

PART 00200 - TEMPORARY FEATURES AND APPURTENANCES

Section 00210 - Mobilization

Description

00210.00 Scope - This Work consists of operations and preparatory Work necessary to become ready to perform the Work or an item of Work.

Construction

00210.40 Mobilization - Mobilization includes, but is not limited to, the following:

- Moving personnel, Equipment, supplies, and Incidentals to the Project Site.
- Establishing offices, buildings, and other facilities necessary for Work on the Project.
- Performing other Work and operations or incur costs as necessary before beginning Work on the Project.
- ~~• Obtaining and maintaining access to DocuSign®, and using DocuSign® to submit documents according to 00170.08.~~

Measurement

00210.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00210.90 Payment - Payment for mobilization will be made at the Contract lump sum amount for the item "Mobilization".

The amounts paid for mobilization in the Contract progress payment will be based on the percent of the original Contract Amount that is earned from other Contract items, not including advances on Materials, and as follows:

- When 5 percent is earned, either 50 percent of the amount for mobilization or 5 percent of the original Contract Amount, whichever is the least.
- When 10 percent is earned, either 100 percent of mobilization or 10 percent of the original Contract Amount, whichever is the least.
- When all Work is completed, amount of mobilization exceeding 10 percent of the original Contract Amount.

This schedule of mobilization progress payments will not limit or preclude progress payments otherwise provided by the Contract.

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

~~No separate or additional payment will be made for any costs associated with obtaining and maintaining access to DocuSign® or the use of DocuSign®.~~

Section 00220 - Accommodations for Public Traffic Description

00220.00 Scope - This Work consists of maintaining facilities to accommodate Public Traffic through and within the Project for the life of the Contract. Public Traffic includes motor vehicles, bicycles, and pedestrians.

00220.01 General:

(a) Beginning of Contractor's Responsibility - The Contractor's responsibilities for accommodating Public Traffic begin on the day any On-Site Work begins within the Project limits.

(b) Abbreviations:

PCD - Pedestrian Channelizing Device
TCD - Traffic Control Devices
TCM - Traffic Control Measures
TPAR - Temporary Pedestrian Accessible Route

(c) Definitions:

Traffic Control Devices - Signs, signals, markings, and other devices placed on, over, or adjacent to a roadway used to regulate, warn, or guide Public Traffic by authority of a public body or official having jurisdiction.

Traffic Control Measures - Elements of the TCP including, but not limited to, TCD, personnel, materials and Equipment used to control Public Traffic through a work zone.

Temporary Pedestrian Accessible Route - An area within a work zone, marked by signing, delineation and TCD, for the use of pedestrians to navigate through or around the work area. The TPAR is included as part of the traffic control plan.

Temporary Pedestrian Accessible Route Plan - A written and drawn plan within the TCP that identifies requirements for providing safe, effective and accessible routes for pedestrians through or around the work zone including TPAR details, advance public notification; and, construction and maintenance responsibilities.

Work Area - The portion of the Highway closed to Public Traffic and set aside for workers, construction Equipment, and construction materials. The work area is typically delineated by channelizing devices or separated from traffic using temporary barriers.

Work Zone - An area within Highway construction, maintenance, or Utility Work activities which extends from the first road Work, Bridge Work, or Utility Work warning sign to the last sign or the last TCD.

(d) Terminology - According to 00110.05(a), for the purposes of this Contract, the terms "sidewalk ramp" and "sidewalk ramps" shall respectively refer to and shall be read to mean "curb ramp" and "curb ramps".

00220.02 Public Safety and Mobility - Provide for the safety and mobility of the public and:

(a) General Requirements:

- Be responsible for damages according to 00170.80.
- Conduct Work at all times so there is the least possible interference with or hazard to the traveling public and the affected community.

- Locate stockpile Materials and park construction Equipment and vehicles that are not in active use a minimum of 30 feet from the Traveled Way. If this is not possible, protect the stockpile Materials, Equipment, and vehicles, with barrier or as directed.
- Provide and maintain safe temporary access to business and residence driveways, temporary intersections, and temporary connections with roads, streets, and bicycle and pedestrian facilities.
- Provide approved protection and delineation between each work area and Public Traffic.
- Allow emergency vehicles immediate passage at all times.
- Use portable changeable message signs (PCMS) according to Section 00222.
- Do not impede the flow of traffic or close any lanes of traffic except as listed in 00220.40(e).
- Do not stop or hold vehicles on a Highway within the Project Site for more than ~~20~~10 minutes.
- Do not block driveways for more than 12 hours unless otherwise authorized in writing.
- Do not close any lanes or pedestrian facilities until the area is signed according to the Plans and the requirements of this Section and Sections 00221 and 00222.
- Do not perform Work that restricts traffic access to and from both sides of the Traveled Way at the same time.
- Do not use temporary steel plating within the Roadway or Shoulder having a preconstruction posted speed zone greater than 35 mph. Steel plating may be used on streets with a posted speed of 35mph or less. When installed, steel plating shall be in accordance with 00222.40(e)~~00225.02~~ and 00405.46(e).
- Do not place work zone signs or sign supports that will block existing walkways or existing bikeways, except at the closure point of a walkway or bikeway.
- Do not stop or hold traffic inside a tunnel during flagger control operations at any time.
- Delineate all business accesses with blue tubular markers on 10 foot maximum spacing. Mark the access with 36-by-24 inch "BUSINESS ACCESS" (CG20 11) signs. Locate and install these signs as directed.
- When pipe backfill cannot be achieved by the end of a work shift and temporary plating is not in place according to 00405.46(e), provide additional temporary traffic control measures, including flagging, as required by the Engineer and at no additional cost to the Agency.

(b) Temporary Pedestrian Accessible Route Plan - For the safety and accessibility of pedestrians, the temporary pedestrian accessible route plan shall provide and maintain TPAR for pedestrian pathways impacted by construction or construction staging, and the following:

- TPAR shall meet the requirements of Part 6 of the MUTCD.
- For intersection Work that impacts the accessibility of pedestrian routes through or around the work zone, limit impacts to one corner of an intersection at a time, unless otherwise shown.
- For all sidewalk or curb ramp closures, install signs and other TCD as shown, and do the following:
 - Limit pedestrian detour lengths to three sides of a city block or 1000 feet, whichever is less.
 - Close the sidewalk at a point where there is an alternate way to proceed, and provide signing and other TCD directing pedestrians to an alternate pedestrian route.
 - Place closure signing at the closure point, as shown.
 - Mount signs between the panels of a Type II barricade or on a single-post temporary sign support, as shown. Place signs facing pedestrian traffic.
- For TPAR where the existing facilities do not meet the requirements of Part 6 of the MUTCD, provide additional TCM and pedestrian detour routes that, as nearly as is practicable, meet or exceed the level of accessibility of existing facility features.

- For TPAR where the existing facilities meet the requirements of Part 6 of the MUTCD:
 - Provide additional TCM and pedestrian detour routes with an approved, non-slip, 60-inch minimum wide surface.
 - Where a 60-inch minimum width along the entire alternate pedestrian route is not possible, provide a minimum 48-inch wide route with a 60 by-60 inch passing space every 200 feet along the route.
- Protect pedestrians and delineate the pedestrian detour route by placing PCD, or other approved devices, between the pedestrian detour route and the work area. Keep PCD in place, except as required for actual Work, until the permanent pedestrian facility is completed and reopened.
- Where the TPAR moves pedestrians vertically between a sidewalk curb and the Roadway surface, and for other similar sudden changes in elevation, provide or construct a temporary curb ramp according to Section 00228 or as shown.
- When Work briefly or intermittently blocks or restricts the use of a pedestrian route, and a temporary detour route is not practicable due to the short duration of the restriction, provide a temporary means of allowing pedestrian access through or around the work area. Means of providing temporary pedestrian accessibility may include, but are not limited to:
 - Temporarily suspending the Work and making the pathway passable.
 - Use of construction staff to guide pedestrians through or around the work area.
- Keep existing pedestrian facilities open during non-work hours or continue to provide a TPAR.

(c) Bicyclists - For the safety and accessibility of bicyclists:

- Protect bicyclists and delineate temporary bicycle routes by placing bicycle channelizing devices (BCD), or other approved devices, between the temporary bicycle route and the work area, as shown or as directed. Keep BCD in place, except as required for actual Work, until the permanent bicycle facility is completed and reopened, or bicycle traffic is returned to its original facility.
- When Work blocks the use of a bicycle route, and a temporary bicycle route detour is not practicable, install "Bikes Merge" ~~"Bicycles ON ROADWAY"~~ (CW411-1) signs in advance of the point where bicyclists must share a Traffic Lane with motor vehicle traffic. Locate the "Bikes Merge" ~~"Bicycles ON ROADWAY"~~ signs as shown or as directed.
- Provide traversable surfaces for temporary bicycle routes free of dirt, mud, gravel or other materials that could cause a bicyclist to slip and fall.

00220.03 Work Zone Notifications - Provide the following work zone notifications:

(a) Over-Dimensional Vehicle Restrictions - When the Project restricts the width, length, height, or weight of vehicles through a work zone or detours trucks around a work zone, fill out and submit a completed copy of the "Highway Restriction Notice-Size and/or Weight" form (Form No. 734-2357), available from the ODOT Motor Carrier Transportation website, at least 35 Calendar Days before the restriction or detour takes effect.

(b) Closures - Submit to the Engineer, in writing, for approval, all proposed closure schedules, as follows:

- **Lanes** - A minimum of 7 Calendar Days before a lane closures begin.
- **Roads** - A minimum of 7~~44~~ Calendar Days before closure. Notify in writing all affected emergency services, school districts, and US Postal Service a minimum of 7~~44~~ Calendar Days before the closure.

- **Interchange Ramps** - A minimum of 14 Calendar Days before closure or starting Work that limits access to the interchange ramp.
- **Pedestrian Facilities** - A minimum of ~~7~~44 Calendar Days before closing a sidewalk, Multi-Use Path, or other pedestrian facility. After receiving written approval, provide a minimum of 10 Calendar Days' public notification before closing a pedestrian facility by placing advance notification signing according to Section 00222 or as shown.
- **Bicycle Facilities** - A minimum of ~~7~~44 Calendar Days before closing a bicycle lane. After receiving written approval, provide 48 hours' public notification before closing a bicycle lane, as directed.
- **On Street Parking** - A minimum of 14 Calendar Days before closing on-street parking. After receiving written approval, provide 48 hours' public notification before limiting the on-street parking. Public notification shall reference Eugene City code 5.225 & 5.350

(c) Public Notice

- Communicate with all properties adjacent to the work a minimum of 5 days before work. Provide documentation of the communication to the Agency.
- Provide approved written notices to all residents and businesses that will have their access disrupted by construction a minimum of 48 hours before the disruption. Typical access disruptions include paving operations, slurry sealing, and pipe laying.
- Coordinate work activities with Lane Transit District, local school districts, Eugene Springfield Fire, Eugene Police, local sanitation services, and USPS.

Construction

00220.40 General Requirements - Provide the following for Public Traffic in all construction areas:

(a) Traffic Nuisance Abatement - If loose Rock or dust exists on Roadway surfaces and Shoulders, the Engineer may direct one or more of the following:

- Use flaggers or pilot cars and flaggers.
- Apply a fine spray of water to the surface as directed.
- Sweep paved surfaces with ~~power brooms~~ vacuum street sweepers.

(b) Detours and Stage Construction - Construct and remove, if required, detours, stage construction Roadways, Shoulders, TPARs, and temporary Bridges, including accessory features shown or ordered.

(c) Driveways - Provide reasonable access as follows:

- Replace and maintain ~~business~~ accesses, driveways, approaches, crossings, and intersections as directed.
- Use reasonably well-graded Aggregate material.
- Before placing the permanent Base, do one of the following:
 - Uniformly spread the temporary Aggregate material over the Subgrade.
 - Remove and place the temporary Aggregate material in the Shoulder slope area if it meets quality requirements.
 - Dispose of the temporary Aggregate material in a manner satisfactory to the Engineer.

(d) Adjacent to Excavations - Where paved Shoulders adjacent to excavations are less than 4 feet wide, protect the traffic as follows:

- At the end of each Calendar Day, backfill Pavement edge excavations to the elevation of the existing Pavement with permanent base material or with a temporary wedge of Aggregate as shown on the Standard Drawings.
- Do not excavate along both edges of the Pavement adjacent to traffic at the same time. Before excavating at the edge of the Pavement on the opposite side of the Roadway, complete the construction to existing Pavement elevation on the side that was excavated first.

- Remove the temporary wedge of Aggregate material, if used, before placing permanent base material, and place it in the Shoulder slope area or spread it uniformly over the Subgrade.

(e) Lane Restrictions:

(1) Closed Lanes - One or more Traffic Lanes may be closed when allowed, shown, or directed during the following periods of time on Work Days from 7:00 am to 7:00 pm except as indicated in 00220.40(e)(2):

- ~~Daily, Monday through Thursday, between 9:00 a.m. and 4:00 p.m.~~
- ~~Friday, between 9:00 a.m. and 3:00 p.m.~~
- ~~Nightly, Sunday night through Friday morning, between 6:00 p.m. and 7:00 a.m.~~

(2) Opened Lanes - Keep all Traffic Lanes and pedestrian facilities open during non-work hours and the following periods:

a. Holidays - ~~Between noon on the day preceding a legal holiday or holiday weekend and midnight on a legal holiday or the last day of holiday weekend, except for Thanksgiving, when no lanes may be closed between noon on Wednesday and midnight on the following Sunday.~~

For the purposes of this Section, legal holidays are as follows:

- New Year's Day on January 1
- Memorial Day on the last Monday in May
- Independence Day on July 4
- Labor Day on the first Monday in September
- Thanksgiving Day on the fourth Thursday and the following Friday in November
- Christmas Day on December 25

When a holiday falls on Sunday, the following Monday shall be recognized as a legal holiday. When a holiday falls on Saturday, the preceding Friday shall be recognized as a legal holiday.

b. Special Events - Between noon on the Day preceding and midnight on the final Day of the special event.

c. Major Arterials – Monday through Friday, from 7:15 a.m. to 8:15 a.m. and from 4:00 p.m. to 6:00 p.m.

d. Downtown Eugene – From December 15 to January 1.

Remove all barricades and objects from the Roadway during the periods in which Traffic Lanes are to remain open.

Maintenance

00220.60 Surface Maintenance Responsibilities - Provide adequately maintained accommodations at all times for Public Traffic through and within the Project Site.

(a) During Construction - The responsibility for maintaining all surfaces during construction is as follows:

(1) Contractor Responsibility - Do the following at no additional cost to the Agency:

- Keep surfaces being used by Public Traffic free of all dirt, mud, gravel, materials, and debris.
- Repair damage to surfaces caused by the Contractor's operations.
- Maintain all detour and stage construction Surfacing as specified or directed.

Before periods of no active Work that last longer than seven consecutive Days, do the following:

- Provide temporary pedestrian surfaces meeting the requirements of the MUTCD and Section 00228.
- Provide traversable bicycle and pedestrian routes with surfaces free of dirt, mud, gravel, and debris.

Before beginning winter shutdown, do the following:

- Provide paved Traffic Lanes at least 12 feet wide, with 2-foot wide paved Shoulders for each direction of traffic.
- Do not leave abrupt edges.
- Remove or cover temporary construction signs unless otherwise directed.
- Clean, install, and reinstall all necessary pedestrian, motor vehicle, and bicycle channelization and pavement markings, unless otherwise directed.
- Provide and maintain adequate street drainage during shut down.

If this winter shutdown Work is not completed and in place, the Agency may do the Work according to 00220.60(d).

(2) Agency Responsibility - The Agency will be responsible to do the following at Agency expense:

- Maintain Existing Surfacing and Shoulders that are being used by Public Traffic at the start of the Project that have not been damaged by Contractor operations.
- Maintain surfaces of detours and intermediate stage construction during the time they are being used by Public Traffic, but only if constructed according to the Plans or as directed.
- Maintain existing surfaces and Shoulders of detours located outside the Project limits during the time they are being used by Public Traffic.
- Sand icy Pavements and remove the sand residue.
- Remove snow from Traveled Ways as required to accommodate Public Traffic.

(b) During Suspensions - During suspensions of the Work, maintain Surfacing for which the Contractor is responsible under 00220.60(a)(1), and maintain work zone traffic control according to the Specifications and the following:

(1) Suspensions Due To Contractor Fault or Neglect - If the suspension is due to any cause within the control or responsibility of the Contractor, including failure to do the following:

- Perform any provisions of the Contract.
- Correct conditions unsafe for the general public, workers or Agency employees.
- Carry out orders given by the Engineer.

