFORM MEETING OSHA STANDARDS TO FACILITATE SERVICING THE ASSEMBLY.
11. ALL DEVICES AND RELATED PIPING MUST BE INSTALLED IN ACCORDANCE WITH LOCAL PLUMBING CODE.



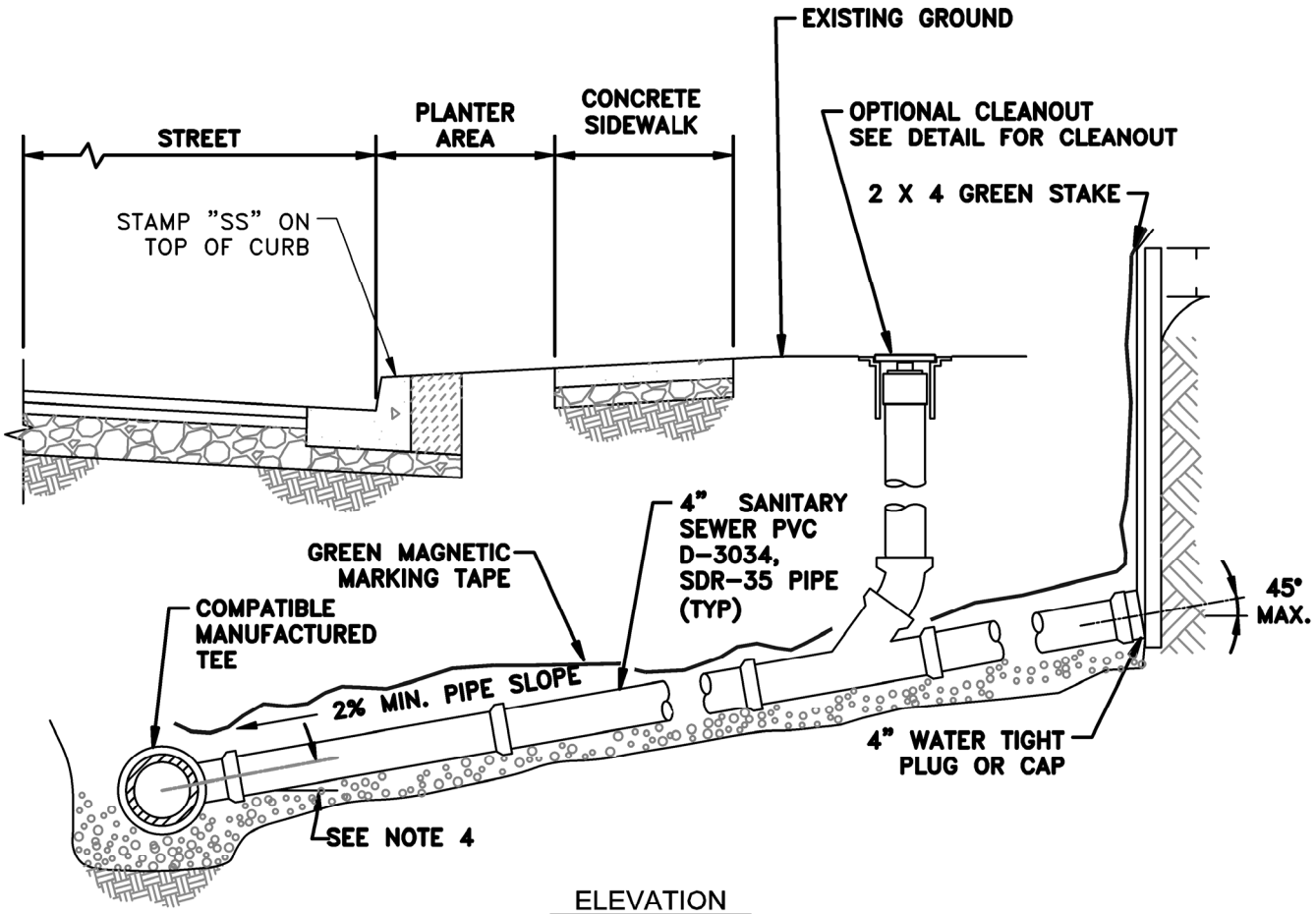
DCVA - BELOW GROUND

NOTES:

1. REFERENCE CRW TECHNICAL SPECIFICATION SECTION 15200.
2. ADEQUATE CLEARANCE MUST BE PROVIDED FOR TESTING AND MAINTENANCE.
3. DCVAs MAY BE INSTALLED BELOW GRADE IN A VAULT PROVIDED WATER-TIGHT BRASS PLUGS ARE INSTALLED IN THE TEST COCKS, BUT THE ASSEMBLY SHALL NOT BE SUBJECTED TO CONTINUOUS IMMERSION.
4. INSTALL DEVICE WITH TEST COCKS IN APPROPRIATE ORIENTATION PER MANUFACTURER'S REQUIREMENTS. (IF ALLOWED, TEST COCKS MAY BE IN HORIZONTAL POSITION IF ADEQUATE CLEARANCE FOR TESTING IS PROVIDED.)
5. PROTECTION FROM FREEZING SHOULD BE PROVIDED.
6. ALL DEVICES AND RELATED PIPING MUST BE INSTALLED IN ACCORDANCE WITH LOCAL PLUMBING CODE.

Clackamas River Water

NO	REVISION	BACKFLOW ASSEMBLIES		
		SCALE: N.T.S.	DATE: MAY 2021	112
		DRAWING: CRW.STD.DTL112.dwg		

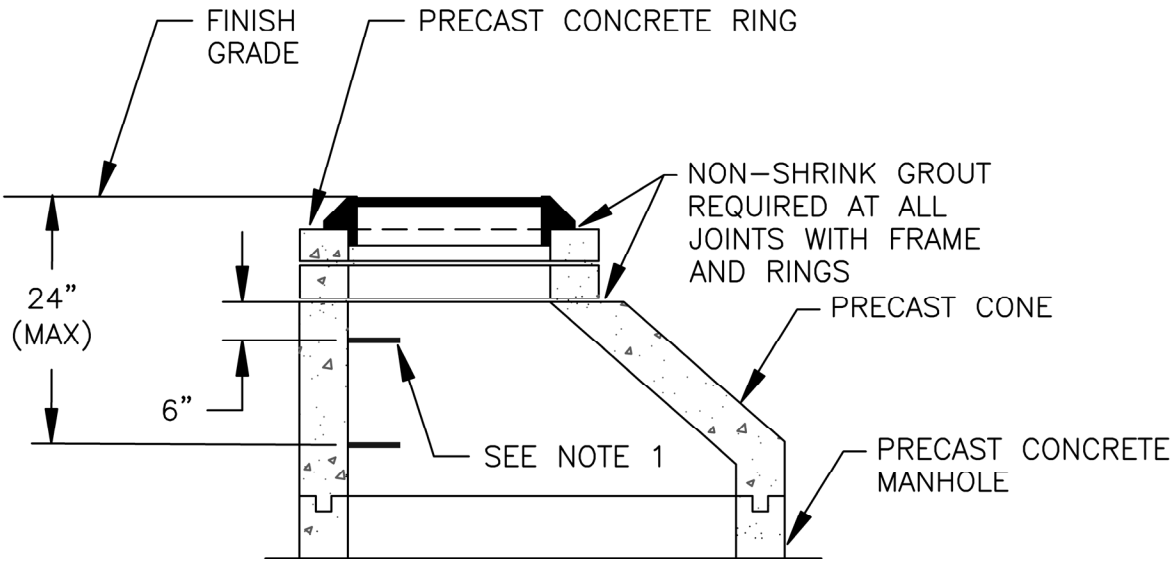


ELEVATION

NOTES:

1. INSTALL OPTIONAL CLEANOUT PER STANDARD DRAWING.
2. VIDEO INSPECT SERVICE CONNECTION IN ACCORDANCE WITH STANDARDS.
3. 2" x 4" TREATED STAKE FROM INVERT TO 1' ABOVE FINISH GRADE. SERVICE CONNECTION MARKER SHALL BE CONTINUOUS AND REMAIN VERTICAL AFTER BACKFILLING. END SHALL BE PAINTED GREEN.
4. CENTERLINE OF SERVICE OUTLET ON TEE SHALL BE ABOVE SPRINGLINE.
5. SANITARY SEWER SERVICE CONNECTIONS SHALL BE A FACTORY TEE INSTALLED 90° PERPENDICULAR TO SANITARY SEWER MAIN.
6. EVERY PROPERTY SHALL HAVE A SEPARATE SERVICE CONNECTED DIRECTLY TO THE MAINLINE, UNLESS OTHERWISE APPROVED BY THE DISTRICT. SHARED SERVICE CONNECTIONS ARE NOT ALLOWED.
7. THE SERVICE CONNECTION LOCATION SHALL GENERALLY BE LOCATED TEN FEET (10') OFFSET FROM THE PROPERTY LINE ON THE LOW SIDE OF LOT.
8. TEES FOR SERVICE CONNECTIONS SHALL BE LOCATED NO CLOSER THAN FIVE FEET (5') TO MANHOLES. SEPARATION BETWEEN WATER LINE, SANITARY SERVICE CONNECTION AND STORM SERVICE CONNECTION SHALL GENERALLY BE TEN FEET (10') WITH A MINIMUM OF FIVE FEET (5').
9. ANY OTHER PROPOSED LOCATION SHALL BE AT THE DISCRETION OF THE DISTRICT ON CASE BY CASE BASIS.

CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July, 2021 *SCALE:* N.T.S. SERVICE CONNECTION	*STANDARD DRAWING* SAN-021

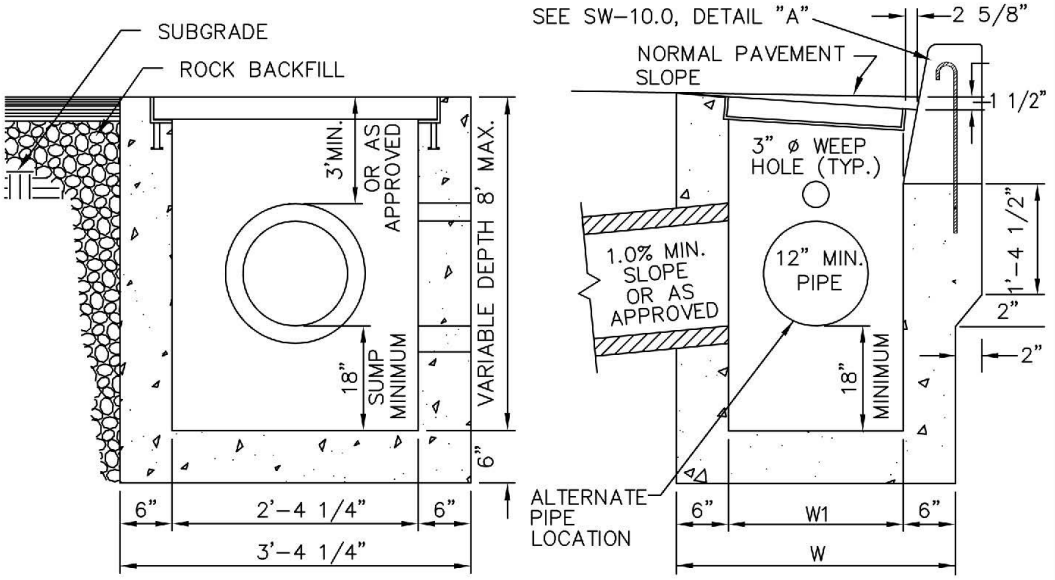


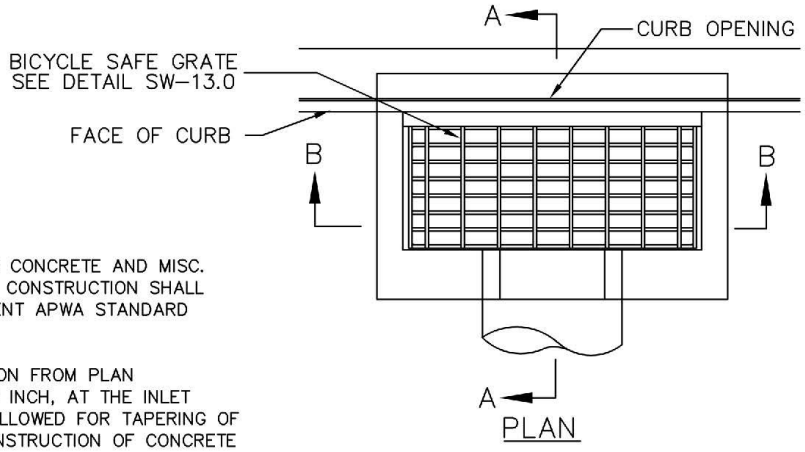
NOTES:

1. FIRST STEP SHALL BE 6" MINIMUM FROM RINGS TO MAXIMUM 24" FROM RIM.

2. NON–SHRINK GROUT SHALL NOT BE RAPID OR FAST SETTING.

CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July, 2021 *SCALE:* N.T.S. PRECAST RING EXTENSION FOR TYPICAL MANHOLE	*STANDARD DRAWING* SAN-027





NOTES

1. SPECIFICATIONS FOR CONCRETE AND MISC. MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT APWA STANDARD SPECIFICATIONS.
2. A MAXIMUM DEVIATION FROM PLAN DIMENSIONS OF ONE INCH, AT THE INLET FLOOR, SHALL BE ALLOWED FOR TAPERING OF FORMS USED IN CONSTRUCTION OF CONCRETE INLETS.
3. REFER TO CURRENT ODOT/APWA OREGON STATE CHAPTER DRAWING RD 366.
4. THE OUTSIDE DIAMETER OF THE PIPE MATERIAL SHALL NOT EXCEED 28".
5. PROVIDE 6" OF COMPACTED CRUSHED ROCK BELOW STRUCTURE.

CATCH BASIN TYPE	W	W1
GB-2	3' 3-3/8"	2' 3-3/8"

GB-1 NOT ALLOWED

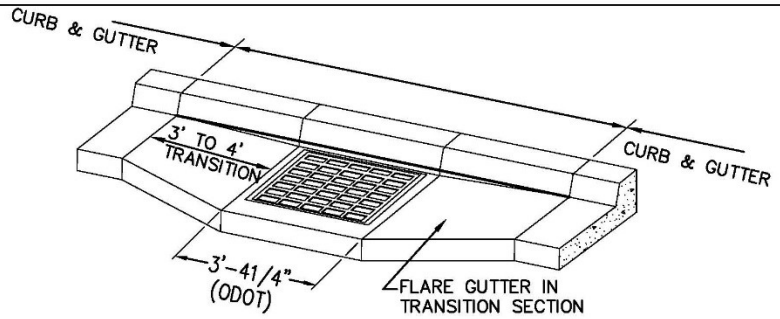
CLACKAMAS WATER ENVIRONMENT SERVICES

CLACKAMAS WES
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

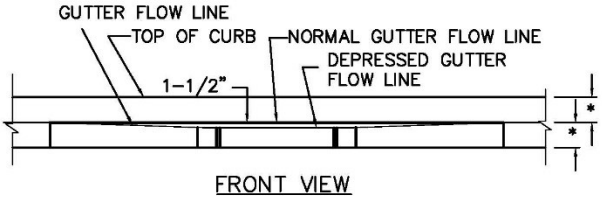
APPROVAL DATE: July, 2022 *SCALE:* N.T.S.

CB STANDARD GB2

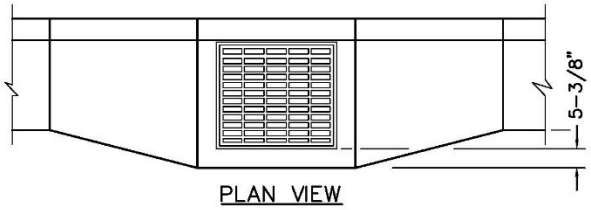
STANDARD DRAWING
SWM -18



NOTE:
TOP SLAB SHOWN WITH GUTTER TRANSITION FLARE.
MATCH THE TOP FRONT EDGE OF THE FRAME AND THE TOP FRONT EDGE OF THE TOP SLAB TO THE NORMAL PAVEMENT GRADE.

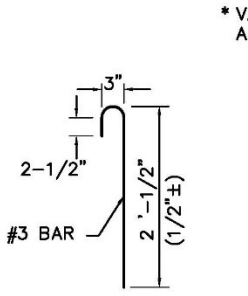


FRONT VIEW

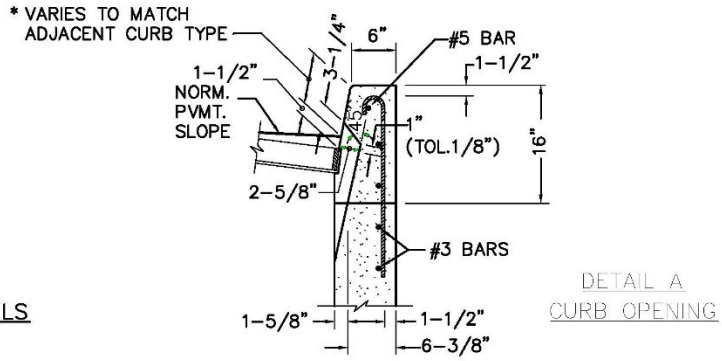


PLAN VIEW

CURB AND GUTTER TRANSITION SECTION

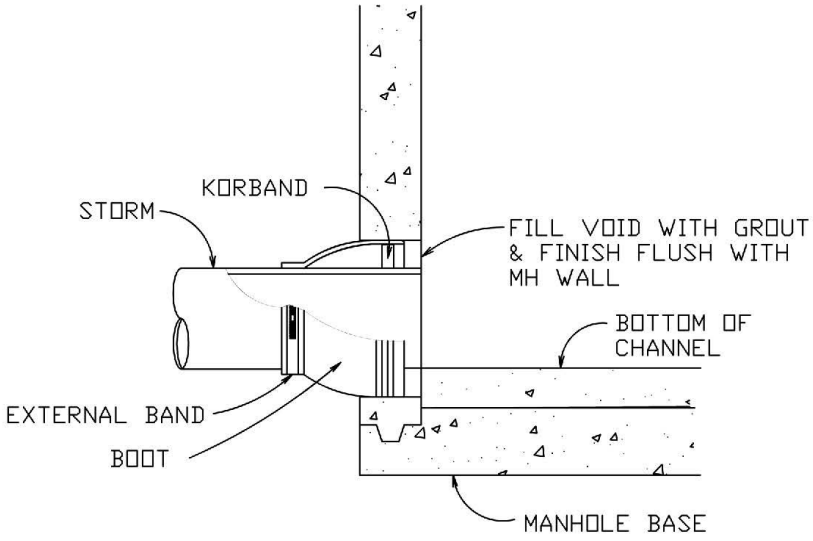


BAR "a" DETAILS



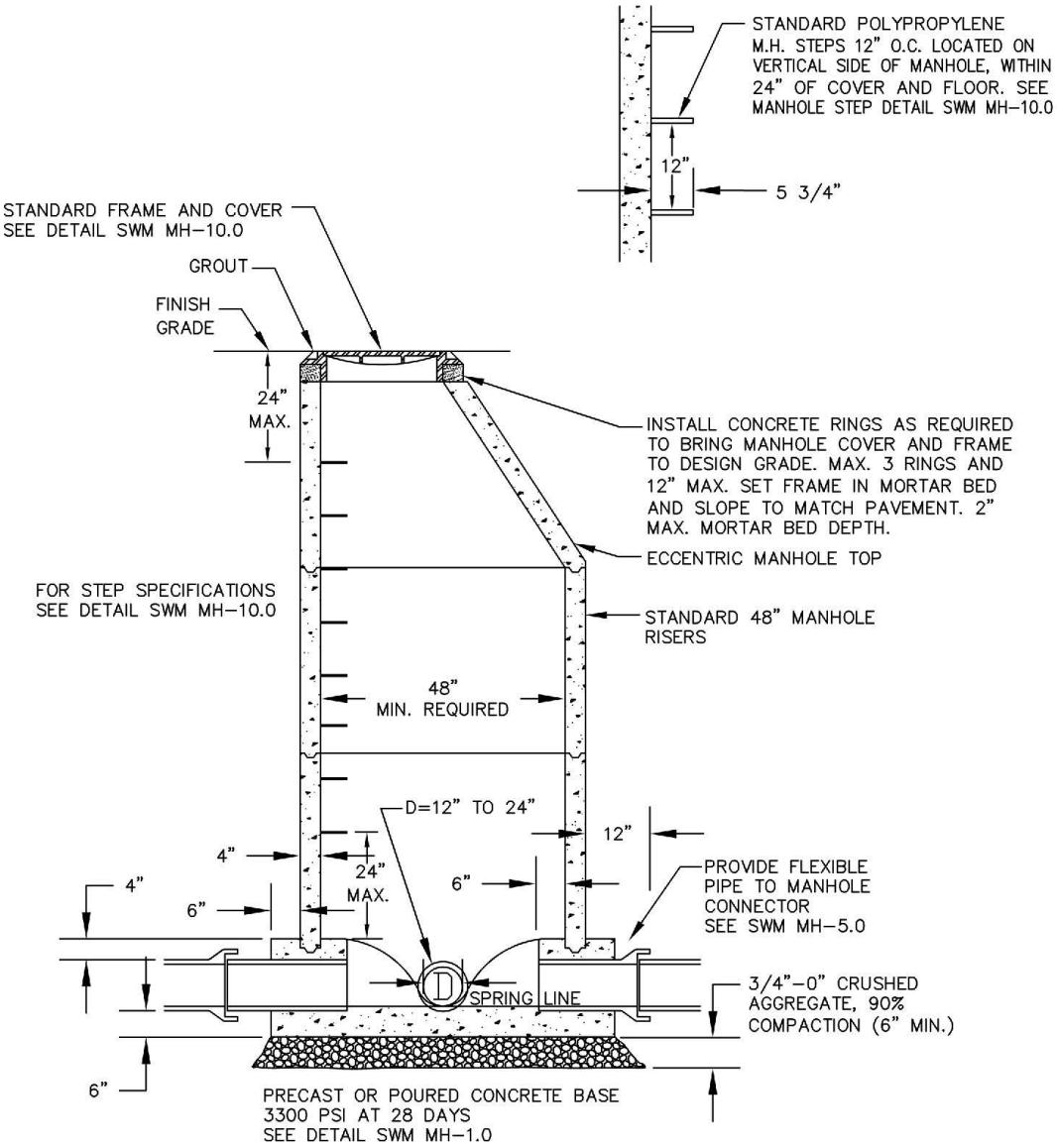
DETAIL A
CURB OPENING

CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July 2022 *SCALE:* N.T.S. **CB CURB AND GUTTER DETAIL**	*STANDARD DRAWING* **SWM -14**



FLEXIBLE MANHOLE CONNECTION
(KOR-N-SEAL OR EQUAL)

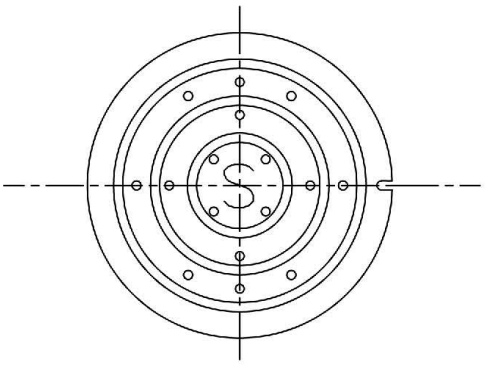
CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July, 2022 *SCALE:* N.T.S. MH FLEXIBLE CONNECTION	*STANDARD DRAWING* SWM -29

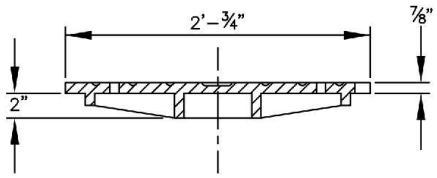


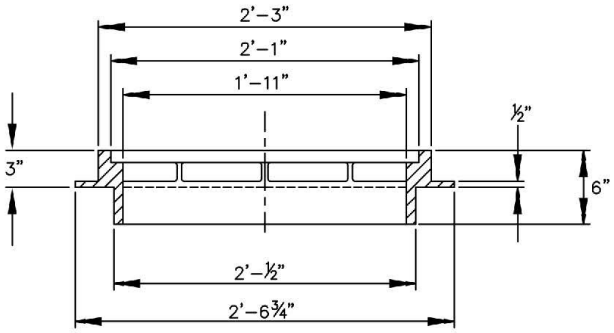
NOTE

1. SPECIFICATIONS FOR CONCRETE AND MISCELLANEOUS MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT APWA STANDARD SPECIFICATIONS.

CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July, 2021 *SCALE:* N.T.S. MH STANDARD	*STANDARD DRAWING* SWM -33



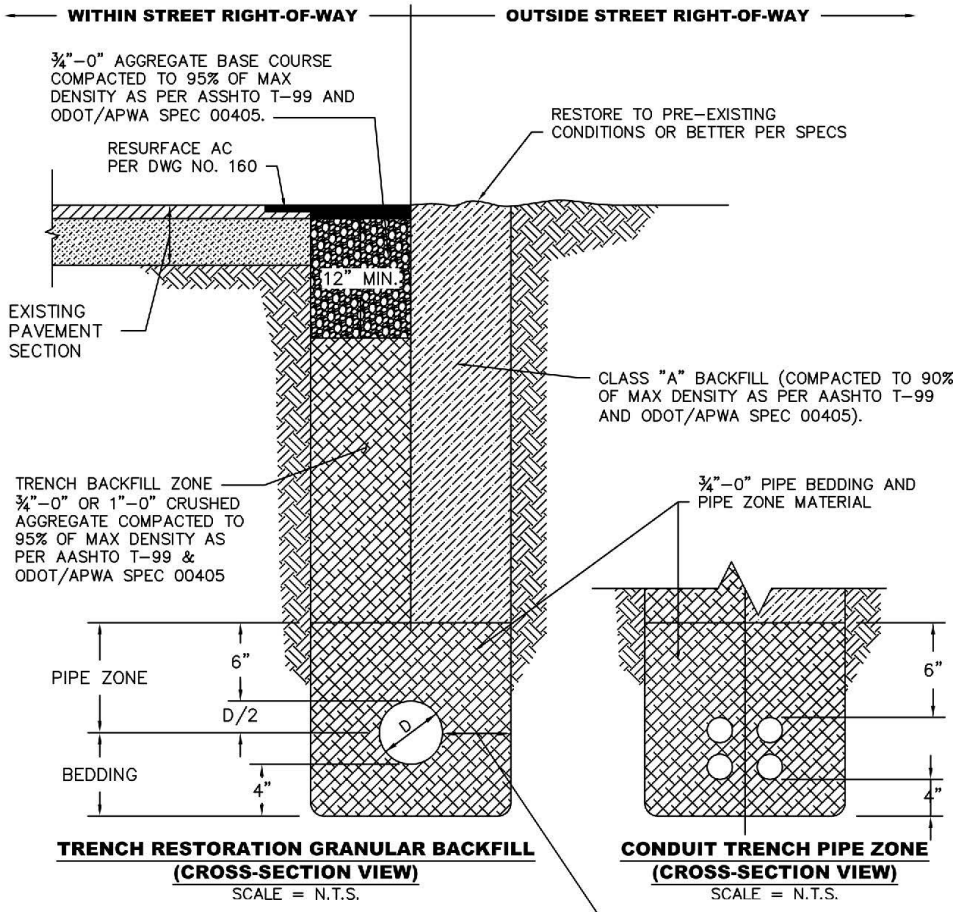




NOTES

1. SUBURBAN FRAME & COVER CAN BE USED IN EASEMENTS AND SUBDIVISION STREETS EXCEPT COLLECTOR, ARTERIAL, AND INDUSTRIAL STREETS, OR AS NOTED ON CONSTRUCTION PLANS.
2. 16, 3/4"Ø HOLES.

CLACKAMAS WATER ENVIRONMENT SERVICES	CLACKAMAS WES 150 BEAVERCREEK ROAD OREGON CITY, OR 97045	*APPROVAL DATE:* July, 2022 *SCALE:* N.T.S. MH SUBURBAN FRAME & COVER	*STANDARD DRAWING* SWM -36



TRENCH RESTORATION GRANULAR BACKFILL
(CROSS-SECTION VIEW)
SCALE = N.T.S.

CONDUIT TRENCH PIPE ZONE
(CROSS-SECTION VIEW)
SCALE = N.T.S.

NOTES:

1. PAVEMENT SHALL BE CUT PER STANDARD DRAWING 200.
2. PROVIDE COMPACT TEST RESULTS FOR TRENCH BACKFILL TO THE CITY FOR VERIFICATION.
3. CONTROL DENSITY FILL SHALL BE USED ON COLLECTOR AND ARTERIAL STREETS. REFER TO STANDARD DRAWING 210.

SHORING TRENCH CLEARANCE WIDTH	
D (IN.)	TRENCH (IN)
4–10	9
12–16	12
18–21	16
24–30	18
36–72	24

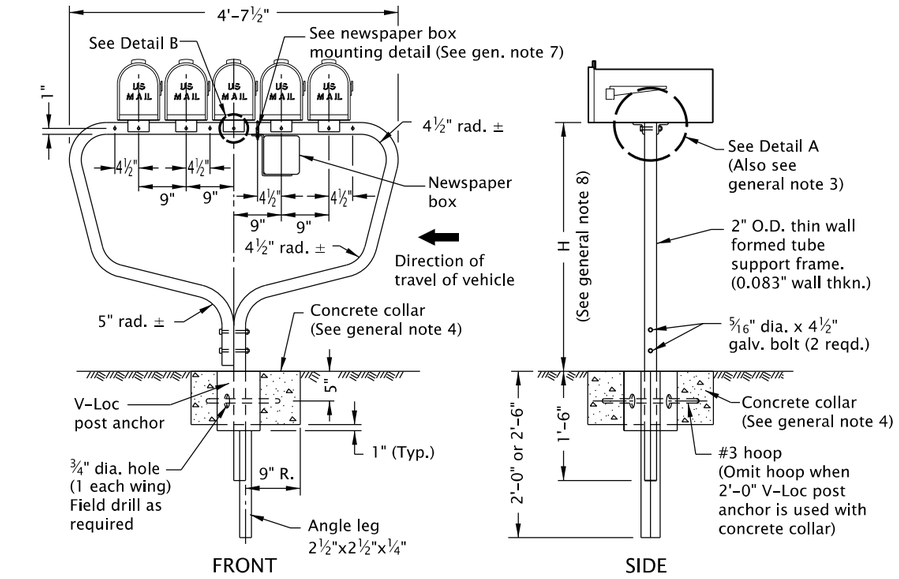
CLACKAMAS WATER ENVIRONMENT SERVICES

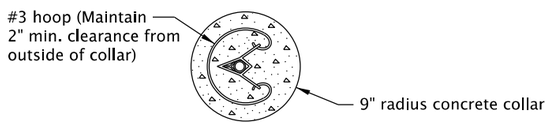
CLACKAMAS WES
150 BEAVERCREEK ROAD
OREGON CITY, OR 97045

APPROVAL DATE: July, 2022 *SCALE:* N.T.S.

TRENCH RESTORATION

STANDARD DRAWING
SWM -38

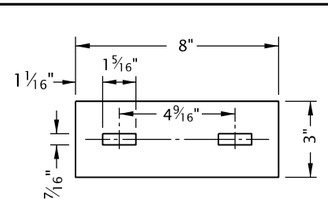




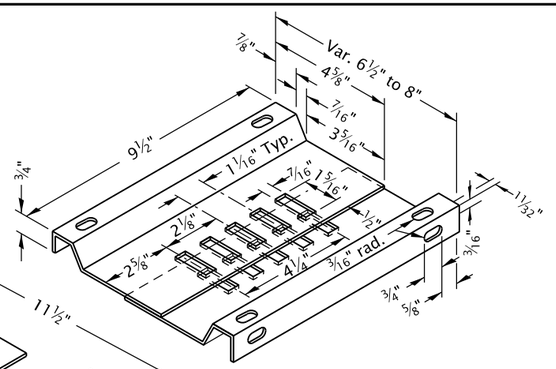
CONCRETE COLLAR
(See general note 4)

MULTIPLE SUPPORT

(Supports 5 standard (Sizes 1 & 1½) mailboxes or 4 large (Size 2) mailboxes)

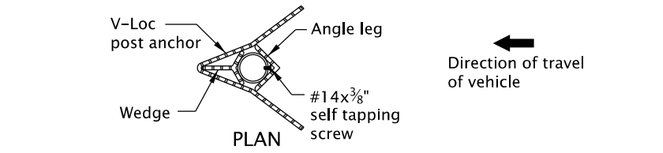


ADAPTOR PLATE
(14 ga.)



SIZE 1 & 1½
MOUNTING BRACKET
(16 ga.)

SIZE 2
MOUNTING BRACKET (16 ga.)
WITH ADAPTOR PLATE (14 ga.)



Direction of travel of vehicle

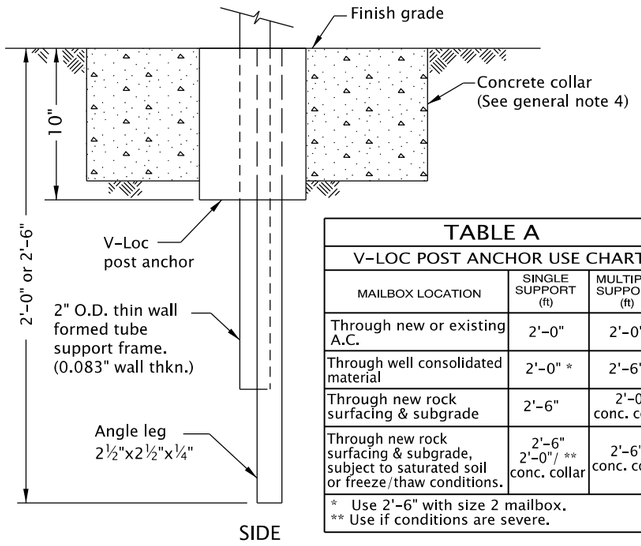


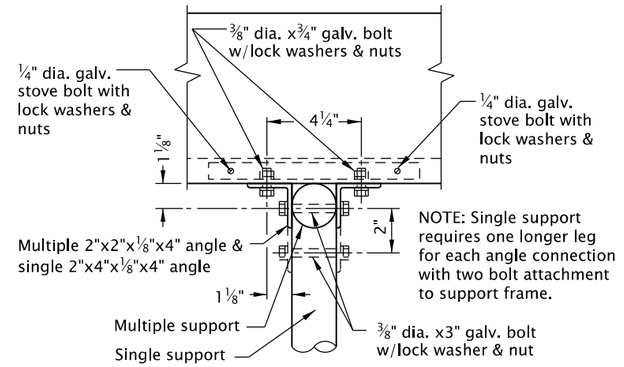
TABLE A

V-LOC POST ANCHOR USE CHART

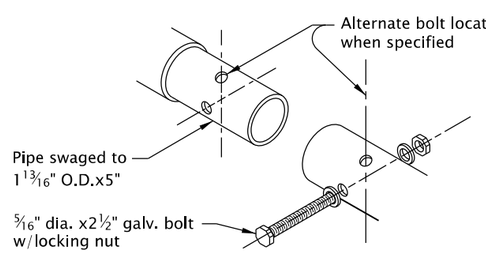
MAILBOX LOCATION	SINGLE SUPPORT (ft)	MULTIPLE SUPPORT (ft)
Through new or existing A.C.	2'-0"	2'-0"
Through well consolidated material	2'-0" *	2'-6"
Through new rock surfacing & subgrade	2'-6"	2'-0" conc. collar
Through new rock surfacing & subgrade, subject to saturated soil or freeze/thaw conditions.	2'-6" 2'-0"/ ** conc. collar	2'-6"/ conc. collar

* Use 2'-6" with size 2 mailbox.
** Use if conditions are severe.