Then assume sole responsibility for making provisions for traffic acceptable to the Engineer, and be responsible for the costs of maintaining surfaces under traffic and work zone traffic control during the suspension.

(2) Suspensions Due To Other Causes - If the suspension is due to unforeseen circumstances, or causes not included in 00220.60(b)(1), and if the suspension occurs within the Contract Time or adjusted Contract Time:

- Place uncompleted Traveled Ways, Shoulders, driveways, approaches, sidewalks, connections, and detours necessary for traffic in a maintainable, acceptable condition.
- Be responsible for work zone traffic control.

The Agency will then assume responsibility for maintenance of the Roadway surfaces during the suspension.

(c) Resuming Contract Work after Suspension - After any suspension do not resume Work until approved.

(d) Right of Agency To Perform Work At Contractor Expense - If the Contractor fails to provide adequate accommodations for traffic and to maintain the Traveled Ways and connections as provided in the Contract, the Engineer may proceed immediately to provide adequate accommodations and maintenance. The cost of this Work will be deducted from monies due, or that become due, to the Contractor.

00220.70 Opening Sections To Traffic - When it is in the public interest, the Engineer may order any portion of the work opened to traffic. If the portion opened to traffic has been finished in an acceptable manner, it will be designated as "accepted for traffic", and the Contractor will be relieved of maintaining it for legal, Public Traffic. If the portion of the work to be opened to traffic has not been finished in an acceptable manner, it shall be maintained under traffic by the Contractor in a condition serviceable and adequate for traffic until it is finished in an acceptable manner, except as provided in 00220.60(b).

Maintain portions of the work designated "accepted for traffic" if so ordered. Maintain portions of the work opened to traffic but not "accepted for traffic" at no additional compensation, except watering ordered to protect the work or to alleviate dust will be paid for as provided in Section 00340.

The "accepted for traffic" portions of the work will:

- Be accepted only to the extent the Contractor is relieved of maintaining these portions for legal, Public Traffic after acceptance.
- Not entitle the Contractor to reduction of retainage.
- Not relieve the Contractor's responsibility for defective materials or work.
- Not relieve the Contractor's responsibility for damages to the work from causes other than legal, Public Traffic except as provided in 00170.80.
- Not constitute a waiver of any provision of the Contract.

If the Contractor delays the completion of Shoulders, sidewalks, curb ramps, drainage Structures, or other feature of the work, the Engineer may order all or any portion of the work to be opened to traffic. In this case, the Contractor shall be responsible for maintenance as described in 00220.60(a)(1), during the period the work is opened to traffic, until Final Acceptance. Conduct the remaining operations to cause the least obstruction to traffic, and pay all additional costs caused by the presence of traffic.

Measurement

00220.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00220.90 Payment - No separate or additional payment will be made for Work performed under this Section, unless otherwise provided or Pay Items are provided under other Sections.

In addition, no payment will be made for costs incurred by the Contractor because of:

- Inconvenience, additional length of travel to conform to established traffic patterns and planned access features.
- Compliance with laws governing traffic regulations, the ADA, and load limitations.

Costs anticipated because traffic will be using portions of the work will be included in the Contract prices for the various items of Work involved.

Section 00221 - Common Provisions for Work Zone Traffic Control

Description

00221.00 Scope - In addition to the requirements of Section 00220, this Work consists of providing temporary traffic control measures and furnishing, installing, moving, operating, maintaining, inspecting, and removing traffic control devices throughout the Project area according to the Standard Drawings, the traffic control plan for the Project, the Specifications, and as directed.

00221.01 Abbreviations, Definitions, and Standards:

(a) Abbreviations:

ADT	- Average Daily Traffic
PCD	- Pedestrian Channelizing Devices
PCMS	- Portable Changeable Message Sign
TCD	- Traffic Control Devices
TCM	- Traffic Control Measures
TCP	- Traffic Control Plan
TCS	- Traffic Control Supervisor
TPAR	- Temporary Pedestrian Accessible Route
TSS	- Temporary Sign Support

(b) Definitions:

Protection Vehicle - A vehicle placed in advance of short duration or mobile Work activities for the protection of workers and Equipment in the activity area. A protection vehicle is equipped with flashing warning lights, and vehicle-mounted warning signs or a changeable message sign. A protection vehicle may be fitted with a truck mounted impact attenuator.

Temporary Pedestrian Accessible Route - An area within a work zone, marked by signing, delineation and TCD, for the use of pedestrians to navigate through or around the work area. The TPAR is included as part of the traffic control plan.

Temporary Pedestrian Accessible Route Plan - A written and drawn plan within the TCP that identifies requirements for providing safe, effective and accessible routes for pedestrians through or around the work zone including TPAR details, advance public notification; and, construction and maintenance responsibilities.

Temporary Walk – Temporary Surfacing for a sidewalk or Multi-Use Path designated to be used by pedestrians, bicyclists, or other non-motorized users.

Traffic Control Devices - Signs, signals, markings, and other devices placed on, over, or adjacent to a Roadway used to regulate, warn, or guide Public Traffic by authority of a public body or official having jurisdiction.

Traffic Control Measures - Elements of the TCP including, but not limited to, TCD, personnel, materials and Equipment used to control Public Traffic through a work zone.

Traffic Control Plan - A written and drawn plan for providing the safe and efficient movement of Public Traffic through or around a work zone, while providing protection for workers, incident responders, and Equipment.

Work Area - The portion of the Highway closed to Public Traffic and set aside for workers, construction Equipment, and construction Materials. The work area is typically delineated by channelizing devices or separated from traffic using temporary barriers.

Work Zone - An area within Highway construction, maintenance, or Utility Work activities which extends from the first road Work, Bridge Work, or Utility Work warning sign to the last sign or the last TCD.

(c) Standards - When designing, applying, installing, maintaining, inspecting, and removing traffic control devices, use and follow the most current versions in effect of the following:

- Oregon Department of Transportation's *Sign Policy and Guidelines for the State Highway System*
- *The Manual on Uniform Traffic Control Devices (MUTCD)*
- *FHWA Standard Highway Signs manual*
- *ODOT Oregon Temporary Traffic Control Handbook for Operations of 3 Days or Less* when directed by the Engineer ~~only for mobile Pavement marking operations or surveying Work~~, available on the ODOT Traffic Control Plans Unit website (see 00110.05(e))
- *ODOT Oregon Portable Changeable Message Sign Handbook*, available on the ODOT Traffic Control Plans Unit website
- *ODOT Traffic Control Plans Design Manual*, available on the ODOT Traffic Control Plans Unit website

00221.02 General Requirements - Provide and maintain all TCM. The Engineer may verbally or in writing require immediate changes to the TCM being used on the Project. Immediately make these changes, as directed. Submit all proposed TCM revisions to the Engineer for approval.

Do not start Work on any stage of construction until the TCP has been reviewed and accepted and all TCM are in place and the TCP is operating satisfactorily. During construction, determine if TCM, in addition to those in place, are required and immediately notify the Engineer. Immediately make changes as approved or directed, but do not place or remove devices without prior approval.

Work may be suspended as specified in 00180.70 or the TCM may be performed by the Agency if the Contractor fails to correct an unsafe condition. Costs for Work performed by the Agency may be deducted from monies due the Contractor.

00221.03 Traffic Safety and Operations - Comply with the following:

- Do not use an open Traffic Lane on a freeway or multi-lane facility as an acceleration or deceleration lane for construction vehicles. Provide additional Surfacing or width within the work area or, if allowed, extend the length of a closed Traffic Lane for construction vehicle acceleration or deceleration. Do not use a flagger to allow construction vehicles to access an open Traffic Lane on a freeway or a multi-lane facility.
- When paving operations create an abrupt edge, 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).
- During flagging operations, monitor the length of traffic queues and when extended traffic queues develop, protect traffic by providing advance flaggers and additional signing according to the "Extended Traffic Queues for Advance Flagging" detail shown on the Standard Drawings.

00221.04 Traffic Control Outside Project Site - Provide TCM outside the Project Site when required.

00221.05 Regulations and Codes - All electrical Equipment, Materials, and Work shall conform to NEC requirements and all other laws that apply.

00221.06 Traffic Control Plan - The Contractor will be allowed to use the Agency's TCP, modify the Agency's TCP, or use a different TCP. Submit the following for approval 5 Calendar Days before the preconstruction conference:

(a) Agency Traffic Control Plan - If the Agency's TCP is used without modification, a written notification indicating that the Agency's TCP will be used without modification.

(b) Contractor Modified Traffic Control Plan - If the Contractor requests to use a modified Agency TCP, or a TCP developed by the Contractor, ~~provide stamped~~ submit Working Drawings according to 00150.35 that include the proposed TCP showing all TCM and quantities of TCD, and the following:

- A TPAR plan that includes:
 - Details and features used to provide pedestrian accessibility.
 - Pedestrian staging Plans at a scale no smaller than 1 inch = 50 feet.
 - Temporary alternate facilities or detour routes for pedestrian traffic.
- Staging sequences and details for Work affecting vehicular, pedestrian, and bicycle traffic.
- Proposed order and duration of the TCM.
- A detailed temporary striping plan.
- Incorporate all appropriate standards from the latest editions of: Manual of Uniform Traffic Control Devices (MUTCD) and ODOT's Oregon Temporary Traffic Control Handbook;
- Include Contractor and project name (if applicable), contact name, and phone number;
- Be clearly drawn in such a manner to facilitate easy review and field interpretation and not contain details unrelated to temporary traffic control activities;

- Include accurate and clearly defined dimensions for the work zone, staging, and peripheral storage area(s) – including dimensions to adjacent impacted traffic facilities, i.e., signal loops, intersections, pedestrian areas, bicycle facilities, etc.;
- Provide a complete design for each phase of any staged activity, including narrative on proposed sequencing order;
- Include a north arrow and all street names;
- Include all appropriate existing features, i.e., intersections, access ramps, driveways, street width, lane width, lane lines, curbs, curbside parking, bike lanes, off street bike paths, sidewalks, bus stops, signals, existing regulatory signage – including posted speed, side street names, any other infrastructure impacted affected by proposed activity, or advanced signage, etc.;
- Include taper lengths, device spacing, and a sign and control device legend referenced by appropriate plan symbols or specific, separate identification of each sign and device;
- Include a brief narrative on the plan or in a cover letter – including detailed explanation of proposed activity, proposed date(s) and hours of activity, how work zone will be controlled during non-work hours, how access to adjacent properties will be accommodated, and if proactive advance coordination has occurred with affected impacted right-of-way users, i.e., LTD, local school district(s), Fire, Eugene Police, local sanitation services, USPS, etc.;
- Include a minimum open space of 4 inches by 4 inches or an equal sized margin to accommodate City comments and stamp of approval, for City Approved Stamp.

Temporary traffic control plans received without the proceeding required information will be returned to the applicant. Upon completion, the applicant may resubmit for review and approval. No adjustment of Contract Time will be allowed

TCP revisions shall be approved by the Engineer prior to implementation.

If at any time during the work the Engineer determines the Traffic Control Plan to be inadequate, the Contractor shall provide and install the additional signs and devices.

Allow 5 work days for Engineer to review and return the drawings. Drawings which are not approved, shall be corrected and resubmitted for review as specified above. Allow 5 work days for Engineer to review drawings each time they are resubmitted.

Public traffic shall be permitted to pass through the work area, or an approved detour, with as little inconvenience and delay as possible. Bicycle and pedestrian lanes and pathways are legal travel lanes and must be treated as such. They shall be free of obstructions with as little delay as possible. Lane and pathways will be maintained free of debris to allow safe passage. The minimum travel lane width for a bicycle lane through a work zone area shall be 4 feet. For temporary bicycle and pedestrian lanes and pathways, ramps must be used where the elevation difference is greater than ½ inch.

When signs are required for which specifications are not listed in the Standard Specifications or the Special Provisions, the Contractor shall submit drawings for approval by the Engineer.

~~If additional modifications are made to the Contractor modified Agency TCP or the Contractor's TCP, submit stamped Working Drawings, according to 00221.06(b), at least 14 Calendar Days before beginning the construction activities that require the TCP changes.~~

(c) Tourist-Oriented Directional and Business Logo Signs – When required in the Special Provisions provide oOne copy of a sketch map of the Project showing all existing tourist-oriented directional (TOD) and business logo signs and a written narrative describing how these signs will be kept in service and protected throughout all the construction stages.

~~If there are no TOD or business logo signs on the Project, a written notification that no TOD or business logo signs exist within the Project limits.~~

00221.07 Routing Traffic Over Surfacing - Control traffic being routed over surfaces as follows:

(a) Aggregates - When directed, control traffic over Aggregate with flaggers or flaggers and pilot cars.

(b) Asphalt Treated Permeable Base - When directed, control traffic over asphalt treated permeable Base (ATPB) with flaggers or flaggers and pilot cars.

(c) Asphalt Concrete - Control traffic over asphalt concrete as follows:

(1) Paving - When the longitudinal joint is greater than 4-2 inch in height, install additional TCD according to 00221.03. Complete the placing of ACP and construction of paving joints according to 00744.44, 00744.45, 00745.47, and 00745.48, as applicable.

(2) Cold Plane Pavement Removal - Complete the Pavement removal according to 00620.40. When the area cannot be paved back during the same shift and the depth of Pavement removal is greater than 1 inch, install additional TCD according to 00221.03.

(d) Emulsified Asphalt Chip Seals - Control traffic over Emulsified Asphalt chip seals with flaggers and pilot cars, unless otherwise directed, until the entire surface has been swept or bladed after the Aggregate was placed as tabulated below:

ADT	Minimum Pilot Cars
Over 1500	2
1500 and Less	1

(e) Sand Seals - Control traffic with flaggers and pilot cars during application of asphalt and until it is covered with Aggregate, unless otherwise directed.

Materials

00221.10 General - Evaluate the condition of TCD using the criteria shown in the most current version in effect of the American Traffic Safety Services Association (ATSSA) publication titled *Quality Guidelines for Temporary Traffic Control Devices and Features*, available from the ATSSA website (see 00110.05(e)). Use new TCD or TCD meeting the "Acceptable" quality category of the ATSSA publication for all installations unless otherwise specified. Provide test results, quality compliance certificates, Equipment lists, and drawings when specified. Acceptance will be by the QPL, test results, quality compliance certificates, Equipment lists, drawings, and testing as necessary to assure compliance with the Specifications. After TCD have been installed and accepted on the Project, inspect and maintain the condition of the devices.

All work zone TCD shall comply with the crashworthiness requirements of the *National Cooperative Highway Research Program (NCHRP) Report 350* or with the *AASHTO Manual for Assessing Safety Hardware (MASH)*.

00221.13 Work Zone Fencing - Use work zone fencing from the QPL.

Equipment

00221.20 Safety Apparel - Workers, except flaggers, working within Highway Right of Way and exposed to traffic or construction Equipment shall wear high visibility safety apparel that meets the Performance Class requirements of the most current version of ANSI/ISEA 107, *American National Standard for High Visibility Safety Apparel and Headwear Devices*. Wear safety apparel that at least meets the following minimum requirements:

- Daytime – Class 2 upper body garment.
- Nighttime - One of the following:
 - Class 3 upper body garment.
 - Class 2 upper body garment and Class E trousers or gaiters.
- ANSI Class 2 or Class 3 fluorescent orange red, fluorescent yellow green or a combination of the two of these colors for the apparel background material color.
- Fluorescent yellow-green, orange, yellow, or bright white hardhat or baseball-style cap. Wear hardhats when there is danger of falling or flying objects or electrical shock or burns.

Wearing high visibility safety apparel that exceeds the minimum class requirements is allowed.

Labor

00221.30 General - Observe all laws concerning safety, health, and sanitation standards according to 00170.60.

Construction

00221.40 General - Install, inspect, move, operate, maintain, and remove temporary TCD according to the Plans, Specifications, and the following:

- Install, maintain, and move all TCD by working with the direction of traffic.
- Provide additional TCM, according to 00221.02, when necessary or directed.
- Turn, cover, or remove the existing TCD as directed when they are not necessary or conflict with temporary devices. Remove and obliterate, without damaging the wearing surface, all evidence of all temporary TCD when the Contract is completed.
- Remove TCD in a sequence reverse to installation.

Temporary TCD remain the property of the Contractor.

Existing TCD shall remain in operation throughout the Contract or until replaced by new, permanent TCD as appropriate.