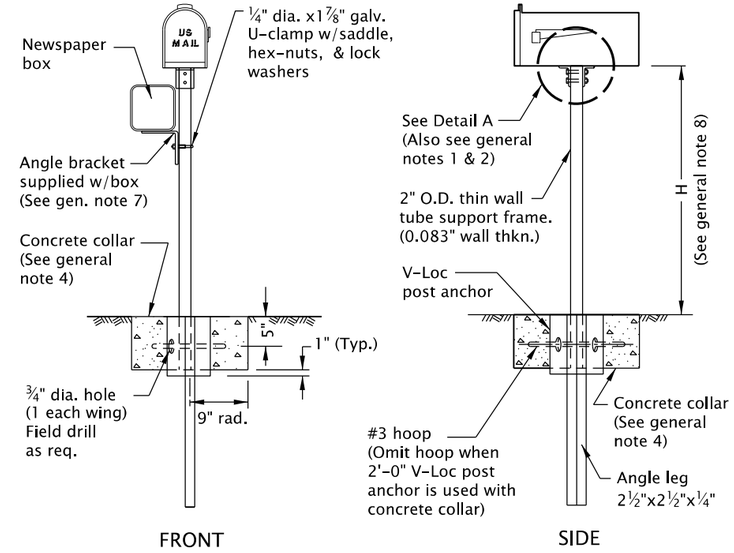
POST MOUNTING SOCKET



DETAIL A



DETAIL B



SINGLE SUPPORT

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Angle connections to be parallel to traffic flow for Size 2 mailbox mounted on single post.
2. All holes in the tube support frame are to be predrilled by the manufacturer.
3. Size 2 mailbox mounted on a multiple support requires 2 each ⅜" dia. x⅝" galv. bolts with lock washers and nuts to attach the adaptor plate to the mounting bracket. The unit will then require 4 angle connections to attach to the formed tube support frame. See Detail A.
4. Provide concrete collar when any of the following conditions exist:
   a) when required in Table A
   b) when required by project plans
   c) as directed by the Engineer
   Concrete collar, when required, to be poured in place after V-Loc post anchor has been installed, level and plumb. Do not excavate below bottom of V-Loc post anchor. Care shall be taken that no concrete is placed within anchor.
5. Other proprietary products available as listed in ODOT's QPL.
6. For mailbox installation locations, see Std. Dwg. RD101 and project plans.
7. For Newspaper Box Mounting Detail, see Std. Dwg. RD101.
8. Mounting height (H) shall be from 41″ Min. to 45″ Max. (42" nominal), measured from vehicle driving surface.
9. See project plans for detail not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

MAILBOX SUPPORT

2024

DATE	REVISION DESCRIPTION
12-2023	REVISED NOTES AND DETAILS

CALC. BOOK NO. N/A | SDR DATE 19-JAN-2024 | **RD100**

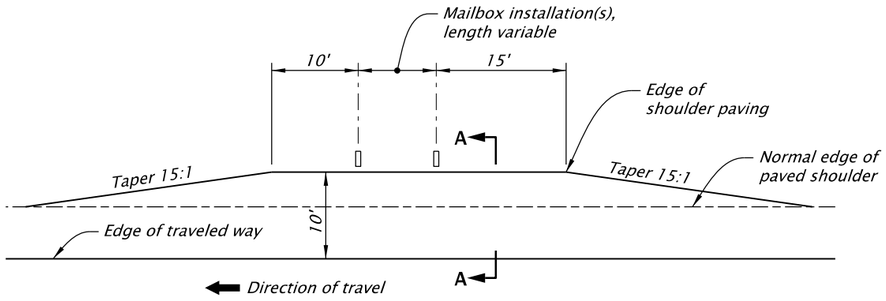
19-JAN-2024

RD100.dgn

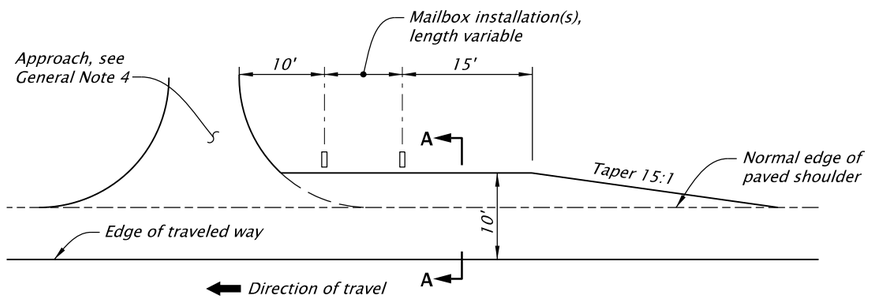
Effective Date: June 1, 2024 - November 30, 2024

19-JAN-2024

RD101.dgn

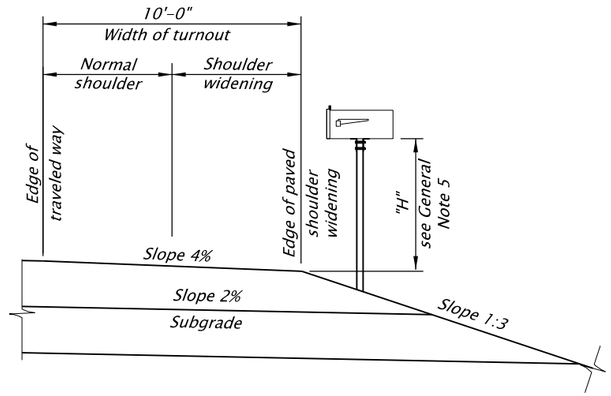


MAILBOX SERVICE TURNOUT



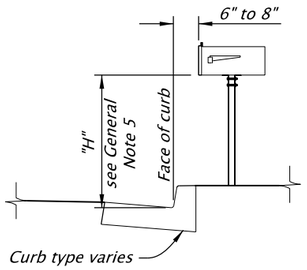
MAILBOX SERVICE TURNOUT BEFORE APPROACH

MAILBOX SERVICE TURNOUT AFTER APPROACH

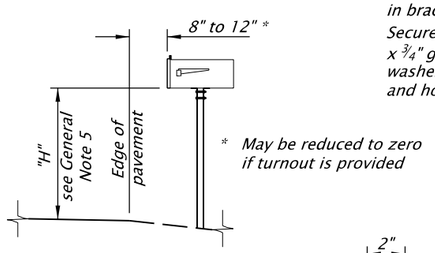


INSTALLATION AT MAILBOX TURNOUT

SECTION A-A

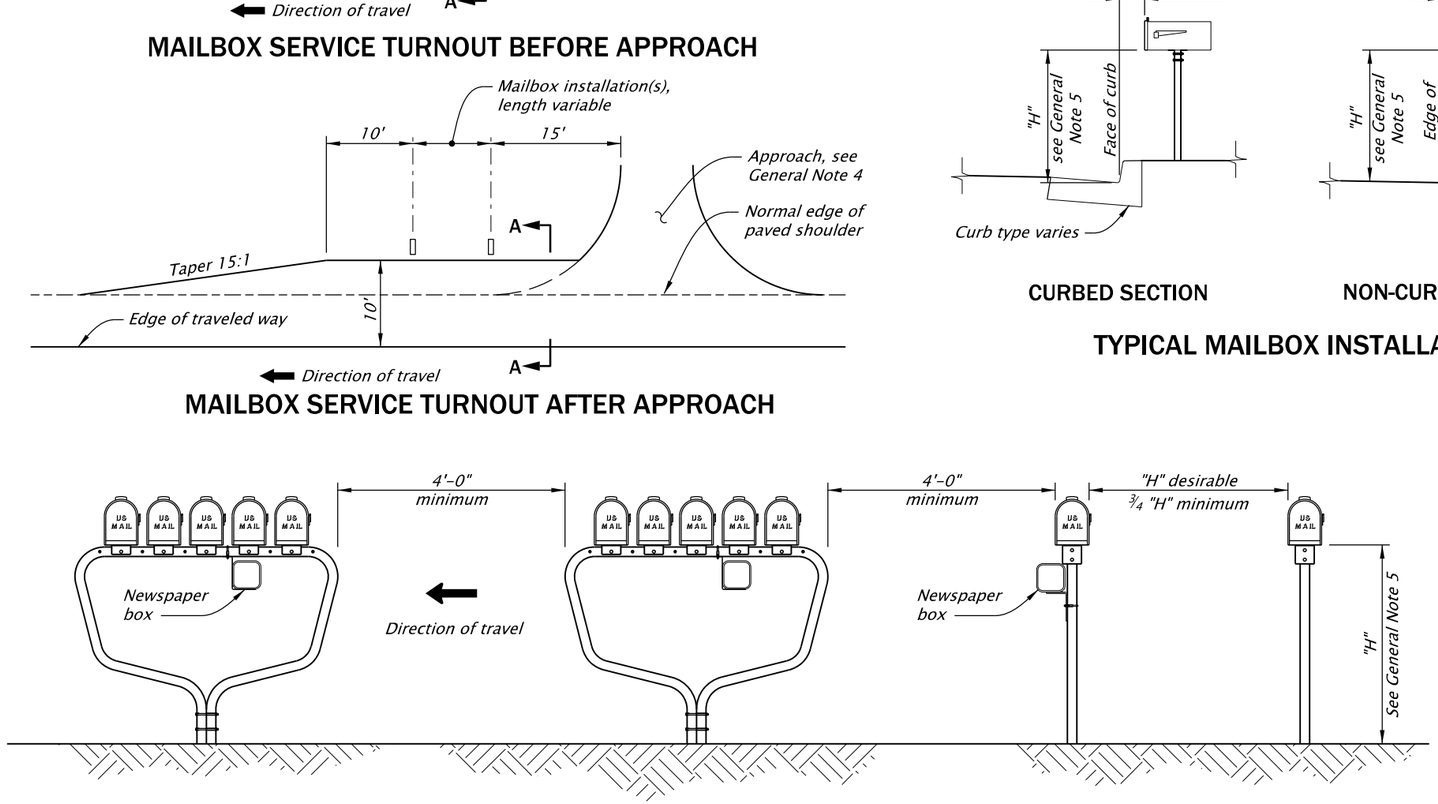


CURBED SECTION



NON-CURBED SECTION

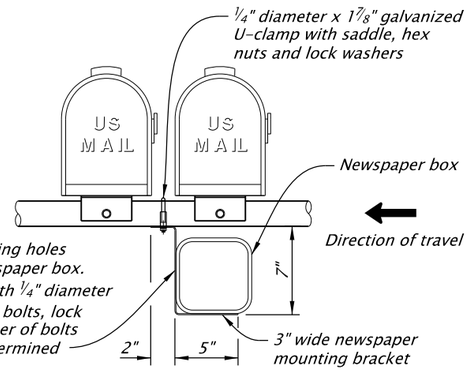
TYPICAL MAILBOX INSTALLATIONS



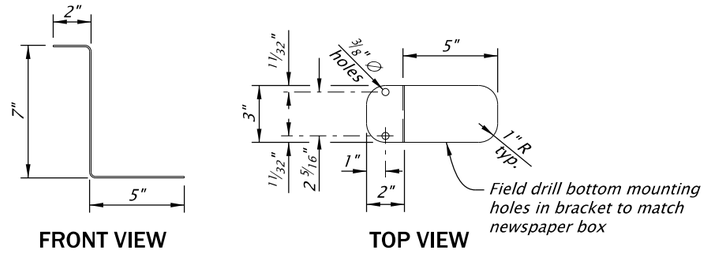
TYPICAL MAILBOX SUPPORT SPACING

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. *All holes in the tube support frame are to be predrilled by the manufacturer.*
2. *Other proprietary products available as listed in ODOT's QPL.*
3. *For mailbox support details, see Std. Dwg. RD100.*
4. *For approach details, see Std. Dwg. RD715.*
5. *Mounting height ("H") shall be from 41 inches minimum to 45 inches maximum (42 inches nominal), measured from vehicle driving surface.*
6. *See project plans for details not shown.*



NEWSPAPER BOX MOUNTING DETAIL



NEWSPAPER BOX MOUNTING BRACKET

(14 ga.)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

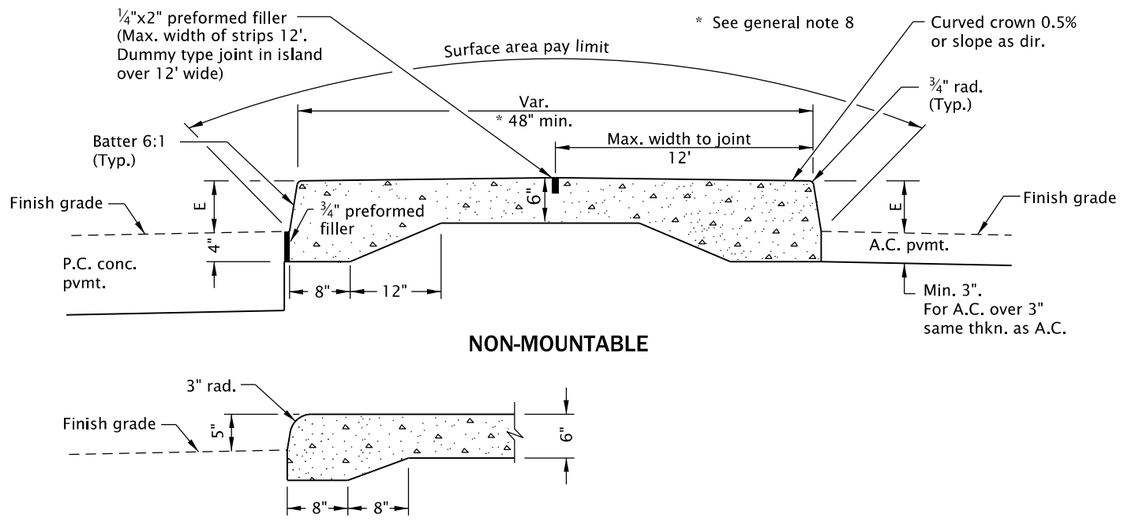
MAILBOX INSTALLATION

2024

DATE	REVISION DESCRIPTION
01-2024	REVISED NOTES AND DETAILS, UPDATED DRAWING CAD STANDARDS

CALC. BOOK NO. N/A | SDR DATE 19-JAN-2024 | **RD101**

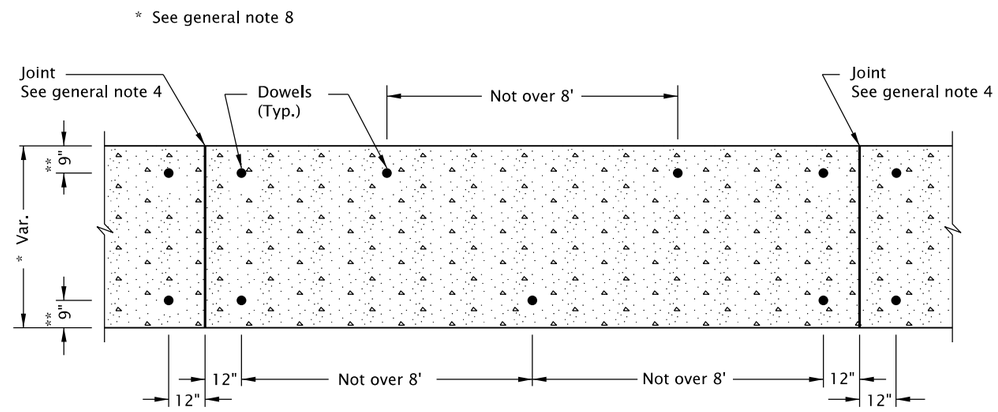
Effective Date: June 1, 2024 - November 30, 2024



NON-MOUNTABLE

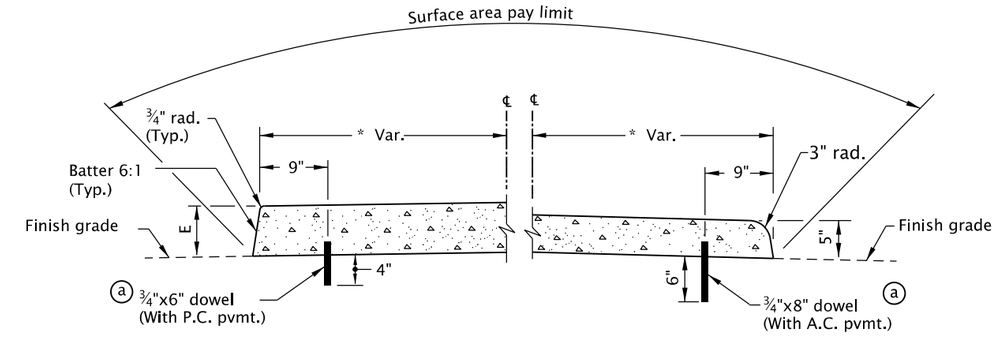
MOUNTABLE
(For surfacing details not shown, see above)

TYPE A



DOWEL PLAN
FOR TYPE C OR TYPE CA ISLANDS & TRANSITIONS
(ON SURFACE OF NEW OR EXISTING PAVEMENT)

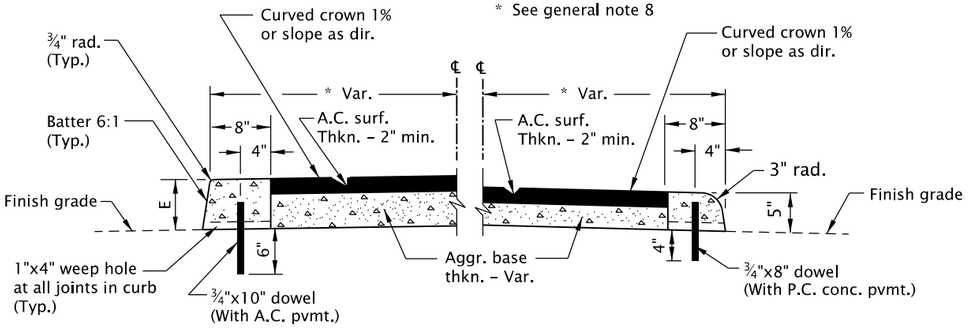
** Also see below for type CA island requirement.



NON-MOUNTABLE **MOUNTABLE**

ⓐ No dowels reqd. for Type C islands 5' wide or wider

TYPE C



NON-MOUNTABLE **MOUNTABLE**

TYPE CA

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb exposure "E" = 7" normal. Vary as shown on plans or as directed.
2. Standard batter is shown. Vary as shown on typical section or as directed.
3. Transverse joints in conc. islands to match joints in conc. pvmt. and to be of same type (Omit dowels in expansion joints).
4. Set joint spacing 200' max. for expansion and 15' max. for contraction.
5. Place preformed filler along one side of conc. islands in conc. pvmt. and around all curved ends.
6. Dowels shall be ¾" dia. with length as shown.
   In new conc. pvmt. set dowels before conc. hardens.
   In extg. conc. pvmt. drill holes 1½" dia. and grout dowels in.
   In A.C. pvmt. drive dowels.
7. For transitions to traffic separators, see Std. Dwg. RD706.
8. Minimum island width is 48". For accessible route islands, see Std. Dwg. RD710.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

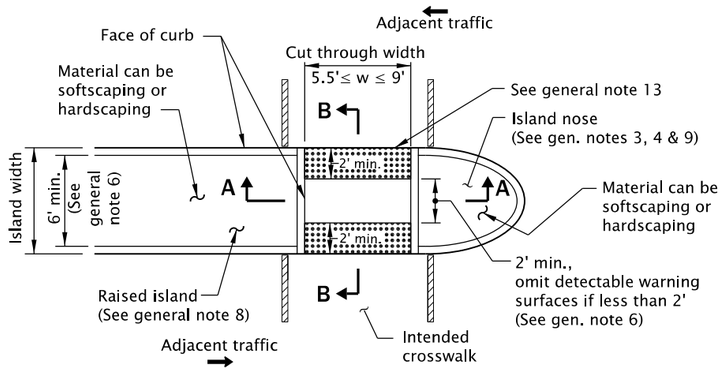
ISLANDS

2024

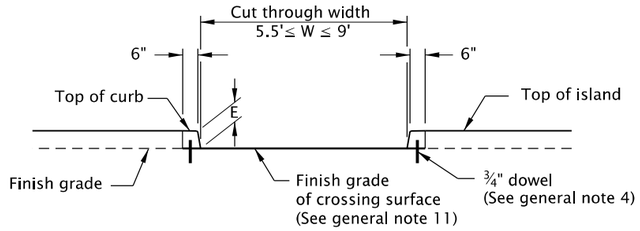
DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A | SDR DATE 16-JUL-2018 | **RD705**

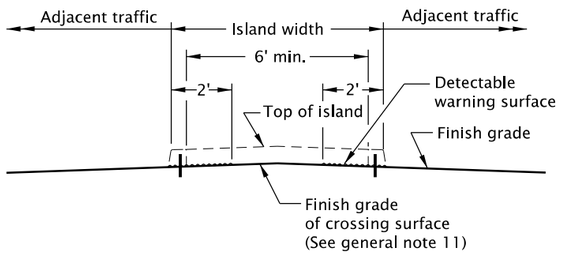
Effective Date: June 1, 2024 – November 30, 2024



PLAN



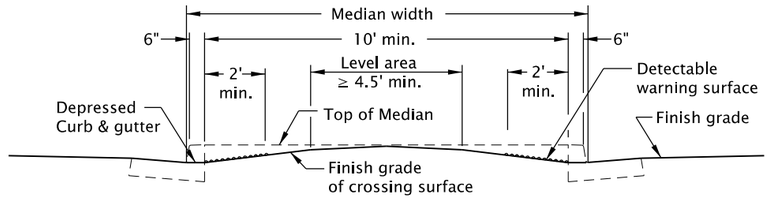
SECTION A-A



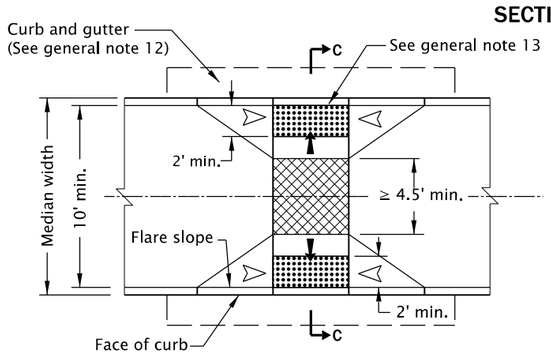
SECTION B-B

MEDIAN ISLAND CROSSING (CUT THROUGH)

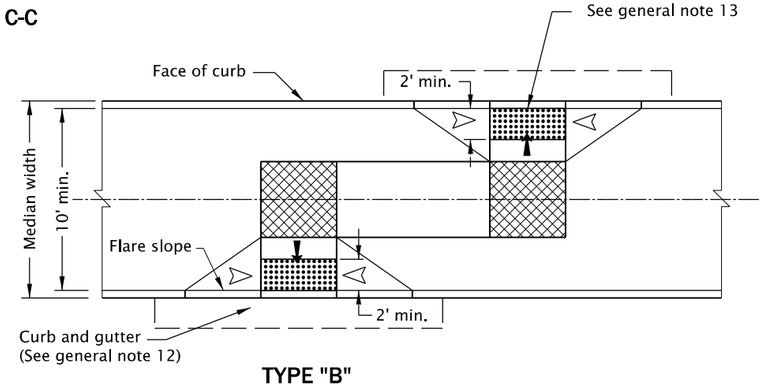
(A.C. pavement shown)



SECTION C-C



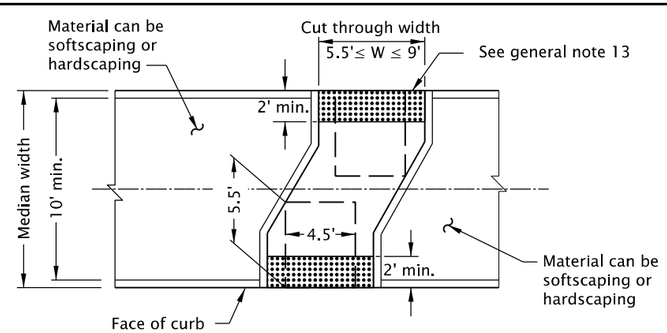
TYPE "A"



TYPE "B"

MEDIAN RAISED CROSSING

(P.C. conc. surface shown)



MEDIAN CUT-THROUGH CROSSING

(Asph. conc. surface shown)

LEGEND:

- Marked or intended crossing location
- Level area (Turning space/landing) Unobstructed 4.5' x 4.5' With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing). For the purposes of this application, a max. 2.0% finished surface slope (for drainage) is considered level.
- Detectable warning surface
- Cross slope 1.5% max. (Max. 2.0% finished surface slope)
- Running slope 7.5% max. (Max. 8.3% finished surface slope)
- Flare slope (Max. 10.0% finished surface slope)
- Zero curb exposure
- Clear space 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Accessible route islands are based on applicable ODOT Standards.
2. Place detectable warning surface at the back of curb for a minimum depth of 2 feet at curb ramp that is adjacent to traffic. For details not shown, see Std. Dwgs. RD902 through RD908.
3. The minimum area of islands that contain signal poles, pedestals, etc., shall be 75 square feet. Square feet to be measured to outer perimeter of entire island.
4. For cut through islands, dowel each island segment to the pavement with a minimum of two ¾" diameter dowels. Dowel the nose section of the raised median island with a minimum of two ¾" diameter dowels. Place dowels as directed. See Std. Dwg RD705.
5. Align curb ramps for lowered or partially lowered island and cut through island with the crosswalk.
6. Detectable warning surfaces shall be separated by a 2-foot minimum length of walkway without detectable warnings. Where no curb, the detectable warning surface shall be placed at the edge of roadway.
7. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. Curb type and island width as shown on plans or as directed. Type A or Type CA islands are acceptable alternates, see Std. Dwg. RD705.
9. See project plans for details not shown. See Std. Dwg. RD707 for island nose treatment. See Std. Dwg. RD705 for expansion and contraction joint spacing. See Std. Dwgs. RD700, RD701, RD705 & RD706 for additional details. See TM Standard Drawings for signal pole, pedestrian pedestal, crosswalk markings, and related details.
10. Details intended for pedestrian route only. For multi-use path, see project plans for specific details.
11. When crossing surface grade is ≤ 5%, a level area is not required.
12. On or along state highways, curb and gutter is required at curb ramps.
13. Raised islands in crossings shall have accessible curb ramps at all crossings or all crossings shall be cut through with the street.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

ACCESSIBLE ROUTE ISLANDS

2024

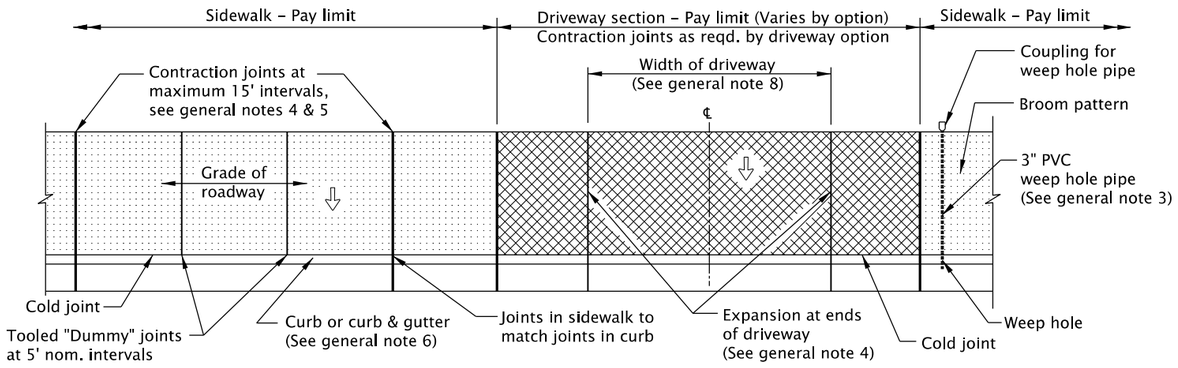
DATE	REVISION DESCRIPTION
07-2021	REVISED DETAILS AND NOTES
11-2021	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD710**

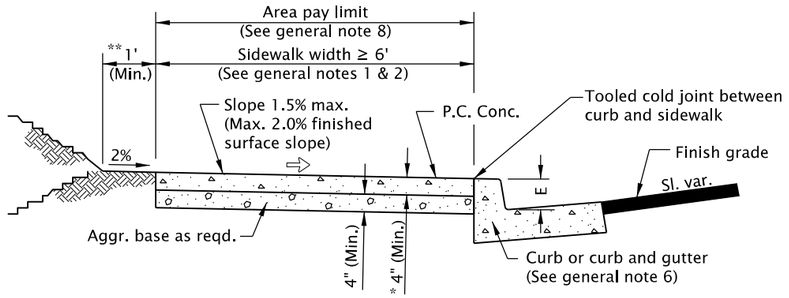
14-JAN-2022

RD710.dgn

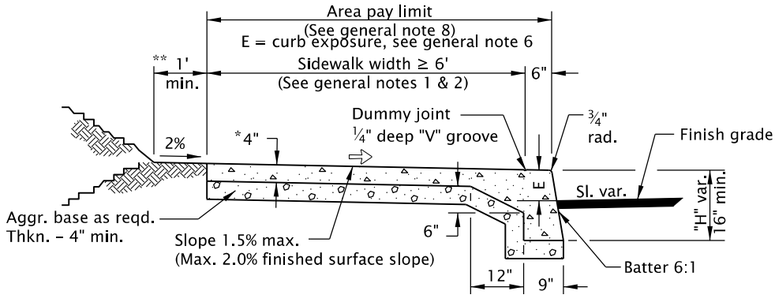
Effective Date: June 1, 2024 - November 30, 2024



TYPICAL PLAN VIEW - CURB LINE SIDEWALK



TYPICAL CURB SIDEWALK CROSS SECTION



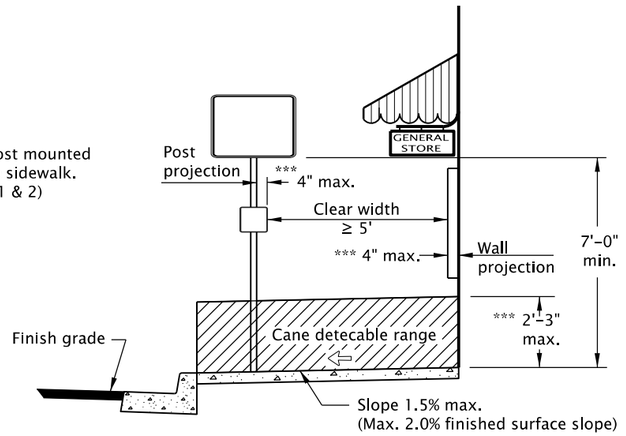
TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION

E = curb exposure, see general note 6

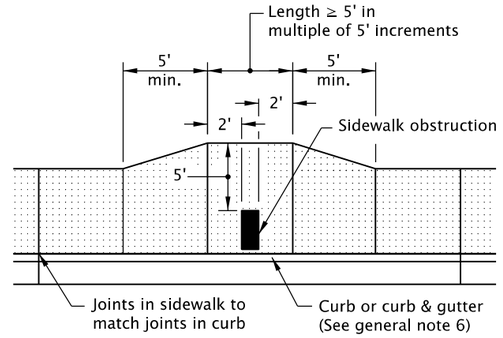
* Min. 4" or as specified in plans. A thickness ≥ 6" if sidewalk is intended as portion of a driveway or mountable curb is used.

** Provide compacted backfill adjacent to curb and sidewalk

*** Objects with base below 2'–3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'–3" protrudes further than 4" provide a detection below protrusion to delineate edge.



CLEAR CIRCULATION PATH



REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. RD722 for expansion joints details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. RD722 for contraction joints details.
6. For curb details, see Std. Dwgs. RD700 & RD701. ODOT standard E=7".
7. Sidewalk details are based on applicable ODOT standards.
8. Fully lowered sidewalk shown; see project plans for the diveway design specified. For driveway details not shown, see Std. Dwgs. RD725, RD730, RD735, RD740, RD745 & RD750.
9. See project plans for details not shown.

LEGEND

- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- ⇦ Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB LINE SIDEWALKS

2024

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A | SDR DATE 21-JUN-2019 | **RD720**

Effective Date: June 1, 2024 – November 30, 2024

20-JUL-2020

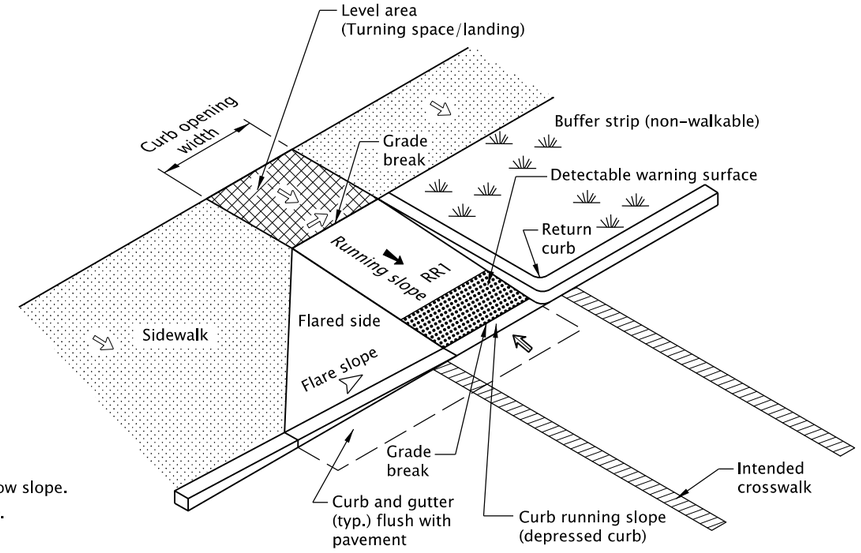
RD720.dgn

19-JAN-2024

RD900.dgn

CURB RAMP INDEX

STD. DWG. NO.	STD. DWG. TITLE
RD900	Curb Ramp Components And Legend
RD901	Curb Ramp Legend And Corner Identification
RD902	Detectable Warning Surface Details
RD904	Detectable Warning Surface Placement For Curb Ramps
RD905	Detectable Warning Surface Placement For Directional Curbs
RD906	Detectable Warning Surface Placement For Accessible Route Island
RD908	Detectable Warning Surface Placement For Rail
RD909	Detectable Guide Strip Placement At Bike Ramps
RD910, RD912	Perpendicular Curb Ramp
RD913	Perpendicular Curb Ramp With Closure
RD916	Perpendicular Curb Ramp Single Ramp
RD920	Parallel Curb Ramp
RD922	Parallel Curb Ramp Single Ramp
RD930, RD932 & RD936	Combination Curb Ramp
RD938	Combination Curb Ramp Single Ramp
RD940	Blended Transition Curb Ramp Single Ramp
RD950 & RD952	End Of Walk Curb Ramp
RD960	Unique Curb Ramp



TYPICAL CURB RAMP SYSTEM COMPONENTS

(PERPENDICULAR TYPE SHOWN)

LEGEND:

- Marked or intended crossing location
- Sidewalk or other traversable surface
- Detectable warning surface (DWS)
- Level area (Turning space/landing)
- Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)
- Running slope 4.0% max. (Max. 4.9% finished surface slope)
- Running slope 7.5% max. (Max. 8.3% finished surface slope)
- Counter slope 4.0% max. ascending or descending (Max. 5.0% finished surface slope) Slope as required for drainage
- Flare slope (Max. 10.0% finished surface slope)
- 4'x4' clear space
- RR1 Ramp Run Position 1

INTERSECTION CONDITION TYPES

MB = Midblock, less than or equal to roadway grade finished gutter flow slope.
SU = Signalized or Uncontrolled, max. 5.0% finished gutter flow slope.
SY = Stop or Yield, max. 2.0% finished gutter flow slope.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB RAMP COMPONENTS AND LEGEND

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAILS AND NOTES
01-2022	REVISED LEGEND
11-2023	REVISED LEGEND

CALC. BOOK NO. N/A | SDR DATE 19-JAN-2024 | **RD900**

Effective Date: June 1, 2024 - November 30, 2024

19-JAN-2024

RD901.dgn

Linear Referencing Method (LRM) Number
Use ODOT FACS-STIP web based application, turn on layers Roadside > ADA Corners and ADA Ramps to see LRM and corner position number of curb ramps inventoried. Select "Identify Features" and click on Map Position to see Information.

This is a code to identify the intersection on a specific state highway.
There is a four part format for the code: Highway Number; Highway Suffix; Roadway ID, Mileage Type.

1) The Highway Number is a 3 digit number (not the route number) assigned to all state highways by ODOT.
   Valid numbers are 001-493.

2) Highway Suffix is a letter format assigned to frontage roads and connections to identify the unique connection, for example AA or AB.
   Use the Identify Features tool on the ODOT FACS-STIP web based application, Road Network layer > Hwy Network-Colored layer for visual reference. Select "Identify Features" and click on Map Position to see Information.
   If the intersection is not located on a connection use 00 for the code.

3) Roadway ID is a one letter code used to identify alignment. There are two possible letter codes; "I" for increasing mile point direction and "D" for decreasing mile point direction.
   For most highways, the "I" direction is south and east. Note I-5 does not follow this rule. Generally "I" will be used.
   When there is a separated highway there will be an "I" roadway and a "D" roadway.
   Check the Digital Video Log to be sure of the direction.

4) Mileage Type is used when there are multiple locations of the same mile point on a section of highway.
   Overlay lapping mileage is listed as "z" mileage.

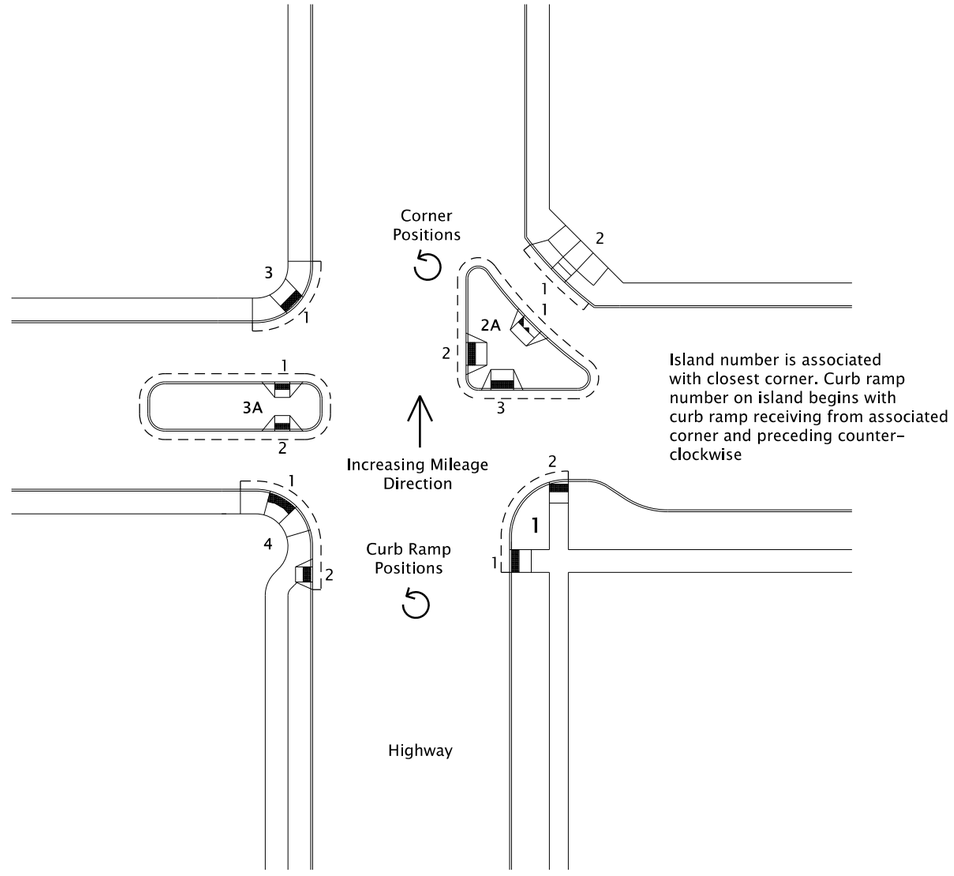
Example

228	00	I	00
Hwy No.	Suffix	ID	Type

Milepoint of an intersection is based on the mile point of the center of the intersection listed to the hundredth of a mile.

Corner Position is based on traveling in the increasing mile point direction, beginning with the first corner on the right and proceeding counter-clockwise around the intersection, numbering consecutive 1 through the end of corners. An "A" is added to the number for an island. For example an island between corner positions 1 and 2 and is closer to corner 2 has a corner position number of 2A (See corner position and curb ramp position diagram).

Curb Ramp Position is a number given to each curb ramp beginning with Corner Position 1. The first curb ramp encountered in the increasing mile point direction is number ramp 1. Then proceeds counter-clockwise around the corner, numbering in consecutive order.
Proceed following the pedestrian route and in Corner Position Number order (see corner position and curb ramp position diagram).



CORNER POSITION AND CURB RAMP POSITION DIAGRAM

(See ODOT Exhibit A for additional ramp and ramp run numbering conventions.)