00221.44 Work Zone Fencing - Install work zone fencing as shown or as directed.

Maintenance

00221.60 Temporary Traffic Control Devices - Evaluate the condition of TCD and maintain them using the criteria shown in the most current version of the ATSSA publication titled *Quality Guidelines for Temporary Traffic Control Devices and Features*. Except for electrical devices, replace all TCD that, according to the ATSSA publication, are in "Marginal" or "Unacceptable" condition with equal devices that are in new or "Acceptable" condition, within a time period agreed upon by the Engineer.

Electrical devices that are in "Marginal" or "Unacceptable" condition may be repaired instead of being replaced, as long as the repairs are satisfactorily completed within a time period agreed upon by the Engineer.

TCD delivered to the Project Site found to be in "Marginal" or "Unacceptable" condition, shall be repaired or replaced at no additional cost to the Agency except as in 00221.90(b). TCD damaged by Public Traffic shall be replaced at the Contract unit price for the device.

Evaluate, maintain, repair or replace TCD, and perform other duties including the following:

- Keep TCD in proper position, clean, and legible at all times.
- Keep lights, reflectors, and flashers clean, visible, and operable during both daylight and darkness.
- Trim or remove vegetative growth or other materials so TCD can be seen by Public Traffic.
- Verify, by inspection, the effectiveness of the installations at frequent intervals, both in daylight and darkness, at actual travel speeds.
- Repair, replace, or restore damaged or destroyed TCD to maintain continuity and effectiveness.
- Maintain temporary TCD during suspensions of Work the same as if Work were in progress.

00221.61 Existing Signs and Other Existing Traffic Control Devices - Maintain existing guide signs, warning signs, regulatory signs, specific service signs (business logos), tourist-oriented directional signs (TODS), and other existing TCD, in the same manner as temporary signs and devices associated with the Project.

Measurement

00221.80 Measurement, Method "A" - Under this method, Work covered under this Section will be measured as follows:

(a) Separate Items - The quantities for work zone TCM and TCD will be measured according to 00222.80, 00223.80, 00224.80, 00225.80, 00226.80, 00227.80, and 00228.80.

(b) Temporary Protection and Direction of Traffic - No measurement of quantities will be made for this Work.

00221.88 Measurement, Method "B" - Under this method, no measurement of quantities will be made.

00221.89 Measurement, Method "C" - Under this method, no measurement of quantities will be made.

Payment

00221.90 Payment, Method "A" - Under this method, Work will be paid as follows:

(a) Pay Quantities - The accepted quantities of work zone TCM and TCD will be paid for according to 00222.90, 00223.90, 00224.90, 00225.90, 00226.90, 00227.90, and 00228.90.

(b) Temporary Protection and Direction of Traffic - Temporary protection and direction of traffic will be paid for at the Contract lump sum amount for the item "Temporary Protection and Direction of Traffic" and will be for:

- Positioning all TCD in proper locations at all times.
- Providing and furnishing electrical power.
- Cleaning up and removing devices destroyed or damaged by Public Traffic.
- Moving temporary barrier to and from Contractor's stockpile areas.
- Moving temporary impact attenuators of any type to and from Contractor's stockpile areas.
- Furnishing, placing, replacing, maintaining, moving and removing tubular and conical markers.
- Removing existing raised and recessed pavement markers.
- Furnishing, placing, replacing, maintaining, moving and removing tubular and conical markers used to delineate the Pavement edge because of edge line obliteration.
- Furnishing, installing, maintaining, moving, and removing work zone fencing.
- Moving and removing existing permanent post mounted signs and reinstalling existing permanent post mounted signs on any type of support at new locations when required by stage construction, as shown or directed.
- Providing, Surfacing, maintaining, removing, and restoring the TPAR.
- Performing routine inspections of the TCD.
- When the Schedule of Items does not include an item for a TCS, preparing and signing the daily "Traffic Control Inspection Report".

00221.98 Payment, Method "B" - Lump Sum Basis - Work zone traffic control will be paid for at the Contract lump sum amount for the item "Temporary Work Zone Traffic Control, Complete".

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

Partial payments for "Temporary Work Zone Traffic Control, Complete" will be made as follows:

<u>When initial TCD or TCM are installed as part of the TCP.....</u>	<u>50%</u>
<u>When 50 percent of the Contract is complete, excluding advances on Materials.....</u>	<u>25%</u>
<u>At completion of the Work covered by this section, and all TCD or TCM are removed from the Project Site.....</u>	<u>25%</u>

00221.99 Payment, Method "C" - Incidental Basis - When the Contract Schedule of Items does not indicate payment for work zone traffic control, all work zone traffic control will be considered Incidental and no separate payment will be made.

Section 00222 - Temporary Traffic Control Signs

Description

00222.00 Scope - In addition to the requirements of Section 00221, this Work consists of furnishing, installing, moving, operating, maintaining, inspecting, and removing temporary signs.

Materials

00222.10 Temporary Signs - Furnish temporary signs meeting the requirements of the "Acceptable" category shown in the ATSSA *Quality Guidelines for Temporary Traffic Control Devices and Features* handbook, available from the ATSSA website. Use materials and fabricate signs conforming to Section 00940, Section 02910 and the following:

(a) Size and Shape - Use standard size and shape signs meeting the requirements of 00221.01(c) unless otherwise specified or ordered. Double-face signs will not be allowed except for the flagger "STOP/SLOW" paddle. For diamond shaped warning signs, use 48 by 48 inch signs unless otherwise shown or specified.

(b) Type - Use ASTM Type VIII or IX sheeting from the QPL for fluorescent orange retroreflective sheeting on temporary warning signs and ASTM Type III or IV sheeting from the QPL for all other fluorescent colored retroreflective sheeting on temporary signs, unless otherwise indicated in this Section or in the TCP. Fabricate these signs on one of the following materials:

- New sheet aluminum sign blanks.
- New extruded aluminum panels.
- Used sheet aluminum sign blanks that are without bends, tears, holes, or dents and that have been cleaned to bare metal.
- 3/4 inch high-density overlay plywood.
- 3/4 inch medium-density overlay plywood.

(c) Folding or Turning Signs - Temporary signs on posts may be the folding or turning type as long as they can be locked when not in use so the sign message is not visible to any traffic.

(d) Roll-up Signs - Use roll-up signs with retroreflective roll-up sign sheeting from the QPL.

00222.11 Sign Supports:

(a) Wood Sign Posts - Use wood sign posts in the sizes and quantities as shown on the Standard Drawings and according to 02110.40, except posts may be untreated.

(b) Portable Sign Supports - Use portable sign supports from the QPL and conforming to the following:

- Free standing.
- Capable of supporting signs in vehicle-caused turbulence and in winds common to the area where they are used. If additional ballast is required to maintain the signs in an upright position, use sandbags to anchor the sign support legs. Place a sandbag filled with loose sand (approximately 25 pounds) across the bottom of each leg as needed.

(c) Temporary Barrier Sign Supports - Use concrete barrier sign supports that meet the following:

- Conform to the Standard Drawings.
- Attach securely to the top of the concrete barrier.
- Support a maximum 12 square feet of total sign area.

(d) Temporary Sign Supports - Fabricate and use TSS as shown on the Standard Drawings and according to 02110.40, except posts may be untreated.

(e) Perforated Steel Square Tube Sign Supports - Use perforated steel square tube (PSST) sign supports from the QPL and as shown on the Standard Drawings. For PSST sign supports mounted on portland cement concrete surfaces, use surface mounted post anchors according to the manufacturer's recommendations.

00222.12 Sign Covers:

(a) Temporary Signs - Use sign covers for temporary signs that meet the following requirements:

- From the QPL or made from one of the following materials:
 - One-piece plywood.
 - Geotextile fabric.
 - Large enough to completely cover the sign and attached rider signs.
 - Easy to attach to and remove from the sign without damaging the sign face.
 - Black and non-reflective.
 - Opaque to prevent message visibility under day and nighttime conditions.

(b) Permanent Signs - Sign covers for permanent signs shall conform to Section 00941.

00222.13 Sign Flags - Sign flags shall be:

- Fluorescent red-orange.
- Square 16 by 16 inches or larger.
- Made from an acceptable tightly woven fabric or plastic sheeting.

00222.14 Sign Flag Boards - Use sign flag boards as shown on the Standard Drawings.

00222.15 Temporary Electrical Signs - Furnish electrical signs meeting the following requirements:

(a) Sequential Arrow Signs - Use Type "C" sequential arrow signs from the QPL.

(b) Portable Changeable Message Signs - Use PCMS from the QPL. In addition, Wanco WVT3(A) or WVT3(B), or approved equal, is approved for use. If an alternate PCMS, not listed on the QPL, to the Wanco WVT3(A) or WVT3(B) is proposed, request the approval criteria from the Engineer and then submit a document proposing the desired PCMS and listing the approval criteria and how the proposed PCMS meets each criteria. Allow 5 Work days for review of the proposal by the Engineer. Following review of the Contractor's proposal, the Engineer will either approve or reject the proposal, or request additional information if the proposal is inadequate or incomplete. If the proposal is inadequate or incomplete, the Engineer will take up to 5 Work days to review the resubmitted proposal. The PCMS proposed for use shall not be used until approved by the Engineer. No additional contract time will be added to the contract for the Engineer's review of the proposal, or review of resubmitted proposals.

(c) Radar Speed Trailers - Use radar speed trailers with a Type 2 panel from the QPL, Conditional List, or as approved.

Construction

00222.40 Temporary Signs - Once temporary signs have been accepted and paid for on the Project, do not remove them from the Project, until directed by the Engineer.

For all temporary warning signs use fluorescent orange retroreflective sheeting background.

Install all temporary signing according to the Plans, Section 00940, the MUTCD, the *Sign Policy and Guidelines for the State Highway System*, FHWA *Standard Highway Sign* manual and the following:

(a) Speed Signs - Use speed signs as follows:

(1) Advisory Speed Signs - Install advisory speed warning signs or riders as shown or directed.

(2) Regulatory Speed Zone Signs - Install and maintain regulatory speed zone signs as directed and according to the "Temporary Speed Zone Order" signed by the State Traffic Engineer.

When regulatory speed zone signs are used, cover conflicting existing regulatory speed zone signs with sign covers according to Section 00941. Cover or remove temporary regulatory speed zone signs and restore the original speed zone signs according to the "Temporary Speed Zone Order" and when directed.

If an existing regulatory speed zone sign displaying the original speed is 1,000 feet or less beyond the limits of the temporary speed zone, additional temporary regulatory speed zone signs displaying the original speed are not required.

(b) Roll-up Signs - Roll-up signs may be used at a single location for no more than 48 consecutive hours. Place roll-up signs within the active Work Area on portable roll-up sign supports. Remove all inappropriate roll-up signs at the end of each shift.

(c) Inconsistent Temporary Signs - Ensure that all temporary signs are properly used and consistent with the work zone. Cover all inconsistent temporary signing until the sign messages are applicable to the Work that is beginning. When signage is no longer required for staging or shift Work, remove all temporary signs, sign flag boards, supports, sign covers, and ballast associated with the staging or shift Work.

When temporary sign messages conflict with work zone conditions, traffic patterns, or other staging configurations, but signs are needed later in Project, do the following:

- Turn or cover the signs so the message is not visible to any traffic.
- Remove or cover sign flag boards.
- When covering signs and sign flag boards, use covers meeting the requirements of 00222.12.

When it is determined that only minor Work remains on the Project and the work area does not encroach on Traffic Lanes or Shoulders, do the following:

- Remove all temporary signs, including the advance construction and Project identification signs.
- Remove all sign flag boards and ballasts.
- Use roll up signs on portable sign supports for minor or short duration Work.

(d) Permanent Signing - When permanent sign messages conflict with adjacent temporary signing, work zone conditions, traffic patterns or other staging configurations, do the following:

- Turn or cover the signs so the message is not visible to any traffic.
- When covering signs, use sign covers meeting the requirements of 00222.12(b).

When work zone conditions change and permanent sign messages no longer conflict with temporary signing, uncover permanent signs. Install or uncover appropriate permanent signing as required, before changing traffic control staging.

(e) Temporary Sign Placement - Place temporary signs as shown, specified, and directed:

- ~~Install a "TRUCKS" (W11-10) sign with an 18 inch "500 FEET" (W16-4P) plaque, approximately 500 feet before each point of access of all noncommercial stockpile sites, work zone staging area, material sources, waste areas, and plant set-up areas to a public Roadway.~~
- When a through road intersects the work zone, place a "ROAD WORK AHEAD" (W20-1) sign in advance of the intersection at sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings, or as shown in the TCP. These signs do not require sign flag boards, unless otherwise directed.
- When steel plates are placed within the roadway install a "BUMP" sign 50-feet in advance of the steel plate installation. If multiple steel plates are placed within the roadway install additional "BUMP" signs as needed and no less than every 400-feet along the section of roadway with steel plate installations.
- When a manhole, valve box, or other structure protrudes more than 1-inch above the adjacent roadway surface, install a "BUMP" sign 50-feet in advance of the protruding structure. If multiple structures protrude more than 1-inch above the adjacent roadway surface install additional "BUMP" signs as needed and no less than every 400-feet along the section of roadway with protruding structures.
- When a cold planed Pavement surface is used by traffic, install the following temporary signs:
 - "BUMP" (W8-1) sign approximately 100 feet in advance of the transverse paving edge.
 - "GROOVED PAVEMENT" (W8-15) sign with a 24 inch "Motorcycle" (W8-15P) rider in advance of the "BUMP" sign at sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings, or as shown in the TCP.

Face signs toward incoming traffic and install them before opening the cold planed surface area to Public Traffic. Protect exposed transverse and longitudinal cold planed Pavement edges according to 00221.07(c).

00222.41 Sign Supports:

(a) Wood Sign Posts - Except as provided in the following (b) through (f), mount all temporary signs on wood sign posts as shown.

When sign posts are installed in Rock, a shorter post may be used if the post is installed in a buried concrete footing at least 12 inches in diameter and 2 feet deep.

(b) Portable Sign Supports - Use portable sign supports as follows:

- When signs are needed at a single location for no more than 48 consecutive hours.
- Positioned so the lowest point of the sign is at least 1 foot above the Roadway surface.
- With roll-up signs.
- With ballast to prevent tipping of the signs in high wind.

Turn, cover, or remove signs at the end of each work shift when the condition is no longer in effect.

(c) Temporary Barrier Sign Supports - Mount signs on temporary barrier so the:

- Lowest point of the sign is at least 7 feet above the Roadway surface.
- Temporary sign and post are held securely to temporary barrier by an approved device.
- Sign can be turned and locked in a position parallel to the flow of traffic when not in use.

(d) Temporary Sign Supports - Use TSS as follows:

- When signs are needed at a single location for more than 48 consecutive hours.
- When not practicable to post mount due to location or when Utility conflicts exist.

- Provide reflective sheeting on TSS posts as shown in the Standard Drawings.
- Do not tip over any TSS that is exposed to traffic, unless approved by the Engineer or the TSS is protected from traffic by a barrier system.
- Position TSS as shown on the Standard Drawings or in the TCP.
- When not in use, locate TSS as far from Public Traffic as practicable and turn away from traffic, or cover the sign. Do not cover reflective sheeting on the TSS posts.

(e) Perforated Steel Square Tube Sign Supports - Perforated steel square tube sign supports may be used as a substitute for wood sign posts. Install perforated steel square tube sign supports as shown on the Standard Drawings. For PSST sign supports mounted on portland cement concrete surfaces, use surface mounted post anchors according to the manufacturer's recommendations.

(f) Existing Facility Sign Supports - When mounting temporary signs on existing facilities, install signs as shown on the Standard Drawings or other mounting methods approved by the Engineer.

00222.44 Sign Flag Boards - Install two sign flag boards, as shown or specified.

00222.45 Temporary Electrical Signs - Provide and install temporary electrical signs as follows:

(a) Sequential Arrow Signs - Use the sequential arrow signs as follows:

- To indicate a lane closure only. Use one sequential arrow sign for each lane being closed.
- Install where the sign is visible from ~~800 feet~~ ^{1/2-mile} minimum.
- Mount at a height of 7 feet from bottom of sign to ground.
- Do not use on 2-Lane, 2-Way Roadway.
- For Shoulder Work use caution mode only.
- Provide a solar/battery power source.

(b) Portable Changeable Message Signs - Use PCMS according to the *Oregon Portable Changeable Message Sign Handbook* and as follows:

- Program concise accurate messages according to the *Oregon Portable Changeable Message Sign Handbook*.
- Install beyond the outside Shoulder, behind existing barrier or guardrail, as shown in the TCP, or as directed when conditions do not allow the PCMS to be located beyond the Traffic Lane.
- Install the PCMS device where it can be seen from ~~800 feet~~ ^{1/2-mile} minimum. The PCMS message should be legible from 800 feet in the daytime and 600 feet at night.
- Mount so that the bottom of the sign is 7 feet above the ground.
- Program so that the entire message is displayed within 8 seconds.
- Use a maximum of two panels to display an entire message.
- Separate two PCMS used in sequence by ~~400~~ ⁴⁰⁰ feet minimum.
- Messages shall not scroll horizontally or vertically across the face of the sign.
- When the PCMS is not being used to display any messages for more than 5 consecutive Calendar Days, remove the PCMS from the Roadway and locate the device at least 30 feet from the edge of the nearest Traffic Lane, place behind a barrier system, or as directed.
- Provide a solar/battery power source.
- Obtain approval from the Engineer before displaying or altering messages.

- Type B, Mini PCMS use is limited to locations where the preconstruction posted speed is 40 mph or less.

(c) Radar Speed Trailers - Use radar speed trailers according to the Plans and the following:

- Place and delineate according to the Flagger Station Lighting Delineation detail as shown on the Standard Drawings, or as directed.
- Operate radar speed modes and set speed thresholds as directed and as follows:
 - Use an over speed threshold equal to the posted speed on the radar speed trailer.
 - Use a blackout speed threshold of 85 mph, which does not allow the radar speed trailer to display a speed or message when the measured speed exceeds 85 mph.
- Program to display the over speed message as follows, or as approved by the Engineer:

SLOW
DOWN
- Ensure that the over speed message is displayed when the measured vehicle speeds exceed the posted speed mounted on the radar speed trailer but do not exceed the blackout speed threshold.
- Provide speed and event logging data to the Engineer at the completion of the Project, in a format compatible with Microsoft Excel.
- When not actively displaying speeds, remove from the Roadway and locate the radar speed trailer at least 30 feet from the nearest open Traffic Lane, behind a barrier system, or as directed.

(d) Temporary Power Source - Arrange for, provide, and pay for all electrical power.

Maintenance

00222.65 Portable Electrical Signs - Maintain and use the required PCMS, radar speed trailers, and sequential arrow signs according to the manufacturer's recommendations, TCP, and as required. Do not display or alter any sign message before it is approved.

While PCMS, radar speed trailers, and sequential arrow signs are in use, have repair Equipment and parts on the Project Site, as recommended by the manufacturer.

When directed, repair or replace sequential arrow signs, radar speed signs, and PCMS that are damaged or destroyed before continuing Work that requires use of the signs.

Measurement

00222.80 Measurement - The quantities of temporary signs will be measured according to the following:

(a) Area Basis - Temporary signs will be measured on the area basis, upon delivery to the Project. The quantities will be limited to those in the approved TCP including speed zone signage. The sign area will be the nominal area determined by multiplying the width times the length. No deductions will be made for corners or irregular shapes. Route markers on separate substrate riders and other signs fastened to the face of larger signs will be measured as separate signs.

Sign covers, sign flags, sign flag boards, posts and other supports will not be measured.

(b) Unit Basis - Temporary electrical signs will be measured on the unit basis, where the devices are initially installed on the Project.

The quantities for work zone traffic control measures will be limited to the following, unless otherwise specified:

- The initial installation of quantities necessary to complete the Project based on the Contract Schedule of Items.
- The initial installation of additional TCD and TCM that the Engineer and Contractor agree are necessary to ensure a safe work zone.
- Temporary signing and temporary electrical signs damaged by Public Traffic and replaced or repaired by the Contractor will not be measured.

Payment

00222.90 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) Temporary Signs.....	Square Foot
(b) Sequential Arrow Signs.....	Each
(c) Portable Changeable Message Signs.....	Each
(d) Radar Speed Trailer.....	Each

Items (b) and (c) include furnishing, mounting, operating, moving, and removing signs and supports, regardless of whether the signs are mounted on supports, trailers, vehicles, or Equipment.

Item (c) will be paid 50% upon initial installation, and 50% upon completion of work as covered by this section and removing the Portable Changeable Message Signs(s) from the Project Site.

Item (d) includes furnishing, operating, moving, maintaining, and removing the radar speed trailer.

No separate or additional payment will be made for sign flags, sign flag boards, posts and other supports, sign covers, or removing and replacing damaged signs.

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

00222.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00223 - Work Zone Traffic Control Labor and Vehicles

Description

00223.00 Scope - In addition to the requirements of Section 00221, this Work consists of providing flaggers, traffic control supervisors, and furnishing, operating, and maintaining associated work zone traffic control vehicles.

Equipment

00223.21 Flagger Equipment - Equip flaggers as follows:

- For daytime and nighttime flagging operations, wear high-visibility safety apparel that meets the Performance Class requirements of the most current version of ANSI/ISEA 107, *American National Standard for High Visibility Safety Apparel and Headwear Devices*. Wear safety apparel that at least meets one of the following minimum requirements:
 - Class 3 upper body garment.
 - Class 2 upper body garment and Class E trouser or gaiters.
- Safety apparel with background material colors according to 00221.20.
- A hardhat or baseball-style cap according to 00221.20.
- A minimum 18 by 18 inch "STOP/SLOW" paddle made of rigid substrate and fabricated using type ASTM Type IX or XI / ASTM Type VIII or IX sheeting, or a flagger STOP/SLOW paddle from the QPL. A 24 by 24 inch STOP/SLOW paddle is recommended for higher speed situations or where more visibility is desired.
- Portable, self-contained two-way radio and repeaters, as required, with a range suitable for communications throughout each work zone, unless otherwise directed.

00223.22 Flagger Station Lighting - Use flagger station lighting from the QPL and conforming to the following:

- Illuminates the flagger so that the flagger is visible, and is discernable as a flagger, from a distance of 1,000 feet.
- Illuminates the flagger from above at a height of 18 feet \pm 3 feet.
- The light is shielded from approaching traffic.
- In addition to the products listed on the QPL, tripod mounted or cart mounted flagger station lights that were purchased on or before January 1, 2014 and that were on the QPL before January 1, 2014 may also be used. Provide proof of the original purchase date to the Engineer.
- Vehicle lights and street lights will not be considered adequate for work site illumination.

00223.23 Automated Flagger Assistance Device - Furnish an automated flagger assistance device (AFAD) from the QPL. Submit the following information for approval for the use of an AFAD to the Engineer, according to 00150.37, a minimum of 21 Calendar Days in advance of using an AFAD. The Engineer will respond within 14 Calendar Days after receipt of the submittal.

- Manufacturer's specifications and operation instructions for the AFAD.
- Dates, times, locations and durations of operation.

00223.24 Traffic Control Supervisor Equipment - Equip each TCS as follows:

- Safety apparel according to 00221.20.
- Portable, self-contained two-way radio with a range suitable for the Project Site, when necessary.

- Cellular telephone active at all times.
- A vehicle that is equipped with a roof or post mounted rotating amber light or strobe light that is visible for 360 degrees.

00223.25 Pilot Cars - Provide pilot cars with the following features:

- No smaller than a compact pickup truck.
- Four wheels.
- A "PILOT CAR FOLLOW ME" (G20-4-18) sign mounted in a conspicuous location on the rear of the vehicle.
- A roof or post mounted rotating amber light or strobe light that is visible for 360 degrees.
- A two-way radio with a range suitable for each work zone, unless otherwise directed.

00223.26 Pedestrian Transport Vehicle - Provide a pedestrian transport vehicle (PTV) with the following features:

- 26,000 lbs GVW or less
- A roof or post-mounted rotating amber light or strobe light that is visible for 360 degrees. Light must be visible and functioning at all times while operating within the Project limits.
- A two-way radio with a range suitable for each Work Zone, unless otherwise directed.
- A "CONSTRUCTION VEHICLE DO NOT FOLLOW" (CW23-14) sign mounted in a conspicuous location on the rear of the vehicle.
- A powered lift or other mechanism to safely load and unload an ADA passenger in a wheel chair, powered chair or other device.
- Accommodation for at least two ADA passengers and a maximum of 10 able-bodied pedestrians.

Labor

00223.30 Qualifications - Use flaggers, TCS, and pilot car operators that meet the following requirements:

- Have a valid driver's license.
- Are at least 18 years old.
- Have the mental and physical ability to provide timely, clear, and positive guidance to the traveling public.
- Have a sense of responsibility for public and work crew safety.
- Have a professional appearance.
- Have a courteous but firm manner.
- Have completed an approved work zone traffic control flagging course within the past 3 years and have in their possession a current, official state Flagger Certification card from Oregon, Washington, Idaho, or Montana.

00223.31 Traffic Supervision:

(a) Traffic Control Supervisor - When the Schedule of Items includes an item for a TCS, provide a TCS who meets the requirements of 00223.30. Do not designate the Project superintendent as the TCS. The TCS shall possess a current ODOT "Oregon Certified Traffic Control Supervisor" card. A TCS with a current card from another state's transportation department, or from the American Traffic Safety Services Association, may obtain an Oregon Certified TCS card upon successful completion of ODOT's Recertification Class.

Before beginning Work on the Project, the TCS shall:

- File with the Engineer and local police, their name and a telephone number at which the TCS can be contacted at all times.
- Have the documents listed in 00221.01(c) and applicable standards and specifications available at all times.

The duties of the TCS include the following:

- Monitor work zone traffic control measures, operations, activities, and conditions, including lane closures, lane or traffic shifts, detours, flagging operations, rolling slowdowns, and temporary traffic signal Work.
- Review all applicable requirements of the Contract to ensure the convenience, safety and orderly movement of motor vehicle, bicycle, and pedestrian traffic.
- Attend meetings specifically scheduled to discuss the TCP and TCM.
- Discuss proposed TCM and coordinate implementation of the TCP with the Contractor and the Engineer.
- Make revisions to the TCP according to the following:
 - Make temporary revisions to the TCP in the event of an emergency and immediately follow-up with and report any changes to the Engineer.
 - Notify the Engineer before making any revisions to the TCP and indicate why revisions are necessary.
 - The TCS may make minor revisions to the TCP to accommodate site conditions if the original intent of the TCP is maintained and revisions have been approved by the Engineer.
 - If the Contractor requests to use a modified Agency TCP or a TCP developed by the Contractor, the TCS shall ensure stamped Working Drawings showing the revisions are submitted according to 00221.06 and 00150.35.
- Coordinate the implementation and operation of all TCM, including those of Subcontractors, Suppliers, and any adjacent construction or maintenance operation.
- Provide oversight in maintaining all TCM on the Project Site.
- Designate an area for pedestrians to wait for, load and unload the transport vehicle.
- Coordinate the Project's activities (such as ramp, road, or lane closures) with appropriate police, fire control agencies, city or county agencies, medical emergency responders, school districts, Postmaster, and public transit agencies.
- At least once per TCS construction work shift, conduct a TCD inspection according to the following:
 - Inspect following initial placement or installation of TCD.
 - Inspect devices in place for proper location, installation, operation, quality, cleanliness, and effectiveness on Public Traffic.
 - Inspect TCD effectiveness in daylight and at night.

- Inspect post-mounted signs.
- Inspect temporary illumination and flagger station lighting at night, when in place.
- Conduct additional TCD inspections for extended periods, as requested by the Engineer.
- ~~Prepare and sign a "Traffic Control Inspection Report" form (Form No. 734-2474). Submit the report to the Engineer no later than the end of the next TCS construction work shift.~~

When the bid schedule includes an item for a TCS, do not designate the Project superintendent as the TCS.

The TCS shall not act as a flagger or pilot car operator, except in the event of an emergency. The TCS may relieve the flagger or pilot car operator for a period of less than 15 minutes, not to exceed 1 hour per construction work shift.

Make arrangements so that the TCS will be available every Day, on call at all times, and available upon the Engineer's request at other than normal working hours.

The TCS shall report to the Project Site within 1 hour after being notified in the event of a Work Zone incident during non-work periods. The TCS shall have appropriate personnel, Equipment, and material available at all times to expeditiously correct any deficiency in the TCM for the Project.

Notify the Engineer of an alternate TCS who can assume the duties of the assigned TCS in the event of that person's inability to fulfill the duties of the position. The alternate TCS shall be adequately trained and certified according to 00223.30 and 00223.31. Notify the Engineer at least 12 hours before designating the TCS for the following 12 hour period. Make succeeding notifications within 24 hours every time a subsequent TCS is appointed to the Project.

(b) Traffic Control Inspection Without TCS - When the Schedule of Items does not include an item for a TCS, designate a trained person who shall be on the Project Site during working hours and on call at all other times, and who:

- Meets the requirements of 00223.30.
- Inspects and maintains TCD location, operation, quality, cleanliness, and effectiveness.
- Is equipped with a cellular telephone.
- Is equipped with a two way radio, when necessary.
- Has the authority to assign and control flagging operations.
- Has filed their name and phone number with the Engineer and local police.
- Notifies the Engineer of any corrective measures made to the TCP if the TCP is not functioning as required, or to accommodate site conditions. The designated person shall follow the TCP and shall not implement changes to the TCP before revisions are approved by the Engineer.
- Prepares and signs a daily "Traffic Control Inspection Report" (Form No. 734 2474) each working day, and submits the report to the Engineer no later than the end of the next working day.
- Shall report to the Project Site within 1 hour after being notified in the event of a Work Zone incident during non-work periods.
- Designate an area for pedestrians to wait for, load and unload the transport vehicle.

00223.32 Automated Flagger Assistance Device Operator - Use a certified flagger who has been trained in the operation of the AFAD.

The duties of the AFAD operator include the following:

- Attend the AFAD at all times during the operation of the device.
- Shall not flag traffic and operate an AFAD at the same time.

- Each AFAD shall have a separate AFAD operator.

00223.33 Pedestrian Transport Vehicle Operator - Use PTV operators that meet the requirements of 00223.30 and the following:

- Have a valid Commercial Driver's license.
- Have had adequate training, and have the mental and physical ability to load and unload pedestrians with ADA needs and bicycles.

Construction

00223.40 Flaggers - Locate flaggers far enough in advance of the work area to permit adequate time for the motorist to respond to the flagger's instructions. All flaggers, including advance flaggers, shall use a STOP/SLOW paddle. Do not use roll-up STOP/SLOW paddles for non-emergency flagging operations.

During advance flagging operations, the advance flagger shall only display the "SLOW" face of the paddle by covering the "STOP" face of the paddle with a sign cover according to 00222.12(a).

Position flaggers, as directed, at locations where traffic can enter the Highway within the limits of the work zone.

Flaggers shall direct vehicles entering the Highway to follow the pilot car line.

Direct pedestrians to wait for flagger instructions. Stop and hold motor vehicle traffic to allow pedestrians to enter the TPAR or exit the TPAR. Pedestrians must be clear of all traffic lanes before flaggers release motor vehicle traffic.

Direct pedestrians to use the pedestrian transport vehicle to pass through or around the Work Zone. Direct pedestrians to wait for the pedestrian transport vehicle in designated areas identified under 00223.31.

If a TPAR is designed and installed with a width less than 5 feet, and 5 foot by 5 foot passing spaces at 200 foot intervals are not provided, inform pedestrians of the narrowed TPAR. Before allowing pedestrians in wheelchairs or similar devices to use the TPAR, direct the flagger at the opposite end of the TPAR to stop and hold opposing pedestrian traffic until the pedestrian in the wheelchair has reached the other end of the narrowed TPAR.

Flaggers shall not control traffic in conflict with traffic signals. When conflicts cannot be avoided, the Agency will shut off the traffic signal during the conflicting flagging operation. In order to schedule the signal shut off, the Contractor shall:

(1) Submit a revised traffic control plan, as needed, to depict the flagging operation and the shut-off of the signal.

a. Regardless of whether the signal is turned off, flaggers shall not control traffic at complicated intersections, such as Coburg Rd. at Oakway/I-105 and others as determined by the Agency.

b. Where flagging is necessary at complicated or extremely busy intersections as determined by the Agency, a Eugene Police officer must control traffic at the intersection. Arrangements shall be made with Eugene Police Department (EPD) by calling 682-5135, **at least 5 days in advance.**

c. All costs for EPD services, whether previously scheduled or initiated by EPD due to unsafe conditions, shall be at the Contractor's expense.

(2) Submit request to the Agency at least three (3) working days in advance of needed signal shut-off.

Flagging stations shall be staffed continuously or until the Engineer determines flagging is no longer required.

00223.41 Flagger Station Lighting - Provide continuous flagger station lighting for nighttime flagging as follows:

- Locate the light Equipment on the same side of the Roadway as the flagger between 5 and 10 feet from the edge of the Traffic Lane, on or beyond the Roadway Shoulder, or as directed.
- Position and orient the flagger station lighting to direct the maximum amount of light toward the flagger and away from the approaching traffic in the near lane.
- Aim all of the luminaires directly at the flagger.
- Increase the output wattage or number of luminaires as the luminance from, and number of, surrounding and background lights increases. Do not provide a total output greater than 2,500 watts, unless otherwise directed.
- Vehicle lights and street lights will not be considered adequate for work site illumination.