STANDARD ABBREVIATION FOR CURB RAMP DETAILS

FG	=	Finish Grade (Elevation ft.) i.e. FG XXX.XX'
TFC	=	Top Face of Curb (Elevation ft.)
TBC	=	Top Back of Curb (Elevation ft.)
BFC	=	Bottom Face of Curb (Elevation ft.)
gtr.	=	Gutter (Elevation ft.)
GS	=	Gutter Slope (%), i.e. X.X%
E	=	Curb Exposure (Inch), i.e. X"
CS	=	Counter Slope on gutter pan (%)
RRN	=	Ramp Run Number, i.e. RRX
cl.sp.	=	Clear Space
TS	=	Turning Space
XS	=	Cross Slope
LA	=	Level Area
DWS	=	Detectable Warning Surface
PAR	=	Pedestrian Access Route

LEGEND:

- Fire Hydrant
- Gas Valves Box
- Inlet
- Sanitary Manhole
- Storm Manhole
- Pole Anchor
- Pole Base
- Pedestrian Pedestal
- Pedestrian Pushbutton
- Sign on a Post
- Traffic Signal Junction Box
- Utility Pole
- Utility Vault
- Water Meter
- Water Valve
- Cross Walk Barricade

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB RAMP LEGEND AND CORNER IDENTIFICATION

2024

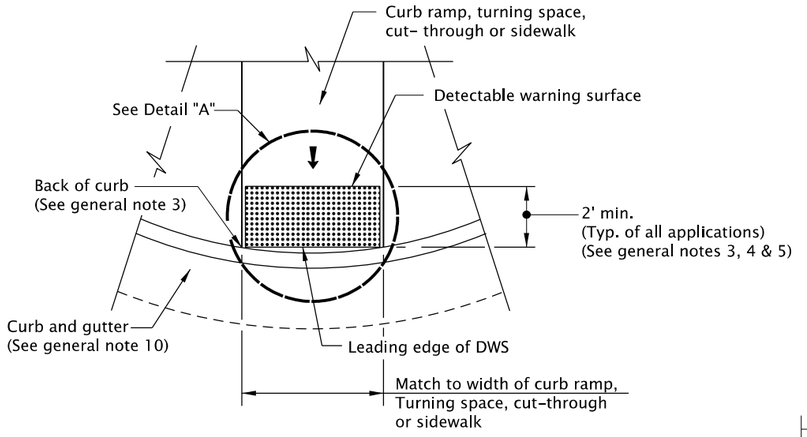
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
09-2021	REVISED NOTES
12-2023	REVISED NOTES

CALC. BOOK NO. N/A

SDR DATE 19-JAN-2024

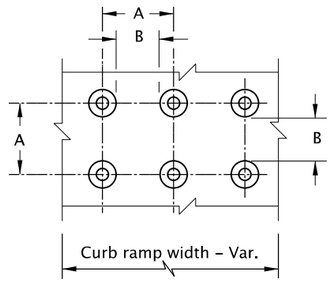
RD901

Effective Date: June 1, 2024 - November 30, 2024

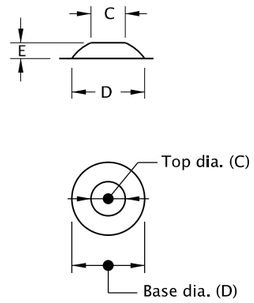


DETECTABLE WARNING SURFACE DETAIL

	A	B	C	D	E
MIN.	1.60"	0.65"	0.45"	0.90"	0.20"
MAX.	2.40"	--	0.91"	1.40"	0.20"

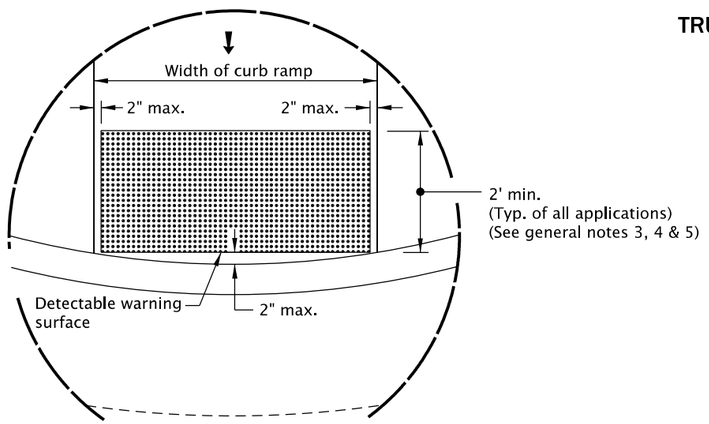


TRUNCATED DOME SPACING



TRUNCATED DOME

TRUNCATED DOME DETAILS



DETAIL "A"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
3. The detectable warning surface shall extend the full width of the curb ramp opening, shared use path, blended transition, turning space, or other roadway entrance as applicable. A gap of up to 2 inches on each side of the detectable warning surface is permitted (measured at the leading edge of the detectable warning surface panel as shown in Detail "A").
4. Detectable warning surface shall be placed at the back of curb for a minimum depth of 2 ft. in the direction of pedestrian travel at curb ramps that are adjacent to traffic. Detectable warning surface may be radial or rectangular, but must comply with the truncated dome size and spacing standards. Detectable warning surface may be cut to meet necessary shape as shown in plans. Detectable warning surface across a grade break is prohibited. Place abutting panels within¼ inch of each other and install anchors, as specified by manufacturers, along cut edge.
5. Color to be safety yellow if no color specified in construction note. Alternative colors require a design exception on or along state highways.
6. Detectable warning surface shall be used in the following locations:
   a) Curb ramps at street crossings.
   b) Crossing islands (Accessible Route Islands).
   c) Rail crossings.
7. Where public transportation stations (rail, bus, etc.) use platform boarding, detectable warning surface shall be placed along the full edge length of the station, when not protected by platform screens or guards, (see Std. Dwg. RD908).
8. Detectable warning surface shall not be used on the following locations:
   a) End of sidewalk transitions that are not at a crosswalk, (see Std. Dwgs. RD950, RD952 and RD960).
   b) Driveways, unless constructed with curb return or are signalized.
   c) Parking lots, access aisles and passenger loading zones where curb ramp does not lead to vehicular way.
9. Where no curb is present, the detectable warning surface shall be placed at the edge of the roadway.
10. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

Detectable warning surface

Cross slope 1.5% max.
(Max. 2.0% finished surface slope)
(Normal sidewalk cross slope)

Running slope 7.5% max.
(Max. 8.3% finished surface slope)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

DETECTABLE WARNING SURFACE DETAILS

2024

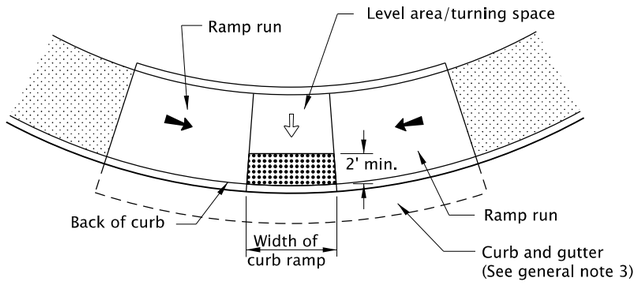
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A | SDR DATE 19-JUL-2021 | **RD902**

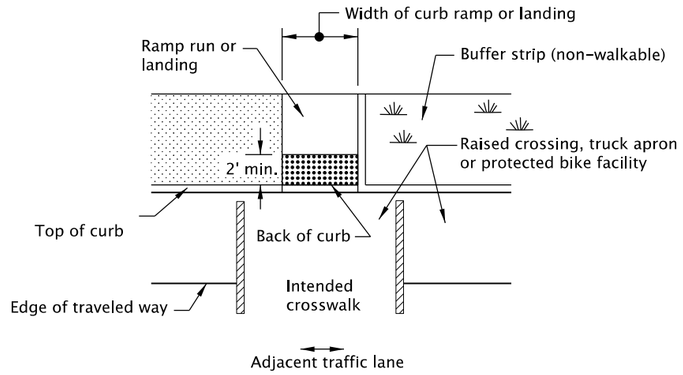
19-JUL-2021

RD902.dgn

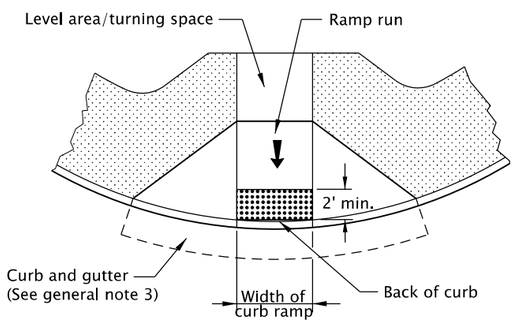
Effective Date: June 1, 2024 - November 30, 2024



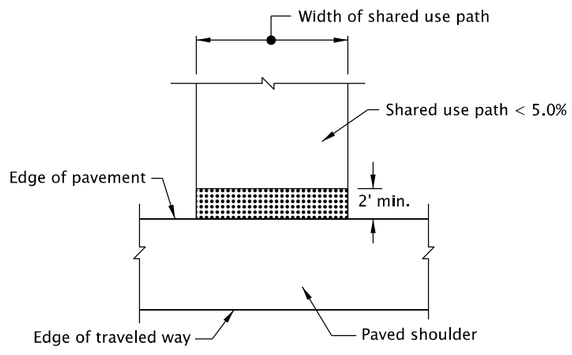
PARALLEL CURB RAMP



RAISED CROSSING, TRUCK APRON OR PROTECTED BIKE FACILITY



PERPENDICULAR CURB RAMP
GRADE BREAK IN FRONT OF CURB



SHARED-USE PATH CONNECTION

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwg. RD902 for detectable warning surface installation details.
3. On or along state highways, curb and gutter is required at curb ramps.
4. Detectable warning surface placement for perpendicular ramps vary as shown.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)
- Running slope 7.5% max. (Max. 8.3% finished surface slope)

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

DETECTABLE WARNING SURFACE PLACEMENT FOR CURB RAMPS

2024

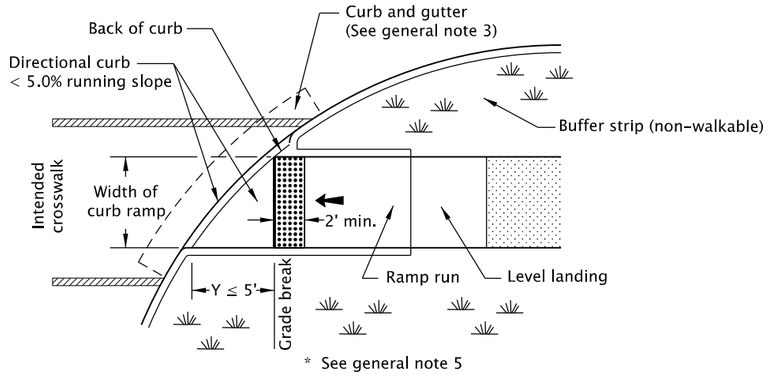
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED

CALC. BOOK NO. N/A | SDR DATE 20-JUL-2020 | **RD904**

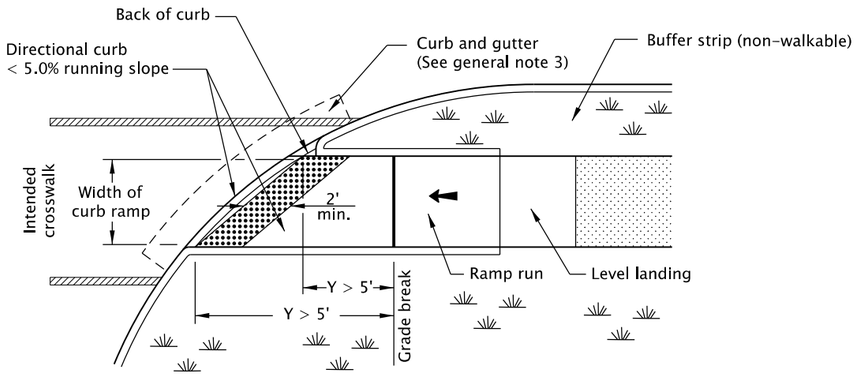
Effective Date: June 1, 2024 - November 30, 2024

20-JUL-2020

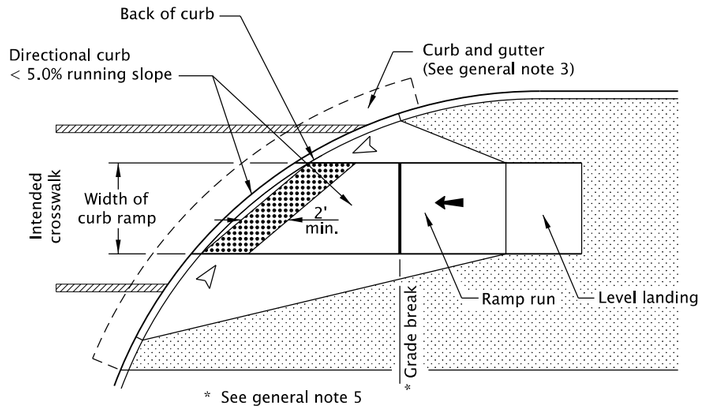
RD904.dgn



CURB RAMP CROSSING
GRADE BREAK ≤ 5 FT. FROM BACK OF CURB



CURB RAMP CROSSING
GRADE BREAK > 5 FT. FROM BACK OF CURB



CURB RAMP CROSSING
DIRECTIONAL CURB WITH FLARED CONSTRUCTION

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Detectable warning surface details & locations are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwg. RD902 for detectable warning surface installation details.
3. On or along state highways, curb and gutter is required at curb ramps.
4. Detectable warning surface placement for perpendicular ramps vary as shown.
5. Detectable warning surface placement across the grade break is prohibited.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Running slope 7.5% max. (Max. 8.3% finished surface slope)
- Flare slope (Max. 10.0% finished surface slope)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

DETECTABLE WARNING SURFACE PLACEMENT FOR DIRECTIONAL CURBS

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
01-2022	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD905**

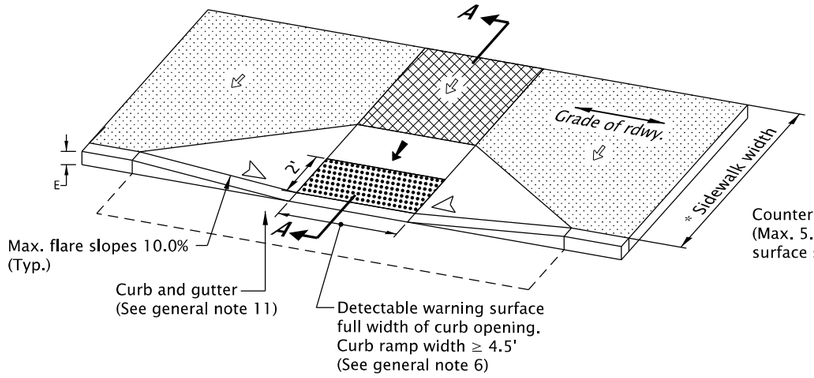
14-JAN-2022

RD905.dgn

Effective Date: June 1, 2024 - November 30, 2024

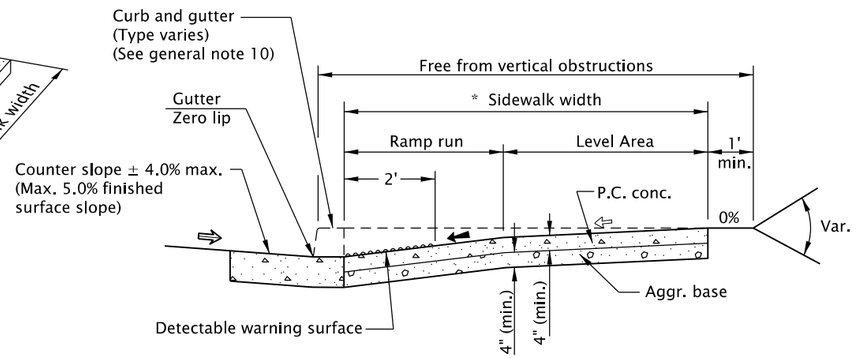
14-JAN-2022

RD910.dgn



PERPENDICULAR CURB RAMP DETAIL

(Use "Parallel Curb Ramp Detail" or "Combination Curb Ramp Detail" when reqd. turning space cannot be obtained)



SECTION A-A

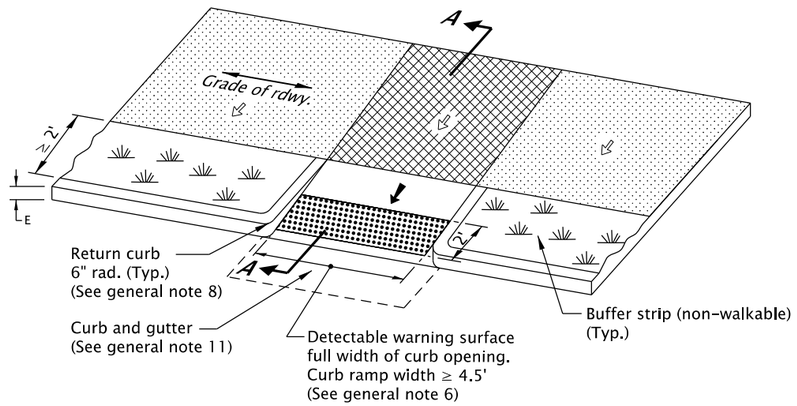
* NOTE: Minimum width of 14.25 feet sidewalk for E=7"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

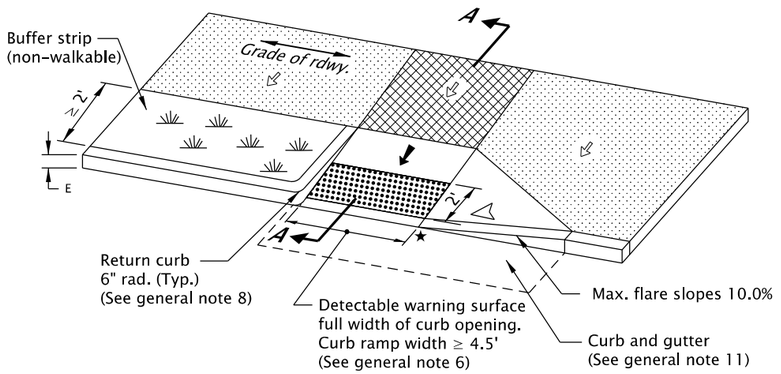
1. Curb ramp details are based on applicable ODOT Standards.
2. See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwgs. RD912 through RD916 for curb ramp placement options.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be ≥ 8' wide, (see Std. Dwg. RD909 for additional details).
10. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
11. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Counter slope 4.0% max. ascending or descending,
  (Max. 5.0% finished surface slope)
  Slope as required for drainage
- Flare slope
  (Max. 10% finished surface slope)



THROUGH BUFFER STRIP



WITH SINGLE FLARE

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PERPENDICULAR CURB RAMP

2024

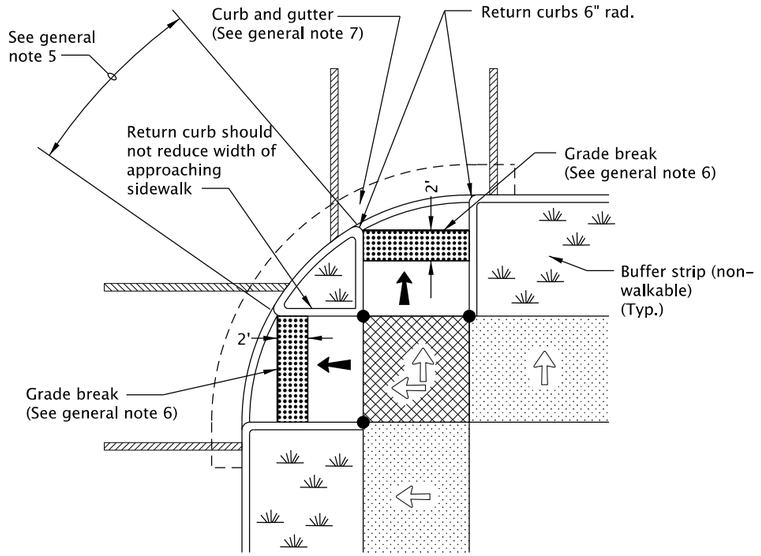
DATE	REVISION DESCRIPTION
12-2021	NEW DRAWING CREATED
01-2022	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD910**

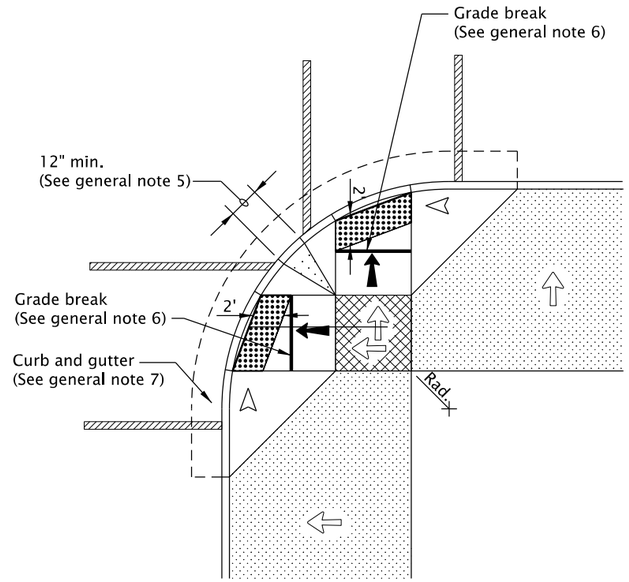
Effective Date: June 1, 2024 - November 30, 2024

14-JAN-2022

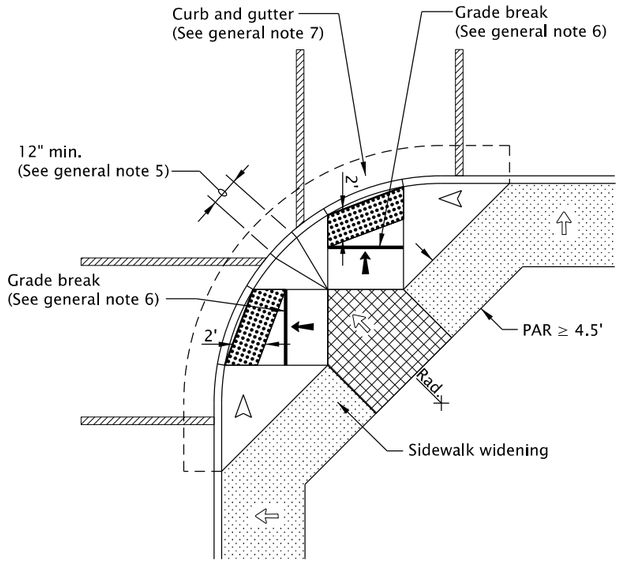
RD912.dgn



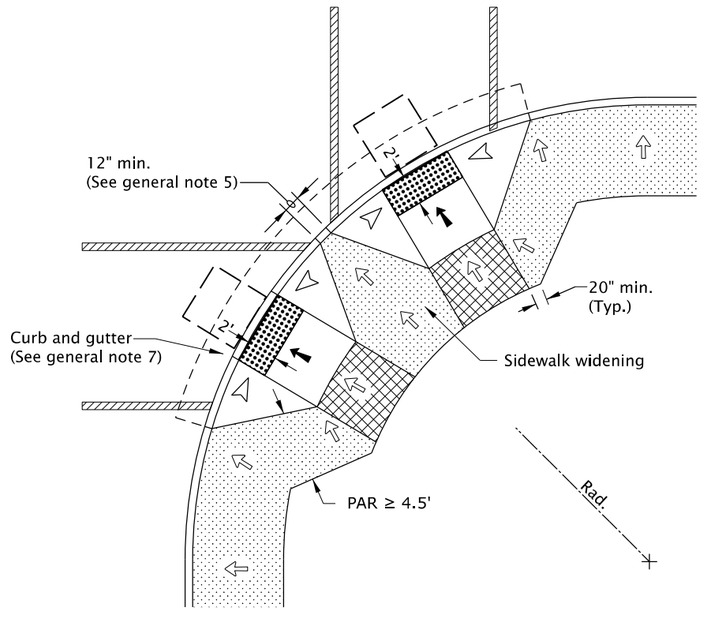
WITH LANDSCAPED BUFFER STRIP
OPTION "PR-1"



FOR WIDE SIDEWALKS
OPTION "PR-2"



FOR NARROW SIDEWALKS
OPTION "PR-3"



FOR NARROW SIDEWALKS
OPTION "PR-4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD910 for perpendicular curb ramp details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.
6. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
7. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- ⇦ Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- ⬅ Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- ◁ Flare slope
  (Max. 10% finished surface slope)
- • Zero curb exposure
- 4' x 4' clear space
- PAR Pedestrian Access Route

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

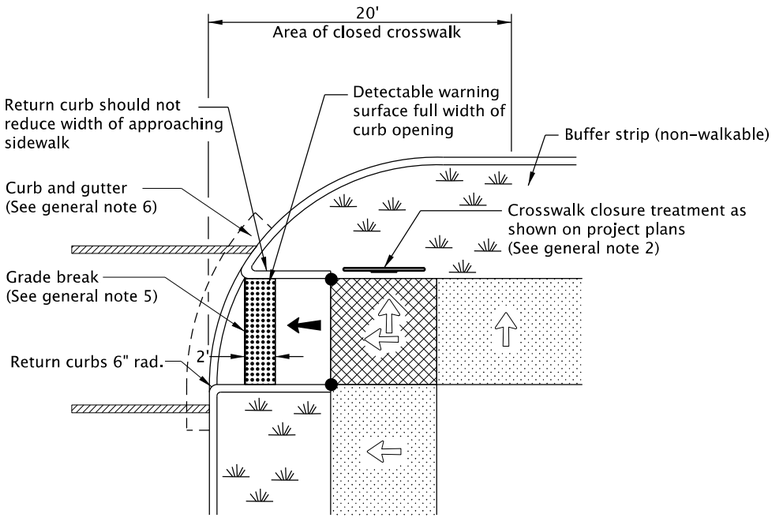
PERPENDICULAR CURB RAMP

2024

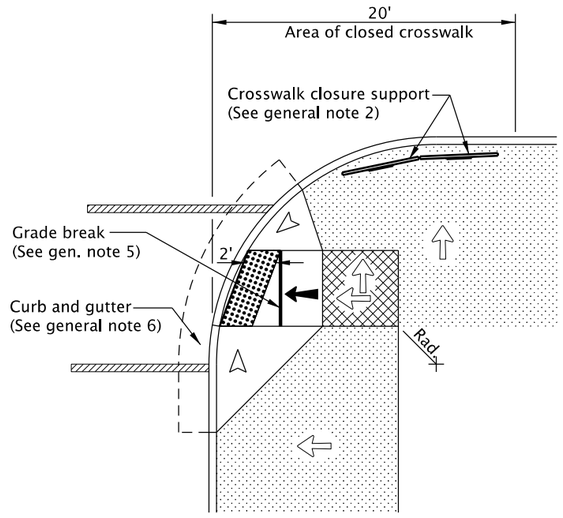
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAIL AND NOTES
01-2022	REVISED DETAILS AND NOTES NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD912**

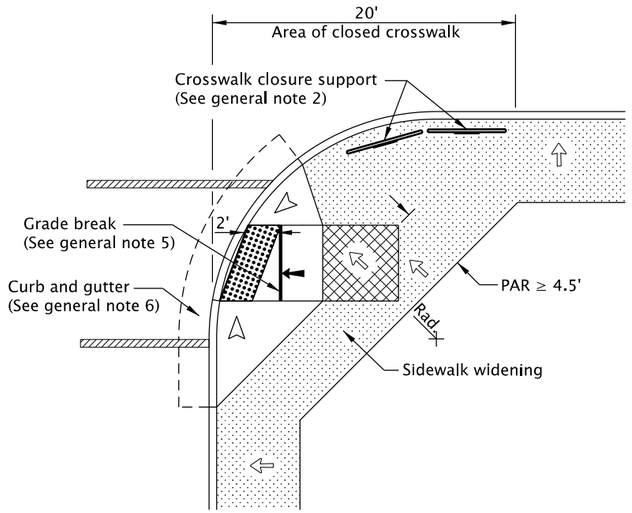
Effective Date: June 1, 2024 - November 30, 2024



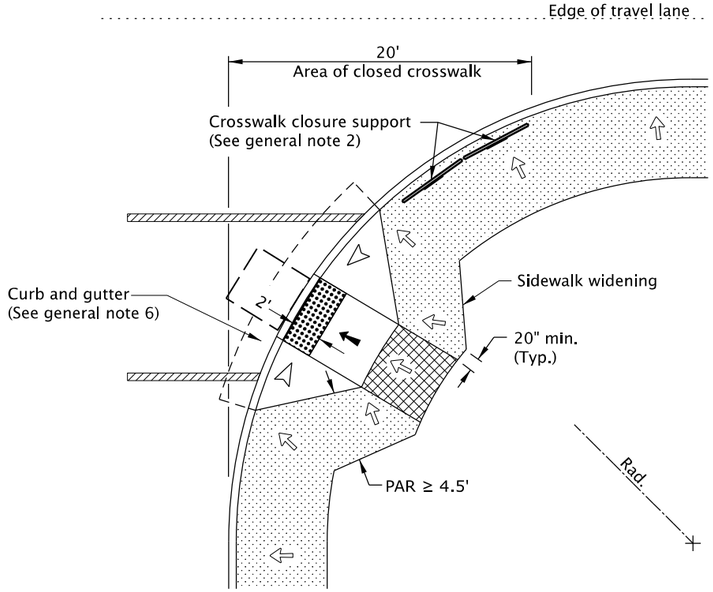
CROSSWALK CLOSURE WITH LANDSCAPE BUFFER STRIP OPTION "PR-5"



CROSSWALK CLOSURE FOR WIDE SIDEWALK OPTION "PR-6"



CROSSWALK CLOSURE FOR NARROW SIDEWALK OPTION "PR-7"



CROSSWALK CLOSURE OPTION "PR-8"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD910 for perpendicular curb ramp details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. TM240 for crosswalk closure detail.
3. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
6. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Flare slope
  (Max. 10% finished surface slope)
- Zero curb exposure
- 4' x 4' clear space
- PAR — Pedestrian Access Route

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PERPENDICULAR CURB RAMP WITH CLOSURE

2024

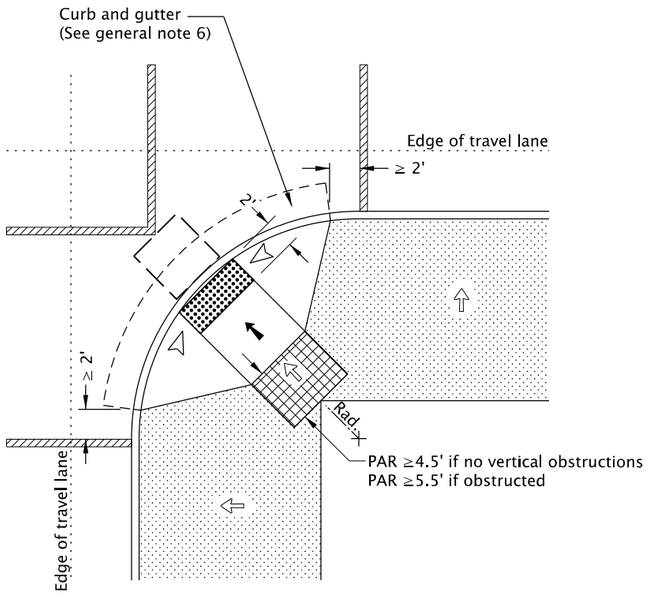
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
01-2022	REVISED DETAIL AND NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD913**

14-JAN-2022

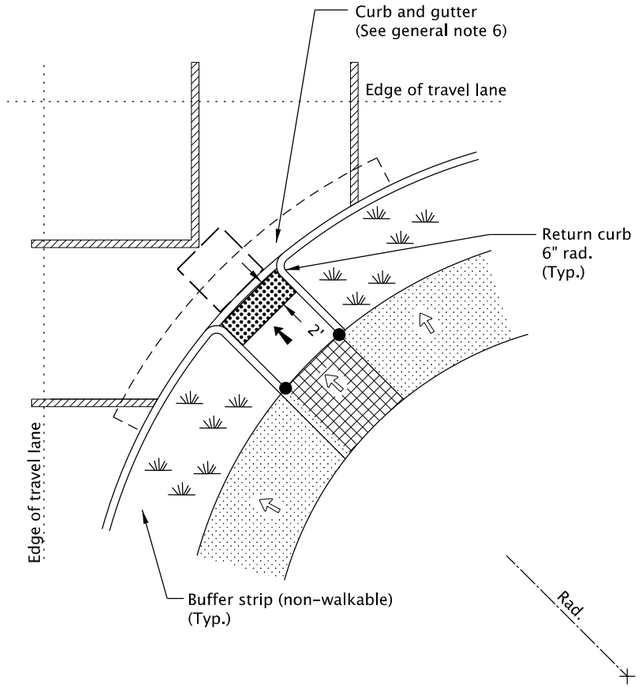
RD913.dgn

Effective Date: June 1, 2024 – November 30, 2024



DIAGONAL CURB RAMP FOR WIDE SIDEWALKS OPTION "PR-9"

(Use only when site constraints prohibit installing two curb ramps)



DIAGONAL CURB RAMP WITH LANDSCAPED BUFFER STRIP OPTION "PR-10"

(Use only when site constraints prohibit installing two curb ramps)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.

2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD910 for perpendicular curb ramp details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.

3. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).

4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).

5. Only use curb ramp options allowed by jurisdiction. Single ramps required design exceptions on or along state highways.

6. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Flare slope
  (Max. 10% finished surface slope)
- 4'x4' clear space
- PAR — Pedestrian Access Route
- Zero curb exposure

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

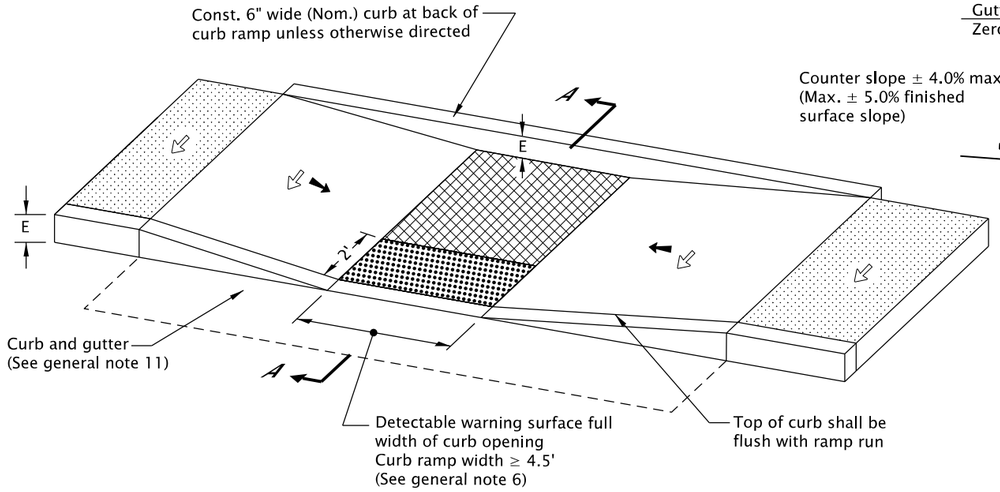
OREGON STANDARD DRAWINGS

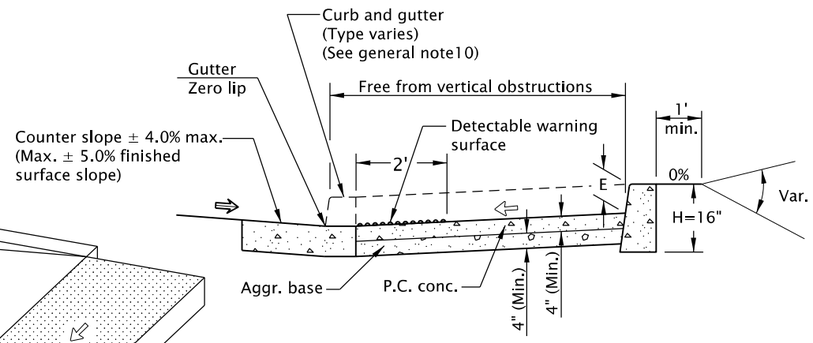
PERPENDICULAR CURB RAMP SINGLE RAMP

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED

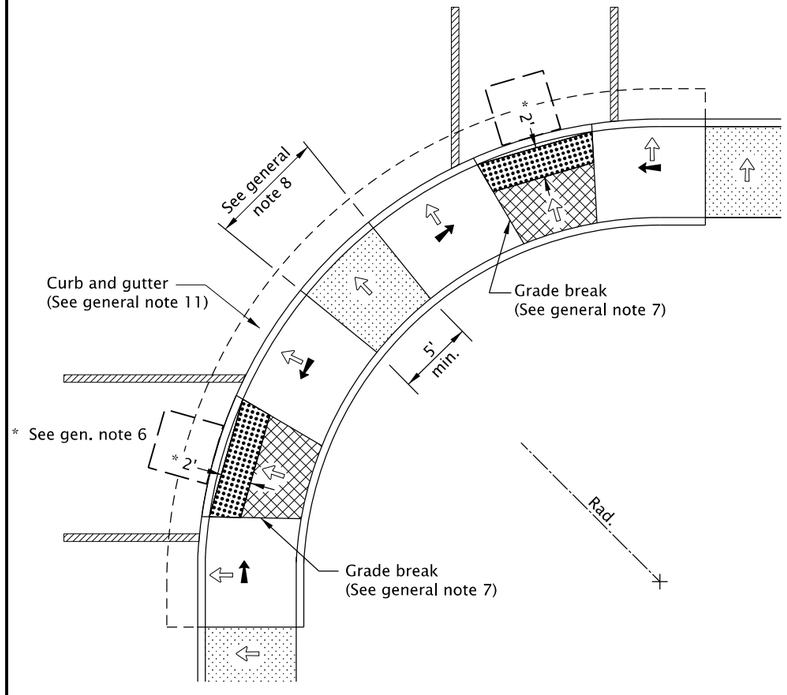
CALC. BOOK NO. N/A | SDR DATE 20-JUL-2020 | **RD916**



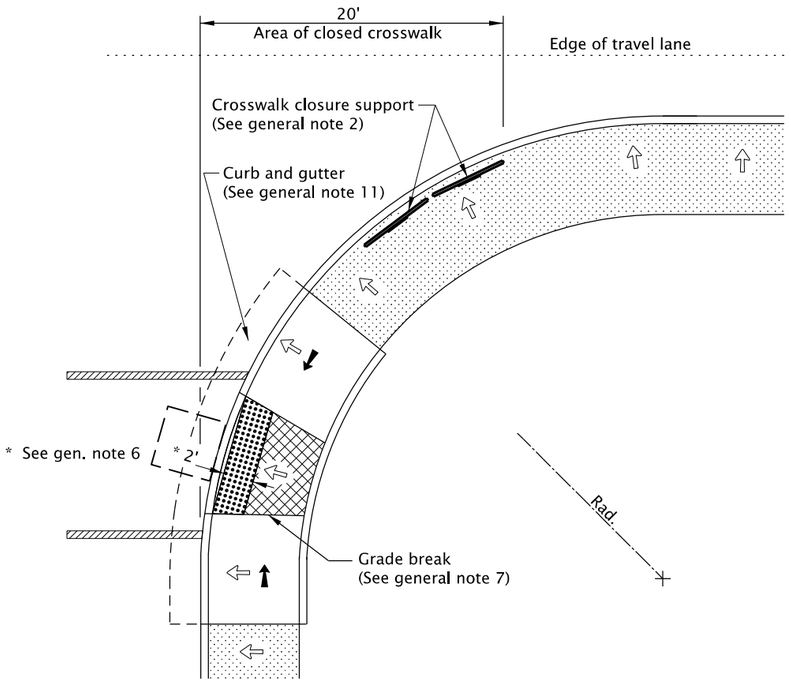


SECTION A-A

PARALLEL CURB RAMP DETAIL



PARALLEL CURB RAMPS
OPTION "PL-1"



PARALLEL CURB RAMP WITH CROSSWALK CLOSURE
OPTION "PL-2"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. TM240 for crosswalk closure detail.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. When 2 ramp runs are immediately adjacent, the curb exposure (E) between the adjacent side may range between 3" and full design exposure.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be ≥ 8' wide, (see Std. Dwg. RD909 for additional details).
10. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
11. On or along state highways, curb and gutter is required at curb ramps.

LEGEND:

- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Counter slope 4.0% max. ascending or descending,
  (Max. 5.0% finished surface slope)
  Slope as required for drainage
- 4'x4' clear space

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PARALLEL CURB RAMP

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAIL AND NOTES
01-2022	REVISED NOTES

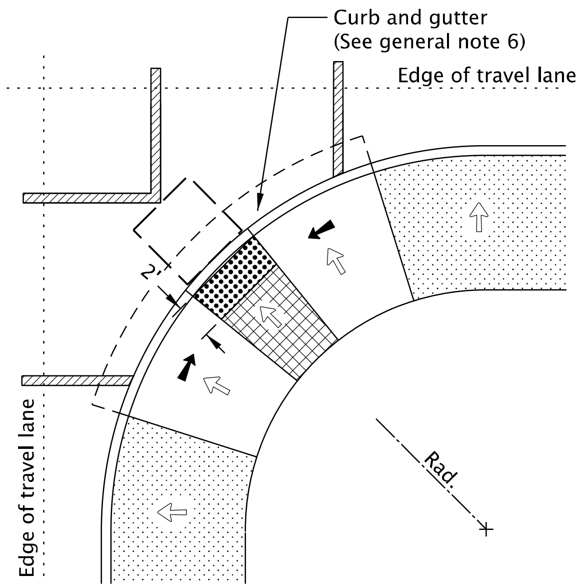
CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD920**

14-JAN-2022

RD920.dgn

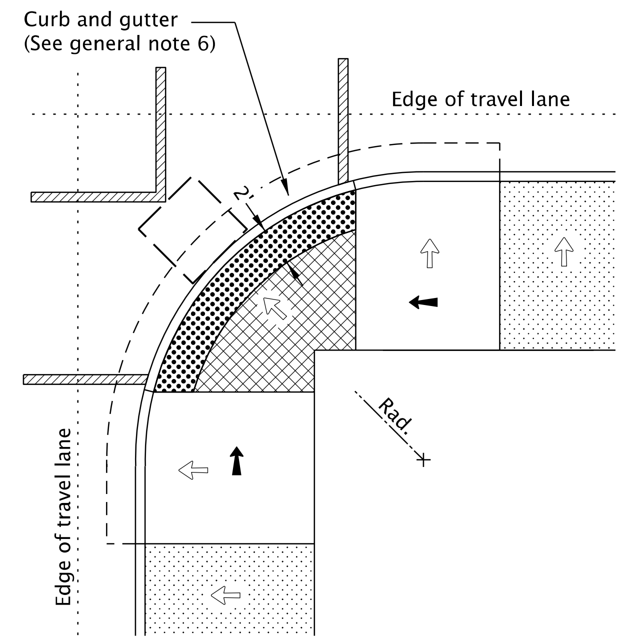
Effective Date: June 1, 2024 - November 30, 2024

20-JUL-2020
RD922.dgn



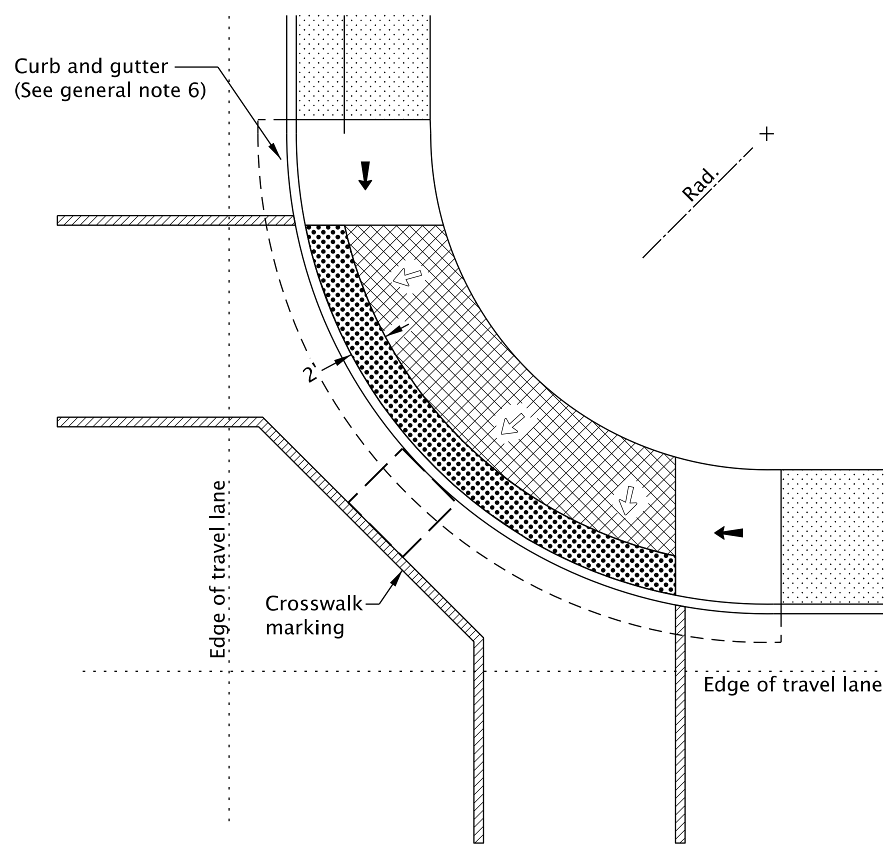
DIAGONAL PARALLEL CURB RAMP OPTION "PL-3"

(Use only when site constraints prohibit installing two curb ramps)



DEPRESSED CURB RAMP SMALL RADIUS OPTION "PL-4"

(Use only when site constraints prohibit installing two curb ramps)



DEPRESSED CURB RAMP LARGE RADIUS OPTION "PL-5"

(Use only when site constraints prohibit installing two curb ramps)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. RD920 for parallel curb ramp details.
3. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
6. On or along state highways, curb and gutter is required at curb ramps.
7. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. Only use curb ramp options allowed by jurisdiction. Single ramps require design exceptions on or along state highways.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- 4'x4' clear space

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PARALLEL CURB RAMP SINGLE RAMP

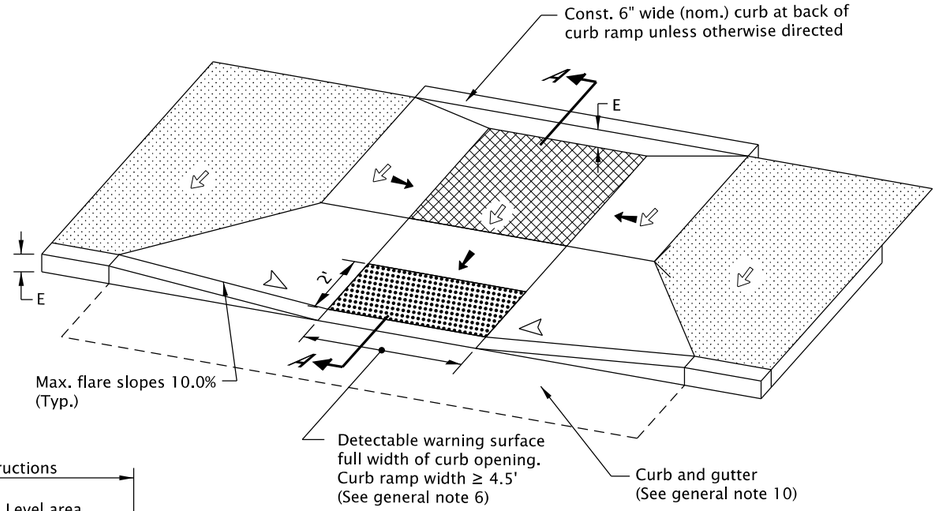
2024

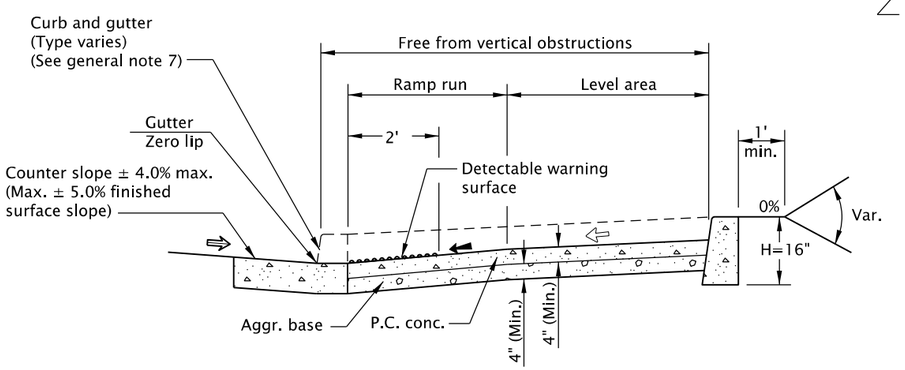
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED

CALC. BOOK NO. N/A | SDR DATE 20-JUL-2020 | **RD922**

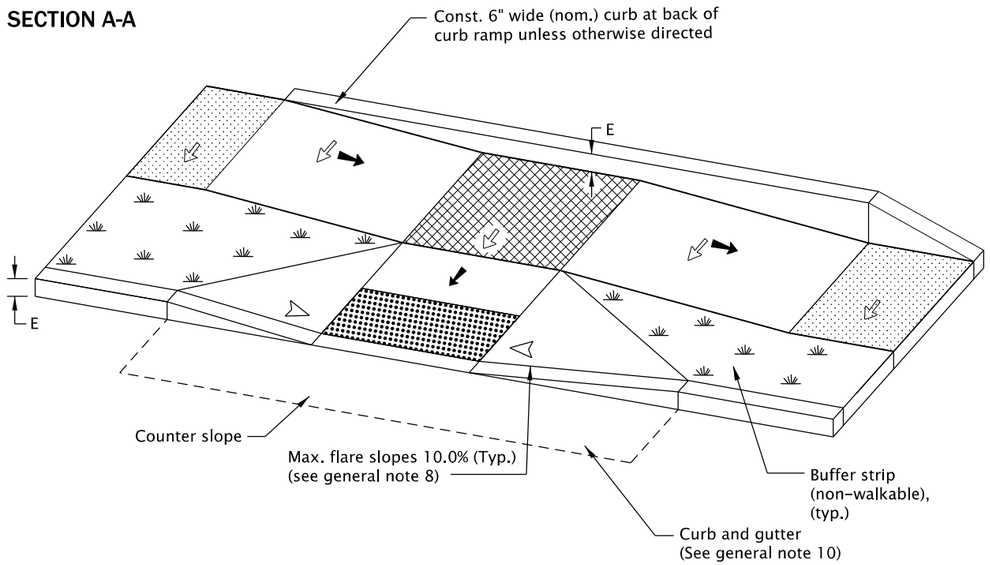
14-JAN-2022

RD930.dgn





SECTION A-A



COMBINATION CURB RAMP DETAIL

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be ≥ 8' wide, (see Std. Dwg. RD909 for additional details).
10. On or along state highways, curb and gutter is required at curb ramps.
11. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- ⇦ Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- ⬅ Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- ⇦ Counter slope 4.0% max. ascending or descending,
  (Max. 5.0% finished surface slope)
  Slope as required for drainage
- ◁ Flare slope
  (Max. 10% finished surface slope)

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

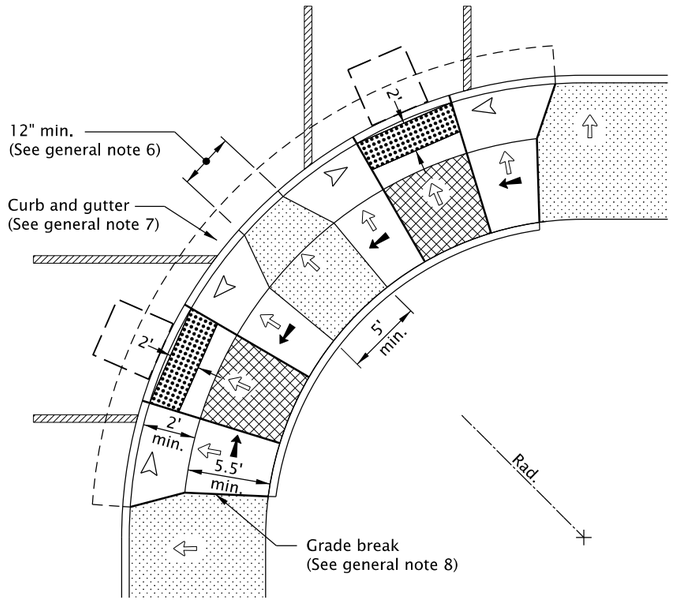
COMBINATION CURB RAMP

2024

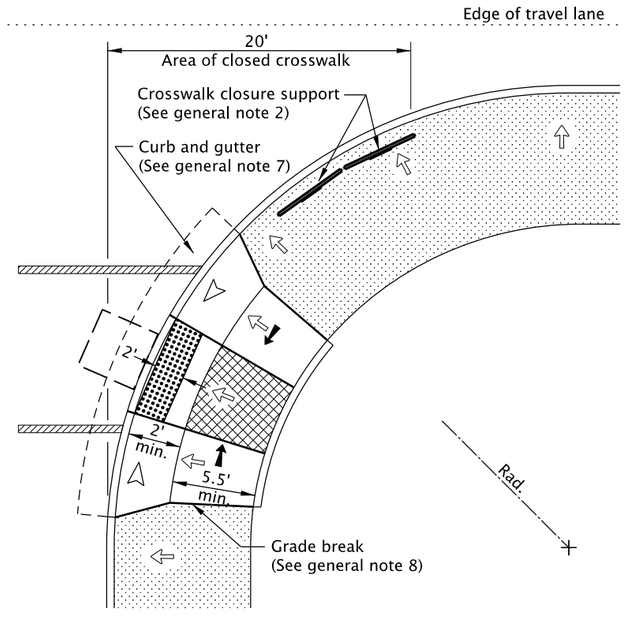
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAIL AND NOTES
01-2022	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD930**

Effective Date: June 1, 2024 - November 30, 2024



COMBINATION CURB RAMPS
OPTION "CC-1"



COMBINATION CURB RAMP WITH CROSSWALK CLOSURE
OPTION "CC-2"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.

2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. RD930 for combination curb ramp details.
   See Std. Dwg. TM240 for crosswalk closure detail.

3. Site conditions normally require a project specific design. See project plans for details not shown.

4. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).

5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).

6. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.

7. On or along state highways, curb and gutter is required at curb ramps.

8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Flare slope
  (Max. 10% finished surface slope)
- 4'x4' clear space

All materials shall be in accordance with the current Oregon Standard Specifications.

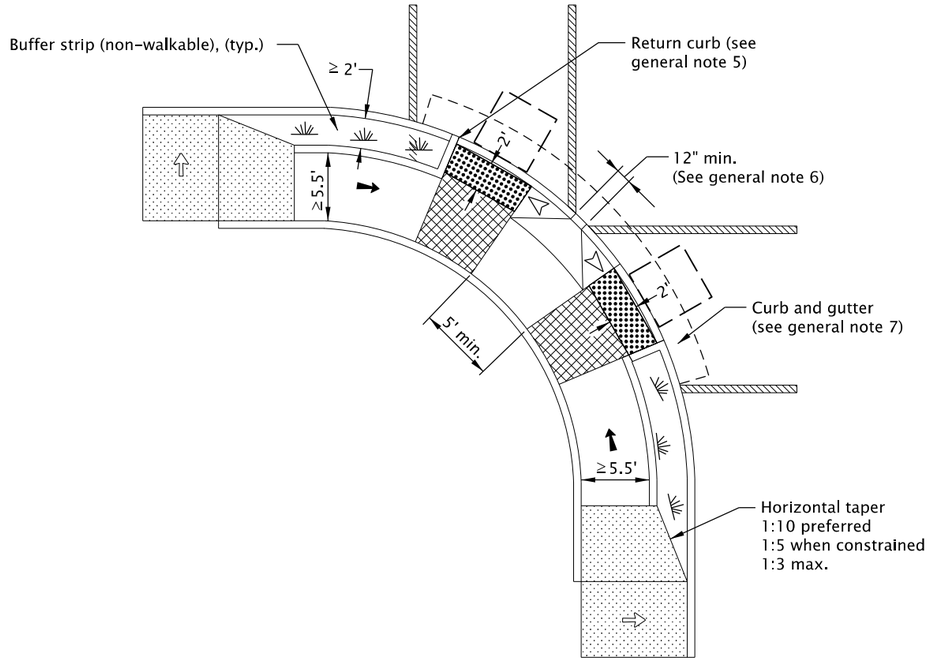
OREGON STANDARD DRAWINGS

COMBINATION CURB RAMP

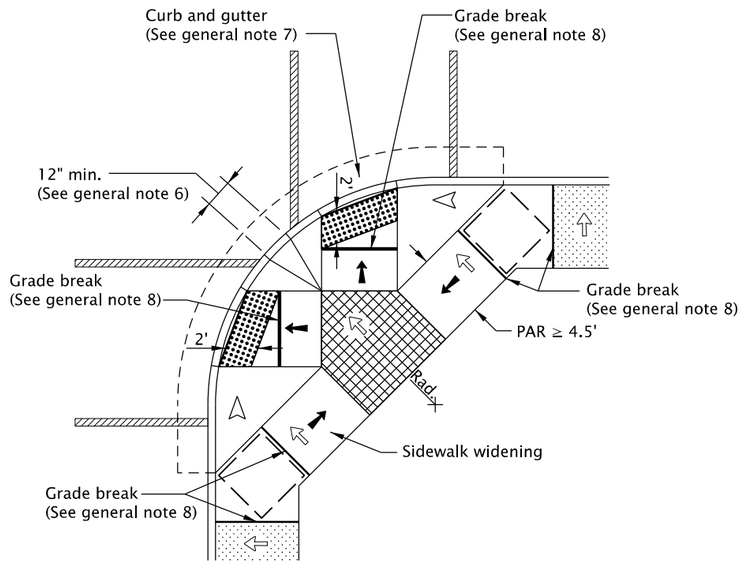
2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED

CALC. BOOK NO. N/A | SDR DATE 20-JUL-2020 | **RD932**



PARALLEL COMBINATION WITH LANDSCAPE BUFFER STRIP
OPTION "CC-3"



FOR NARROW SIDEWALKS
OPTION "CC-4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. RD930 for combination curb ramp details.
3. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, see Std. Dwg. RD721. Return curb shall not reduce width of approaching sidewalk.
6. When 2 curb ramps are immediately adjacent, the curb exposure (E) between the adjacent side flares may range between 3" and full design exposure.
7. On or along state highways, curb and gutter is required at curb ramps.
8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Flare slope
  (Max. 10% finished surface slope)
- E — Curb height
- 4' x 4' clear space
- PAR

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

COMBINATION CURB RAMP

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
01-2022	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A | SDR DATE 14-JAN-2022 | **RD936**

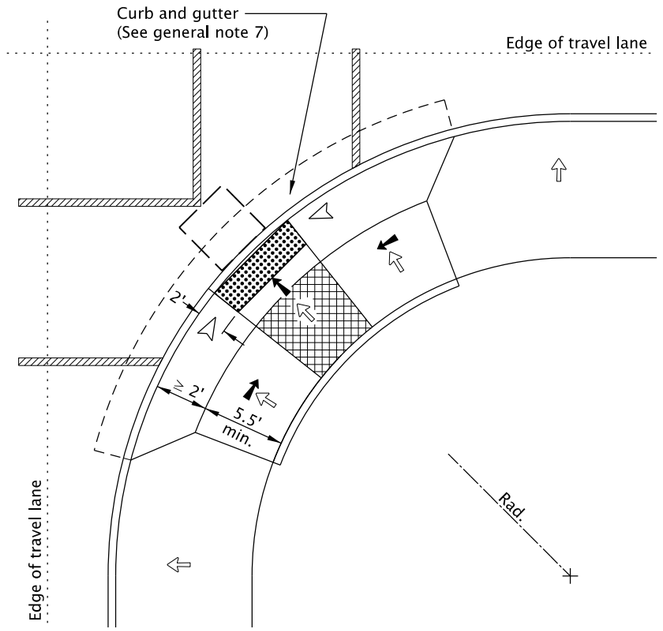
14-JAN-2022

RD936.dgn

Effective Date: June 1, 2024 - November 30, 2024

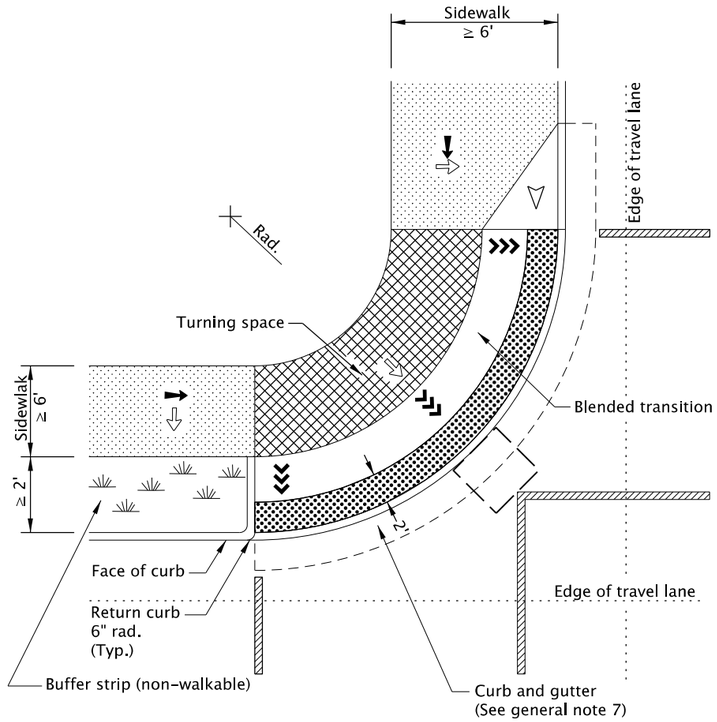
19-JUL-2021

RD938.dgn



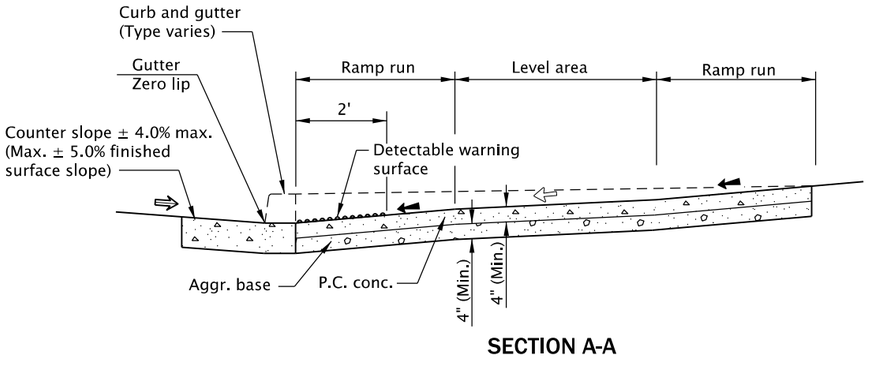
DIAGONAL COMBINATION CURB RAMP OPTION "CC-10"

(Use only when site constraints prohibit installing two curb ramps)

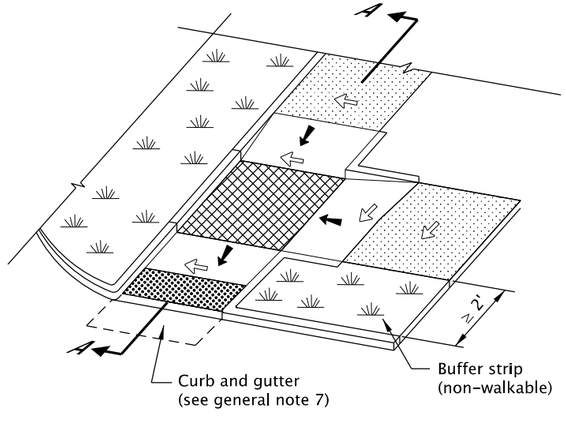


BLENDED TRANSITION COMBINATION CURB RAMP OPTION "CC-11"

(Use only when site constraints prohibit installing two curb ramps)



SECTION A-A



DIRECTIONAL COMBINATION CURB RAMP OPTION "CC-12"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. RD930 for combination curb ramp details.
3. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
4. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
5. Return curb may be provided in lieu of flared slope only if protected from traverse travel by landscaping, (see Std. Dwg. RD721). Return curb shall not reduce width of approaching sidewalk .
6. Only use curb ramp options allowed by jurisdiction. Single ramps require design exceptions on or along state highways.
7. On or along state highways, curb and gutter is required at curb ramps.
8. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- Running slope 4.0% max.
  (Max. 4.9% finished surface slope)
- Flare slope
  (Max. 10% finished surface slope)
- 4'x4' clear space

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

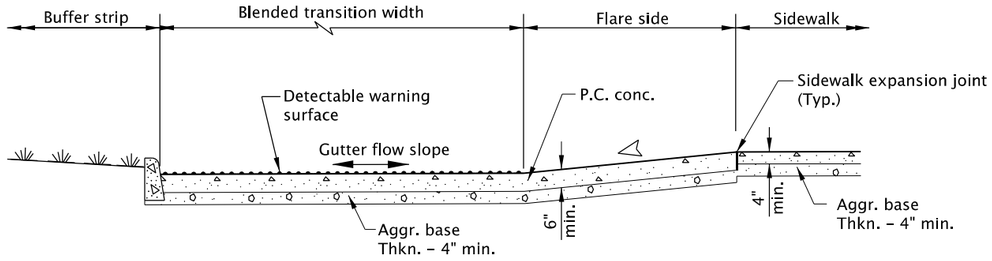
COMBINATION CURB RAMP SINGLE RAMP

2024

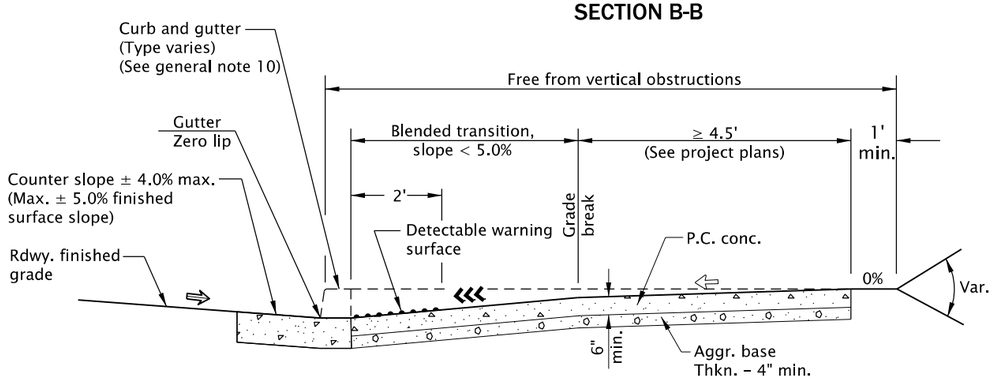
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
01-2021	REVISED DETAILS AND NOTES
07-2021	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A | SDR DATE 19-JUL-2021 | **RD938**

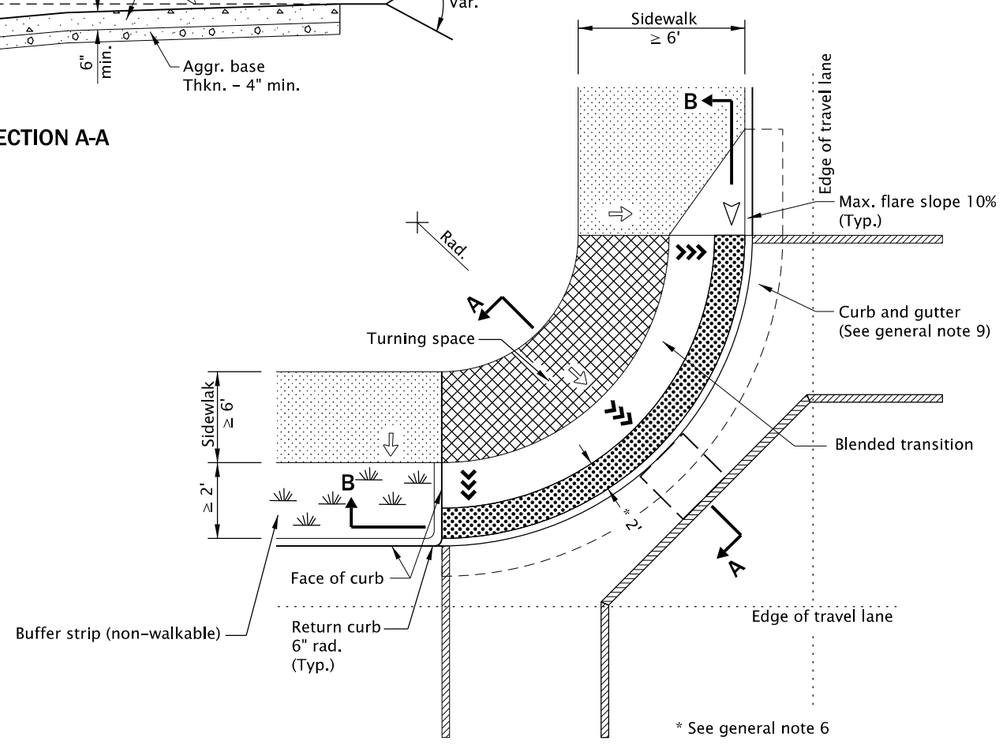
Effective Date: June 1, 2024 - November 30, 2024



SECTION B-B



SECTION A-A



DIAGONAL BLENDED TRANSITION CURB RAMP

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project specific design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp slope break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
8. Return curb may be provided in lieu of flared slope only if protected from traverse by landscaping. Return curb shall not reduce width of approaching sidewalk.
9. Curb ramps for shared use paths intersecting a roadway shall be full width of path, excluding flares. When a curb ramp is used to provide bicycle access from a roadway to a sidewalk, the curb ramp opening will be ≥ 8' wide.
10. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
11. On or along state highways, curb and gutter is required at curb ramps.
12. Only use curb ramp options allowed by jurisdiction. Single ramp requires design exceptions on or along state highways.

LEGEND:

- Marked or intended crossing location
- Sidewalk
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- ⇦ Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- ⇦ Counter slope 4.0% max. ascending or descending
  (Max. 5.0% finished surface slope)
  Slope as required for drainage
- ⋘ Running slope 4.0% max.
  (Max. 4.9% finished surface slope)
- ◁ Flare slope
  (Max. 10% finished surface slope)
- 4'x4' clear space

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

BLENDED TRANSITION CURB RAMP SINGLE RAMP

2024

DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE 19-JUL-2021 | **RD940**

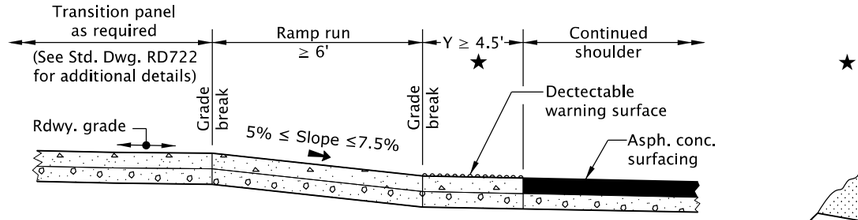
19-JUL-2021

RD940.dgn

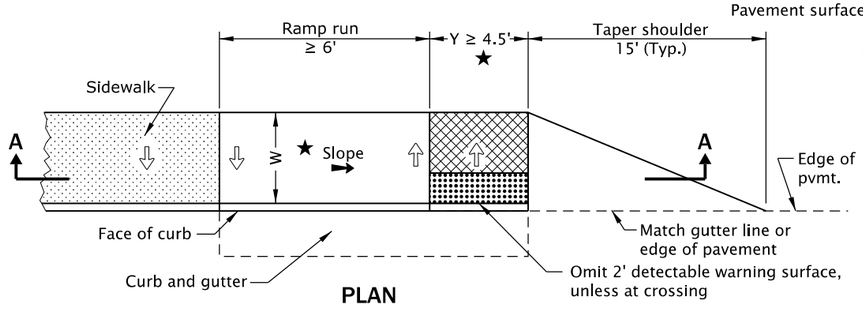
Effective Date: June 1, 2024 – November 30, 2024

20-JUL-2020

RD950.dgn

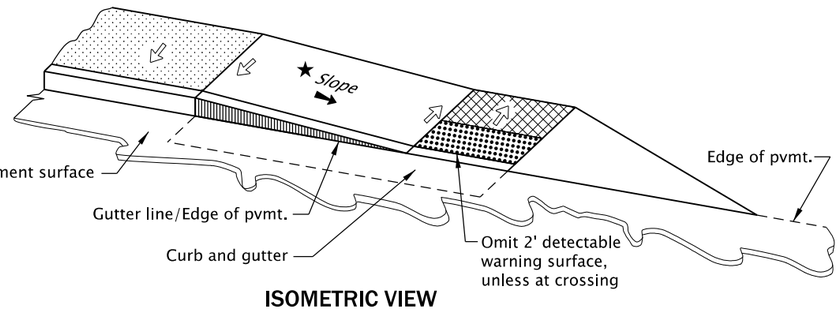


SECTION A-A



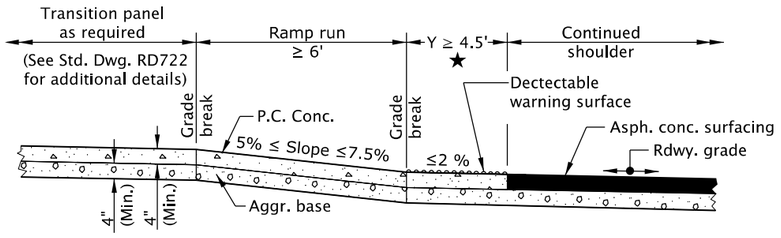
PLAN

★ See general note 12



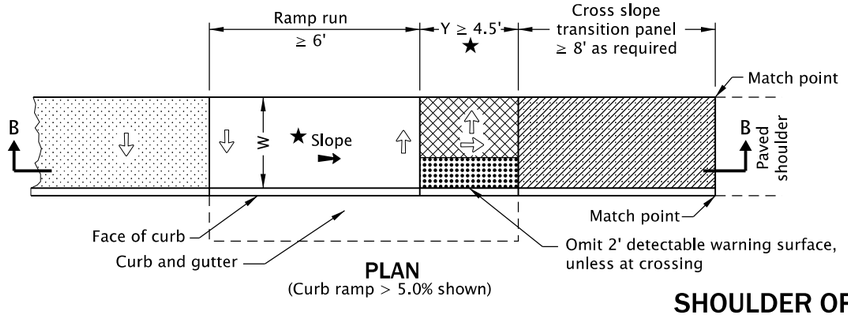
ISOMETRIC VIEW

TAPER OPTION "EW-1"

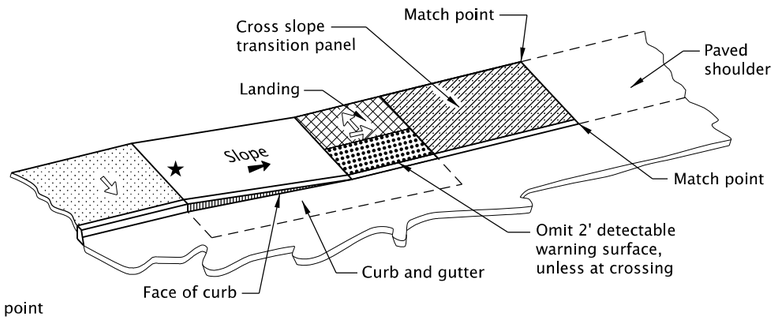


SECTION B-B

★ See general note 12



PLAN
(Curb ramp > 5.0% shown)



ISOMETRIC VIEW

SHOULDER OPTION "EW-2"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD722 for transition panel details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project special design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' at curb ramp that is adjacent to traffic.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. When a shared use path terminates, the curb ramp shall be the full width of the path, the turning space Y-dimension should be minimum 8' wide to enable bicycles to ride from ramp to shoulder.
9. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
10. On or along state highways, curb and gutter is required at curb ramps.
11. All end of sidewalk options can be used for curved or tangent roadway sections. Superelated roadways require site specific details.
12. When the slope of the ramp run is greater than 5.0%, a min. landing space of 4.5' x 4.5' with a 1.5% max. slope (2.0% finished surface) is required at the bottom of the curb ramp. See section A-A & section B-B.

LEGEND:

- Sidewalk
- Transition panel
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- ⇦ Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- ⬅ Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- W New construction sidewalk width.
  See contract plans for dimension.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

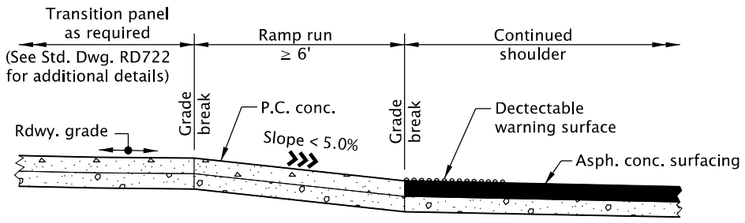
END OF WALK CURB RAMP

2024

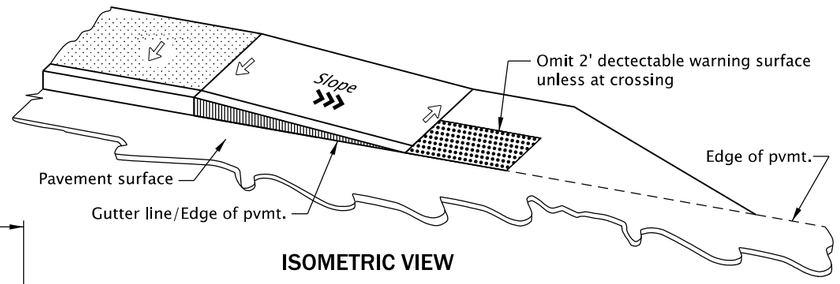
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED

CALC. BOOK NO. N/A | SDR DATE 20-JUL-2020 | **RD950**

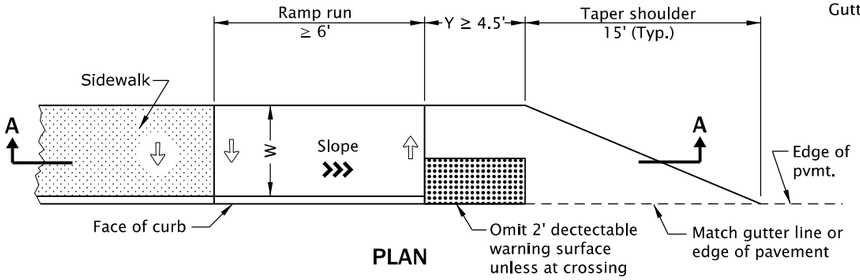
Effective Date: June 1, 2024 - November 30, 2024



SECTION A-A

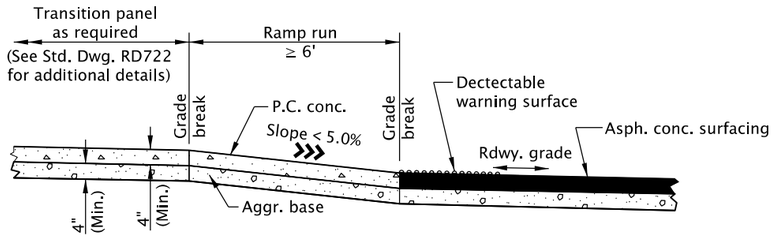


ISOMETRIC VIEW

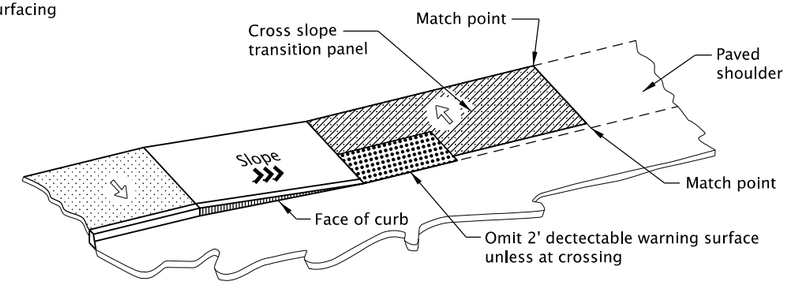


PLAN

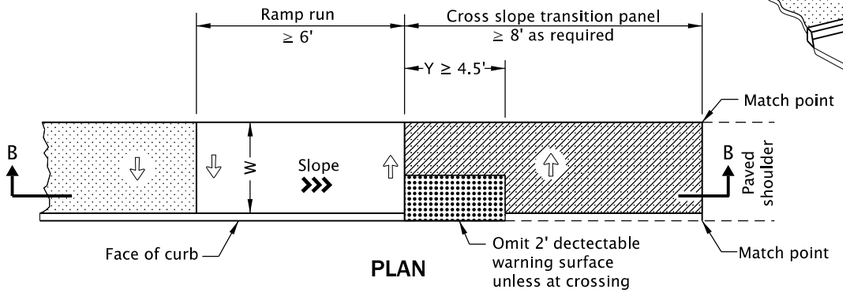
BLENDED TRANSITION TAPER OPTION "EW-3"



SECTION B-B



ISOMETRIC VIEW



PLAN

BLENDED TRANSITION SHOULDER OPTION "EW-4"

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD722 for transition panel details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
3. Site conditions normally require a project special design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' at curb ramp that is adjacent to traffic. When there is no curb, the detectable warning surface shall be placed at the edge of roadway.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. When a shared use path terminates, the curb ramp shall be the full width of the path, the turning space Y-dimension should be minimum 8' wide to enable bicycles to ride from ramp to shoulder.
9. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
10. All end of sidewalk options can be used for curved or tangent roadway sections. Superelated roadways require site specific details.