00223.42 Traffic Control Supervisors - Use traffic control supervisors to oversee the implementation of the TCP, and the quality and placement of all temporary TCM and TCD used on the Project.

00223.43 Automated Flagger Assistance Device - Use the AFAD to control traffic through the Work Zone and as follows:

- Position the AFAD operator's control location a safe distance from traffic.
- Install and operate the AFAD according to the manufacturer's instructions and as shown in the Plans.
- Do not use the AFAD to control more than one lane of approaching traffic. If necessary, close additional traffic lanes, left turn lanes or right turn lanes approaching the AFAD to limit approaching traffic to one lane.
- Provide illumination when using an AFAD during nighttime hours. AFAD illumination shall meet the following requirements:
 - Illuminates the AFAD so the AFAD is visible and discernable as an AFAD from a distance of 1,000 feet.
 - Illuminates the AFAD from above at a height of 18 feet + 3 feet.
 - The light is shielded from approaching traffic.
- Do not use an AFAD to replace a continuously operating temporary traffic control signal. The Engineer may order adjustments to the operation of the AFAD or substitute flagging for the AFAD based on traffic delay, field conditions, and safety concerns.
- When providing an AFAD for each direction of traffic, use AFADs of the same type and from the same manufacturer.
- When an AFAD is not in use during a work shift either turn it off or switch the yellow lens to flash mode. When the AFAD is not in use for more than one work shift, remove it and all accompanying signing from the roadway.

00223.45 Pilot Cars - Safely operate pilot cars at a prudent speed, and at a speed that does not exceed that posted on the temporary advisory speed signing.

00223.46 Pedestrian Transport Vehicle - Safely operate pedestrian transport vehicles at a prudent speed, and at a speed that does not exceed that posted on the temporary advisory speed signing. Follow the pilot car or the pilot car queue through the Work Zone. Safely pull the transport vehicle off the roadway traffic lane or into a closed traffic lane to load or unload passengers and bicycles in designated areas identified under 00223.31.

Maintenance

00223.61 Flagger Station Lighting - Maintain and use the required flagger station lighting according to the manufacturer's recommendation and as required.

When flagger station lighting is in use, have on the Project Site, the following:

- Repair Equipment and electronic components recommended by the manufacturer.
- At the beginning of each shift, have approved backup flagger station lighting available for immediate use in event of failure.
- Sufficient fuel to maintain continuous operation of the generator.

00223.63 Automated Flagger Assistance Device - When repairs or replacement of the AFAD are required, take the device out of service. Use flaggers until repairs are complete and the AFAD is re-installed and operational.

Measurement

00223.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Unit Basis - The following will be measured on the unit basis:

(1) Traffic Control Supervisor - The quantities of the TCS will be measured on the unit basis, and will be measured when ~~a Traffic Control Inspection Report is submitted according to 00223.31 and~~ one or more of the following occur:

- Work is performed in Roadways or Shoulders of Roadways with an ADT greater than 10,000.
- TCS performs duties described in 00223.31 as requested by the Engineer.

A maximum quantity of two TCS will be allowed for each 24 hour period. A maximum of one TCS will be allowed for a single construction work shift unless otherwise approved.

(2) Automated Flagger Assistance Device - Automated flagger assistance devices will be measured on the unit basis, where the devices are initially installed on the Project.

The automated flagger assistance device operator will be measured as a flagger according to 00223.80(b)(1).

(3) Flagger Station Lighting - Flagger station lighting will be measured on the unit basis, where the devices are initially installed on the Project. No additional measurement will be made for the backup unit in event it is used or not.

(b) Time Basis - The following will be measured on the time basis:

(1) Flaggers - Flaggers will be measured on the time basis, of the actual number of hours flagging stations are staffed.

Flagging performed by a TCS will not be measured, except as specified in 00223.31.

(2) Pilot Car - The quantity for pilot cars will be measured on the time basis, of the actual number of hours pilot cars are operated.

(3) Pedestrian Transport Vehicle - The quantity for pedestrian transport vehicles will be measured on the time basis, of the actual number of hours pedestrian transport vehicles are operated.

(4) Flagger Station Lighting - Flagger station lighting will be measured on the time basis, of the actual number of hours the flagger stations are staffed and the flagger station lighting is required. No additional measurement will be made for the backup unit in event it is used or not.

The quantities for work zone traffic control measures (TCM) will be limited to the following, unless otherwise specified:

- The initial installation of quantities necessary to complete the Project based on the Contract Schedule of Items.

- The initial installation of additional TCD and TCM that the Engineer and Contractor agree are necessary to ensure a safe work zone.
- The replacement of TCD and TCM damaged by Public Traffic and replaced by the Contractor.

Payment

00223.90 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) Flaggers	Hour
(b) Traffic Control Supervisor	Each
(c) Flagger Station Lighting	Each or Hour
(d) Pilot Cars	Hour
(e) Pedestrian Transport Vehicle.....	Hour
(f) Automated Flagger Assistance Device	Each

Item (a) includes all necessary Equipment, special apparel, flagging Equipment, and two-way radios. Workers performing flagging duties who are not properly equipped or attired will not be considered to be flaggers and will not be eligible for payment under this item. Flaggers performing Work other than flagging will not be considered flaggers and will not be eligible for payment under this item.

Item (b) includes vehicle and Equipment.

Item (c) includes furnishing, operating, moving, and removing the flagger station lighting. No separate or additional payment will be made for backup unit in event it is used or not.

Item (d) includes fully operated pilot cars, two-way radios, the "PILOT CAR FOLLOW ME" sign, and the rotating amber light or strobe light mounted on the pilot car.

Item (e) includes fully operated pedestrian transport vehicles, two-way radios, the "CONSTRUCTION VEHICLE DO NOT FOLLOW" sign, the ADA-pedestrian loading/unloading mechanism, and the rotating amber lights or strobe lights mounted on each vehicle.

Payment for item (a), item (b), item (d) and item (e) performed beyond the quantity shown in the Contract Schedule of items will be made at the Contract unit price if the Engineer determines that the Contract unit price does not exceed the value of the Work as determined according to Section 00197. If the Engineer determines that the Contract unit price exceeds the value of the Work, payment for the Additional work will be made according to 00195.20.

Item (f) includes furnishing, operating, maintaining, repairing, replacing moving and removing each AFAD device, regardless of size or type. No separate or additional payment will be made for AFAD replacement, repair, or for AFAD illumination. The AFAD operator will be paid for as a flagger.

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

00223.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00224 - Temporary Traffic Channelizing Devices

Description

00224.00 Scope - In addition to requirements of Section 00221, this Work consists furnishing, installing, moving, maintaining, inspecting, and removing channelizing devices including, but not limited to, tubular markers, conical markers, surface mounted tubular markers, plastic drums, and delineators throughout the Project area as shown or specified.

Materials

00224.10 Tubular Markers - Use tubular markers from the QPL. Use blue plastic markers for temporary business accesses only. Use orange plastic markers for all other applications of Work Zone traffic control.

00224.11 Conical Markers - Use conical markers from the QPL.

00224.12 Surface Mounted Tubular Markers - Use surface mounted tubular markers from the QPL.

00224.13 Plastic Drums - Use plastic drums from the QPL.

00224.14 Delineators - Use new delineators from the QPL or salvaged reflectorized delineators (W-1) or (Y-1), as appropriate, and conforming to the requirements of Section 00840 and the following:

(a) **Guardrail** - At guardrail locations, use Type 4 delineators.

(b) **Temporary Barrier** - At temporary barrier locations, use Type 5 delineators.

00224.15 Barricades - Use barricades from the QPL and as shown on the Standard Drawings.

Construction

00224.40 Tubular and Conical Markers - Install tubular or conical markers as shown or directed.

Place tubular or conical markers no more than 10 feet apart along both sides of driveways, streets, and road connections within work areas.

Within individual runs of tubular or conical markers, use one shape for the entire run. Conical markers may be used in place of tubular markers.

00224.42 Surface Mounted Tubular Markers - Install surface mounted tubular markers as shown or directed.

Remove surface mounted tubular marker bases in a manner that leaves any remaining adhesive material with a textured surface condition similar to the texture of the surrounding top Lift wearing Course Pavement surface. Make the surface dull and non-reflective. Remove adhesive from the Pavement surface using a method that will not damage the Pavement surface.

00224.43 Plastic Drums - Install plastic drums as shown or as directed.

00224.44 Delineators - Install traffic delineators as shown or as directed. Install delineators on temporary barrier and temporary guardrail as follows:

- Space on 50 foot centers. Closer spacing may be required as directed.
- Use yellow when installed on the left side of traffic.
- Use white when installed on the right side of traffic.
- Use bi-directional markers for Median applications.
- Position to face oncoming traffic.

00224.45 Barricades - Use and place barricades as shown or as directed.

00224.46 Pavement Edge Delineation - Place tubular or conical markers to delineate the edge of Pavement immediately after construction Work removes or obscures painted edge stripes (Shoulder or fog lines). If the left Shoulder is less than 8 feet wide, Type 5 delineators may be used instead of tubular or conical markers, by installing the delineators on the barrier at 25 foot spacing before left hand edge line markings are removed or obscured.

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 1 inch or more in height along the right hand or left hand Shoulder.

Maintain Pavement edge delineation until temporary pavement markings can be applied according to 00225.42. Apply temporary pavement markings within 14 Calendar Days after the painted edge stripe has been removed or obscured. Locate and maintain tubular and conical markers as follows:

- Place markers between traffic and the abrupt edge.
- Space markers as shown for traffic delineators on the Standard Drawings at a maximum spacing of 200 feet.
- Patrol daily and restore them to their proper position at least once at the start of each work shift and once at the end of each work shift until the tubular or conical markers are no longer required.
- Remove markers after a new edge stripe has been painted and new delineators are in place.

Maintenance

00224.60 Temporary Traffic Delineation - Evaluate and maintain or immediately replace all unacceptable temporary tubular and conical markers, plastic drums, surface mounted tubular markers, and traffic delineators with acceptable materials.

Measurement

00224.80 Measurement - The quantities of surface mounted tubular markers, replacing surface mounted tubular markers, temporary plastic drums, temporary delineators, and temporary barricades will be measured on the unit basis.

No measurement of quantities will be made for conical markers or tubular markers.

The quantities for work zone traffic control measures will be limited to the following, unless otherwise specified:

- The initial installation of quantities necessary to complete the Project based on the Contract Schedule of Items.

- The initial installation of additional TCD and TCM that the Engineer and Contractor agree are necessary to ensure a safe work zone.
- The replacement of TCD and TCM damaged by Public Traffic and replaced by the Contractor.

Payment

00224.90 Payment - The accepted quantities of temporary traffic delineation will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Surface Mounted Tubular Markers.....	Each
(b) Replace Surface Mounted Tubular Markers.....	Each
(c) Temporary Plastic Drums.....	Each
(d) Temporary Delineators	Each
(e) Temporary Barricades, Type ____	Each

Item (a) includes furnishing and installing the complete assembly of each device in its initial location and for removing the device from the surface.

Item (b) includes furnishing new or refurbished devices to replace damaged or missing devices.

In item (e), the type of barricade will be inserted in the blank.

Conical markers and tubular markers will be paid for according to 00221.90(b).

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

TCD items included under this Section damaged by Public Traffic and replaced by the Contractor will be paid for at the Contract price for the Pay Items listed in the Contract Schedule of Items or in approved Contract Change Orders, unless otherwise specified. Payment for replacing damaged TCD will only be made when:

- The Engineer orders it.
- The replacement devices are used on the Project.
- The damaged devices are disposed of to the Engineer's satisfaction.

00224.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00225 - Temporary Pavement Marking

Description

00225.00 Scope - In addition to the requirements of Section 00221, this Work consists of installing, maintaining, and removing temporary pavement markings as shown or specified.

Materials

00225.10 Temporary Pavement Markers:

- (a) **Reflective Pavement Markers** - Use new Type "1" reflective pavement markers from the QPL.
- (b) **Flexible Oiling Pavement Markers** - Use new flexible oiling pavement markers from the QPL, approved for mixes with laydown temperatures greater than 325 °F.
- (c) **Flexible Overlay Pavement Markers** - Use new flexible overlay pavement markers from the QPL.

00225.11 Temporary Tape - Use temporary removable, temporary non-removable, and temporary non reflective tape from the QPL.

00225.12 Painted Striping:

- (a) **Paint** - Use striping paint from the QPL.
- (b) **Beads** - Use glass beads from the QPL.

00225.14 Temporary Transverse Rumble Strips - Use temporary transverse rumble strips from the QPL or Conditional Use List.

Equipment

00225.20 General - Provide pavement marking Equipment according to 00850.20.

Construction

00225.40 Temporary Pavement Markers - Unless otherwise shown, to simulate skip lines or solid lines, install pavement markers as follows:

- Three single markers spaced 5 feet apart to simulate a 10 foot skip line with a gap of 30 feet to the next skip line.
- Single markers spaced 10 feet apart for solid lines.
- Double markers spaced 10 feet apart for double solid lines.
- Single markers spaced 20 feet apart for solid bike lane lines.

Use yellow markers for Highway centerline between adjacent Traffic Lanes travelling in opposite directions. Use white markers for lines between adjacent Traffic Lanes travelling in the same direction.

Temporary pavement markers shall remain in place until the permanent markings are complete. Replace damaged or missing markers when directed by the Engineer. ~~On the final Pavement wearing Course and along final alignment, place permanent markings a maximum of 28 Calendar Days after placing temporary pavement markers, or as directed.~~

00225

Remove temporary markers from the Pavement wearing Course within 5 Calendar Days after the placement of permanent markings. Remove temporary pavement markers without damaging the Roadway surface. ~~Flexible pavement markers may be cut off within 1/8 inch of the Roadway surface.~~

(a) Reflective Pavement Markers - Install reflective pavement markers when shown according to Section 00855. Establish alignment with control points at 200 foot intervals on tangents and at 50 foot intervals on curves.

(b) Flexible Oiling Pavement Markers - Install flexible oiling pavement markers just before applying asphalt for chip seals, sand seals, and oil mats. Remove marker covers before reopening the Roadway to traffic.

If a segment of Roadway is not completed when the Roadway is reopened to traffic, install another set of markers just before the next application of asphalt.

(c) Flexible Overlay Pavement Markers - Install flexible overlay pavement markers as follows:

- On surfaces that do not require chip seals, sand seals, and oil mats.
- On underlying surfaces that temporarily carry traffic.
- When temporary striping is determined as not practicable by the Engineer.

Install the pavement markers before reopening the Roadway to traffic. Remove the markers on Pavement Base Courses before placing the next surface layer.

(d) Existing Pavement Marker Removal - Remove and dispose of existing raised or recessed pavement markers as needed for stage construction, or as directed. Remove pavement markers from permanent Pavement wearing Courses without damaging the Roadway surface, and ensure the surface texture remains similar to that of the surrounding area. Make the surface dull and non-reflective. Remove adhesive from the Pavement surface using a method that will not damage the Pavement surface.

00225.41 Temporary Tape - Replace damaged or missing tape. Remove temporary tape without damaging the Roadway surface. Install temporary tape as shown and as follows:

(a) Temporary Removable Tape - Install temporary removable tape on existing surfaces or Pavement wearing Courses as shown, or as directed. When staging across new bridge deck surfaces, use temporary removable tape. Remove the temporary removable tape before placing subsequent surfaces and after installing permanent pavement markings.

(b) Temporary Non-Removable Tape - Install non-removable tape on Base Courses as shown or as directed.

(c) Temporary Non-Reflective Tape - Install non-reflective tape over durable pavement markings to be retained as shown or directed.

00225.42 Temporary Pavement Markings - Before opening Roadways to traffic, unless otherwise specified in 00224.46, apply temporary pavement markings on Pavement base Courses, wearing Courses, and new bridge deck surfaces at locations shown, or as directed. Immediately remove all unacceptable pavement markings and replace with acceptable markings before opening Roadways to traffic, at no additional cost to the Agency.

Temporary striping shall include all existing pavement striping and markings, including bike lanes, excluding bike legend markings, and delineation of parking spaces.

Temporary pavement markings may be placed using paint, temporary tape, or pavement markers, as follows:

(a) Base Courses - On Pavement base Courses, use paint, temporary tape, or pavement markers for temporary pavement markings, as shown in the Plans or in the TCP.

For painted striping, apply 4-inch wide by 10-foot long stripes with 30-foot gaps for skip line striping. Apply 4-inch wide, continuous stripes for solid line striping. Apply bead binder at a thickness of 15 mils wet, equivalent to 17 gallons per mile for a 4 inch wide solid line. Apply glass beads at a rate of 5 pounds per gallon of paint.

Before opening a Traffic Lane on a base Course adjacent to temporary barrier that is located on the right-hand side of the Traffic Lane, place right-hand edge line markings using paint or a continuous removable tape, or as directed.

Before opening a Traffic Lane adjacent to temporary barrier that is located on the left hand side of the Traffic Lane, place left hand edge line markings using paint, a continuous strip of temporary removable tape, pavement markers spaced 10 feet apart, or as directed.

(b) Wearing Course - For skip line or solid line markings on the Pavement wearing Course, use ~~paint~~, temporary removable tape, or pavement markers, as follows:

- For left hand solid lines and slip lines striping, use temporary removable tape or pavement markers.
- For right-hand solid edge line markings, use ~~paint~~ or a continuous strip of temporary removable tape.
- ~~Where in-laid permanent pavement markings are to be placed, use paint for temporary pavement markings.~~
- ~~Where durable permanent pavement markings are to be placed, apply temporary line markings using painted striping until durable permanent pavement markings can be applied according to 00225.42(d).~~

Before opening a Traffic Lane on a wearing Course adjacent to temporary barrier that is located on the right-hand side of the Traffic Lane, place right-hand solid edge line markings using a continuous strip of temporary removable tape, or as directed.

Before opening a Traffic Lane on a wearing Course adjacent to temporary barrier that is located on the left-hand side of the Traffic Lane, place left-hand solid edge line markings using a continuous strip of temporary removable tape, with pavement markers spaced 10 feet apart, or as directed.

(c) New Bridge Deck Surfaces - For skip line or solid line striping on new bridge deck surfaces use temporary removable tape for temporary pavement markings as shown or as directed.

(d) Durable Permanent Pavement Markings - ~~On Pavement wearing Courses where durable permanent pavement markings are to be placed, apply temporary painted striping until durable permanent pavement markings can be applied, unless otherwise directed. Reduce the application rate of the paint to a thickness of 10 mils wet, equivalent to 12 gallons per mile for a 4 inch wide solid stripe. Apply reflective elements at a rate of 5 pounds per gallon of paint. Only one application is required.~~

Place temporary ~~painted~~ striping directly adjacent to the final location of the durable permanent pavement markings. Place the temporary ~~painted~~ striping so the durable permanent pavement markings can be aligned with existing striping at the end of the project limits. ~~Removal of the temporary painted striping is not required, if aligned as described in this Subsection.~~

~~When scheduled installation of durable permanent pavement markings will exceed, or will likely exceed, 28 Calendar Days after placement of the wearing surface, furnish and place temporary~~

~~Painted striping at the standard rate stated in 00225.42(a). Removal of this striping is not required if aligned as described in this Subsection.~~

00225.43 Pavement Legends and Bars - Before opening Roadways to traffic, unless otherwise allowed, apply temporary pavement legends and bars on Pavement base Courses at locations designated. Apply bead binder at a thickness of 15 mils wet and glass beads at a rate of 5 pounds per gallon of paint.

00225.44 Temporary Transverse Rumble Strips - Place and maintain temporary transverse rumble strips across the travel lane as shown or directed. Do not place rumble strips across surfaces used by bicycles.

00225.45 Pavement Marking Removal - Remove striping, durable markings, legends, and bars according to the following:

- Coordinate all removal Work with construction activities.
- Remove pavement markings on Pavement base Courses when a change in striping is necessary and when the Pavement will not be covered with an additional base Course.
- Remove striping and pavement markers on the wearing Course so that the permanent markings can be applied. Remove all remaining striping and pavement markers from the wearing Course after the permanent markings have been applied, as directed.
- Use vacuum shrouded Equipment or other equally effective containment procedures to contain and collect all removed pavement marking materials and spent abrasive, and dispose of according to 00290.20.
- Remove legends so that the legend outline is not recognizable on the Pavement surface.
- Unless otherwise approved, remove pavement markings during the same day the traffic shift is accomplished or new pavement markings are applied.
- Do not use paint or asphalt to cover existing stripes.
- Do not remove more than 1/8 inch of Pavement during pavement marking removal.
- Do not use grinding to remove stripes, durable markings, legends, or bars from the wearing Course or existing surfaces, unless the area will be paved over, obliterated, or the pavement markings will be replaced to match the original striping configuration.

Repair all damage resulting from pavement marking removal to the Engineer's satisfaction at no additional cost to the Agency.

Maintenance

00225.60 Temporary Traffic Pavement Markings - Temporary pavement markings shall remain in place until the permanent markings are complete. Replace missing or damaged temporary markings when directed by the Engineer. On the final Pavement wearing Course and along final alignment, place permanent markings a maximum of 28 Calendar Days after placing temporary pavement markings, or as directed.

If permanent pavement markings are not placed within 28 Calendar Days after placing temporary pavement markings, missing or damaged temporary pavement markings on wearing Course and along final alignment shall be replaced at no additional cost to the Agency, unless otherwise directed.

When removing damaged delineation from the Pavement surface, remove adhesives, hardware, damaged delineation fragments or other materials using a method that will not damage the Pavement surface. Repair any damaged surfaces to the Engineer's satisfaction at no additional cost to the Agency.

00225.64 Temporary Transverse Rumble Strips - Maintain, reposition, and replace temporary transverse rumble strips as shown or directed.

Measurement

00225.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Unit Basis - Temporary pavement legends and pavement legend removals, when "each" measurement is selected, will be measured on the unit basis, by actual count.

(b) Length Basis

(1) Temporary Tape - Temporary tape will be measured on the length basis, by measuring the actual length of the tape complete and in place. No adjustment for tape width will be made.

(2) Striping - Painted temporary striping will be measured on the length basis determined by one of the following methods:

a. Count Method - The number of 4 inch wide skip stripes will be counted and multiplied by the "standard length". For purposes of this Subsection a "standard length" for a skip stripe (10.0 feet) is defined in 00225.42(a).

b. Length Method - Measurement will be the actual length of 4 inch wide stripe complete and in place. When measuring the actual length of 4 inch wide skip stripe, the skip interval will not be included in the measurement. The length of skip stripe may be determined by dividing the total length by 4.0.

Temporary striping required for durable permanent pavement marking installation will be included in the measurement.

Temporary striping will be measured on the length basis, of lines based on a nominal width of 4 inches. If the Plans call for, or the Engineer requires, stripes other than nominal 4 inch width, the measurement will be adjusted by converting to an equivalent length of a nominal 4 inch wide stripe.

(3) Temporary Transverse Rumble Strips - Temporary transverse rumble strips will be measured on the length basis, determined by measuring the actual length of temporary transverse rumble strips complete and in place.

(4) Stripe Removal - Stripe removal for stage construction will be measured on either a lump sum basis or the length basis, determined by measuring the overall length of 4 inch line removed. The quantity of stripe removal will be the computed length of lines removed based on a nominal width of 4 inches. For computation purposes, the following apply:

- The width of a line is the normal standard line width applied during original placement of solid no-passing lines, broken (skip) lines, edge lines, and any other lines normally 4 inches wide.
- The length of continuous lines is length of the line.
- The length of broken (skip) stripes is the standard length of a skip line normally painted during original placement of the lines 10.0 feet of paint per 40 feet of Roadway length. Skip stripes may be counted.

The length of standard 8-inch or 12-inch wide stripes will be adjusted by converting to equivalent length of 4-inch width line. No conversion or adjustment will be allowed for lines that are wider or longer due to improper placement or retracing deviations.

If paid on the lump sum basis, no measurement of quantities will be made for stripe removal

(c) Area Basis

(1) Temporary Pavement Bars - Temporary pavement bars will be measured on the area basis, for each stop bar and crosswalk bar.

(2) Legend and Bar Removal - Pavement legend removal when “Square Foot” measurement is selected, and bar removal for stage construction will be measured on the area basis, of each legend and bar removed and will be the nominal area determined by multiplying the width times the length of the legend or bar. No deductions will be made for corners or irregular shapes.

Measurement of temporary pavement markings will include missing or damaged temporary pavement markings replaced according to 00225.60 or as directed by the Engineer.

The quantities for work zone traffic control measures will be limited to the following, unless otherwise specified:

- The initial installation of quantities necessary to complete the Project based on the Contract Schedule of Items.
- The initial installation of additional TCD and TCM that the Engineer and Contractor agree are necessary to ensure a safe work zone.
- The replacement of TCD and TCM damaged by Public Traffic and replaced by the Contractor.

Payment

00225.90 Payment - The accepted quantities of temporary traffic delineation will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Temporary Reflective Pavement Markers	Each
(b) Temporary Flexible Pavement Markers	Each
(c) Temporary Removable Tape	Foot
(d) Temporary Non-Removable Tape.....	Foot
(e) Temporary Non-Reflective Tape	Foot
(f) Temporary Striping	Foot
(g) Temporary Pavement Legends.....	Each
(h) Temporary Pavement Bars	Square Foot
(i) Stripe Removal	Foot
(j) <u>Stripe Removal.....</u>	<u>Lump Sum</u>
(jk) Legend Removal.....	Square Foot
(l) Legend Removal.....	Each
(mk) Bar Removal	Square Foot
(n) Temporary Transverse Rumble Strips	Foot

Item (a) includes temporary pavement markers having either one or two reflective faces.

Item (b) includes removing flexible pavement marker covers.

Item (i) includes removal of painted and durable stripes required for stage construction.

Items (kj) and (l) includes removal of durable and non-durable legends required for stage construction.

Item (mk) includes removal of durable and non-durable bars required for stage construction.

Payment for items (c), (d), (e), (f), (h), and (lk) performed beyond the quantity shown in the Contract Schedule of Items will be made at the Contract unit price if the Engineer determines that the Contract unit price does not exceed the value of the Work as determined according to Section 00197. If the Engineer determines that the Contract unit price exceeds the value of the Work, payment for the Additional Work will be made according to 00195.20.

No separate or additional payment will be made for mobilization to perform striping, stripe removal, legend removal, or for mobilization to place or remove temporary flexible pavement markers.

No separate or additional payment will be made for relocating, repositioning, or removing temporary rumble strips.

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, except as covered in 00221.90(b).

00225.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00226 - Temporary Roadside Barriers and Impact Attenuators

Description

00226.00 Scope - In addition to the requirements of Section 00221, this Work consists of furnishing, installing, moving, operating, maintaining, and removing guardrail, barrier, and impact attenuators for temporary traffic control, as shown and directed.

Materials

00226.10 Temporary Guardrail - Use guardrail for temporary applications meeting applicable requirements of Section 00810, except posts may be untreated. A certificate of origin according to 00165.35(d) is not required for temporary guardrail. Use guardrail terminals from the QPL and as shown on the Standard Drawings.

Salvaged guardrail materials complying with the requirements of 00810.15(b) may be used.

00226.11 Temporary Barrier and Appurtenances:

(a) Temporary Barrier - Use a temporary barrier or minimum deflection temporary barrier from the QPL or Concrete Barrier as follows:

(1) Barrier from the QPL - Use temporary barrier from the QPL.

(2) Temporary Concrete Barrier - Use concrete barrier meeting the requirements of Section 00820, and having the same Cross Section, height, and loop configuration within individual runs and the following:

- Pin-and-loop concrete barrier as shown on the Standard Drawings (three ASTM A36 loops, 32 inch height).
- Tall concrete barrier as shown on the Standard Drawings (two ASTM A36 perforated C shapes, 42 inch height).

Use concrete barrier terminals and metal guardrail transitions as shown on the Standard Drawings.

Use modified concrete barrier or modified tall concrete barrier around obstacles as shown on the Standard Drawings.

Provide concrete barrier for temporary applications that are in acceptable condition, without cracks, chips, spalls, or corroded loops or C-shape connectors.

The concrete barrier shall have functioning scuppers, unless otherwise approved.

(b) Reflective Barrier Panels - Use reflective barrier panels from the QPL.

(c) Glare Shields - Use glare shields from the QPL that are a minimum 24 inches in height.

00226.12 Temporary Impact Attenuators - Furnish temporary impact attenuators from the QPL and as shown on the Standard Drawings.

Equipment

00226.23 Truck Mounted Attenuator - Provide appropriate truck mounted attenuators (TMAs) from the QPL, based on the pre-construction posted speed, as follows:

Pre Construction Posted Speed:**TMA**

< 45 mph
45 – 70 mph

TL-2 Rated TMA
TL-3 Rated TMA

The support vehicle for a TL-2 rated TMA shall have a minimum weight of 9,900 pounds. The support vehicle for a TL-3 rated TMA shall have a minimum weight of 22,000 pounds.

When a TMA is in place, set the parking brake and transmission on the support vehicle as recommended by the TMA manufacturer.

If used in a mobile operation, the TMA support vehicle shall maintain a consistent distance from the mobile operation, as shown in the TMA Support Vehicle Placement tables.

Construction

00226.40 Temporary Guardrail - Construct temporary guardrail as shown and according to Section 0810.

00226.41 Temporary Barrier and Appurtenances:

(a) Temporary Barrier - Connect all temporary barrier sections together according to the following:

- Concrete Barrier per the Standard Drawings
- Temporary Barrier per manufacturer's recommendation

When placing barrier adjacent to a Traffic Lane, maintain a minimum of 24 inches from the face of the barrier to the edge of the Traffic Lane, or as shown or directed. Flare the leading end as shown in the table below and treat ends as shown on the Plans.

Speed (mph)	Flare Rate
70	20:1
65	19:1
60	18:1
55	16:1
50	14:1
45	12:1
40	10:1
35	9:1
< 30	8:1

Secure temporary barrier to bridge decks according to the *ODOT Bridge Design Manual* or as shown.

Keep the 3 feet of space behind temporary barrier clear. Keep 1 foot of space behind minimum deflection temporary barrier, clear. Secure concrete barrier used for minimum deflection to Surfacing according to the Standard Drawings. Secure all other temporary barriers to Surfacing according to the manufacturer's recommendations.

When the clear area distance behind the barrier is less than 3 feet, use minimum deflection temporary barrier.

Place temporary barrier and minimum deflection temporary barrier on smooth, solid surfacing. Maintain smooth, solid surfacing for the clear area behind temporary barrier.

(b) Reflective Barrier Panels - Install reflective barrier panels on temporary barrier as shown or directed and as follows:

- Install a panel every 6 feet.
- Maintain a 4-foot gap between panels on each barrier section.
- Alternate silver-white and fluorescent orange color panels.
- Attach the panels to the face of the temporary barrier with a minimum of four anchors.
- Install panels so the bottom edge is 20 inches above the bottom of the temporary barrier.

(c) Glare Shields - Install glare shields as shown or as directed and according to the following:

- Install at spacing recommended by the manufacturer.
- Install all glare shield blades vertical and true to line.
- Firmly attach the base plate anchor bolts to the temporary barrier to withstand a 1,000 pound vertical pull and to prevent horizontal and rotational displacement. Maximum spacing between anchor bolts on modular units shall be 30 inches.
- Repair any damage to the temporary barrier caused by the Contractor's operations at no additional cost to the Agency.
- Modular or single element glare shields that are installed in a continuous run shall be of the same manufacture and of like appearance throughout the entire installation.

00226.42 Temporary Impact Attenuators - Assemble and install temporary impact attenuators according to the manufacturer's recommendations and as follows:

- Use attenuators designed for the preconstruction posted speed.
- Attenuators may be placed on pallets no more than 4 inches high, as approved.
- Place and fill the modules with the weight of dry sand as shown.
- Mix salt with the sand in the proportions recommended by the manufacturer, or at least 5 percent by volume when no manufacturer recommendations are given.
- Attach an object marker to the lead module as shown.
- For narrow site systems, secure the first two barrier sections by pinning or restraining as shown.
- For water-filled impact attenuators, use one of the following anti-freezing solutions to fill the impact attenuator:
 - 25% Liquid Calcium Magnesium Acetate (CMA), 75% water solution, by volume
 - 60% Liquid Potassium Acetate, 40% water solution, by volume

00226.43 Truck Mounted Attenuator - When workers or construction equipment are operating in a closed traffic lane or shoulder, are exposed to public traffic, and are not located behind a rigid, longitudinal barrier system, use a truck mounted impact attenuator (TMA). Place the TMA in advance of the exposed workers or equipment, located as shown in the TMA Support Vehicle Placement tables, or as directed. If the TMA is not available when the work requires its use, postpone the work until the TMA is available.