LEGEND:

- Sidewalk
- Transition panel
- Detectable warning surface
- ⇦ Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)
- ⋘ Running slope 4.0% max. (Max. 4.9% finished surface slope)
- W New construction sidewalk width. See contract plans for dimension.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

END OF WALK CURB RAMP

2024

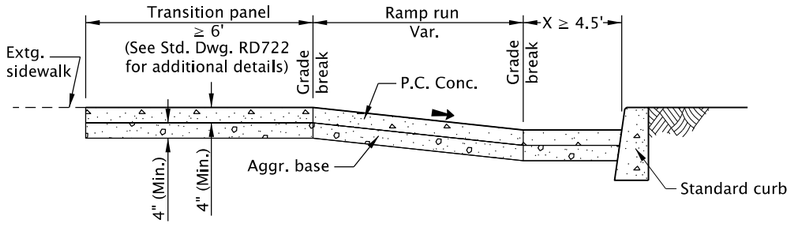
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED NOTES

CALC. BOOK NO. N/A | SDR DATE ~~19-JUL-2021~~ | **RD952**

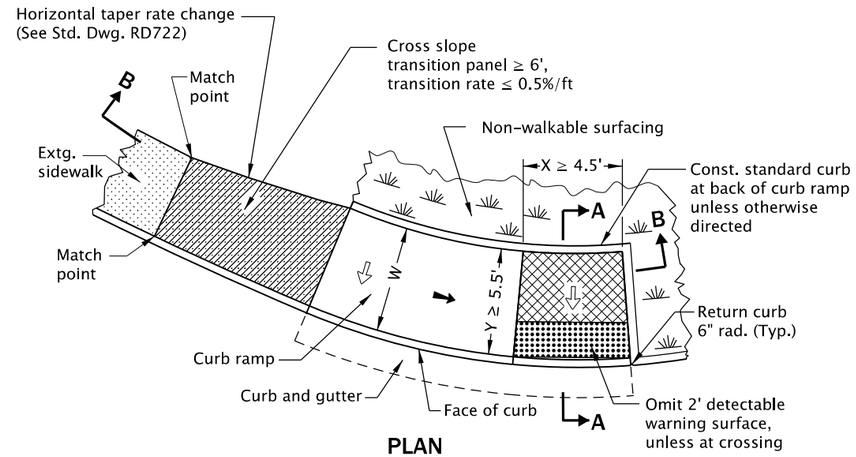
Effective Date: June 1, 2024 - November 30, 2024

19-JUL-2021

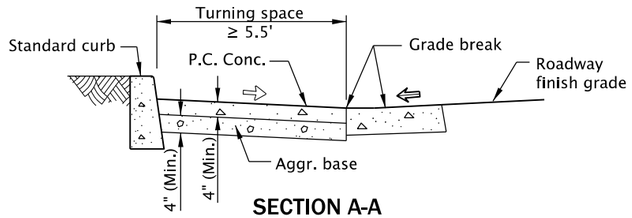
RD952.dgn



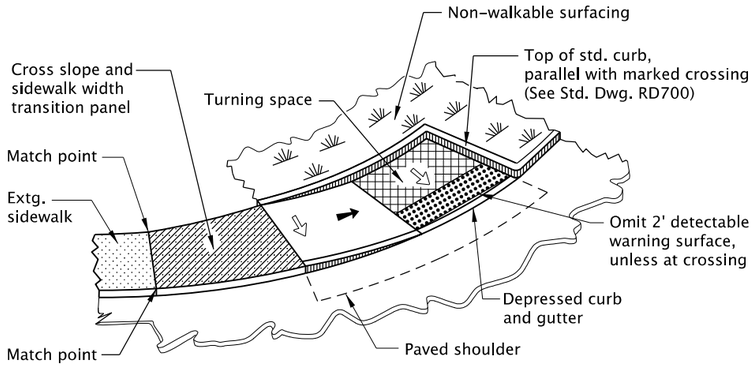
SECTION B-B



PLAN



SECTION A-A



ISOMETRIC VIEW

CURBED OPTION

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb ramp details are based on applicable ODOT applicable Standards.
2. See project plans for details not shown.
   See Std. Dwgs. RD700 & RD701 for curbs.
   See Std. Dwgs. RD720 & RD721 for sidewalks.
   See Std. Dwg. RD722 for transition panel details.
   See Std. Dwgs. RD902 through RD908 for detectable warning surface installation details.
   See Std. Dwg. RD920 for parallel curb ramp details.
3. Site conditions normally require a project special design. See project plans for details not shown.
4. Tooled dummy joints are required at all curb ramp grade break lines, (see Std. Dwg. RD722).
5. Curb ramp slopes shown are relative to the true level horizon (zero bubble).
6. Place detectable warning surface at the back of curb for a minimum depth of 2' in the direction of pedestrian travel full width of curb ramp opening that is adjacent to traffic.
7. Place an inlet at upstream side of curb ramp or perform other approved design mitigation. Check the gutter flow depth at curb ramp locations to assure that the design flood does not overtop the back of sidewalk.
8. When a shared use path terminates, the curb ramp shall be the full width of the path, the turning space Y-dimension should be minimum 8' wide to enable bicycles to ride from ramp to shoulder.
9. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush.
10. On or along state highways, curb and gutter is required at curb ramps.
11. Unique curb ramp option can be used for curved or tangent roadway sections. Superelevated roadways require a site specific detail.

LEGEND:

- Sidewalk
- Transition panel
- Detectable warning surface
- Level area (Turning space/landing)
  Unobstructed 4.5' x 4.5'
  With obstruction 4.5' x 5.5' (Longer dimension in direction of pedestrian street crossing).
  For the purposes of this application, a max. 2.0% finished surface slope (for drainage) measured perpendicular in two directions is considered level.
- ⇦ Cross slope 1.5% max.
  (Max. 2.0% finished surface slope)
  (Normal sidewalk cross slope)
- ⬅ Running slope 7.5% max.
  (Max. 8.3% finished surface slope)
- ⇦ Counter slope 4.0% max. ascending or descending,
  (Max. 5.0% finished surface slope)
  Slope as required for drainage
- W New construction sidewalk width. See contract plans for dimension

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

UNIQUE CURB RAMP

2024

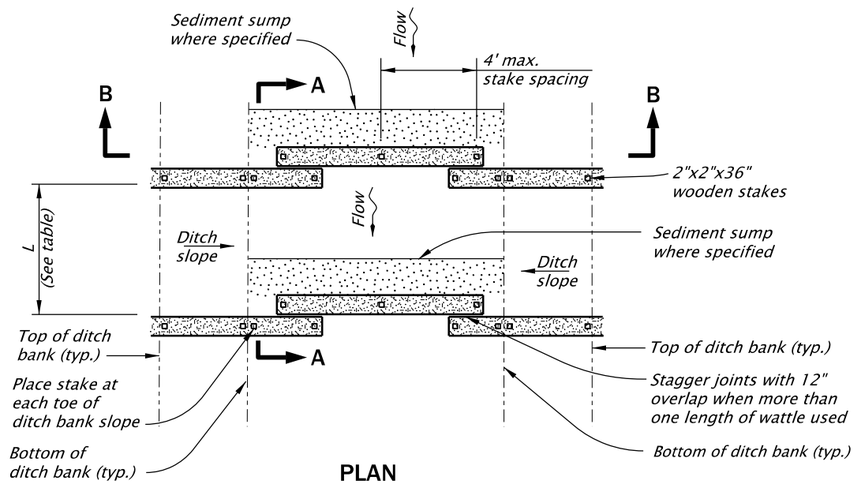
DATE	REVISION DESCRIPTION
07-2020	NEW DRAWING CREATED
07-2021	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A | SDR DATE 19-JUL-2021 | **RD960**

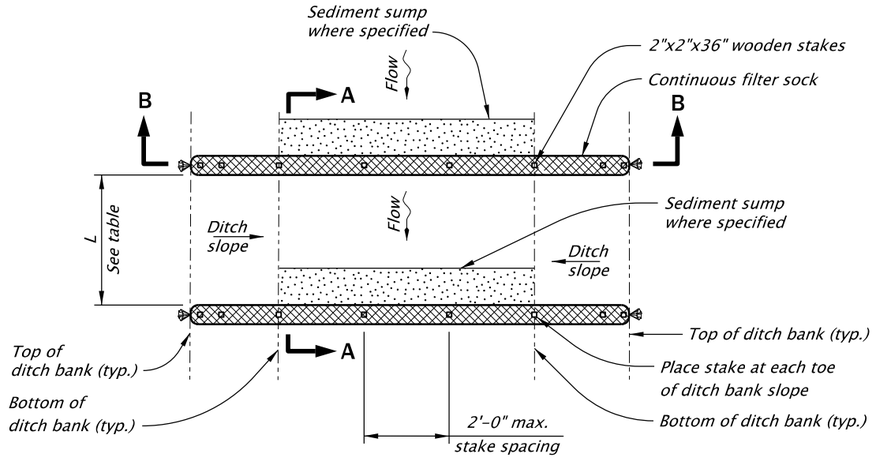
19-JUL-2021

RD960.dgn

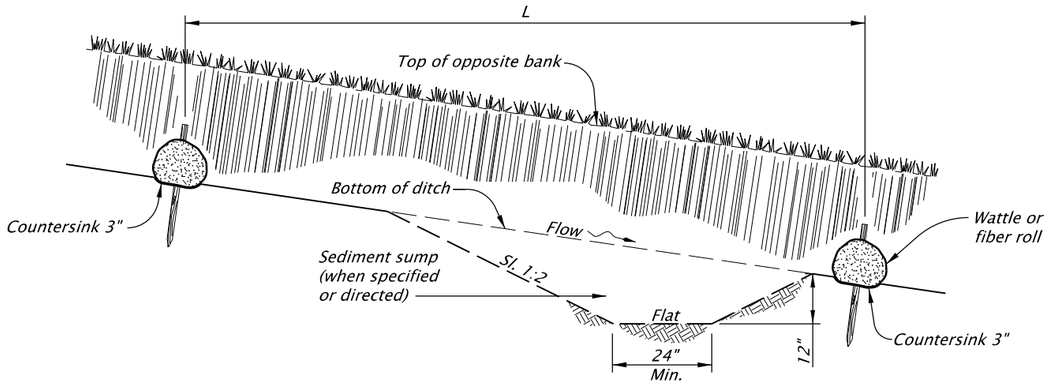
Effective Date: June 1, 2024 - November 30, 2024



PLAN



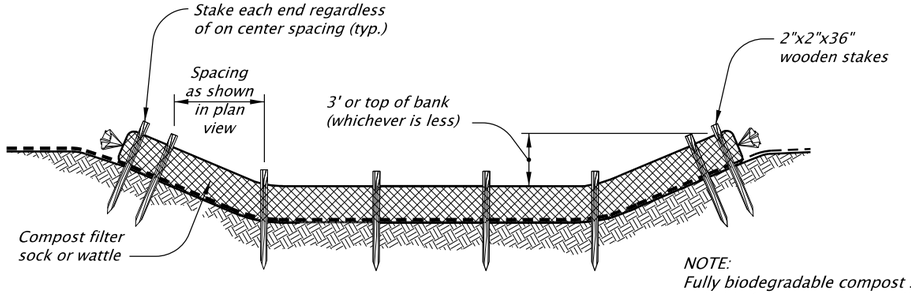
PLAN



SECTION A-A

WATTLE / FIBER ROLL CHECK DAM - TYPE 2

NOT TO SCALE

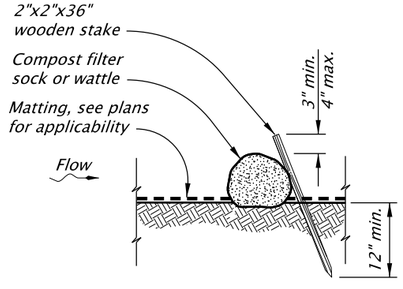


SECTION B-B

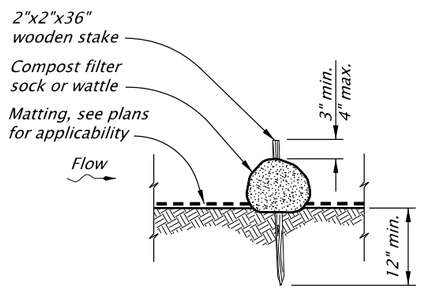
NOTE:
Fully biodegradable compost socks are suitable for permanent installation only. Product becomes too fragile to be moved or removed intact.

COMPOST FILTER SOCK CHECK DAM - TYPE 6

NOT TO SCALE



ALTERNATIVE 1



ALTERNATIVE 2

FIBER ROLL AND COMPOST SOCK STAKING ALTERNATIVES

NOT TO SCALE

MAXIMUM CHECK DAM SPACING "L"

Ditch Grade	H=8"	H=12"	H=18"	H=24"
10%	* *	* *	15'	20'
9%	* *	* *	16'	22'
8%	* *	* *	18'	25'
7%	* *	* *	21'	28'
6%	* *	16'	25'	33'
5%	* *	20'	30'	40'
4%	16'	25'	37'	50'
3%	22'	33'	50'	66'
2%	33'	50'	75'	100'

* * Not allowed H = Min. dam height

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CHECK DAMS TYPE 2 AND 6

2024

DATE	REVISION DESCRIPTION
01-2021	REMOVED CALC BOOK NUMBERS

CALC. BOOK NO. N/A

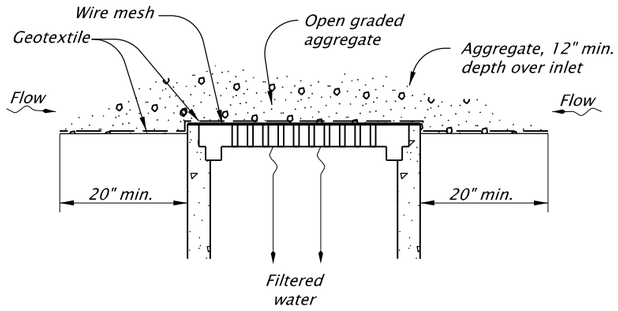
SDR DATE 20-JAN-2021

RD1006

Effective Date: June 1, 2024 - November 30, 2024

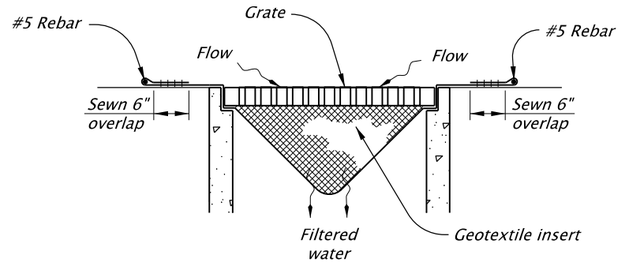
20-JAN-2021

RD1006.dgn



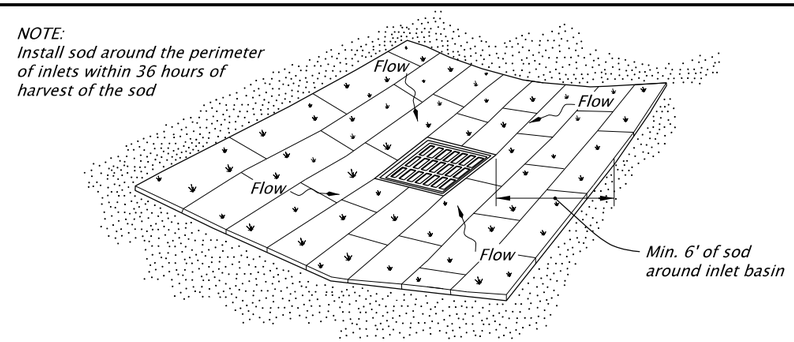
GEOTEXTILE/WIRE MESH/AGGREGATE - TYPE 2

NOT TO SCALE



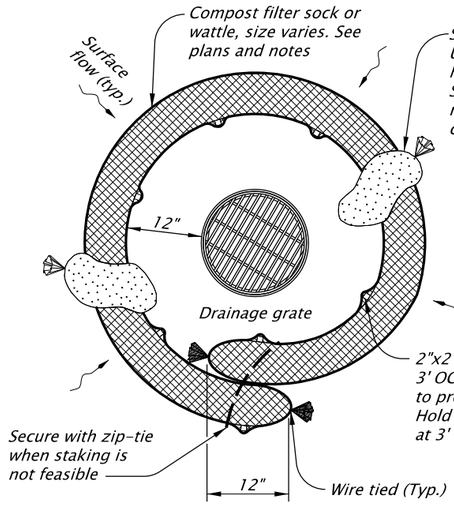
PREFABRICATED FILTER INSERT - TYPE 3

NOT TO SCALE

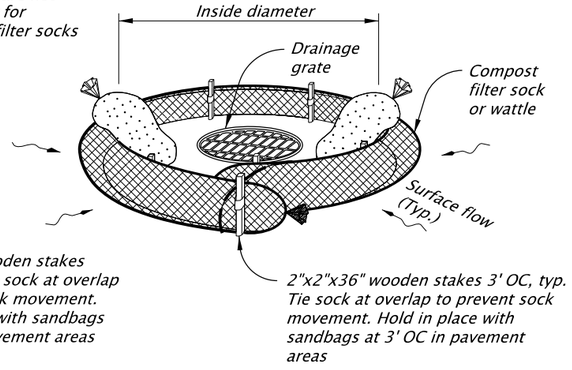


SOD PROTECTION - TYPE 6

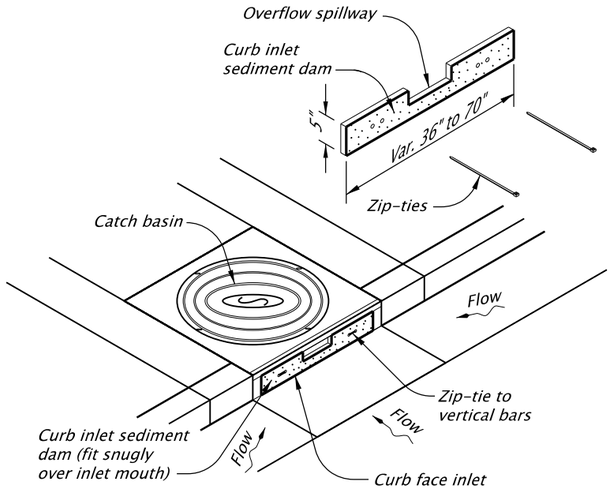
NOT TO SCALE



AREA DRAIN PLAN

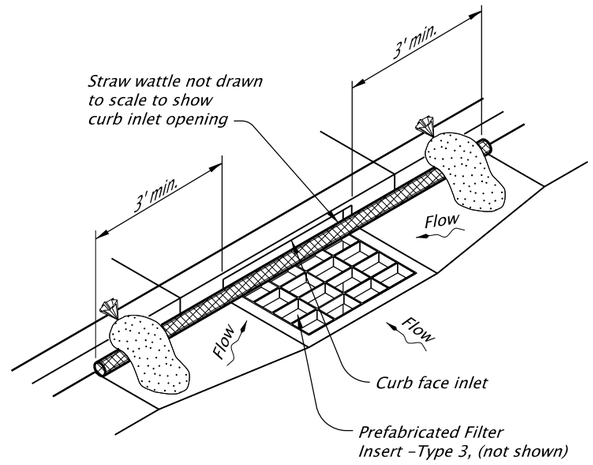


AREA DRAIN PERSPECTIVE VIEW



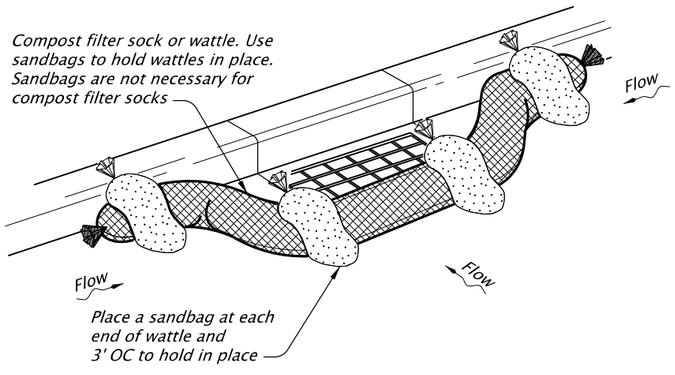
CURB INLET SEDIMENT DAM - TYPE 10

NOT TO SCALE



WATTLE BARRIER WITH FILTER INSERT - TYPE 11

NOT TO SCALE



CURB INLET PERSPECTIVE VIEW

COMPOST FILTER SOCK OR WATTLE - TYPE 7

NOT TO SCALE

NOTES:
Type 2 - Geotextile/wire mesh/aggregate
Place the wire mesh over the grate.
Place sediment fence geotextile over the wire mesh and perimeter area around structure.
Install aggregate over the geotextile fabric.

Type 3 - Prefabricated filter inserts
Install prefabricated filter inserts according to the plans, special provisions, and manufacturer recommendations.
Prefabricated inserts with provisions for overflow are allowed only when accompanied by additional BMP's to prevent the potential of sediments entering project storm systems.
Field fabricated inserts are not allowed.

Type 7 - Compost filter sock
Drive 2"x2" wood stakes a minimum of 6" into ground and flush with the top of the sock.
Overlap ends of sock per manufacturers recommendations (12"min., 36" max.).
Use 8" to 12" dia sock on curbside in traffic areas.

(Type 7 cont.)
Use 12" to 18" dia sock in non-traffic areas or areas where the larger socks can be used safely.
use synthetic mesh socks for temporary installations.

Type 10 - Curb inlet sediment dam
Fit curb inlet sediment dam snugly into inlet mouth. Curb inlet sediment dam is required for use with inlet filter insert where at-grade inlet grate and curb inlet are combined at a catch basin.

Type 11 - Wattle barrier with filter insert
Install prefabricated filter insert per Type 3 detail.
Install wattles over opening and 36" to each side of opening tight against curb. Adjust wattle to force storm water to flow through filter insert or wattle prior to leaving the site.
Adjust, replace or modify the inlet protection as needed to prevent sediment laden water from entering the catch basin.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

INLET PROTECTION TYPE 2, 3, 6, 7, 10 AND 11

2024

DATE	REVISION DESCRIPTION
01-2021	REMOVED CALC BOOK NUMBERS
01-2021	MOVED NOTES UP FROM OVERLAPPING THE SHEET BORDER

CALC. BOOK NO. N/A | SDR DATE 20-JAN-2021 | **RD1010**

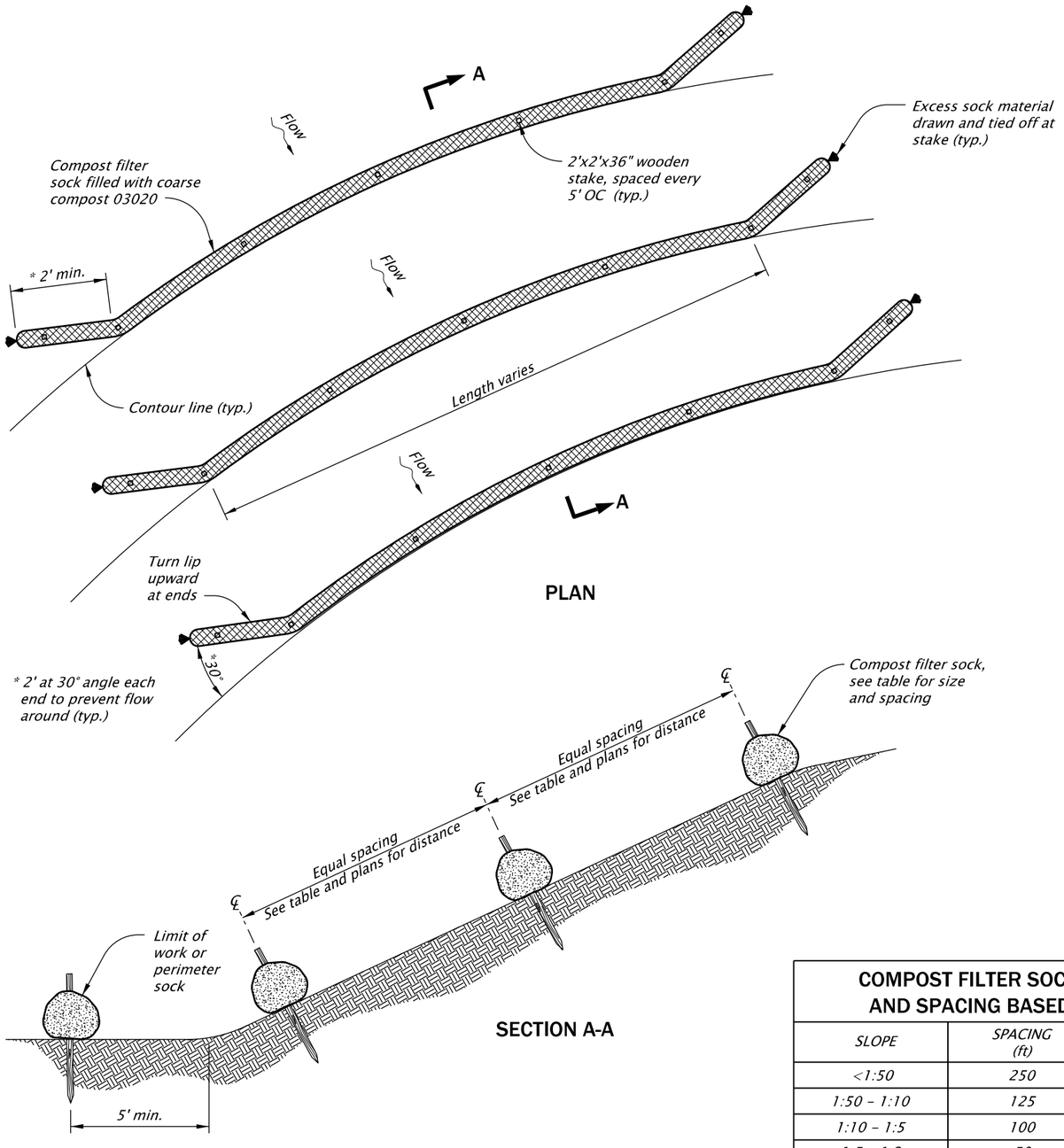
Effective Date: June 1, 2024 - November 30, 2024

20-JAN-2021

RD1010.dgn

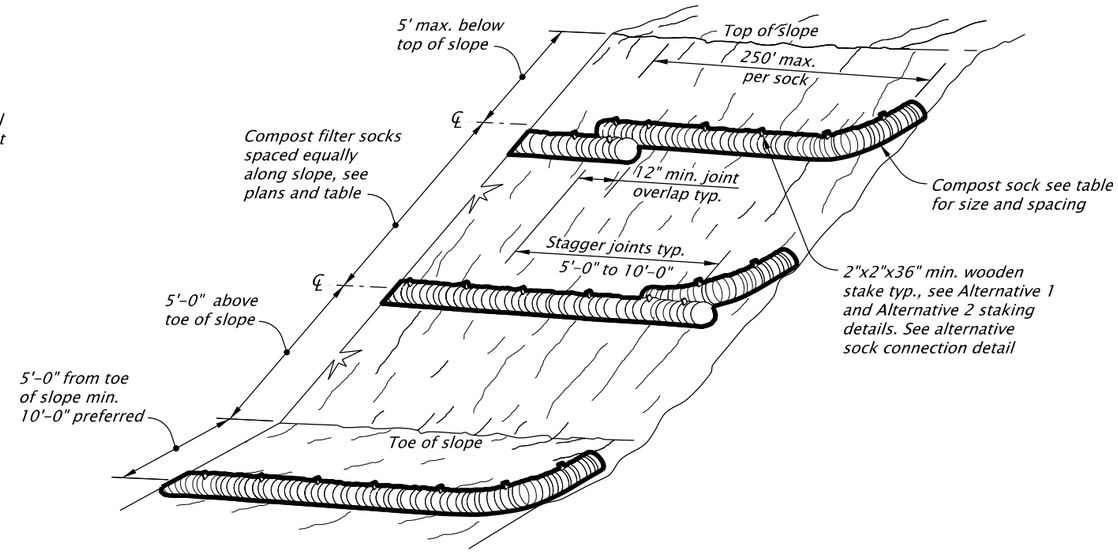
20-JAN-2021

RD1032.dgn

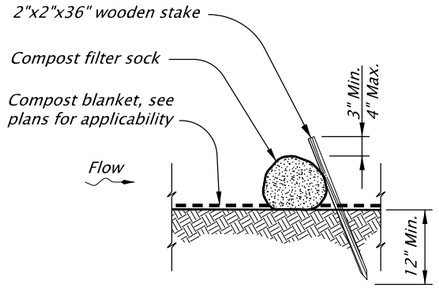


PLAN

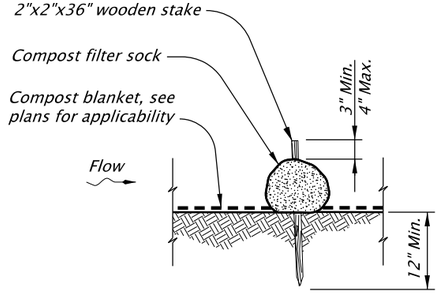
SECTION A-A



SLOPE APPLICATION - PERSPECTIVE VIEW



ALTERNATIVE 1 (Staking)



ALTERNATIVE 2 (Staking)

COMPOST FILTER SOCK DIAMETER AND SPACING BASED ON SLOPE		
SLOPE	*SPACING (ft)*	*DIAMETER (in)*
<1:50	*250*	*8*
1:50 - 1:10	*125*	*12*
1:10 - 1:5	*100*	*12*
1:5 - 1:2	*50*	*18*
>1:2	*25*	*18*

NOTE:
Fully biodegradable compost sock mesh is recommended for permanent installations. Where compost socks must be moved or removed, synthetic sock mesh should be used.

COMPOST FILTER SOCK

NOT TO SCALE

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

SEDIMENT BARRIER TYPE 8

2024

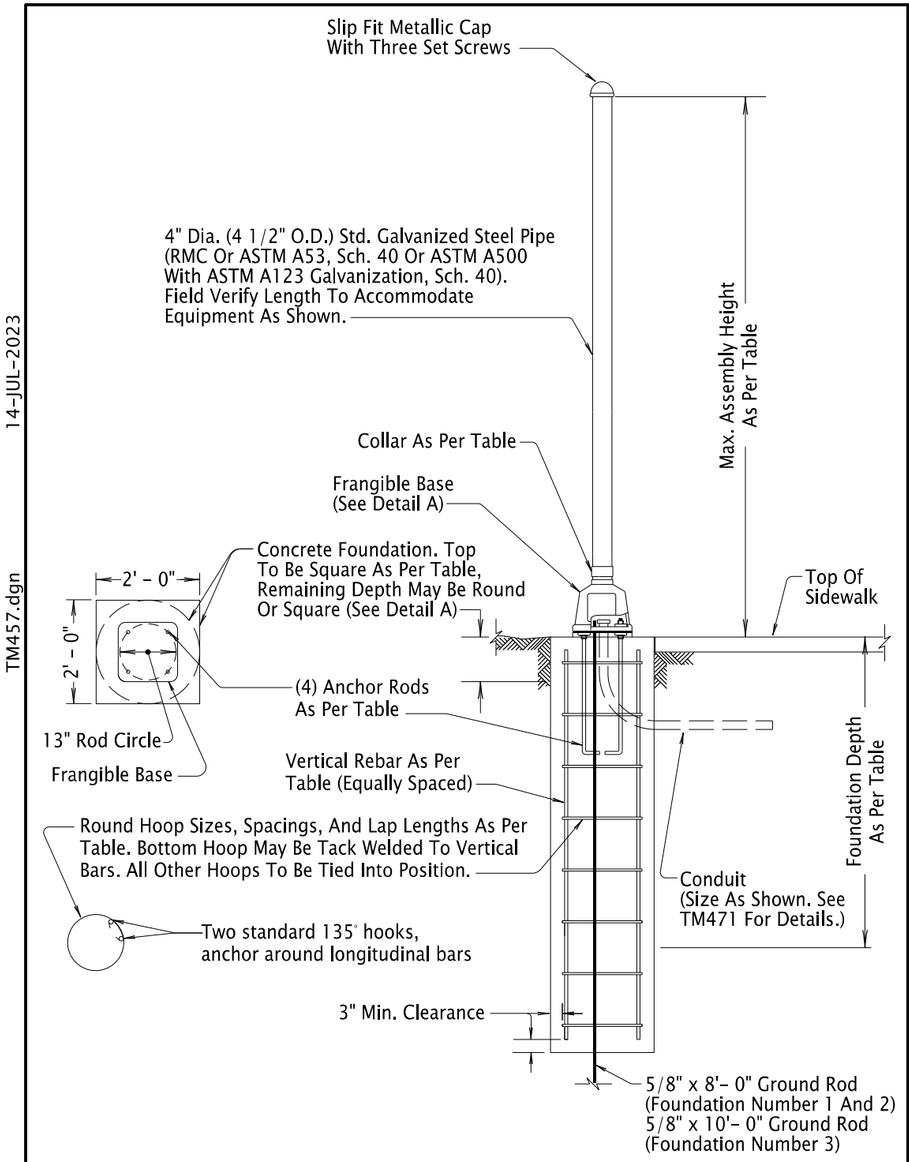
DATE	REVISION DESCRIPTION
01-2021	REMOVED CALC BOOK NUMBERS

CALC. BOOK NO. N/A | SDR DATE 20-JAN-2021 | RD1032

Effective Date: June 1, 2024 - November 30, 2024

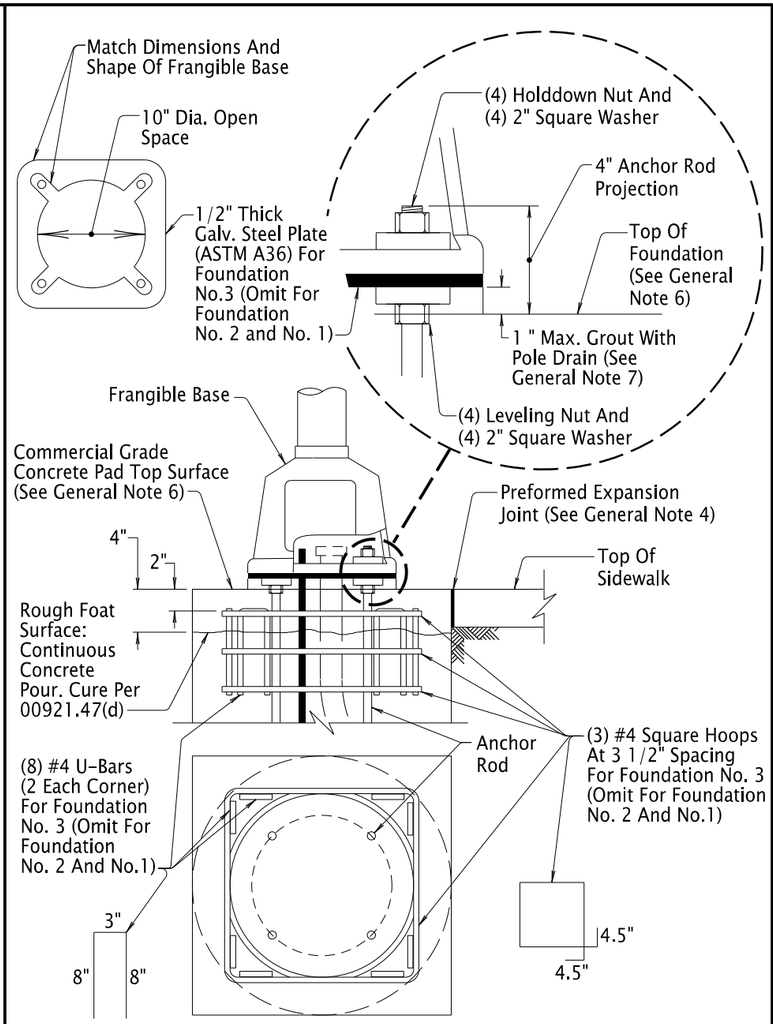
14-JUL-2023

TM457.dgn



Pedestal Foundation Number	Max. Assembly Height	Foundation Depth	Depth of Square Foundation	Anchor Rods (ASTM F 1554 Grade 36)	Reinforcing Steel			Collar
					Vertical Rebar	Hoop Size & Spacing	Hoop Lap Length	
1	6' - 0"	2' - 0"	4"	3/4" x 18" x 4" (6" Thread)	N/A	N/A	N/A	N/A
2	10' - 0"	3' - 0"	4"					
3	20' - 6"	8' - 0"	12"	1" x 36" x 4" (6" Thread)	8-#6	#4-12"	6" with 2 hooks	Req'd

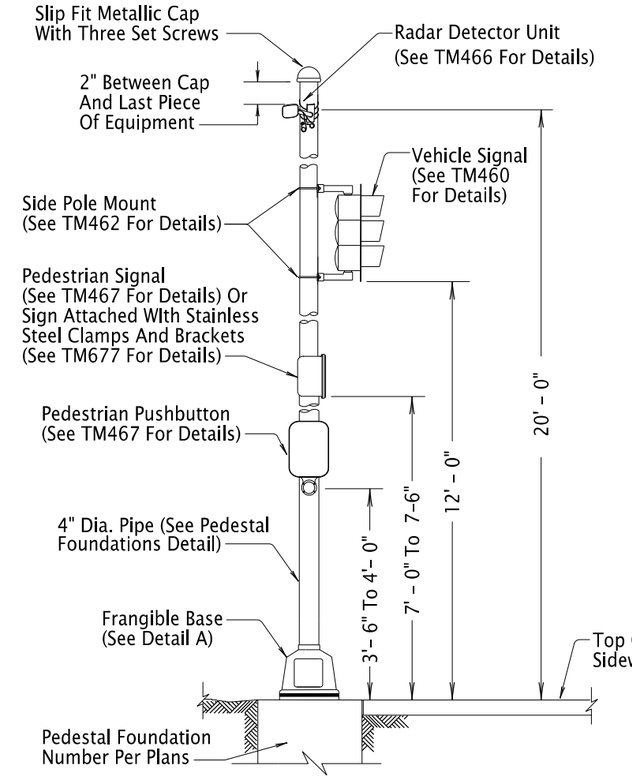
PEDESTAL FOUNDATIONS



DETAIL A - FRANGIBLE BASE

General Notes:

1. All Bolts, Nuts And Washers To Conform To 02560.20 And Be Galvanized Steel According To 02560.40 Unless Noted Otherwise.
2. All Anchor Rods To Be Galvanized Steel Conforming To 02560.30.
3. All Pole Entrances Containing Wiring To Be Smooth.
4. Install 1/4" Thick Preformed Expansion Joint Filler Around Footing In Sidewalk Areas.
5. The Entire Foundation To Be Located On A Single Plane With Less Than 2% Slope. The Flat Edge(s) Of The Foundation May Be Adjacent To The Turn Space, Back Of Walk, Or A Curb Ramp Grade Break Line.
6. Install Commercial Grade Concrete Pad Above Rough Float Surface With Top Surface Matching Sidewalk Grade And Less Than 1/4 " Vertical Exposure From Adjacent Grade. Clean Rough Float Surface Prior To Placing Fresh Concrete By Removing All Scum, Laitance, Loose Gravel, And Sediment. Pour During Sidewalk Installation After Installing Pipe And Appurtenances.
7. Non-Shrink High Early Strength Grout (Non-Ferrous) with 3/4" Diameter Pole Drain And A Minimum Strength of 5000 psi. Do Not Use Footing Concrete.