TMA SUPPORT VEHICLE PLACEMENT (Stationary Operations)¹		
Posted Speed:³	9,900 - 22,000 lb. (for TL-2 rated TMA)	TMA Support Vehicle Weight > 22,000 lb. (for TL-3 rated TMA)
< 45 mph	100 ft.	75 ft.
45 - 55 mph	*	100 ft.
> 55 mph	*	150 ft.

TMA SUPPORT VEHICLE PLACEMENT (Mobile Operations)²		
Posted Speed:³	9,900 - 22,000 lb. (for TL-2 rated TMA)	TMA Support Vehicle Weight > 22,000 lb. (for TL-3 rated TMA)
< 45 mph	100 ft.	100 ft.
45 - 55 mph	*	150 ft.
> 55 mph	*	175 ft.

* A TL-2 TMA is not rated for these speeds. Use a TL-3 rated TMA.

¹ Distances shown are between front of the TMA support vehicle and the beginning of the area or equipment being shielded by the TMA.

² Distances shown for mobile operations are appropriate for support vehicle speeds up to 15.5 mph.

³ Posted Speed refers to the pre-construction posted speed of the facility on which the TMA is being used

Maintenance

00226.60 Temporary Barrier and Guardrail - Immediately repair any temporary barrier segment or guardrail element that is damaged by the Contractor during or after placement. Repair it to the Engineer's satisfaction or replace it with an undamaged section at no additional cost to the Agency.

00226.62 Temporary Impact Attenuators - Complete repair of damaged impact attenuators, except for narrow site systems, within 24 hours of being notified of the damage. Complete repair of damaged narrow site systems within 6 hours of discovering or being notified of the damage.

When impact attenuator, truck mounted attenuator, or narrow site attenuator systems are used, have enough modules, cartridges, components, and replacement parts on hand to replace one complete installation or have on hand a complete replacement attenuator. Re-stock replacement items or complete replacement attenuators within 24 hours of use. All modules, cartridges, components, replacement parts, and replacement attenuators not used remain the property of the Contractor.

Replace damaged modules, cartridges, components, and replacement parts with modules, cartridges, components, and replacement parts of the same manufacturer and type, and with attenuation capabilities equal to the original, installed system.

00226.63 Truck Mounted Attenuators - Repair damage to support vehicles on which TMAs are mounted at no additional cost to the Agency.

Measurement

00226.80 Measurement - The quantities for work zone traffic control measures will be limited to the following, unless otherwise specified:

- The initial installation of quantities necessary to complete the Project based on the Contract Schedule of Items.

- The initial installation of additional TCD and TCM that the Engineer and Contractor agree are necessary to ensure a safe work zone.
- The replacement of TCD and TCM, except temporary signing, temporary electrical signs, and portable temporary traffic signals, damaged by Public Traffic and replaced by the Contractor. Temporary signing, temporary electrical signs, and portable temporary traffic signals damaged by Public Traffic and replaced or repaired by the Contractor will not be measured.

The quantities of Work performed under this Section will be measured as follows:

(a) Unit Basis: Temporary impact attenuators, moving temporary impact attenuators, truck mounted attenuators, reflective barrier panels, and guardrail and concrete appurtenances will be measured on the unit basis.

Temporary impact attenuator repair will be measured on the unit basis as follows:

- For sand barrel systems, each replacement of damaged sand module (individual barrel) will be counted.
- All other systems will be the repair or complete replacement of the attenuator system.

(b) Length Basis - Items measured by the length basis will be measured as follows:

(1) Guardrail:

a. Count Method - The number of standard sections will be counted and multiplied by 12 1/2 feet. For purposes of this Subsection, a "standard section" is defined as 12 1/2 feet of complete guardrail, without regard to the number of posts or rail elements used. Non-standard sections will be measured from center of post to center of post and added to the total calculated length of the standard sections for each run.

b. Length Method - Measurement will be from center to center of end posts, along the line and grade of each run of each type.

(2) Temporary Barrier:

a. Count Method - The laying length of a standard section, as shown on the applicable Standard Drawing, multiplied by the number of standard sections installed in each separate run. Non-standard sections, terminal sections, and transition sections will be measured and added to the total length of standard sections.

b. Length Method - Temporary barrier, minimum deflection temporary barrier, and moving temporary barrier will be measured on the length basis, measured from end to end of the barrier, including concrete barrier transitions, along the line and grade of each run. Estimated quantities of temporary barrier will be listed on the Plans or in the Special Provisions.

(3) Glare Shields - Glare shields and moving glare shields will be measured on the length basis, from center to center of the glare shield blades, as installed on concrete barrier for each run.

Payment

00226.90 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) Temporary Guardrail, Type ____ Reflectorized	Foot
(b) Temporary Guardrail Terminals, ____	Each
(c) Temporary Guardrail Transition	Each
(d) Temporary Bridge Connections	Each
(e) Temporary Barrier	Foot
(f) Minimum Deflection Temporary Barrier	Foot
(g) Moving Temporary Barrier	Foot
(h) Temporary Impact Attenuator, ____	Each
(i) Moving Temporary Impact Attenuators, ____	Each
(j) Repair Temporary Impact Attenuator, ____	Each
(k) <u>Truck Mounted Attenuator</u>	<u>Each</u>
(l) <u>Temporary Glare Shields</u>	<u>Foot</u>
(lm) Moving Temporary Glare Shields.....	Foot
(mn) Reflective Barrier Panels.....	Each
(po) Temporary Guardrail End Pieces.....	Each
(ep) Temporary Guardrail Anchors.....	Each

In items (a) and (b), the type of guardrail or terminal will be inserted in the blank.

Items (c) and (d) include each device, regardless of size or type.

Items (e) and (f) include Type 5 delineators, including removing and replacing Type 5 delineators on the barriers, as necessary. This also includes furnishing, installing, connecting, securing, unsecuring, and maintaining temporary barrier, including minimum deflection temporary barrier.

Item (g) includes installing, connecting, intermediate moving or resetting, securing, unsecuring, and maintaining temporary barrier. This item also includes moving temporary barriers, regardless of size or type, from one location of actual use to another location of actual use, regardless of whether the barrier was moved to and from the Contractor's stockpile area as part of the move, and for removing and replacing Type 5 delineators on the barriers, as necessary. Moving temporary barrier to and from the Contractor's stockpile areas will be paid according to 00221.90(b).

In items (h) and (i), the type of attenuator will be inserted in the blank.

Item (i) includes each move of the device from one location of actual use to another location of actual use, regardless of whether the device was moved to and from the Contractor's stockpile area as part of the move. Moving temporary impact attenuators to and from the Contractor's stockpile areas will be paid according to 00221.90(b).

In item (j), the words "Sand Module" or the type of attenuator will be inserted in the blank.

Item (j) includes replacement of each sand module damaged by Public Traffic or includes repair or complete replacement of impact attenuators damaged by Public Traffic.

Item ~~(lm)~~ includes moving the devices from one location on the concrete barrier to another.

Item ~~(mn)~~ includes panels installed on the concrete barrier and replacing damaged panels.

00226

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

No separate or additional payment will be made for temporary impact attenuator replacements, replacement modules, cartridges, components, anti-freezing solution, or replacement parts that are required to be on hand according to 00226.62 or for cleaning and removing debris from impacts.

No separate or additional payment will be made for moving TMAs or for repair of damage to support vehicles on which TMAs are mounted.

TCD items included under this Section damaged by Public Traffic and replaced by the Contractor will be paid for at the Contract price for the Pay Items listed in the Contract Schedule of Items or in approved Contract Change Orders, unless otherwise specified. Payment for replacing damaged TCD will only be made when:

- The Engineer orders it.
- The replacement devices are used on the Project.
- The damaged devices are disposed of to the Engineer's satisfaction.

00226.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00227 - Temporary Traffic Signals and Illumination

Description

00227.00 Scope - In addition to the requirements of Section 00221, this Work consists of providing, installing, maintaining, and removing temporary traffic signals and illumination, as shown or directed.

Materials

00227.10 Temporary Illumination - Furnish Materials for temporary illumination meeting the requirements of Section 00960, 00970, 02926, and the temporary illumination Plans.

00227.12 Temporary Traffic Signals - Furnish cable, guy wires, hardware, wood poles, wood pole foundations, and guy anchors that are able to support the dead load of the equipment shown and withstand a 100 mph, 3-second gust wind speed with an Importance factor (Ir) equal to 0.71 according to the 4th Edition AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*.

Submit stamped Working Drawings, details, and calculations for the wood pole designs to the Engineer for review according to 00150.35. Satisfy the requirements of 02120.10 and include designs for the wood poles, guy anchors, span wires, pole setting depths, and pole bearing.

Use materials for temporary traffic signals that conform to Sections 00960, 00990, 02120, and the following:

(a) General - Used materials are allowed if restored to new condition or have very minor wear that is undetectable without close inspection. Do not use permanent signal equipment as part of the temporary signal installation.

(b) Cable and Wire - Use all new cable and wire.

(c) Wood Poles - Use poles that are of acceptable condition without visible signs of deterioration or significant longitudinal splits. Poles shall have no more than 8 drilled holes for messenger and tether cable eyebolt attachments. Holes shall not be closer than 6 inches.

(d) Concrete - Use Commercial Grade Concrete according to Section 00440.

(e) Traffic Signal Control Devices - The controller program and monitor programming will be furnished by the Agency.

00227.13 Portable Traffic Signals - Use new or like-new portable traffic signals from the QPL.

00227.15 Pole Base Excavation Covers - Use pole base excavation covers meeting the following requirements:

- Utility grade plywood
- 3/4-inch minimum thickness
- New or in like new condition

Construction

00227.40 Temporary Illumination - Construct and remove temporary illumination according to the Plans and Sections 00950, 00960, 00970, and 02926.

00227.42 Temporary Traffic Signals - Construct, adjust, and remove temporary traffic signals according to the Plans, Sections 00950, 00960, 00990, and the following:

(a) Removal - Remove the temporary traffic signal when directed. Remove all wood poles and guy anchors in their entirety. Abandon vehicle detector loops in place. Contractor furnished Equipment remains the property of the Contractor.

(b) Power Service - Be responsible for Utility coordination, hook-up, and power consumption.

(c) Wood Poles - Back guy wood poles so that they are vertical with all dead loads applied. Bond all metallic conduit messenger cable, terminal cabinet, and other metallic parts within 10 feet of the ground line.

(d) Suspension of Heads - Adapt signal mounting hardware as needed for mounting on wood poles.

(e) Testing and Turn-on - Certify that all traffic signal controllers and related control Equipment for temporary signals have passed the ODOT laboratory tests. Successfully tested controllers and related control Equipment will be assigned permanent certification tags and will not require further environmental testing. Deliver controllers to the Traffic System Services Unit for functional testing.

00227.43 Portable Traffic Signals - Unless otherwise indicated in the TCP, provide and install portable temporary traffic signals as shown and according to the following:

(a) Location and Setup - Locate and set up portable temporary traffic signals according to the following:

- Locate the portable temporary traffic signal so that one vehicle signal head is directly over the Traveled Way, with a minimum vertical clearance of 17 feet.
- Provide conflict monitoring of green and yellow field indications.
- If there are indications in conflict or if there is operational failure, set the default to red flash.
- Use hard wired interconnection of the units for timing and conflict monitoring.
- Provide a method for immediate failure notification.

Do not install portable temporary traffic signals if driveways or road approaches are between the portable temporary traffic signals.

(b) Vehicle Detection - Provide vehicle detection at the stop line for each direction of traffic.

(c) Testing and Turn-on - Notify the Engineer at least 14 Calendar Days before turning on the portable temporary traffic signal. The Engineer will do the following:

- Inspect the installation and confirm the date and time the portable traffic signal is to be turned on.
- Notify the Contractor, in writing, with a list of deficiencies that need correction.
- Provide timing parameters to the Contractor for input into the portable temporary traffic signal.

Before turning on the portable temporary traffic signal, correct all deficiencies identified by the Engineer. Do not change the timing parameters without the approval of the Engineer. Use flaggers according to Section 00223 to control traffic during initial turn on of the signal. The flaggers shall remain on standby for 2 hours after the signal is turned on and operating properly.

Correct deficiencies at no additional cost to the Agency.

00227.44 Existing Traffic Signals - Adjust existing traffic signals according to the Plans and Sections 00950, 00960, and 00990.

Maintenance

00227.60 Temporary Illumination - Maintain temporary illumination and replace materials as directed.

00227.61 Existing Illumination and Sign Illumination - Maintain existing illumination and sign illumination after adjusting or working on them until accepted.

Routine maintenance of existing illumination and sign illumination will be performed by the Agency at the Agency's expense before the Contractor Works on them and after Work on them is completed and accepted.

00227.62 Temporary Traffic Signals - After successful turn-on of the temporary signal, except for equipment inside the controller cabinet, assume operation and maintenance of the temporary traffic signal until it is removed.

The operation and maintenance of the equipment inside the controller cabinet will be the responsibility of the Agency, except the Contractor shall furnish replacement parts that fail within the controller cabinet while the temporary traffic signal is in use.

After notification by the Agency, if the Contractor is not able to respond to a maintenance request for the temporary traffic signal or a request for replacement parts for the inside of the controller cabinet, Agency electricians will make repairs at the Contractor's expense.

If the temporary traffic signal fails during operation for any reason, immediately provide flaggers to control traffic until the temporary traffic signal is operational.

00227.63 Portable Traffic Signals - After successful turn-on, perform all required maintenance during operation of the portable traffic signal. Maintain a log for each portable traffic signal that contains at least the following information:

- Dates and times when service and maintenance is performed.
- A description of Equipment that was serviced and a brief description of why the service was performed.
- All operational and Equipment failures of the unit.
- Repairs made to the unit.
- Past operational history of the unit.
- All timing parameters input into the controller.

The log shall remain with the corresponding portable traffic signal at all times.

The Agency will not replace or repair any part of portable traffic signals.

If the portable traffic signal fails during operation for any reason, immediately provide flaggers to control traffic until the portable traffic signal is operational. If the portable traffic signal fails a second time within 30 Calendar Days of the first failure, remove it from the Project and control traffic with flaggers until a replacement portable traffic signal is installed, activated, and working properly. No

additional payment will be made for flagging as a result of a portable traffic signal failure, except when failure is due to loss of power from the power provider.

00227.64 Existing Traffic Signals - Maintain existing signals after adjusting or working on them until accepted.

Routine maintenance of existing signals will be performed by the Agency at the Agency's expense before the Contractor Works on them and after Work on them is completed and accepted.

Measurement

00227.80 Measurement - No measurement of quantities will be made for temporary traffic signals or temporary illumination.

Portable traffic signals will be measured on the unit basis, for each complete system. A complete system consists of two portable temporary traffic signals and hard wired interconnection between them. Portable temporary traffic signals damaged by Public Traffic and replaced or repaired by the Contractor will not be measured.

Payment

00227.90 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) Temporary Illumination	Lump Sum
(b) Temporary Traffic Signal.....	Lump Sum
(c) Portable Traffic Signal.....	Each

Item (b) includes all required Materials called for by the Plans and Specifications.

Item (c) includes furnishing, operating, moving, and removing the signals and all required earthwork, bases, Surfacing, and hard wired interconnections.

No separate or additional payment will be made for:

- Removing and replacing damaged portable traffic signal
- Illumination and associated appurtenances shown on traffic signal poles.
- Furnishing, placing, maintaining, moving, and removing pole base excavation covers.
- Flagging as a result of temporary traffic signal failure or portable traffic signal failure, except when failure is due to loss of power from the power provider.

Flagging for initial turn-on and 2 hour standby time and for failure due to loss of power from the power provider will be paid for under the flagger Pay Item according to 00223.90.

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

Temporary illumination and temporary traffic signals damaged by Public Traffic and replaced by the Contractor will be paid for at the Contract price for the Pay Items listed in the Contract Schedule of Items or in approved Contract Change Orders, unless otherwise specified. Payment for replacing damaged TCD will only be made when:

- The Engineer orders it.
- The replacement devices are used on the Project.

- The damaged devices are disposed of to the Engineer's satisfaction.

00227.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00228 - Temporary Pedestrian and Bicyclist Routing

Description

00228.00 Scope - In addition to the requirements of Section 00221, this Work consists of furnishing, installing, maintaining, and removing temporary devices for accommodating pedestrians and bicyclists through a work zone.

00228.01 General - When Work briefly or intermittently blocks or restricts the use of a pedestrian route, and a temporary detour route is not practicable due to the short duration of the restriction, place one "Sidewalk Open" (CW11-3) sign in advance of the restriction and visible from the next closest alternate pedestrian pathway facing both directions of pedestrian traffic. Signs 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 of less than 4 feet.