Notes:

1. Equipment Shown In the Assembly Detail Is An Example Of The Equipment That May Be Mounted. Install Equipment As Shown.
2. See TM492 For Ramp Meter Pedestal Mounting Details.
3. See TM493 For RRFB Pedestal Mounting Details.

TRAFFIC SIGNAL PEDESTAL ASSEMBLY

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PEDESTAL FOUNDATION AND TRAFFIC SIGNAL ASSEMBLY

2024

DATE	REVISION DESCRIPTION
01-2021	UPDATED ALL ANCHOR ROD DETAILS, CORRECTED STD. DWG. REFERENCE
07-2022	COMPLETE REDESIGN OF FOUNDATION AND INSTALLATION PROCEDURE
07-2023	NOTE 5 - CHANGED TO 2% SLOPE. ADDED RMC AS PIPE OPTION. MINOR TEXT CHANGES FOR CLARITY.

CALC BOOK NO. N/A | SDR DATE 14-JUL-2023 | **TM457**

Effective Date: June 1, 2024 - November 30, 2024

07-01-2020

TM500.dgn

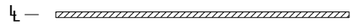
W

4" WHITE LINE

W-2

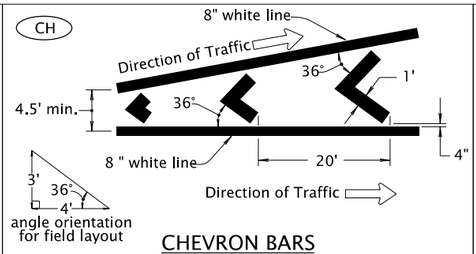
8" WHITE LINE

Y



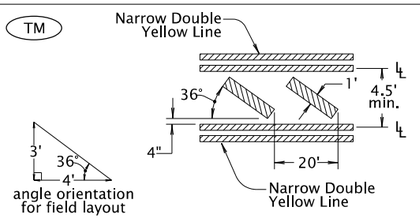
4" YELLOW LINE

CH



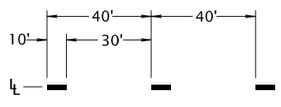
CHEVRON BARS
1' WHITE BARS AT 20' SPACING

TM



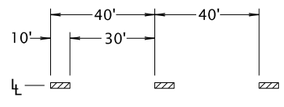
TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 20' SPACING

WB



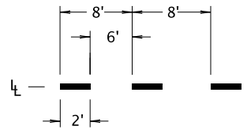
4" WHITE BROKEN LINE

YB



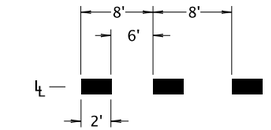
4" YELLOW BROKEN LINE

WD



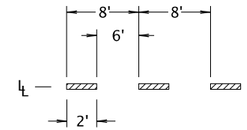
4" WHITE DOTTED LINE
For lane extensions

WD-2



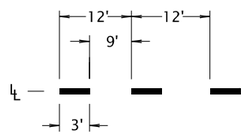
8" WHITE DOTTED LINE
For lane extensions and bike lane extensions

YD



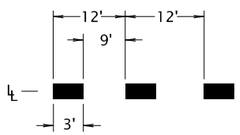
4" YELLOW DOTTED LINE
For lane extensions

DLL



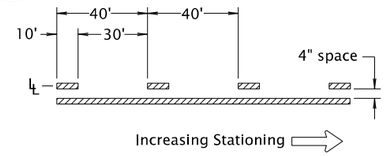
4" WHITE DOTTED LANE LINE
For lane lines in acceleration/deceleration lanes

DLL-2



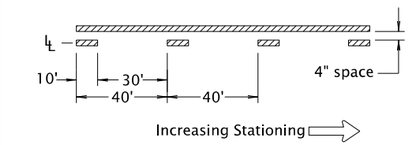
8" WHITE DOTTED LANE LINE
For lane lines in drop lanes

NPR



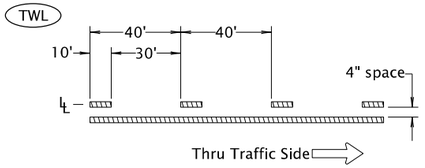
NO-PASS RIGHT
4" YELLOW LINES

NPL



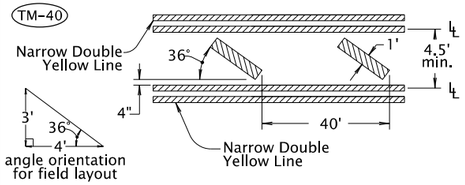
NO-PASS LEFT
4" YELLOW LINES

TWL



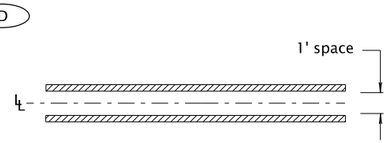
TWO-WAY LEFT TURN
4" YELLOW LINES

TM-40



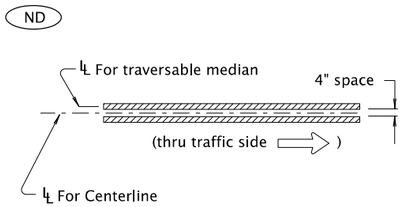
TRANSVERSE MEDIAN BARS
1' YELLOW BARS AT 40' SPACING
For use at painted medians where
distance between left turn refuges exceeds 200'

D



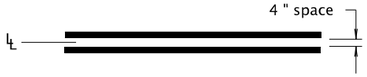
DOUBLE NO-PASS
TWO 4" YELLOW LINES

ND



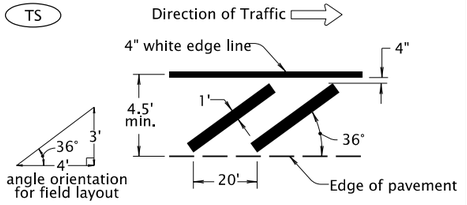
NARROW DOUBLE NO-PASS
TWO 4" YELLOW LINES

NDW



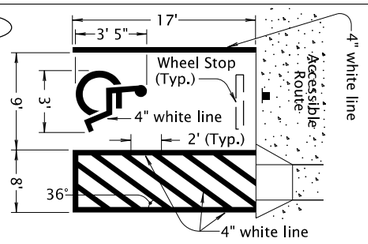
NARROW DOUBLE NO-LANE CHANGE
TWO 4" WHITE LINES

TS



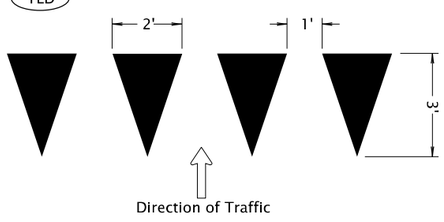
TRANSVERSE SHOULDER BARS
1' WHITE BARS AT 20' SPACING

HC



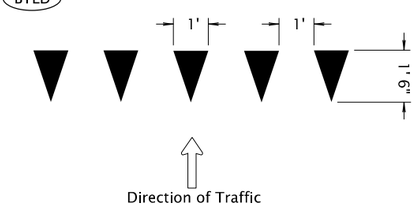
DISABLED PARKING DETAIL (white)

YLD



YIELD LINE (white)

BYLD



BICYCLE YIELD LINE (white)

LEGEND

Direction Of Traffic, Increasing Stationing
Or Thru Traffic Side

℄ — Lane line dimensions are shown on the striping plans

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with
the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2020	Changed Min. widths for CH, TM, TM-40, and TS

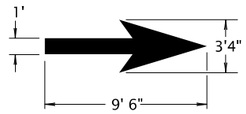
CALC. BOOK NO. N/A | SDR DATE 07-01-2020 | **TM500**

Effective Date: June 1, 2024 - November 30, 2024

01-03-2022

TM501.dgn

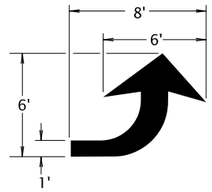
SA



STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

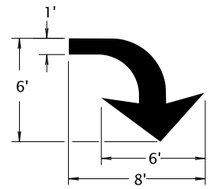
LA



LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

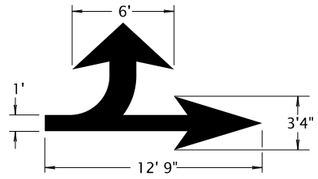
RA



RIGHT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

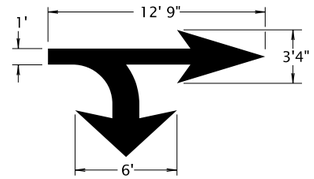
LSA



LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

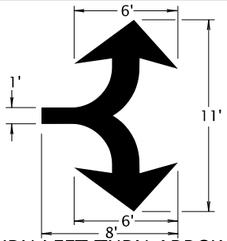
RSA



RIGHT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

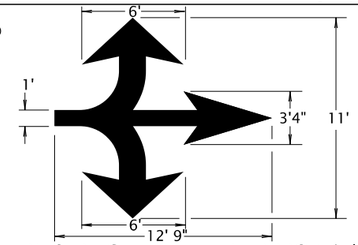
RALA



RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

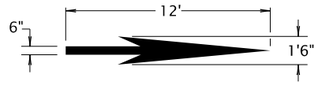
RSLA



RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

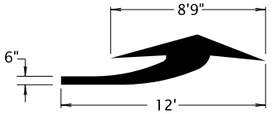
E-SA



ELONGATED STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

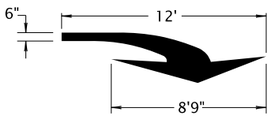
E-LA



ELONGATED LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

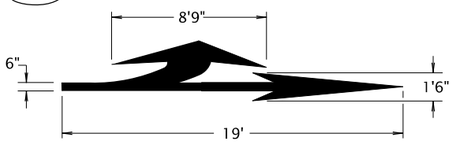
E-RA



ELONGATED RIGHT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

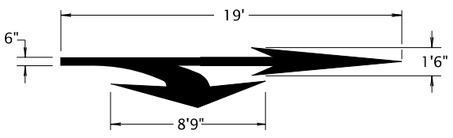
E-LSA



ELONGATED LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

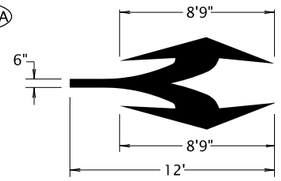
E-RSA



ELONGATED RIGHT TURN STRAIGHT ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

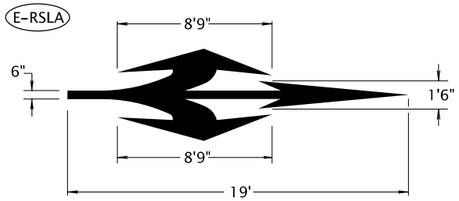
E-RALA



ELONGATED RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

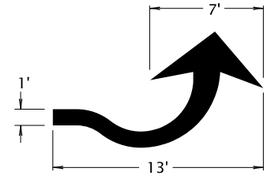
E-RSLA



ELONGATED RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see current version of Standard Highway Signs

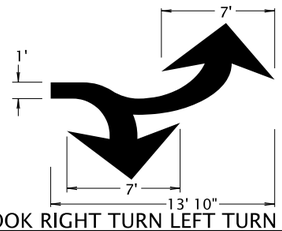
F-LA



FISH-HOOK LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

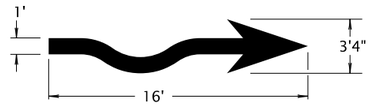
F-RALA



FISH-HOOK RIGHT TURN LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

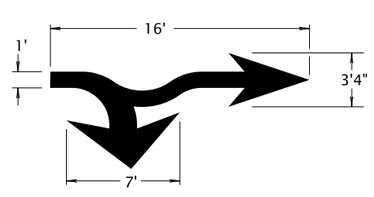
F-SA



FISH-HOOK STRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

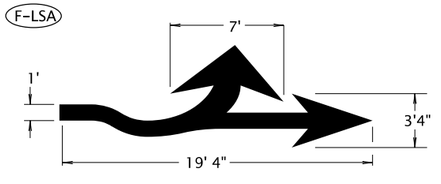
F-RSA



FISH-HOOK RIGHT TURN SRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

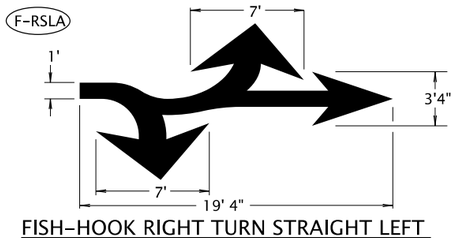
F-LSA



FISH-HOOK LEFT TURN STRAIGHT ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

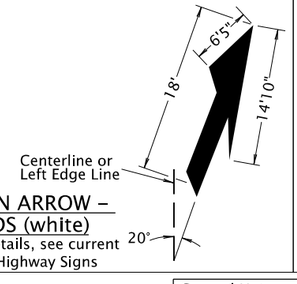
F-RSLA



FISH-HOOK RIGHT TURN STRAIGHT LEFT TURN ARROW (white)

For arrow proportion details, see the current ODOT Traffic Line Manual

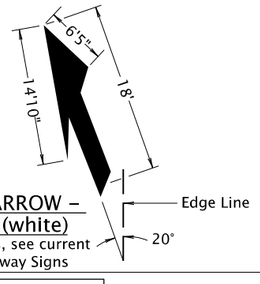
LRA-L



LANE REDUCTION ARROW - LEFT LANE ENDS (white)

For arrow proportion details, see current version of Standard Highway Signs

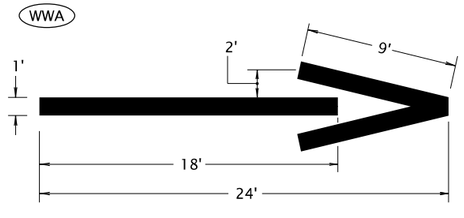
LRA-R



LANE REDUCTION ARROW - RIGHT LANE ENDS (white)

For arrow proportion details, see current version of Standard Highway Signs

WWA



WRONG-WAY ARROW (white)

General Note:

1. Center pavement markings within the lane width.
2. Arrow and letter dimensions nominal, excluding WWA.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2020	Some Detail Blocks moved to new Std. Drawing TM504
	Fish-hook Arrows added, LRA split into LRA-L and LRA-R
01-2022	Corrected bubble callout of LRA-L and typo in LRA-R

CALC. BOOK NO. N/A

SDR DATE 01-03-2022

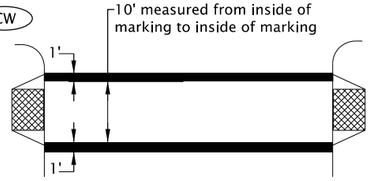
TM501

Effective Date: June 1, 2024 - November 30, 2024

07-08-2022

TM503.dgn

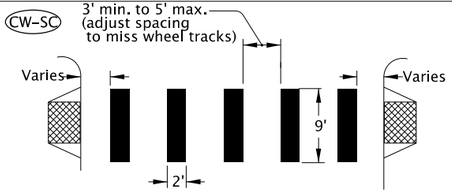
CW



STANDARD CROSSWALK
TWO 1' WHITE BARS

Install per Standard Drawing TM530

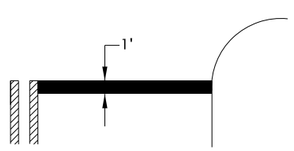
CW-SC



STAGGERED CONTINENTAL CROSSWALK
2' WHITE BARS

Install per Standard Drawing TM530

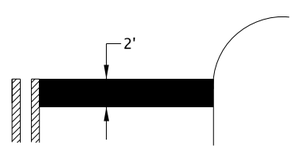
S



STOP BAR
1' WHITE BAR

Install per Standard Drawing TM530

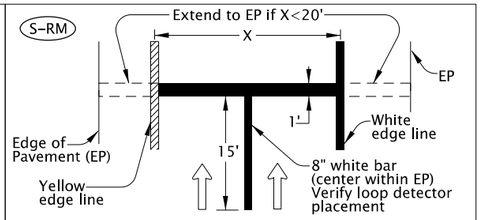
S-2



STOP BAR - LARGE
2' WHITE BAR

Install per Standard Drawing TM530

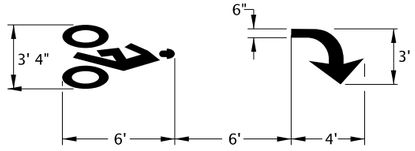
S-RM



RAMP METER STOP BAR
1' & 8" WHITE BARS

For multi-lane ramp meter applications

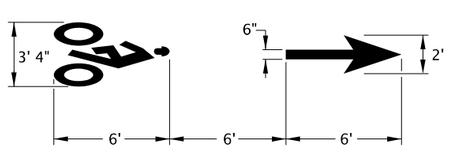
BR



BIKE RIGHT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

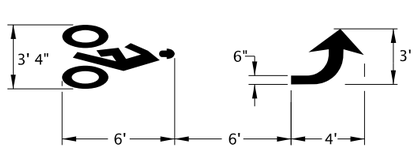
BS



BIKE LANE STANDARD STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

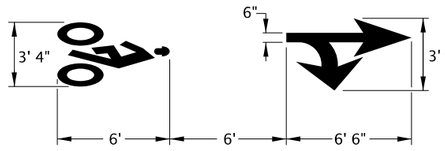
BL



BIKE LEFT TURN STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

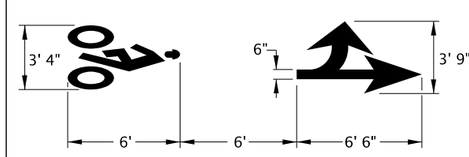
BRS



BIKE RIGHT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

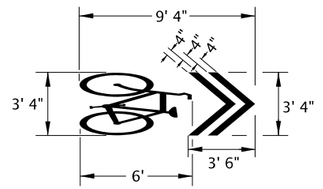
BLS



BIKE LEFT TURN STRAIGHT STENCIL (white)

Center marking within lane width
For proportion details, see current version of Standard Highway Signs

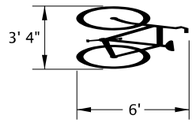
SLM



SHARED LANE MARKING (white)

Center marking within lane width or as shown
For proportion details, see current version of Standard Highway Signs

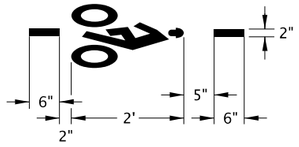
B



BIKE STENCIL (white)

Used for Intersection Bicycle Box applications
Place marking within bicycle box, ceneterd with motor vehicle lane width

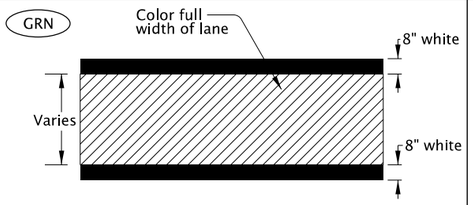
BD



BICYCLE DETECTOR MARKING (white)

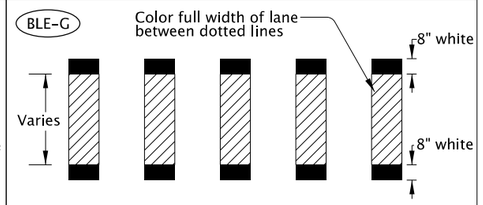
PLace Bicycle Detector Pavement Marking in optimum loction where bicycle acuates the traffic signal

GRN



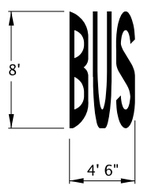
GREEN SUPPLEMENTAL BICYCLE LANE
SOLID LINE (green)

BLE-G



GREEN SUPPLEMENTAL BICYCLE LANE
DOTTED LINE EXTENSION (green)

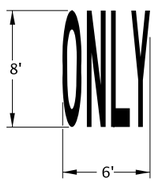
BUS



BUS (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

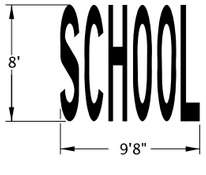
ON



ONLY (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

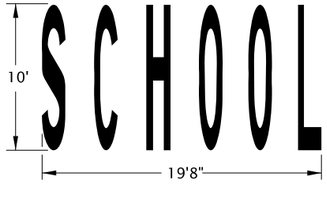
SCH



SCHOOL (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

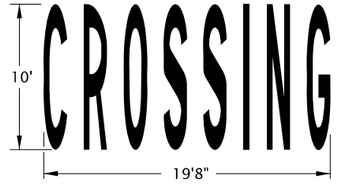
SCH-LG



SCHOOL - LARGE (white)

Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

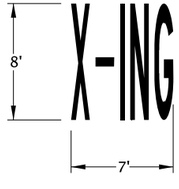
CRS-LG



CROSSING - LARGE (white)

Center marking within width of two lanes
For letter proportion details, see current version of Standard Highway Signs

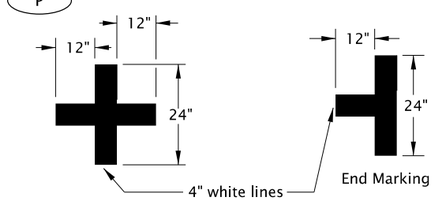
XNG



X-ING (white)

Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

P



ON-STREET PARKING DETAIL (white)

General Note:

1. Arrow, letter, and bike symbol dimensions nominal.

LEGEND

Direction of Trave

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

DATE	REVISION DESCRIPTION
07-2022	Added note for measurement of Standard Crosswalk

CALC. BOOK NO. N/A

SDR DATE 07-08-2022

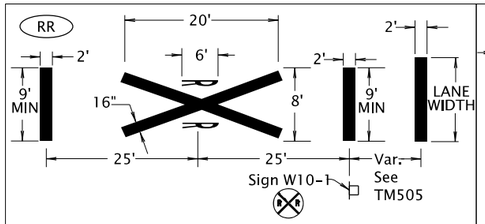
TM503

Effective Date: June 1, 2024 - November 30, 2024

07-01-2020

TM504.dgn

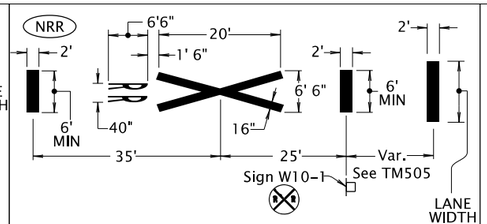
RR



RAILROAD CROSSING (white)

Install per ODOT Rail Crossing Order or as shown.
For letter proportion details, see current version of Standard Highway Signs

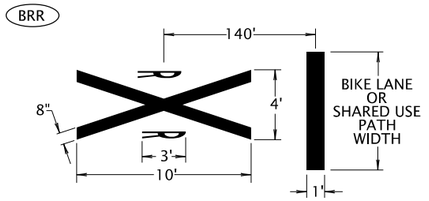
NRR



NARROW RAILROAD CROSSING (white)

Install per ODOT Rail Crossing Order or as shown.
For letter proportion details, see current version of Standard Highway Signs

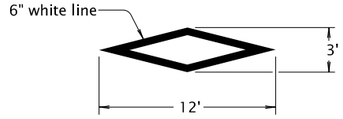
BRR



BICYCLE RAILROAD CROSSING (white)

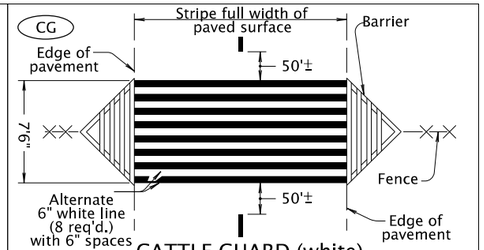
Install per ODOT Rail Crossing Order or as shown.
For letter proportion details, see current version of Standard Highway Signs

HOV



HIGH-OCCUPANCY VEHICLE DIAMOND DETAIL (white)

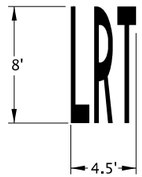
CG



CATTLE GUARD (white)

For barrier and fence details, see Std. Dwg. RD110

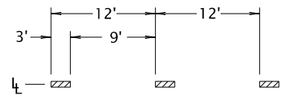
LRT



LIGHT RAIL TRANSIT (white)

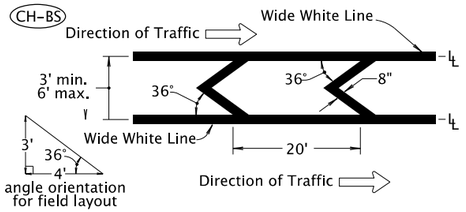
Center marking within lane width
For letter proportion details, see current version of Standard Highway Signs

YB-SP



4" YELLOW SHARED PATH BROKEN LINE

CH-BS



CHEVRON BARS - BUFFER SPACE 8" WHITE BARS AT 20' SPACING

General Note:

1. Center pavement markings within the lane width.
2. Arrow and letter dimensions nominal, excluding WWA.

Direction Of Traffic, Increasing Stationing Or Thru Traffic Side

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2024

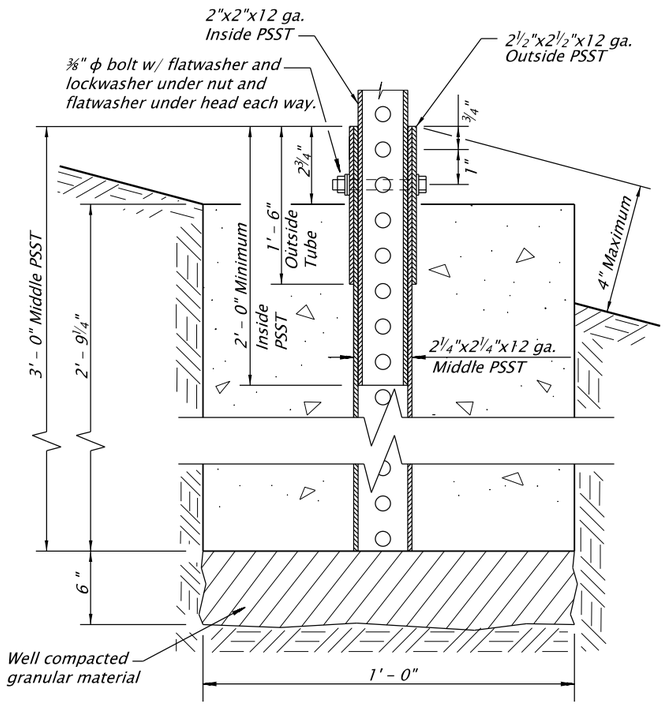
DATE	REVISION DESCRIPTION
07-2020	New Drawing for additional Detail Blocks

CALC. BOOK NO. N/A | SDR DATE 07-01-2020 | **TM504**

Effective Date: June 1, 2024 - November 30, 2024

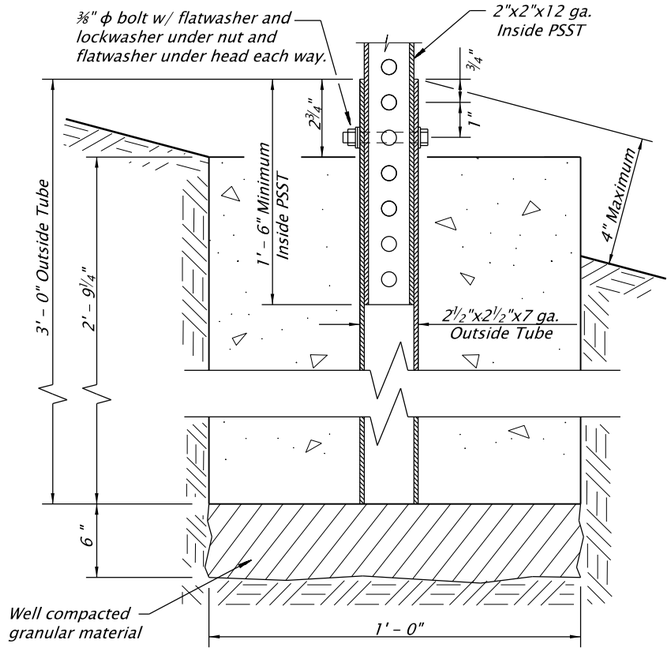
10-JUL-2020

TM687.dgn



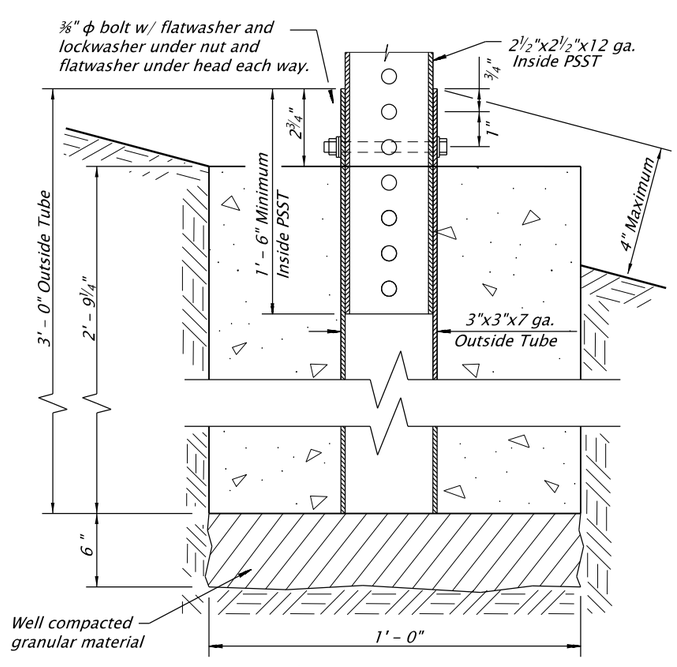
2" ANCHOR DETAIL

No scale



2" OPTIONAL ANCHOR DETAIL

No scale

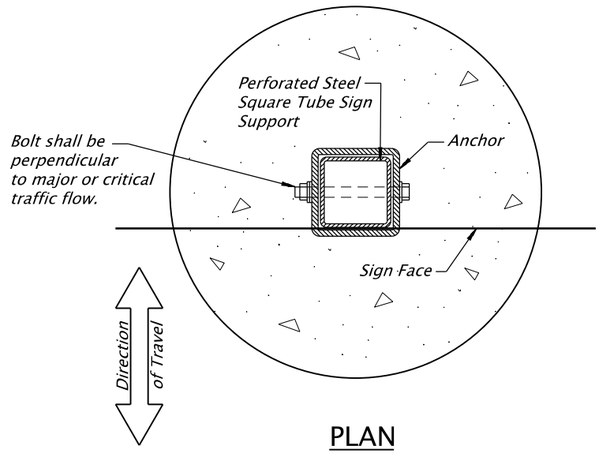


2½" ANCHOR DETAIL

No scale

General Notes:

1. *Material grade for base hardware connection shall be according to the manufacturer's recommendation and based on crash testing.*
2. *Anchor steel shall be hot dipped galvanized or approved equal.*
3. *Footing concrete shall be Commercial Grade Concrete (fc = 3000 psi) per Specification 00440. The CGC mixture may be accepted at the site of placement according to 00440.14.*
4. *The estimated concrete volume is .09 cubic yards.*



PLAN

No scale

Accompanied by dwgs. TM681, TM688

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PERFORATED STEEL SQUARE TUBE (PSST) ANCHOR FOUNDATION

2024

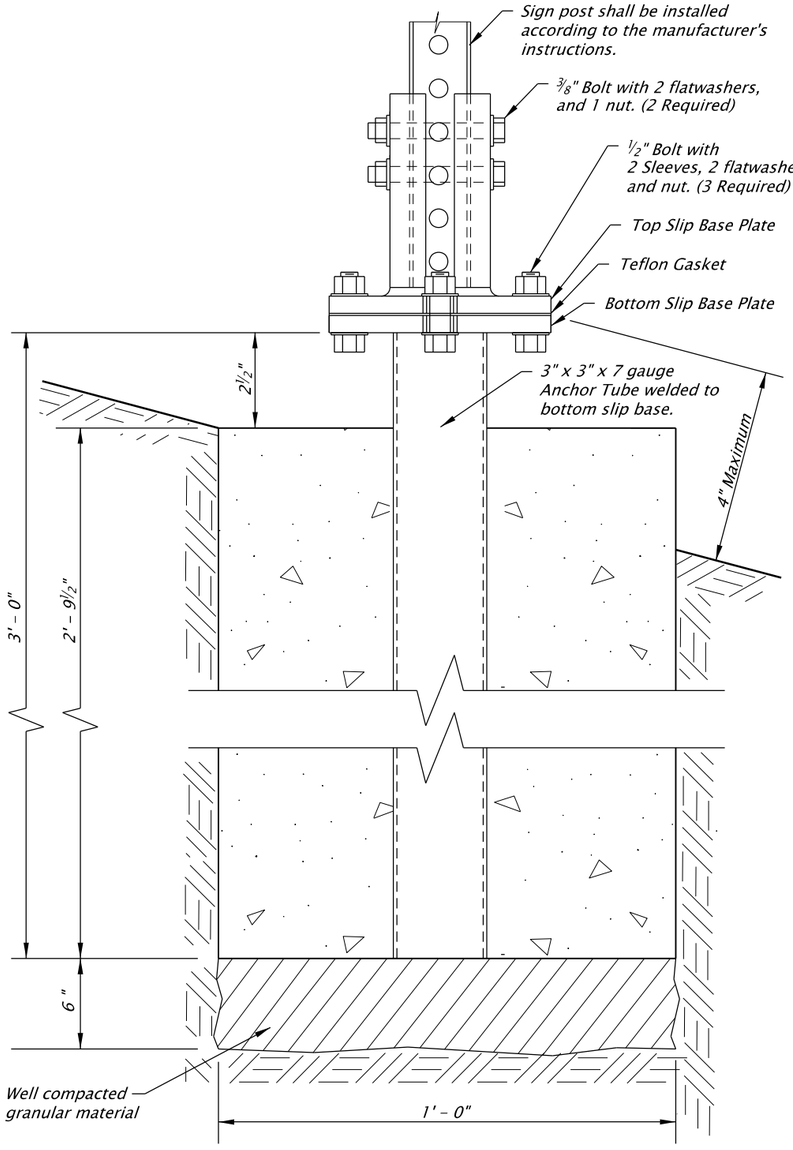
DATE	REVISION DESCRIPTION

CALC. BOOK NO. 5752 | SDR DATE 06-JAN-2012 | **TM687**

Effective Date: June 1, 2024 - November 30, 2024

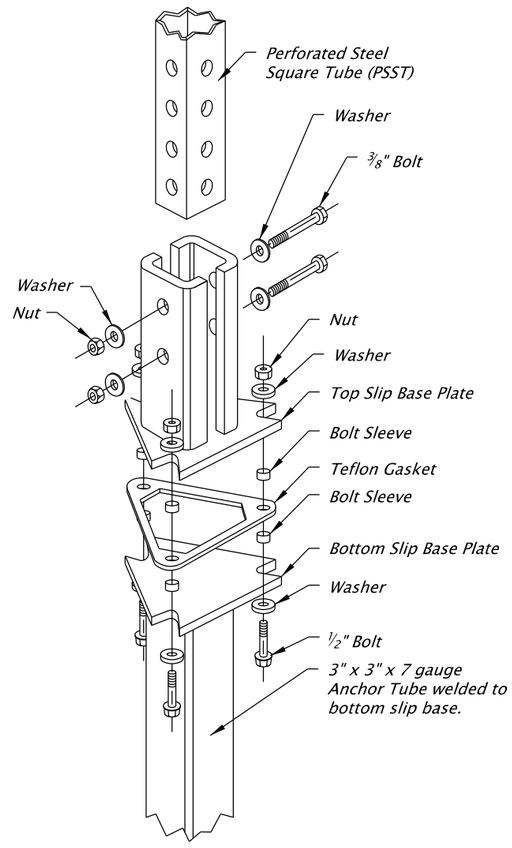
10-JUL-2020

TM688.dgn



SLIP BASE ELEVATION

No scale

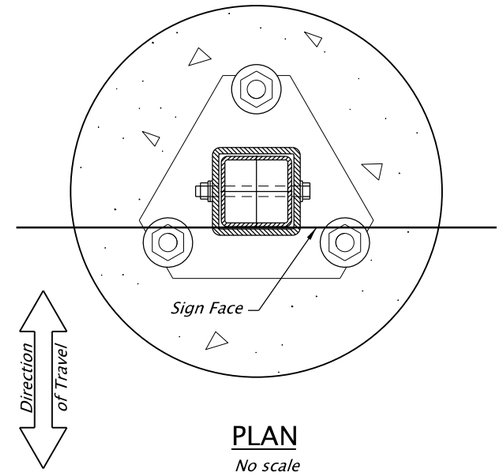


SLIP BASE EXPLODED VIEW

No scale

General Notes:

1. *Material grade for base hardware connection shall be according to the manufacturer's recommendation and based on crash testing.*
2. *Slip base steel shall be hot dipped galvanized or approved equal.*
3. *Footing concrete shall be Commercial Grade Concrete (fc = 3000 psi) per Specification 00440. The CGC mixture may be accepted at the site of placement according to 00440.14.*
4. *Material grade for base hardware connection shall be according to the manufacturer's recommendation and based on crash testing.*
5. *All slip bases shall be pre-assembled by the manufacturer and shall be installed according to the manufacturer's instructions.*
6. *Use slip bases listed on the ODOT Qualified products list or submit crash testing data, installation instructions, and unstamped working drawings according to 00150.35.*
7. *Slip base details shown are not for a specific manufacturer and are only shown to convey general pieces of a slip base system. Specific slip base material will be acccording to the manufacturer's documentation.*



PLAN

No scale

Accompanied by dwgs. TM681, TM687

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PERFORATED STEEL SQUARE TUBE (PSST) SLIP BASE FOUNDATION

2024

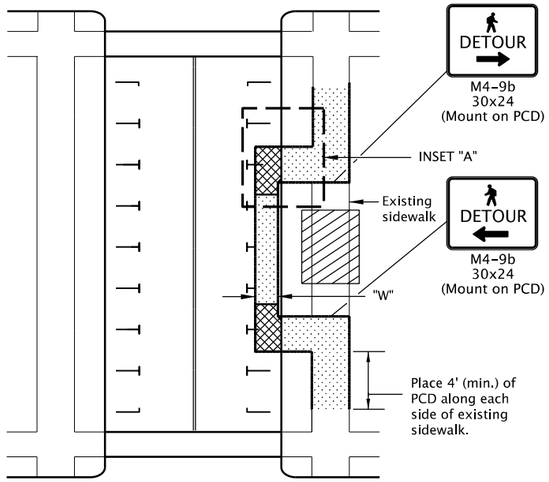
DATE	REVISION DESCRIPTION

CALC. BOOK NO. 5752 | SDR DATE 06-JAN-2012 | **TM688**

Effective Date: June 1, 2024 - November 30, 2024

14-JUL-2023

TM844.dgn



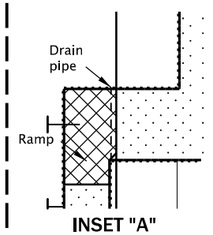
Within Roadway
SIDEWALK DIVERSION

NOTES:

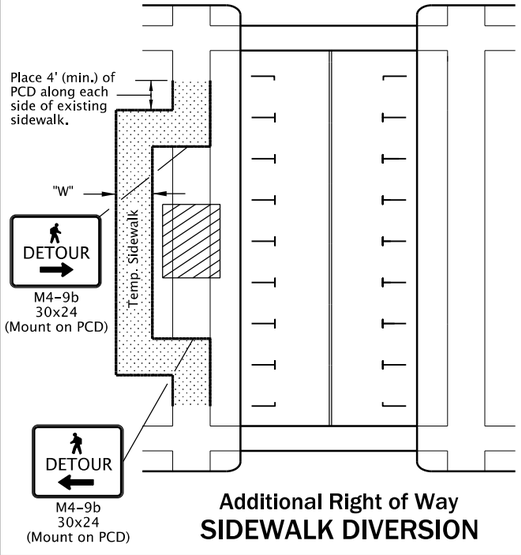
- Place or construct temp. sidewalk ramp, as needed.
- For roadways with a pre-construction posted speed of 40 mph or less.
- See inset "A" for Temp. Sidewalk Ramp details.
- "W" = 60", or, where 60" width cannot be maintained through the entire route, provide 48" min. width with 60" x 60" passing spaces every 200 ft.
- Use temporary ADA compliant surfaces to cross planter strips or other non-traversable surfaces.

NOTES:

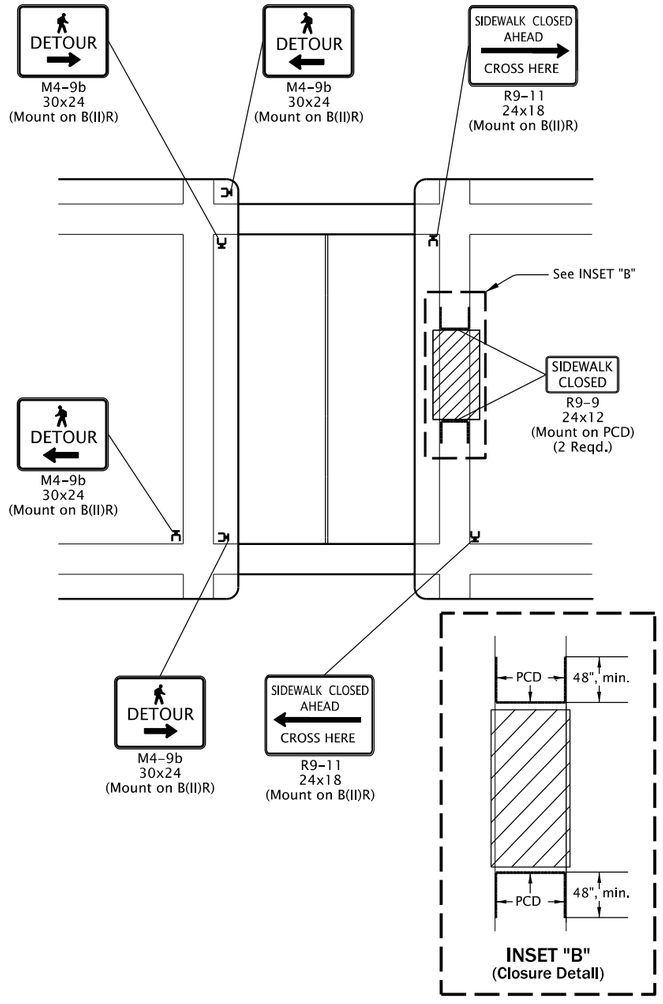
- Ramp size will vary. Ramp must meet ADA requirements incl. max. finished surf. slope of 8.3% and max. finished cross slope of 2.0%.



INSET "A"
(Temp. Sidewalk Ramp)



Additional Right of Way
SIDEWALK DIVERSION

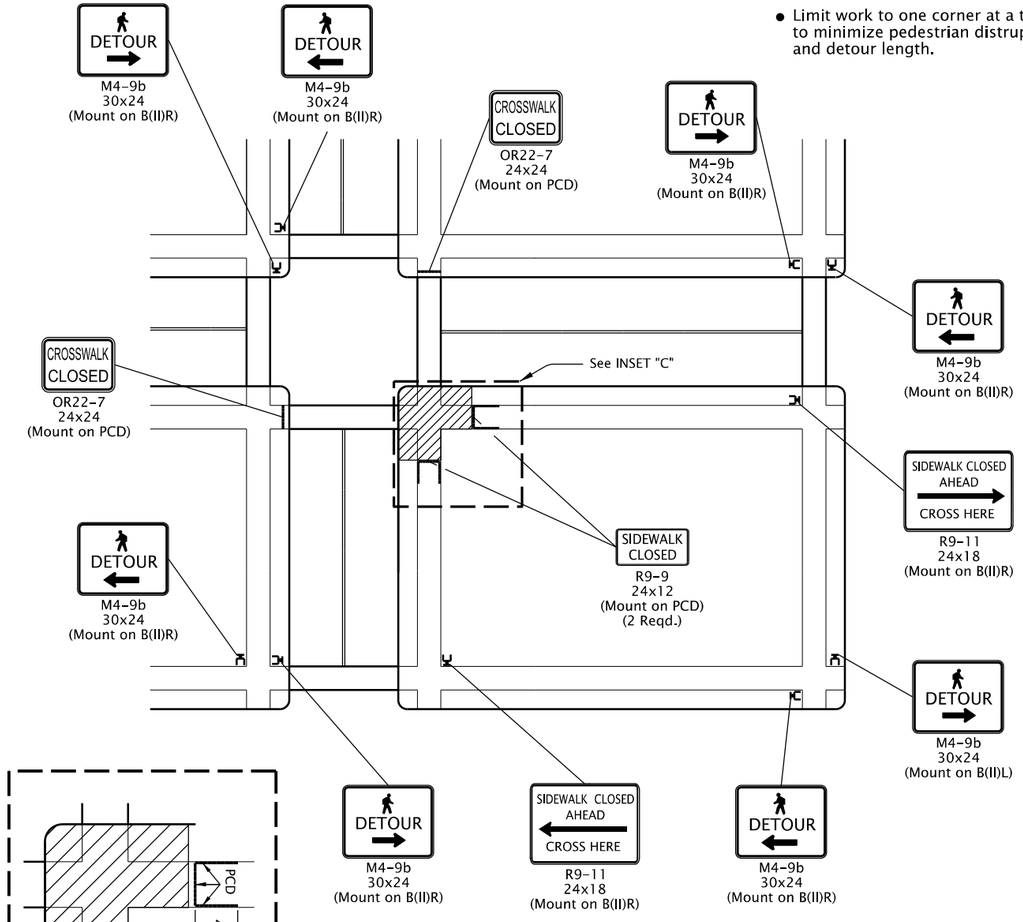


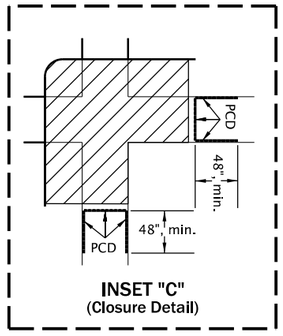
INSET "B"
(Closure Detail)

SIDEWALK CLOSURE, MIDBLOCK

NOTE:

- Limit work to one corner at a time to minimize pedestrian distruption and detour length.





INSET "C"
(Closure Detail)

SIDEWALK CLOSURE, CORNER

GENERAL NOTES FOR ALL DETAILS:

- When closing or relocating crosswalks or other pedestrian facilities provide ADA compliant facilities. Include accessibility features consistent with existing pedestrian facilities by providing adequate slope transitions and surfacing.
- Provide non-slip, 60 inch minimum wide surface through entire pedestrian route. If not possible, provide 48" min. width with 60" x 60" passing spaces every 200 feet along the route.
- Only TCD for pedestrians are shown. Other devices may be necessary to control vehicular traffic.
- Stage work, as necessary, to provide a temporary pedestrian access route at all times. For roadways with no available detours, maintain one open sidewalk at all times.
- Minimize pedestrian out-of-direction travel.
- To be accompanied by Dwg. Nos. TM820 & TM821.

UNDER PEDESTRIAN TRAFFIC

UNDER CONSTRUCTION

PEDESTRIAN CHANNELIZING DEVICE (PCD)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

TEMPORARY PEDESTRIAN ACCESSIBLE ROUTES

2024

DATE	REVISION DESCRIPTION
DATE	REVISION DESCRIPTION
01-2022	Revised notes for temporary sidewalk ramp.
07-2023	OR22-8 signs were replaced with OR22-7 signs.

CALC. BOOK NO. N/A | SDR DATE 14-JUL-2023 | **TM844**

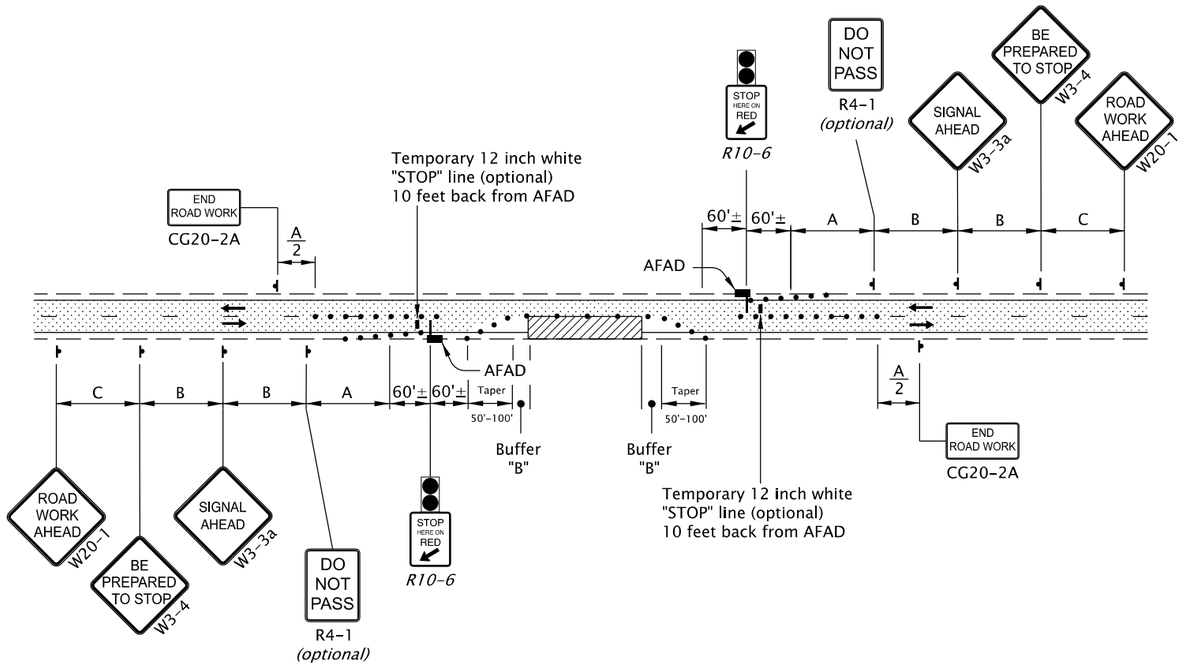
Effective Date: June 1, 2024 - November 30, 2024

14-JUL-2023

TM854.dgn

NOTES:

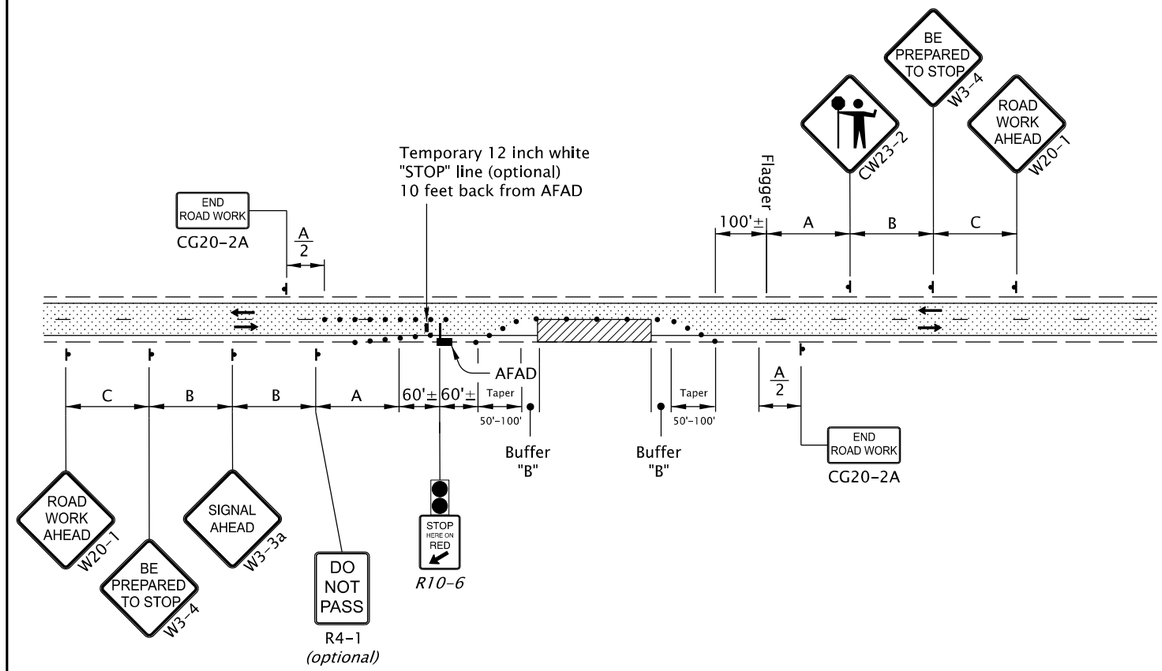
- An AFAD operator shall be provided for each AFAD. A single operator may not simultaneously operate two AFADs.



2-Lane, 2-Way Roadway
ONE LANE CLOSURE, TWO AFADs

NOTES:

- The AFAD operator shall not flag traffic and operate an AFAD at the same time.



2-Lane, 2-Way Roadway
ONE LANE CLOSURE, ONE AFAD & ONE FLAGGER

GENERAL NOTES FOR ALL DETAILS:

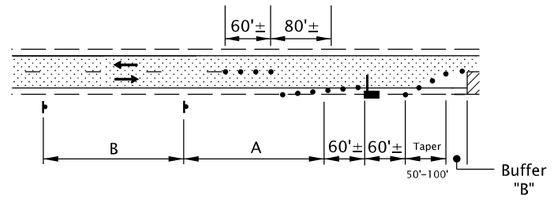
- Flagger station shall be delineated according to "FLAGGER STATION" detail shown on Standard Drawing TM800
- Bottom of lens housing shall be a minimum of 7 ft. above surface when mounted on shoulder and at least 17 ft. above any portion of the travel lane.
- The gate arm shall cover at least one half of the approaching vehicle travel lane.
- Signing and other TCD installed in conjunction with the work area, shall move with the work area.
- Use 1/3 "L" taper for shoulder closure, where necessary.
- For Taper Length ("L") and Buffer Length ("B") shown on this sheet, use the "MINIMUM LENGTHS TABLE" shown on Drg. No. TM800.
- The AFAD operator shall be a certified flagger who has been trained in the operation of the AFAD in use.
- Operator shall operate AFAD from a designated area. Designated area should maintain visual presence of the AFAD and should be at least 50' away from the AFAD and have an escape route available for the operator.
- Remove existing striping and install temporary striping as required.
- See "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Drg. TM800 for sign spacing A, B, and C.
- Cover existing passing lane signing (as directed)
- When extended traffic queues develop during AFAD operations, protect traffic by providing advance flaggers(s) and signing according to the "Extended Traffic Queues Detail" shown on Standard Drawing TM850.
- When AFAD is not in use for less than one work shift, turn off AFAD, or switch YELLOW lens to flashing mode, and cover or remove all accompanying signing.
- When AFAD is not in use for longer than one work shift, remove AFAD and all accompanying signing from the roadway.
- Do not use the AFAD to control more than one lane of approaching traffic.
- Use temporary pavement markings or a white portable rumble strip for temporary stop line. Remove temporary stop line when AFAD is no longer in use.
- Tubular markers along centerline placed in advance of AFAD to first sign are optional, unless the DO NOT PASS sign is used.

Automated Flagger Assistance Device (AFAD)

• • • • • 28" Tubular Markers
See TCD spacing table on TM800 for max. spacing.

UNDER TRAFFIC

UNDER CONSTRUCTION



OVER-DIMENSIONAL VEHICLE ACCOMMODATION DETAIL

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

2-LANE, 2-WAY ROADWAYS

2024

DATE	REVISION DESCRIPTION

CALC. BOOK NO.	SDR DATE	
N/A	14-JUL-2023	**TM854**

Effective Date: June 1, 2024 - November 30, 2024

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Bilquist Elementary School – Sidewalks
Clackamas County, Oregon

For
Kittelson & Associates, Inc
July 1, 2024

Project: ClackCo-122-01

NV5

July 1, 2024

Kittelson & Associates, Inc
851 SW 6th Avenue, Suite 600
Portland, OR 97204

Attention: Cedomir Jesic

Report of Geotechnical Engineering Services
Bilquist Elementary School – Sidewalks
Clackamas County, Oregon
Project: ClackCo-122-01

NV5 is pleased to submit this report of geotechnical engineering services for the SE Webster Road improvements between 100 feet south of SE Roots Road and 100 feet north of SE Bixel Way in Clackamas County, Oregon. Our services were provided in accordance with our contract executed on February 7, 2022.

We appreciate the opportunity to be of service to you. Please contact us if you have questions regarding this report.

Sincerely,

NV5

Scott V. Mills, P.E., G.E.
Senior Principal Engineer

TAP:SVM:kt:eh
Attachments
One copy submitted (via email only)
Document ID: ClackCo-122-01-070124-geor.docx

EXECUTIVE SUMMARY

GENERAL

We performed pavement engineering services for the proposed pavement improvements for SE Webster Road between 100 feet south of SE Roots Road and 100 feet north of SE Bixel Way in Clackamas County, Oregon. Our services included explorations, testing, and analysis to develop recommendations for pavement rehabilitation, widening, and new construction. This section summarizes our explorations, findings, and recommendations. The report provides greater detail and should be used in implementing the recommendations summarized in this section.

IMPROVEMENT OPTIONS

Recommended construction phasing for rehabilitation, pavement widening, and new pavement is presented below. We recommend thoroughly reviewing the "Construction Recommendations" section.

SE Webster Road

Widening/New Construction (7.0 inches of ACP over 8.0 inches of aggregate base)

- 2.0 inches of ACP (surface course)
- 5.0 inches of ACP (two lifts)
- 8.0 inches of aggregate base
- Stabilization aggregate (if required)
- Subgrade geotextile

TABLE OF CONTENTS **PAGE NO.**

ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
AC	asphalt concrete
ACP	asphalt concrete pavement
ASTM	American Society for Testing and Materials
BGS	below ground surface
BWT	between wheel tracks
ESAL	equivalent single-axle load
FWD	falling weight deflectometer
IWT	inside wheel track
NP	not present
ODOT	Oregon Department of Transportation
OSSC	2021 Oregon Standard Specifications for Construction
OWT	outside wheel track
PG	performance graded
psi	pounds per square inch
SPT	standard penetration test

1.0 INTRODUCTION

NV5 is pleased to submit this report of geotechnical engineering services for the SE Webster Road improvements between 100 feet south of SE Roots Road and 100 feet north of SE Bixel Way in Clackamas County, Oregon. Pavement design and construction recommendations are based on the results of FWD testing, on-site visual evaluations, pavement borings, and traffic loading based on the information provided by the design team. Based on correspondence with the design team, we understand the project includes pavement rehabilitation and roadway widening to provide sidewalks and bike lanes.

Figure 1 shows the approximate location of the roadway and Figure 2 provides the limits of work and approximate locations of our borings. Road names will be designated by their root name in the report for brevity (e.g., SE Webster Road referred to as Webster). Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

2.0 PURPOSE AND SCOPE

The scope of services included drilling pavement borings, performing infiltration testing, and completing FWD tests for the proposed improvements. We evaluated the existing pavement conditions and developed widening and rehabilitation recommendations. Our specific scope of services was conducted in accordance with the Subconsultant Agreement dated February 7, 2022, and included the following.

- Coordinated and managed the field investigation, including identifying boring and infiltration locations, locating utilities, and scheduling of contractors.
- Prepared traffic control plans and obtained right-of-way permits from Clackamas County (County).
- Drilled five pavement borings to depths of up to 5.5 feet BGS using solid-stem auger methods.
- Drilled one boring to a depth of 8.5 feet BGS to complete infiltration testing.
- Maintained a detailed log of each exploration, visually classified the soil encountered, collected soil samples as appropriate for the soil conditions encountered, and observed groundwater conditions in each exploration.
- Conducted the following laboratory tests on select soil samples collected from the explorations:
  - Seven moisture content determinations in general accordance with ASTM D2216
  - One test for material passing the U.S. Standard No. 200 sieve in general accordance with ASTM D1140
  - Two Atterberg limits tests in general accordance with ASTM D4318
- Completed FWD tests along the OWT in both travel directions within the project limits at 100-foot intervals.
- Analyzed traffic classification count data provided by the design team and determined design pavement ESAL.
- Analyzed FWD and subsurface data to calculate design subgrade resilient modulus.
- Provided recommendations for pavement reconstruction and widening.
- Provided the results of the infiltration testing.

- Provided geotechnical engineering construction recommendations for site preparation, structural fill compaction criteria, and wet/dry weather earthwork procedures.
- Provided this geotechnical report presenting the results of our field investigation and geotechnical engineering recommendations.

3.0 SITE CONDITIONS

Within the limits of our investigation, Webster is an AC-paved minor arterial road with one travel lane in each direction. Road edges are predominantly landscaped and consist of driveways. Site grades are relatively flat.

3.1 EXISTING PAVEMENT CONDITIONS

We performed a generalized visual survey for pavement distress on Webster. The survey did not evaluate ride roughness or friction. The pavement appears to be in good condition with isolated low-severity thermal cracking within the project limits.

3.2 SUBSURFACE CONDITIONS

We drilled six borings (B-1 through B-6) on February 21, 2022. We extended borings B-1 through B-5 through the pavement and into the subgrade to depths of up to 5.5 feet BGS. Boring B-6 was completed off the pavement at the southeast corner of Webster and Roots for Infiltration testing. Boring B-6 was completed at a depth of 8.5 feet BGS. The approximate boring locations are listed in Table 1 and shown on Figure 2. The exploration logs, results of laboratory testing, and photographs of the core locations and cores are presented in Appendix A.

Table 1. Pavement Boring Locations

Boring	Direction	Location
B-1	Northbound	OWT
B-2	Southbound	BWT
B-3	Northbound	IWT
B-4	Southbound	OWT
B-5	Northbound	BWT

The AC thickness ranges from 6.0 to 9.3 inches with an average of 7.8 inches and the aggregate base thickness ranges from 3.0 to 12.0 inches. One out of five cores was drilled on a crack to identify crack depth. Delamination was observed on three out of five cores at depths ranging between 4.5 and 6.3 inches. The existing pavement thickness at the exploration locations is summarized in Table 2.

Table 2. Existing Pavement Thickness

Boring	Thickness (inches)		AC Crack Depth (inches)	Delamination Depth (inches)
	AC	Aggregate Base		
B-1	9.0	3.0	6.3 to 9.0	6.3
B-2	8.8	3.2	NP	4.5
B-3	6.0	12.0	0 to 2.3	NP
B-4	6.0	5.0	NP	NP
B-5	9.3	3.7	NP	6.0

In general, subsurface conditions consist of medium stiff to very stiff clay with varying amounts of sand and gravel over loose to very dense gravel with varying amounts of clay and sand; however, we did not encounter clay at B-3 and we did not encounter gravel at B-4. Further details are presented on the exploration logs.

Laboratory testing on samples of the soil indicate in-situ moisture contents between 8 and 23 percent at the time of our explorations. We completed Atterberg limits testing in the clay at B-4 and B-6 with liquid limits of 38 and 35, respectively, and plasticity indexes of 19 and 15, respectively. We conducted one fines content test at B-6 from soil at the infiltration test depth.

3.3 FWD TESTING

NV5 performed FWD testing within the project limits on February 22, 2022. Details of our test program and the deflection data are presented in Appendix B.

3.4 INFILTRATION TESTING

We conducted infiltration testing in boring B-6. The base of the boring was saturated prior to testing the infiltration rate using falling head procedures and a 6-inch-diameter standpipe. Low-head conditions were used by starting the test with the height of the water column at approximately 1.5 to 2 feet. A representative soil sample was collected below the infiltration test location for grain-size distribution analyses after infiltration testing. Tests were repeated three times at the same location. The results of our field infiltration testing and grain-size distribution are presented in Table 3.

Table 3. Infiltration Test Results

Boring	Depth (feet BGS)	Fines Content[2] (percent)	Test Number	Infiltration Rate[1] (inches per hour)
B-6	7	30	1	304
			2	309
			3	205

1. Average in-situ infiltration rate measured in the field
2. Fines content: material passing the U.S. Standard No. 200 sieve

The infiltration rate is a short-term field rate and factors of safety have not been applied. In addition, due to the high infiltration rate, we recommend capping the design infiltration rate at 100 inches per hour to account for potential soil variability in the area. From a geotechnical perspective, we recommend a minimum factor of safety of 2 be applied to the field infiltration rate presented above to account for soil variability. The design engineer should determine the appropriate remaining correction factor values to account for maintenance, vegetation, siltation, etc.

The actual depths and estimated infiltration rates can vary significantly from the values presented above. We recommend the design infiltration values for the stormwater disposal system be confirmed by field testing completed during installation. The results of this field testing might necessitate that the system be enlarged to achieve the design infiltration rate.

The infiltration flow rate will diminish over time as suspended solids and precipitates in the stormwater slowly clog the void spaces between the soil particles. Eventually, the infiltration system will fail and will need to be replaced. We recommend the infiltration system include an overflow that is connected to a suitable discharge point. Finally, infiltration systems will cause localized high groundwater levels; therefore, the infiltration system should not be located near basement walls, retaining walls, or other embedded structures, unless these are specifically designed to account for the resulting hydrostatic pressure. The infiltration system should not be located on sloping ground, unless it is approved by a geotechnical engineer.

4.0 PAVEMENT DESIGN

Our pavement design and construction recommendations are based on the results of FWD testing, on-site visual evaluations, pavement borings, and traffic loading derived from information provided by the design team. The standards used for pavement design are listed below:

- ODOT Pavement Design Guide, Pavement Services Unit, Oregon Department of Transportation, August 2011, herein referred to as the ODOT design guide
- Guide for Design of Pavement Structures, AASHTO (1993), herein referred to as the AASHTO design guide

The subgrade resilient modulus and effective pavement modulus values are based on pavement borings and FWD testing on the existing pavement. Descriptions of our input parameters and the recommended pavement designs are summarized below. If any of our design assumptions are incorrect, our office should be contacted with the appropriate information so that the pavement designs can be revised.

4.1 ESAL CALCULATIONS

Calculations were completed using the ODOT design guide methodology for a 20-year pavement design life. The County provided traffic classification counts on Webster north of Roots in January 2022 and traffic ADT counts near the same location in 2018. Based on review and discussion with the County, the project team decided to use the total 2018 ADT based on the supposition that traffic in 2022 was lower due to the pandemic. We used the distribution from

the 2022 counts to approximate truck traffic based on the 2018 ADT. In addition, we assumed a compound traffic growth rate of 1.5 percent. Our calculation methodology and our calculation sheet are presented in Appendix C. A summary of design ESAL results are listed in Table 4.

Table 4. Design ESAL Values by Direction

Street	15-Year Design ESAL	20-Year Design ESAL
Webster	1,017,000	1,410,000

4.2 SUBGRADE RESILIENT MODULI

We calculated subgrade resilient modulus as the average of the FWD data from all the test locations. The average design subgrade resilient modulus value was calculated to be 15,600 psi. However, based on soil type observed during our exploration and based on our experience with similar soil types, we recommend a maximum resilient modulus at 10,000 psi be used in design to account for variable clay moisture contents within the clay layer.

4.3 REQUIRED STRUCTURAL NUMBER

We used the procedure in the AASHTO design guide to determine the required rehabilitation structural number based the ESAL numbers listed in Table 4, a resilient modulus value of 10,000 psi, and the other design parameters listed in the following section. The recommended required structural numbers are 3.19 and 3.36 for 15- and 20-year design ESALs, respectively.

4.4 OTHER DESIGN PARAMETERS

Other pavement design parameters used in our analysis are as recommended by the ODOT design guide and/or AASHTO design guide. These input parameters are summarized as follows:

- Reliability of 90 percent for minor arterial road
- Overall standard deviation value of 0.49
- Initial and terminal serviceability values of 4.2 and 2.5, respectively
- Structural layer coefficients of 0.42 and 0.10 for new AC and new aggregate base, respectively
- Resilient modulus of 20,000 psi for new aggregate base
- Drainage coefficient of 1.0 for aggregate base

5.0 CONSTRUCTION RECOMMENDATIONS

5.1 OVERVIEW

Our recommendations are based on subsurface explorations, FWD testing, and analyses. Our specific recommendations for design and construction of the roadway are presented in the following sections. These should be incorporated into design and implemented during construction of the proposed improvements. The AC, aggregate base, stabilization aggregate, and subgrade geotextile recommended below should conform to the specifications presented in the “Pavement Materials” section.

Stabilization aggregate may be required in some widening and new construction areas if unstable or unsuitable subgrade materials are encountered. Tack coat should be used between paving layers. Tack coat rate, when diluted 1:1 with water, should be 0.1 gallon per square yard between new AC layers and 0.25 gallon per square yard for milled AC.

5.2 PAVEMENT DESIGN

Pavement within the project limits on Webster is in good condition with isolated low severity thermal cracking. Based on the results of our pavement borings, FWD testing, and analyses, it is our opinion that the existing pavement is structurally adequate to support the design traffic. Based on discussions with the design team, we understand that project plans include roadway widening to provide new sidewalks. Our recommended pavement section is as follows:

Webster Widening/New Construction (7.0 inches of ACP over 8.0 inches of aggregate base)

- 2.0 inches of ½-inch, Level 3 ACP (surface course)
- 5.0 inches of ½-inch, Level 3 ACP (base course, first lift 3.0 inches, second lift, 2.0 inches)
- 8.0 inches aggregate base
- Stabilization aggregate (if required)
- Subgrade geotextile

If required for connection to widening pavement, stripe obliteration, and removal of surface distress, we recommend a 2.0-inch grind and inlay. Our grind and inlay recommendation is as follows:

Webster Rehabilitation (if required)

- 2.0 inches of ½-inch, Level 3 ACP (surface course)
- 2.0 inches of cold plane pavement removal

5.3 PAVEMENT MATERIALS

A submittal should be made for each pavement material prior to the start of paving operations. Each submittal should include the test information necessary to evaluate the degree to which the material's properties comply with the properties that were recommended or specified. The geotechnical engineer and other appropriate members of the design team should review each submittal.

5.3.1 AC

The AC should be Level 3, ½-inch dense ACP according to OSSC 00744 (Asphalt Concrete Pavement). Minimum and maximum lift thicknesses are 2.0 and 3.0 inches for ½-inch ACP, respectively. An adjustment to lift thicknesses outside this range should be reviewed by both NV5 and the County. Asphalt binder should be performance graded. For typical Level 3 ACP in areas without heavy traffic and without stop lights, we recommend PG 64-22 binder; however, the binder grade should be adjusted depending on the aggregate gradation and amount of reclaimed asphalt pavement and/or recycled asphalt shingles in the contractor's mix design submittal.

5.3.2 Aggregate Base

Imported granular material used as aggregate base should be clean crushed rock or crushed gravel and sand that are dense graded. The aggregate base should meet the gradation defined in OSSC 00641 (Aggregate Subbase, Base, and Shoulders), with the exception that the aggregate has less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve, a maximum particle size of 1½ inches, and at least two mechanically fractured faces. The aggregate base should be compacted to not less than 95 percent of the maximum dry density, as determined by AASHTO T 99.

5.3.3 Stabilization Material

Stabilization material should consist of pit- or quarry-run rock, crushed rock, or crushed gravel and sand and should meet the requirements set forth in OSSC 00330.14 (Selected Granular Backfill) and OSSC 00330.15 (Selected Stone Backfill), with a maximum particle size of 3 inches for selected granular backfill and 6 inches for selected stone backfill, less than 5 percent by dry weight passing the U.S. Standard No. 4 sieve, and having at least two mechanically fractured faces. The material should be free of organic material and other deleterious material. Stabilization material should be placed over a geotextile fabric in one lift and compacted to a firm condition.

5.3.4 Subgrade Geotextile

The subgrade geotextile should conform to OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles.

6.0 OBSERVATION OF CONSTRUCTION

Satisfactory earthwork and pavement performance depend to a large degree on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions often requires experience; therefore, qualified personnel should visit the site with sufficient frequency to determine if subsurface conditions change significantly from those anticipated.

7.0 LIMITATIONS

We have prepared this report for use by Kittelson & Associates Inc. and the design and construction team for the proposed project. The report can be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other sites.

Exploration observations indicate soil conditions and pavement conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata, pavement, or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in this report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No warranty, express or implied, should be understood.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

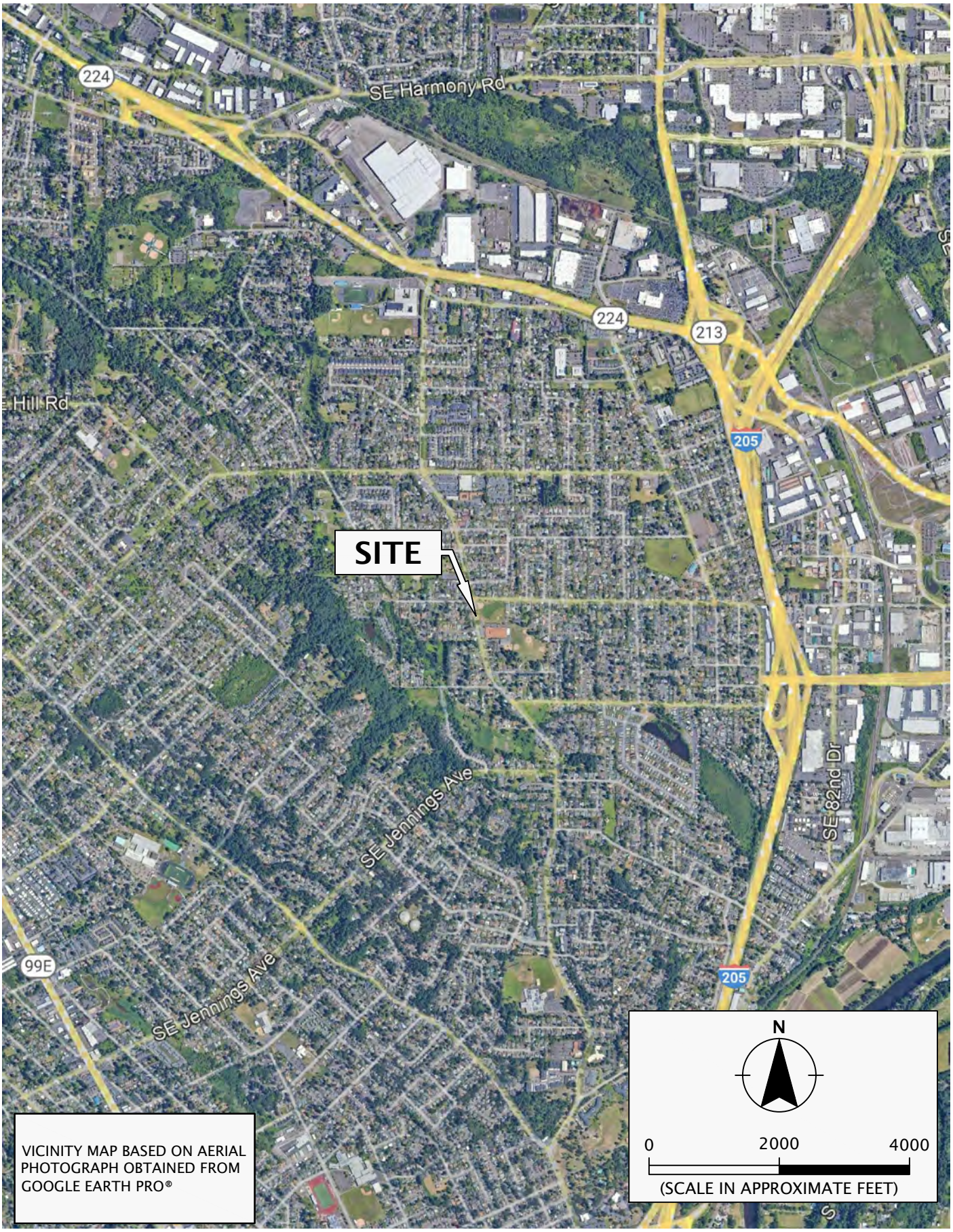
Sincerely,

NV5

Tyler A. Pierce, P.E.
Associate Engineer

Scott V. Mills, P.E., G.E.
Senior Principal Engineer

FIGURES



VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®

NV5	CLACKCO-122-01	**VICINITY MAP**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL - SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE 1**

Printed By: aday | Print Date: 4/1/2022 2:00:45 PM
File Name: J:\A-D\ClackCo\ClackCo-122\ClackCo-122-01\Figures\CAD\ClackCo-122-01-VM01.dwg | Layout: FIGURE 1

LEGEND:

B-1 BORING

0 100 200

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®
MARCH 3, 2022

SITE PLAN

BILQUIST ELEMENTARY SCHOOL - SIDEWALKS
CLACKAMAS COUNTY, OR

FIGURE 2

CLACKCO-122-01

JULY 2024

NV5

Printed By: aday | Print Date: 4/1/2022 2:00:54 PM
File Name: J:\A-D\ClackCo\ClackCo-122\ClackCo-122-01\Figures\CAD\ClackCo-122-01-SP01.dwg | Layout: FIGURE 2

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

We explored the existing pavement conditions by drilling five pavement borings (B-1 through B-5) and performed infiltration testing in one boring (B-6) on February 21, 2022. The approximate locations are shown on Figure 2. Dan J. Fischer Excavating, Inc. of Forest Grove, Oregon, completed the drilling. We recovered the asphalt cores using a portable core drill with a 5-inch-diameter, diamond core barrel and advanced the borings with a 4-inch-diameter, solid-stem auger. We filled the borings with polymer modified cold-patch asphalt. The exploration logs are presented in this appendix.

SOIL SAMPLING

A member of our geotechnical staff observed the explorations. We collected representative samples of the various soils encountered in the borings for geotechnical laboratory testing. We collected samples from the borings using 1½-inch-inside diameter, split-spoon sampler (SPT) in general accordance with ASTM D1586. We used a 140-pound hammer free falling 30 inches to drive the split-spoon samplers into the soil a total distance of 18 inches. We recorded on the exploration logs the number of blows required to drive the sampler the final 12 inches, unless otherwise noted. We collected representative grab samples of the soil from the auger cuttings. Sampling methods and intervals are shown on the exploration logs.

The hammer used to conduct SPTs was lifted using a rope and cathead system. The hammer was raised using two wraps of the rope around the cathead to conduct the SPTs.

SOIL CLASSIFICATION

We classified the soil samples in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are presented in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change actually could be gradual. Classifications are shown on the exploration logs.

LABORATORY TESTING

MOISTURE CONTENT

We tested the natural moisture content of select soil samples in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to the weight of soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

PARTICLE-SIZE ANALYSIS

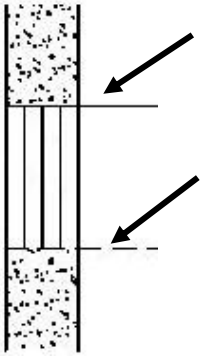
We completed particle-size analysis on select soil samples in accordance with ASTM D1140. The tests determined percent fines (passing the U.S. Standard No. 200 sieve) only. The test results are presented in this appendix.

ATTERBERG LIMITS

The plastic limit and liquid limit (Atterberg limits) of select soil samples were determined in accordance with ASTM D4318. The Atterberg limits and the plasticity index were completed to aid in the classification of the soil. The plastic limit is defined as the moisture content (in percent) where the soil becomes brittle. The liquid limit is defined as the moisture content where the soil begins to act similar to a liquid. The plasticity index is the difference between the liquid and plastic limits. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test (SPT) with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-outside diameter California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density		
DS	Direct Shear	RES	Resilient Modulus
HYD	Hydrometer Gradation	SIEV	Sieve Gradation
MC	Moisture Content	TOR	Torvane
MD	Moisture-Density Relationship	UC	Unconfined Compressive Strength
NP	Non-Plastic	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
		MS	Moderate Sheen
ppm	Parts per Million	HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL

Relative Density	Standard Penetration Test (SPT) Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very loose	0 – 4	0 – 11	0 – 4
Loose	4 – 10	11 – 26	4 – 10
Medium dense	10 – 30	26 – 74	10 – 30
Dense	30 – 50	74 – 120	30 – 47
Very dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOIL

Consistency	Standard Penetration Test (SPT) Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 – 4	3 – 6	2 – 5	0.25 – 0.50
Medium stiff	4 – 8	6 – 12	5 – 9	0.50 – 1.0
Stiff	8 – 15	12 – 25	9 – 19	1.0 – 2.0
Very stiff	15 – 30	25 – 65	19 – 31	2.0 – 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVEL WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)	SW or SP	SAND
		SAND WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SAND WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOIL			PT	PEAT

MOISTURE CLASSIFICATION		ADDITIONAL CONSTITUENTS					
		Secondary granular components or other materials such as organics, man-made debris, etc.					
			Silt and Clay In:			Sand and Gravel In:	
Term	Field Test	Percent	Fine-Grained Soil	Coarse-Grained Soil	Percent	Fine-Grained Soil	Coarse-Grained Soil
dry	very low moisture, dry to touch						
moist	damp, without visible moisture	< 5	trace	trace	< 5	trace	trace
		5 – 12	minor	with	5 – 15	minor	minor
wet	visible free water, usually saturated	> 12	some	silty/clayey	15 – 30	with	with
					> 30	sandy/gravelly	Indicate %

NV5

SOIL CLASSIFICATION SYSTEM

TABLE A-2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT %	COMMENTS
B-1						0 50 100	
0.0		ASPHALT CONCRETE (9.0 inches).					
		AGGREGATE BASE (3.0 inches).	0.8				
		Very stiff, brown CLAY (CL), trace gravel; moist.	1.0			● 20	
2.5		Medium dense, brown GRAVEL with clay and sand (GP-GC); moist, gravel is subrounded.	3.5			▲ 25	
5.0		Exploration completed at a depth of 5.0 feet. SPT completed using two wraps with a cathead.	5.0				CORE DETAILS: No patch observed. No crack at core.
7.5							
B-2						0 50 100	
0.0		ASPHALT CONCRETE (8.8 inches).					
		AGGREGATE BASE (3.2 inches).	0.7				
		Very stiff, brown CLAY (CL), trace gravel and sand; moist.	1.0			▲ 19	
2.5		medium stiff at 3.5 feet				● ▲ 35	
5.0		Medium dense, gray-brown GRAVEL with clay and sand (GP-GC); moist.	4.5				
		Exploration completed at a depth of 5.0 feet. SPT completed using two wraps with a cathead.	5.0				CORE DETAILS: No patch observed. No crack at core.
7.5							

DRILLED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: S. Sreedhar COMPLETED: 02/21/22

BORING METHOD: core drill and solid-stem auger (see document text) BORING BIT DIAMETER: 5 inches and 4 inches

N|V|5	CLACKCO-122-01	**BORING**
	JULY 2022	BILQUIST ELEMENTARY SCHOOL - SIDEWALKS CLACKAMAS COUNTY, OR — **FIGURE A-1**

BORING LOG - NV5 - 2 PER PAGE CLACKCO-122-01-B1_6.GPJ GDI_NV5.GDT PRINT DATE: 7/2/24:SN:KT:SP

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT %	COMMENTS
B-3						0 50 100	
0.0		ASPHALT CONCRETE (6.0 inches).					
		AGGREGATE BASE (12.0 inches).	0.5				
		Loose, gray-brown GRAVEL with clay and sand (GP-GC); moist, gravel is subrounded.	1.5				
2.5						6	
5.0						46	
		Exploration completed at a depth of 5.5 feet.	5.5				CORE DETAILS: No patch observed. Cored on low transverse crack.
		SPT completed using two wraps with a cathead.					
7.5							
						0 50 100	
B-4						0 50 100	
0.0		ASPHALT CONCRETE (6.0 inches).					
		AGGREGATE BASE (5.0 inches).	0.5				
		Very stiff, brown CLAY (CL), minor gravel; moist.	0.9				
						16	
2.5		stiff, brown-orange, trace organics (rootlets) at 3.5 feet		ATT		12	LL = 38% PL = 19%
5.0		Exploration completed at a depth of 5.0 feet.	5.0				CORE DETAILS: No patch observed. No crack at core.
		SPT completed using two wraps with a cathead.					
7.5							
						0 50 100	

DRILLED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: S. Sreedhar COMPLETED: 02/21/22

BORING METHOD: core drill and solid-stem auger (see document text) BORING BIT DIAMETER: 5 inches and 4 inches

N|V|5	CLACKCO-122-01	**BORING** (continued)
	JULY 2022	BILQUIST ELEMENTARY SCHOOL - SIDEWALKS CLACKAMAS COUNTY, OR — **FIGURE A-2**

BORING LOG - NV5 - 2 PER PAGE CLACKCO-122-01-B1_6.GPJ GDI_NV5.GDT PRINT DATE: 7/2/24:SN:KT:SP

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT %	COMMENTS

B-5

0 50 100

0.0 — ASPHALT CONCRETE (9.3 inches). — 0.8

AGGREGATE BASE (3.7 inches). — 1.1

Stiff, brown-gray CLAY with gravel (CL), trace sand; moist.

12

2.5

3.5

Very dense, gray-brown GRAVEL with clay and sand (GP-GC); moist, gravel is subrounded.

41-46-50/4"

5.0 — Exploration terminated at a depth of 4.9 feet due to refusal. — 4.9

SPT completed using two wraps with a cathead.

CORE DETAILS:
No patch observed.
No crack at core.

7.5

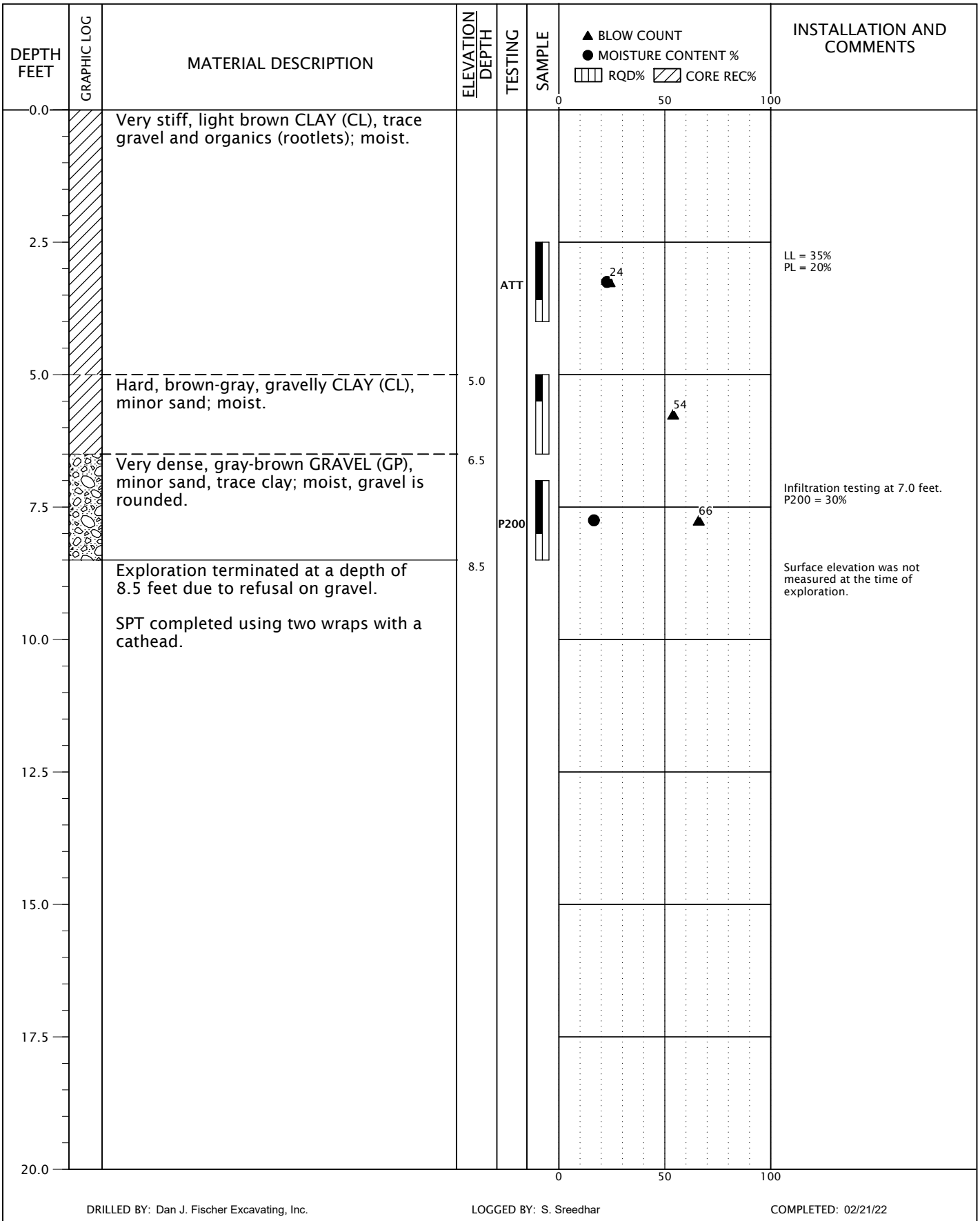
0 50 100

DRILLED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: S. Sreedhar COMPLETED: 02/21/22

BORING METHOD: core drill and solid-stem auger (see document text) BORING BIT DIAMETER: 5 inches and 4 inches

N|V|5	CLACKCO-122-01	**BORING** (continued)
	JULY 2022	BILQUIST ELEMENTARY SCHOOL - SIDEWALKS CLACKAMAS COUNTY, OR — **FIGURE A-3**

BORING LOG - NV5 - 2 PER PAGE CLACKCO-122-01-B1_6.GPJ GDI_NV5.GDT PRINT DATE: 7/2/24:SN:KT:SP



DRILLED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: S. Sreedhar

COMPLETED: 02/21/22

BORING METHOD: solid-stem auger (see document text)

BORING BIT DIAMETER: 4 inches and 8 inches

N|V|5	CLACKCO-122-01	**BORING B-6**
	JULY 2022	BILQUIST ELEMENTARY SCHOOL - SIDEWALKS CLACKAMAS COUNTY, OR

FIGURE A-4

BORING LOG - NV5 - 1 PER PAGE CLACKCO-122-01-B1_6.GPJ GDI_NV5.GDT PRINT DATE: 7/2/24:SN:KT:SP

CORE LOCATION B-1.

CORE B-1.

N|V|5	CLACKCO-122-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE A-5**

CORE LOCATION B-2.

CORE B-2.

N|V|5	CLACKCO-122-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE A-6**

CORE LOCATION B-3.

CORE B-3.

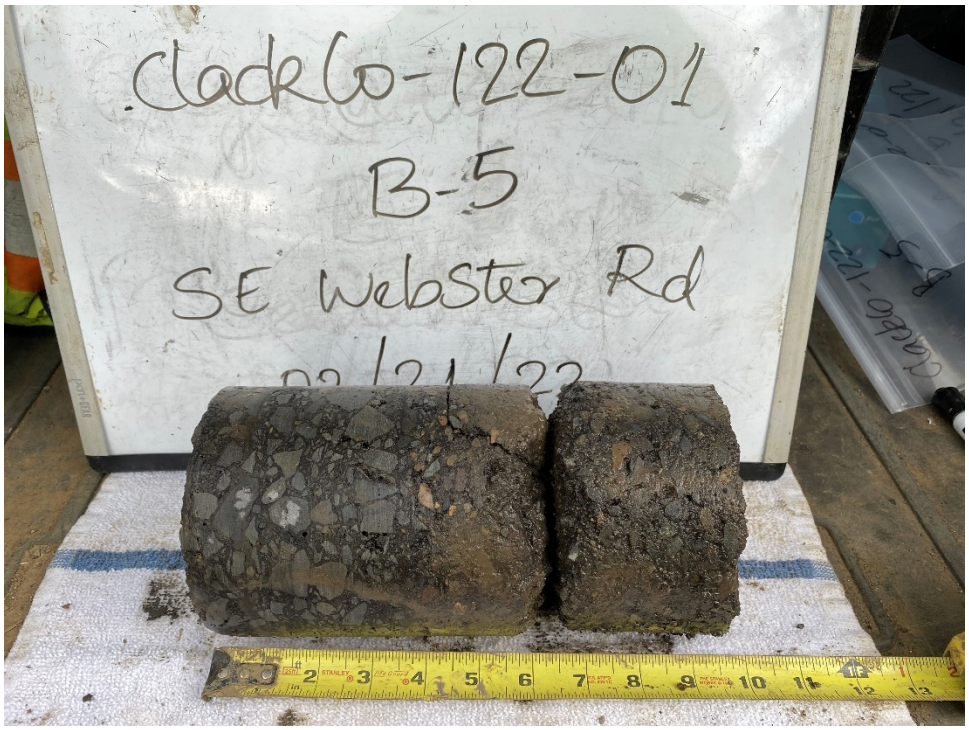
N|V|5	CLACKCO-122-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE A-7**

CORE LOCATION B-4.

CORE B-4.

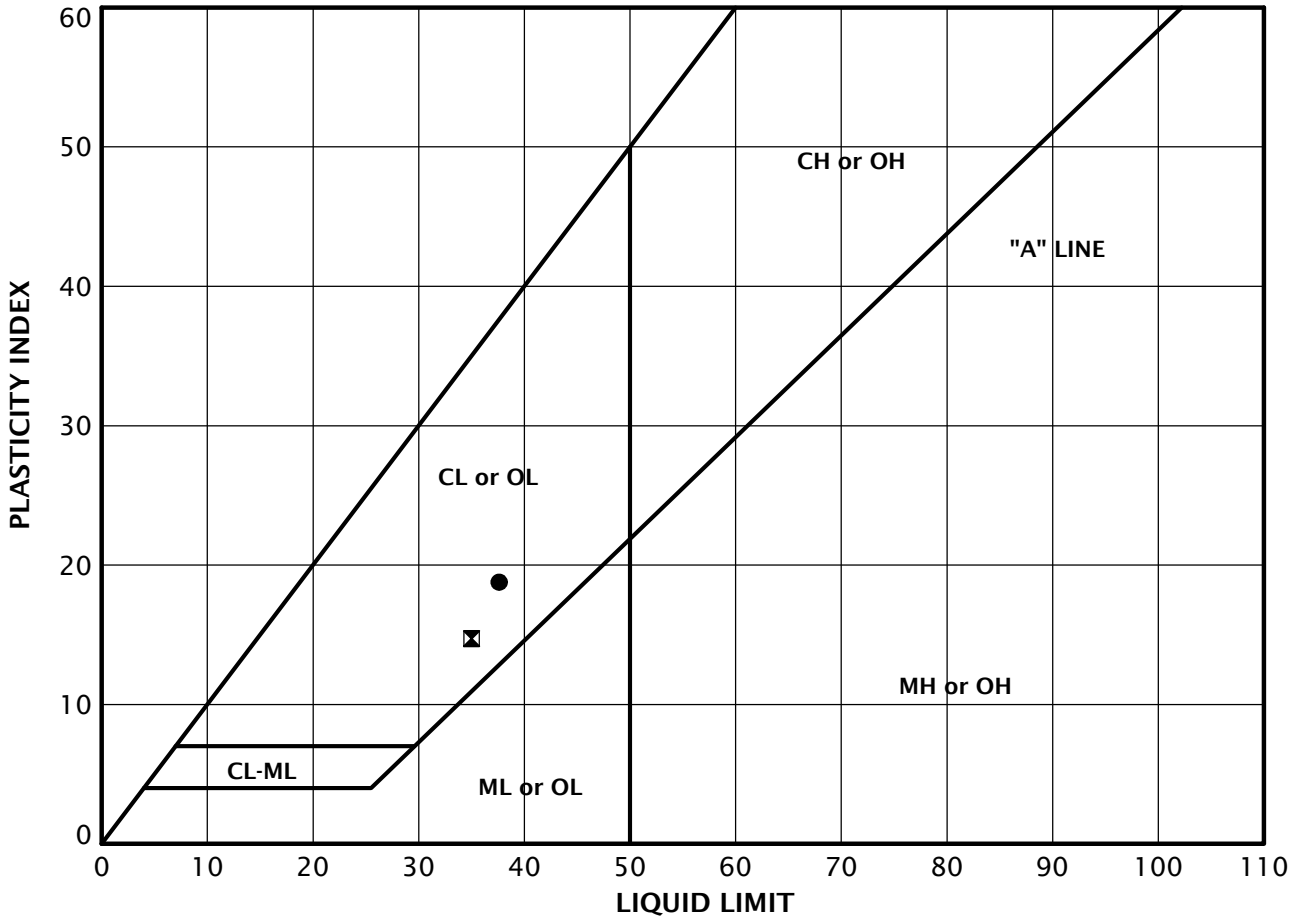
N|V|5	CLACKCO-122-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE A-8**

CORE LOCATION B-5.



CORE B-5.

N|V|5	CLACKCO-122-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE A-9**



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-4	3.5	21	38	19	19
⊠	B-6	2.5	23	35	20	15

NV5	CLACKCO-122-01	ATTERBERG LIMITS TEST RESULTS	
	JULY 2024	BILQUIST ELEMENTARY SIDEWALKS PROJECT PORTLAND, OR	FIGURE A-10

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-1	1.0		18							
B-2	3.5		14							
B-3	4.0		14							
B-4	3.5		21					38	19	19
B-5	3.5		8							
B-6	2.5		23					35	20	15
B-6	7.0		17				30			

LAB SUMMARY - GDI-NV5 CLACKCO-122-01-B1_6.GPJ GDI_NV5.GDT PRINT DATE: 3/18/22:

NV5	CLACKCO-122-01	**SUMMARY OF LABORATORY DATA**	
	JULY 2024	BILQUIST ELEMENTARY SIDEWALKS PROJECT PORTLAND, OR	**FIGURE A-11**

APPENDIX B

APPENDIX B

FWD TESTING

We performed FWD testing within the project limits on February 22, 2022 along the OWT of the travel lanes. We performed tests using a JILS 20 FWD trailer in accordance with ASTM D4695 using a Level II testing effort, as described by the ASTM method. We conducted tests at approximately 100-foot intervals with loads of approximately 6,000, 9,000, and 12,000 pounds. We measured and recorded deflections 0, 8, 12, 18, 24, 36, 48, 60, and 72 inches from the load impact location. We normalized all results to a 9,000-pound load and adjusted the normalized deflections at the center of the load plate to a standard temperature of 68 degrees Fahrenheit prior to back-calculating subgrade and effective pavement modulus values.

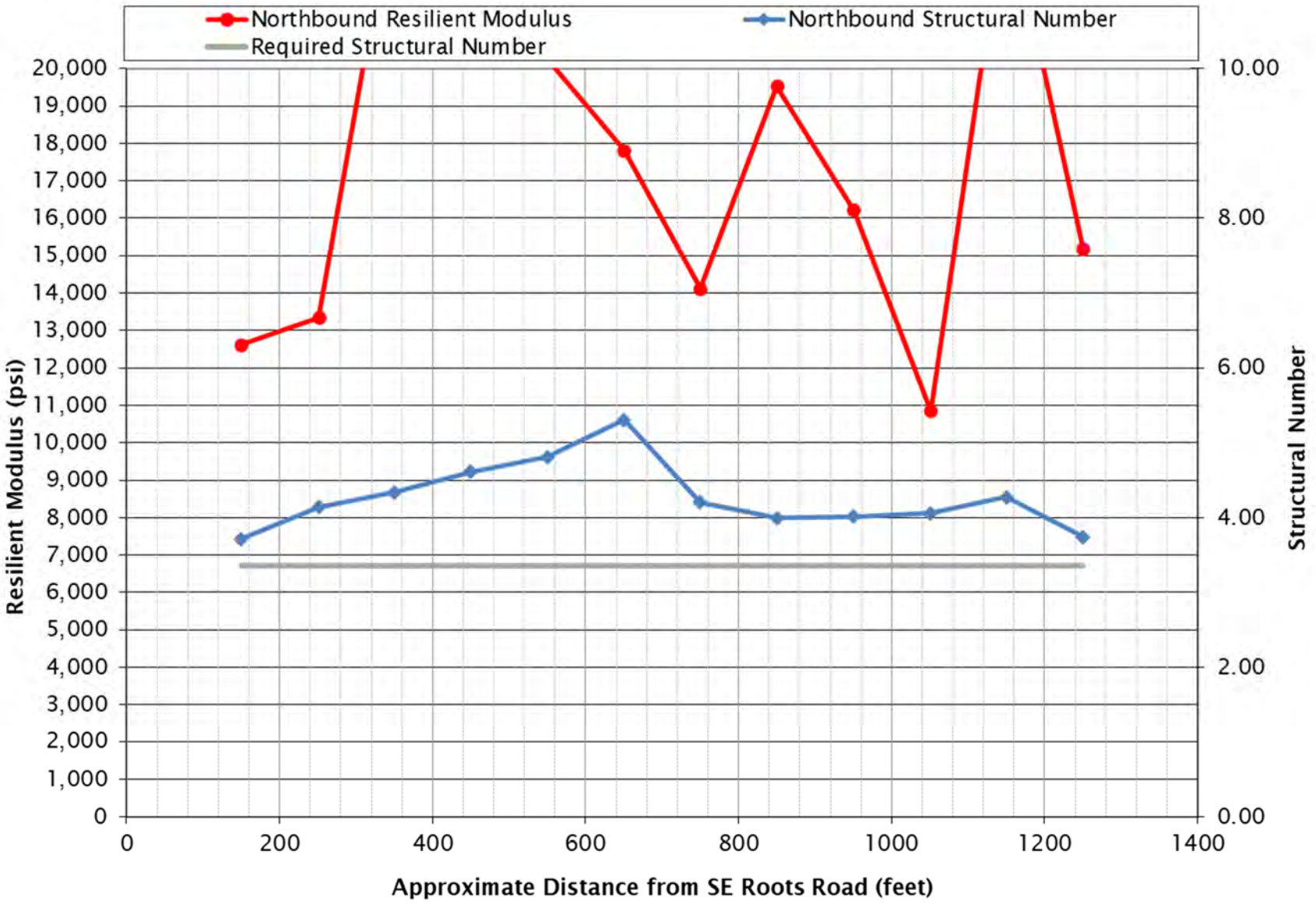
We used the FWD test data to back-calculate values for subgrade resilient modulus at each test location and subsequently adjusted the values using an adjustment factor of 0.35. From these, we computed the design value as the average of the results, as recommended by the AASHTO design guide. We then calculated the required structural number and layer thicknesses for new pavement based on the design subgrade resilient modulus value and design traffic level using the method in the AASHTO design guide.

The FWD data was also used back-calculate the effective pavement structural numbers of the existing pavement at each test location in accordance with the method described in the AASHTO design guide. We used these values, together with the required structural number for new pavement, to determine rehabilitation structural numbers at each test location and layer thicknesses for rehabilitated pavement.

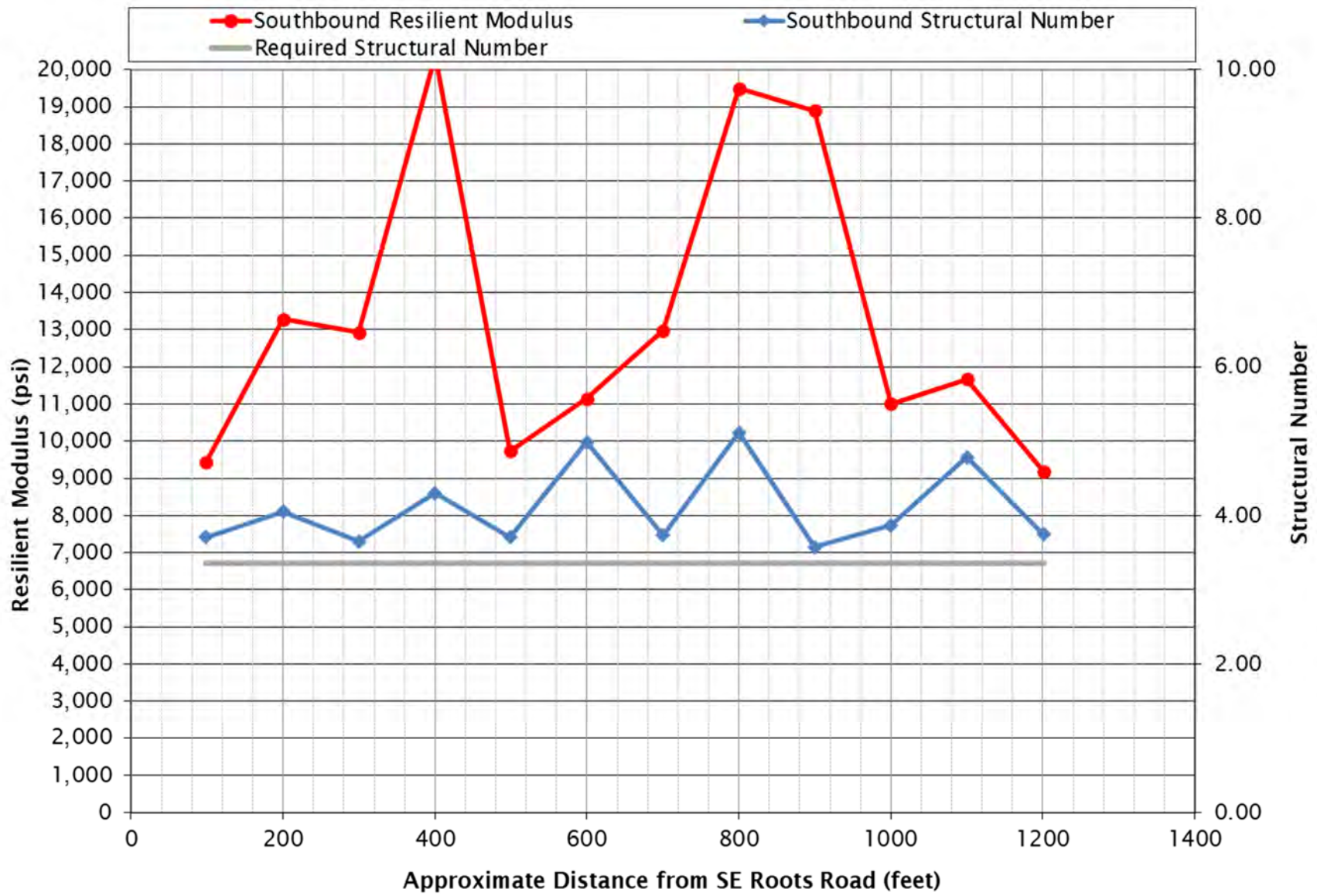
The FWD test data and back-calculated results are presented in this appendix. Back-calculated subgrade moduli and pavement effective structural numbers at each test station are listed in the following table and displayed graphically on the following charts.

TABLE B-1
FWD Results
SE Webster Road between SE Roots Road and SE Bixel Way
Clackamas County, Oregon

Approximate Distance from SE Roots Road (feet)	Lane	Load (pounds)	Surface Temperature (degrees Fahrenheit)	Normalized Deflections (mils)									Back-Calculated Subgrade Resilient Modulus (psi)	Back-Calculated Effective Pavement Modulus (psi)	Back-Calculated Effective Structural Number
				D0	D8	D12	D18	D24	D36	D48	D60	D72			
150	Northbound	9,000	37.7	5.04	4.83	4.24	3.33	2.65	1.66	1.08	0.75	0.23	12,625	244,766	3.72
251	Northbound	9,000	35.6	4.11	3.95	3.50	3.74	2.36	1.56	1.04	0.72	0.55	13,344	339,565	4.14
350	Northbound	9,000	40.3	2.91	2.44	2.10	1.69	1.40	0.95	0.66	0.48	0.39	24,780	389,351	4.34
450	Northbound	9,000	38.8	2.60	2.32	2.02	1.66	1.42	1.01	0.75	0.57	0.47	25,267	467,579	4.61
550	Northbound	9,000	37.8	2.72	2.52	2.21	1.85	1.56	1.10	0.77	0.56	0.41	20,250	529,676	4.81
650	Northbound	9,000	42.1	2.62	2.45	2.26	1.99	1.77	1.34	1.00	0.74	0.51	17,810	711,336	5.30
750	Northbound	9,000	39.3	4.01	3.63	3.18	2.64	2.23	1.54	1.07	0.74	0.57	14,119	355,277	4.21
850	Northbound	9,000	36.7	3.62	3.18	2.72	2.15	1.76	1.16	0.81	0.59	0.47	19,535	303,598	3.99
950	Northbound	9,000	38.5	3.97	3.46	3.07	2.59	2.16	1.49	1.04	0.70	0.45	16,226	309,215	4.02
1051	Northbound	9,000	37.5	4.79	4.48	4.04	3.40	2.90	2.00	1.37	0.92	0.69	10,847	318,202	4.06
1150	Northbound	9,000	41.8	3.02	2.27	2.04	1.71	1.45	1.05	0.77	0.56	0.44	24,567	372,360	4.27
1250	Northbound	9,000	40.6	4.64	4.03	3.48	2.77	2.22	1.47	1.04	0.76	0.60	15,180	250,247	3.74
1201	Southbound	9,000	40.5	5.98	5.57	4.95	4.12	3.43	2.29	1.56	1.05	0.80	9,181	250,305	3.74
1100	Southbound	9,000	39.1	3.72	3.58	3.34	3.02	2.70	2.09	1.60	1.18	0.93	11,666	522,509	4.78
1000	Southbound	9,000	40.6	5.19	4.84	4.27	3.50	2.86	1.93	1.38	1.01	0.74	11,006	276,513	3.87
900	Southbound	9,000	37.3	4.41	3.68	3.01	2.22	1.68	1.05	0.78	0.62	0.51	18,893	217,594	3.57
800	Southbound	9,000	40.3	2.58	2.40	2.15	1.84	1.62	1.25	0.99	0.76	0.62	19,497	638,516	5.11
700	Southbound	9,000	40.7	5.03	4.68	4.02	3.24	2.63	1.73	1.18	0.82	0.63	12,972	248,667	3.74
600	Southbound	9,000	38.8	3.60	3.83	3.79	3.82	3.86	1.88	1.47	0.92	0.72	11,151	592,782	4.99
499	Southbound	9,000	36.7	5.73	5.28	4.69	3.91	3.24	2.10	1.46	1.07	0.86	9,729	243,330	3.71
400	Southbound	9,000	41.9	3.28	2.87	2.49	2.06	1.72	1.16	0.80	0.57	0.45	20,364	378,731	4.30
300	Southbound	9,000	37.7	5.11	4.66	4.07	3.25	2.60	1.66	1.13	0.84	0.70	12,929	231,901	3.65
200	Southbound	9,000	37.6	4.32	3.99	3.54	2.87	2.37	1.63	1.13	0.79	0.64	13,278	317,448	4.05
99	Southbound	9,000	39.4	5.93	5.49	4.86	4.02	3.34	2.17	1.44	0.97	0.76	9,438	243,489	3.71



N|V|5	CLACKCO-122-01	**FWD RESULTS - NORTHBOUND**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE B-1**



N|V|5	CLACKCO-122-01	**FWD RESULTS - SOUTHBOUND**	
	JULY 2024	BILQUIST ELEMENTARY SCHOOL – SIDEWALKS CLACKAMAS COUNTY, OR	**FIGURE B-2**

APPENDIX C

APPENDIX C

TRAFFIC DATA

The County collected vehicle classification count information over a 24-hour period in 2022 in both directions north of Roots and traffic ADT near the same location in 2018. ESAL values were calculated by using the 2022 heavy vehicle distribution and total heavy truck percentage with the total traffic volume from 2018. We used the ESAL conversion factors from the ODOT design guide to convert the daily counts of class 4 through 13 vehicles to annual ESALs. We used the method described in the ODOT design guide to calculate forecasted ESALs for each vehicle class using 1.5 percent annual growth in traffic assuming construction will occur in 2023 (as indicated by the design team). Average counts and our calculation sheet are presented in this appendix.

TABLE C-1
ESAL Calculation: SE Webster Road North of SE Roots Road
Traffic volumes according to information provided by Clackamas County

Year of Traffic Count	2018	**Pavement Type**	Flexible
Average Daily Traffic	7,645	**Construction Year[1]**	2023
One-way or Two-way	Two-way	**Lane Distribution Factor**	100
Compound Growth Rate (%)	1.50	**Percent Heavy Trucks**	8.8

[1]Assumes pavement put into service in the following year

FHWA Classification	Average Daily Traffic by Classification in 2018	Conversion Factor[2]	ESALs in 2018
4	135	135.3	18,266
5	456	57.2	26,083
6	12	156.2	1,874
7	0	416.4	0
8	63	139.2	8,766
9	3	256.3	769
10	0	308.6	0
11	0	331.7	0
12	0	300.3	0
13	0	570.4	0

[2]Directional Factor = 55 percent

Total ESALs in 2018	55,758
ESALs in Construction Year (2023)	60,068

Year	ESALs	Cumulative ESALs[3]	Year	ESALs	Cumulative ESALs[3]
2024 (1)	60,969	121,036	2049 (26)	88,462	1,981,433
2025 (2)	61,883	182,920	2050 (27)	89,789	2,071,223
2026 (3)	62,811	245,731	2051 (28)	91,136	2,162,359
2027 (4)	63,754	309,485	2052 (29)	92,503	2,254,862
2028 (5)	64,710	374,195	2053 (30)	93,891	2,348,752
2029 (6)	65,681	439,875	2054 (31)	95,299	2,444,051
2030 (7)	66,666	506,541	2055 (32)	96,728	2,540,780
2031 (8)	67,666	574,207	2056 (33)	98,179	2,638,959
2032 (9)	68,681	642,888	2057 (34)	99,652	2,738,611
2033 (10)	69,711	712,599	2058 (35)	101,147	2,839,758
2034 (11)	70,757	783,355	2059 (36)	102,664	2,942,422
2035 (12)	71,818	855,173	2060 (37)	104,204	3,046,626
2036 (13)	72,895	928,069	2061 (38)	105,767	3,152,393
2037 (14)	73,989	1,002,057	2062 (39)	107,354	3,259,747
2038 (15)	75,099	1,077,156	2063 (40)	108,964	3,368,711
2039 (16)	76,225	1,153,381	2064 (41)	110,598	3,479,309
2040 (17)	77,368	1,230,749	2065 (42)	112,257	3,591,566
2041 (18)	78,529	1,309,278	2066 (43)	113,941	3,705,508
2042 (19)	79,707	1,388,985	2067 (44)	115,650	3,821,158
2043 (20)	80,902	1,469,888	2068 (45)	117,385	3,938,543
2044 (21)	82,116	1,552,004	2069 (46)	119,146	4,057,689
2045 (22)	83,348	1,635,351	2070 (47)	120,933	4,178,622
2046 (23)	84,598	1,719,949	2071 (48)	122,747	4,301,369
2047 (24)	85,867	1,805,816	2072 (49)	124,588	4,425,957
2048 (25)	87,155	1,892,971	2073 (50)	126,457	4,552,414

[3]Includes ESALs in construction year as per method in ODOT Pavement Design Guide

2-Year ESALs	15-Year ESALs	20-Year ESALs	30-Year ESALs	40-Year ESALs	50-Year ESALs
123,000	1,017,000	1,410,000	2,289,000	3,309,000	4,492,000