Materials

00228.10 Pedestrian Channelizing Devices - Use PCD from the QPL and as shown on the Standard Drawings or in the TCP.

00228.12 Bicycle Channelizing Devices - Use bicycle channelizing devices from the QPL or Conditional Use List.

00228.13 Temporary Curb Ramps - Furnish temporary curb ramps from the QPL or the Conditional Use List; or construct temporary curb ramps on site according to the Standard Drawings. Use ACP, PCC, or other approved materials for on-site constructed temporary curb ramps.

00228.14 Temporary Walks - Use temporary walks from the QPL or use ACP, PCC, or other approved Materials for on-site constructed temporary walks.

Construction

00228.40 Pedestrian Channelizing Devices - Install PCD as shown in the Plans or in the TCP. Provide a continuous route by interconnecting all adjacent PCD. Provide a clean unobstructed path for pedestrians according to 00220.02 and MUTCD requirements.

00228.42 Bicycle Channelizing Devices - Install bicycle channelizing devices as shown. Provide a continuous route by interconnecting all adjacent BCD. Provide a clean unobstructed path according to 00220.02(c).

00228.43 Temporary Curb Ramps - Install or construct temporary curb ramps as shown in the Standard Drawings and in the Plans, and according to the manufacturer's recommendations, if applicable. Temporary curb ramp dimensions and grades shall comply with the Standard Drawings or requirements approved by the Engineer. Repair or reconstruct unacceptable temporary curb ramps before opening to pedestrian traffic.

For curb ramps that cross, or are placed adjacent to, a gutter line or other drainage Structure, provide an approved means to prevent water from accumulating at the bottom of the ramp or overflowing onto the ramp surface.

00228.44 Temporary Walks - Construct temporary walks as shown or directed. Repair or reconstruct unacceptable temporary walks before opening to pedestrian traffic.

Maintenance

00228.63 Temporary Curb Ramps and Temporary Walks - Inspect and maintain temporary curb ramps and temporary walks for:

- Any damaged curb ramp or walk surfaces.
- Ramp and walk alignment or connections to existing sidewalks or Roadway surfaces.
- Compliance with the dimensions and grades in the Standard Drawings or requirements approved by the Engineer.
- Items identified by the manufacturer's recommendations.
- Other ramp or walk quality or performance issues, as directed.
- Keep ramps and walks unobstructed. Maintain a firm, stable, and slip resistant surface free of debris.

After completion of the Work, restore the area on which the temporary curb ramp or temporary walk occupied as directed.

Measurement

00228.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Length Basis - Pedestrian channelizing devices and bicycle channelizing devices will be measured on the length basis, determined by measuring from end to end of the devices along the line and grade of each run.

(b) Unit Basis - Temporary curb ramps will be measured on the unit basis.

(c) Area Basis - Temporary walks will be measured on the area basis, limited to the neat lines as shown or directed.

Payment

00228.90 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) Pedestrian Channelizing Devices	Foot
(b) Bicycle Channelizing Devices	Foot
(c) Temporary Curb Ramp, _____	Each
(d) Temporary Walks	Square Foot

In item (c), the type of temporary curb ramp will be inserted in the blank.

Payment for item (c) and (d) will be payment in full for furnishing, installing and maintaining each temporary curb ramp or temporary walks.

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

00228

No separate or additional payment will be made for:

- Removing temporary curb ramps and temporary walks
- Restoring the area on which the temporary curb ramps or temporary walks occupied
- Materials
- Surfacing
- Other temporary curb ramp or temporary walk hardware

TCD items included under this Section damaged by Public Traffic and replaced by the Contractor will be paid for at the Contract price for the Pay Items listed in the Contract Schedule of Items or in approved Contract Change Orders, unless otherwise specified. Payment for replacing damaged TCD will only be made when:

- The Engineer orders it.
- The replacement devices are used on the Project.
- The damaged devices are disposed of to the Engineer's satisfaction.

00228.91 Payment, Lump Sum or Incidental Basis - 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 according to 00221.98 or 00221.99.

Section 00240 - Temporary Drainage Facilities

Description

00240.00 Scope - This Work consists of furnishing, installing, and removing temporary drainage facilities.

Construction

00240.40 Construction - Furnish and install temporary drainage facilities of sufficient capacity and strength to carry traffic over the facility, and water flow in or under the facility. Determine the actual size, strength and type of facility needed. The sizes of facilities shown on the Plans are minimum only. Submit this determination and its basis to the Engineer for review. Do not install until approved.

Remove temporary drainage facilities when they are no longer needed. The facilities remain the property of the Contractor.

Measurement

00240.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00240.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Temporary Drainage Facilities".

Payment will be payment in full for furnishing, placing, maintaining, and removing temporary drainage facilities, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Section 00253 - Temporary Work Access and Containment

Description

00253.00 Scope - This Work consists of designing, installing, maintaining, moving, and removing systems for:

- Temporary access to the work via work Bridges, platforms, scaffolding, and barges.
- Containment for all dust, debris and waste materials generated by the Work.
- Protection of work surfaces from weather.
- Heating and ventilating to maintain specified humidity, temperature, and air flow.

00253.01 General - Install all necessary work platforms and containment Structures before beginning Work in any area that requires them. Do not remove work platforms and containment Structures in an area until all Work in that area has been accepted by the Engineer.

Collect and dispose of accumulations of debris and waste before disassembling or moving a work platform or containment.

00253.02 Definitions:

Basic Wind Speed - Three-second gust speed at 33 feet above ground in open terrain with scattered obstructions not over 30 feet high.

Dead Load - Self-weight of a structure, such as a work platform, scaffolding, and containment.

Factor of Safety - Component ultimate failure load divided by the maximum working load combination applied to the component.

Fundamental Frequency - Lowest natural frequency of vibration for a structure, measured in Hz.

Live Load - The weight of personnel, equipment, materials, debris, and vehicles.

Point Load - A force applied to a structure at a single point.

Projected Area - The area of a structure exposed to the wind. For winds parallel to the roadway, the projected area of containment is the width of the containment multiplied by its height. For winds transverse to the roadway, projected area is the length of the containment multiplied by its height.

Span - A section of bridge superstructure between piers.

Wind Load - Forces imparted on a structure, such as a bridge or containment, by wind pressure and structural dynamic response to wind.

00253.03 Submittals - Submit all specified stamped drawings, specifications and design calculations for work platforms, scaffolding, work Bridges, barges, and containment, heating, and ventilating systems according to 00150.35 and at least 21 Calendar Days before the preconstruction conference.

Submit the following:

- Stamped design calculations assuring that the bridge structural members can safely resist the combined effects of dead loads, live loads, and wind loads

- Stamped Working Drawings clearly defining dimensional limits and loading limits that satisfy the conditions listed in 00253.09 for exemption from design calculations for the bridge structural members. Identify the work platform, scaffolding, and containment system dead load (in pounds per square foot) in the loading note, and identify the maximum allowable accumulations of collected debris or water (inches depth) allowed in conjunction with the number of workers allowed and the concentrated loads (in pounds) of equipment and materials to be used within the structure. Identify the maximum wind speed at which containment wall materials remains on the structure.
- Stamped work platform and scaffolding Working Drawings, specifications and design calculations
- Stamped heating and ventilating Working Drawings, specifications and design calculations. Include in the Working Drawings a view showing the size (length by width by height) and location of each containment to be used, and identifying the heating and air moving equipment (manufacturer, model, and capacity in cubic feet per minute), for each containment.
- Stamped barge plans detailing equipment layout, spuds, anchorages and equipment anchorages, and calculations including barge load capacity, balance and stability, strength of spuds and anchorages, and strength of equipment anchorage
- Specifications describing how barges are kept within safe load and balance/stability limits, and how the outfitting, operation, and maintenance of the barges comply with the operational, safety and environmental requirements according to 00290.30
- Stamped Working Drawings and calculations of the work bridges or trestles

00253.04 Design Services - Provide structural design services by a Civil or Structural Engineer licensed in the State of Oregon.

Provide heating and ventilating design services by a Mechanical Engineer licensed in the State of Oregon.

If barges will be used, provide marine design services by an engineer licensed in the State of Oregon to practice in the field of Naval Architecture and Marine Engineering or other Professional Engineer licensed in the State of Oregon with relevant naval architecture experience as accepted by the Engineer.

00253.05 Containment Requirements - Contain work debris that is generated from dry abrasive blasting and arc spray metallizing operations according to the Class 1A requirements of SSPC-Guide 6, with the following limits:

- Type A1 rigid containment material with Type C1 rigid support structure in locations adjacent to traffic.
- Type A1 rigid containment floor decking.
- Type A2 flexible containment materials are acceptable if rigid containment materials are not specified. Provide flexible containment materials that are air impenetrable and have tear strength of at least 200 pounds per foot and tensile strength of at least 300 pounds per foot.
- Type H1 instrument verification of air pressure in rigid containment, provide negative pressure at least 0.03 inch water column.
- Type H2 visual verification of air pressure in flexible containment.
- Type I1 minimum specified air movement 100 feet per minute cross draft or 80 feet per minute downdraft past work surfaces. Use portable fans as needed to provide air movement in stagnant areas.

- Type J1 exhaust air filtration with 99 percent cleaning efficiency for particulate diameters above 39 microinches and less than two grains of particulate per 1,000 cubic feet of exhaust air (or air recycled to the work area).
- Provide a muffler or pressure relief valve for air handling/cleaning system.
- Operate dust collection, air flow, and air movement Equipment during blowdown and vacuuming to prevent settling of dust on the Structure or within the containment Structure.

Contain work debris that is generated from water jet operations according to the Class 2W requirements of SSPC-Guide 6, with the following limits:

- Type A1 rigid containment material with Type C1 rigid support structure in locations adjacent to traffic.
- Type A1 rigid containment floor decking.
- Type A2 flexible containment materials are acceptable if rigid containment materials are not specified. Provide flexible containment materials that are water impenetrable and have tear strength of at least 200 pounds per foot and tensile strength of at least 300 pounds per foot.
- Ceiling not required.
- Provide adequate wall height to effectively prevent loss of contaminated water.

Contain work debris that is generated from hand tool or power tool operations according to the Class 1P requirements of SSPC-Guide 6. For hand tool cleaning or vacuum shrouded power tool cleaning, ground covers or free-hanging tarpaulins are an acceptable alternate means of containment provided the debris is captured and controlled to the same degree as Class 1P.

Immediately address any visible emissions from containment systems.

When field painting over a body of water with brushes, rollers, or daubers, contain paint drips with rigid containment floor decking or free-hanging tarpaulins, provided that the tarpaulins capture and control paint drips to the same degree as the Class 1P containment requirements of SSPC-Guide 6.

When field painting over a body of water with air spray (conventional) or airless spray, contain painting operations according to Class 1A requirements of SSPC-Guide 6.

Comply with the requirements of 00290.30.

00253.06 Barge Requirements - Provide barges meeting the following requirements:

(a) Operational Requirements:

- Provide evidence that barges have been inspected and cleaned according to Section 00290 and are in acceptable condition at the time of use on the Project.
- Anchor the barges using a minimum of two spuds or a four-point anchorage system. Provide spuds or anchorages with adequate strength to resist expected tidal and weather conditions. Provide anchorages able to adjust to the highest and lowest tidal or river elevations without imparting vertical force either upward or downward to the barges.
- Do not allow the barges to ground at any time.
- Operate the barges according to applicable maritime regulations, including removal of the barges to dock in a safe location if required to avoid extreme weather hazards.
- Have a working bilge pump and backup bilge pump on each barge at all times.
- Anchor all equipment to barge decks.
- Adjust ballast to maintain proper balance of loaded barges.

- Do not load barges beyond their safe load capacity.
- Secure hatches in the closed position except during inspections or transfer of ballast.
- Comply with all applicable U.S. Coast Guard (USCG) regulations, including, but not limited to, mariner lighting standards. Contact USCG at (206) 220-7285 for applicable regulations.

(b) Safety Requirements:

- Have a motorized boat available at all times.
- Provide a USCG approved personal flotation device for each person on board a barge.
- Provide USCG approved ring life buoys on each barge.
- Provide USCG approved "B" type fire extinguishers on each barge.
- Equip all gasoline engines with an acceptable means of backfire flame control.
- Provide adequate ventilation for fuel tanks and engine compartments for all gasoline, CNG, propane, or butane powered Equipment, adequate to remove hazardous gases from the fuel tank compartment and engine compartment.
- Use bonded fuel hoses during refueling to minimize the risk of sparking due to static electricity.

00253.07 Work Bridge Structural Design Requirements - Design work Bridges according to *AASHTO Guide Design Specifications for Bridge Temporary Works*. Provide materials for temporary work Bridges meeting the requirements of the applicable Sections of Part 00500. Comply with all requirements of applicable permitting agencies according to Section 00290.

00253.08 Work Platform and Scaffold Design Requirements:

(a) Contractor-Designed - For Contractor-designed work platforms and scaffolding, provide stamped Working Drawings and stamped calculations of the work platforms or scaffolding according to 00150.35.

Include the following information:

- All general notes for the design and construction of the platform or scaffolding
- Material list including Incidental items.
- Show layout of work access in relation to the existing Structure, drainage system and utilities.
- Detail the anchoring system that will be used to connect the temporary platform or scaffolding to the existing Structure.
- Show all structure and geometric details including, but not limited to:
 - Loading conditions.
 - Connecting devices.
 - Construction around utilities, drainage, footings, bents, or other Structures.

(b) Pre-Engineered - Pre-engineered assemblies may be utilized for all or for portions of work platforms or scaffolding. Submit manufacturer's literature indicating safe working loads. Working Drawings and calculations for pre-engineered assemblies are not required.

Materials

00253.10 Material Requirements - Provide work platforms and containment systems constructed of durable materials capable of meeting all performance requirements throughout the Project.

Previously used materials and components will not be allowed if they are bent, buckled, perforated, cut, corroded with section loss, ripped, or torn; or their usability is otherwise compromised.

Construction

00253.40 General - Install work Bridges, work platforms or scaffolding, and containment Structures so they contain all rubble and debris. Do not allow rubble or debris to fall into waterways.

Install work Bridges, work platforms or scaffolding, and containment Structures so they satisfy all the requirements of applicable permitting agencies.

00253.41 Traffic Clearance - Maintain all traffic clearances shown. Do not allow the containment system or cables, hoses, supplies, and Equipment to encroach on the indicated traffic clearances at any time. Provide a minimum of 7 feet of vertical clearance above pedestrian walkways.

00253.42 Safety Requirements - Comply with all applicable requirements of OSHA.

Follow approved procedures for evacuating and securing work platforms and containment systems if wind speeds or predicted wind speeds exceed design limits. For concrete removal and repair work, comply with all applicable requirements of OSHA Standard Number 1926.1153, Respirable Crystalline Silica, including Table 1.

Vent exhaust gases to the exterior of containment systems. Draw air for combustion from outside the containment system. Take makeup air for the containment system from a location that ensures combustion gases are not returned inside the enclosure.

Remove accumulations of debris and drift from work bridge piles and bridge piers.

00253.45 Navigation Lighting - Place flashing lights under the containment system on all four corners of each installation according to Federal regulations, marking the reduced navigational clearance. Maintain all navigation lights in operational condition at all times during the project and temporarily relocate them, if necessary, in order for them to remain visible to marine traffic.

Mark each work platform with flashing yellow lights along the outside edge at 100 foot intervals. Mark each work platform from the outer end near the navigation channel to the first set of pilings near the bank. Flashing yellow lights shall be visible to boat traffic from either side of the platform. Flashing yellow lights may be equivalent to flashing yellow lights on construction barricades.

Temporary

00253.50 Electrical Service - Install and remove any temporary electrical service needed to perform the Work of this Section using electricians meeting the requirements of 00960.30.

00253.51 Deck and Expansion Joint Sealing - In the event of water leakage through the deck or expansion joints, install temporary deck or expansion joint seals to prevent water intrusion into containment, using approved materials from the QPL.

Maintenance

00253.60 Work Bridges, Work Platforms, Barges, and Containment - Maintain work Bridges, work platforms, barges, and containment in a safe and functional condition.

Where a work Bridge or work platform is adjacent to Public Traffic, including pedestrian traffic, provide and place suitable approved barriers to prevent public access.

Finishing and Cleaning Up

00253.70 Work Bridge Removal - When temporary work Bridges are no longer needed, remove them according to Section 00310.

Satisfy all requirements of applicable permitting agencies during work Bridge or trestle removal.

Restore all areas occupied by the work Bridges or trestles to original condition.

00253.71 Work Platform and Containment Structure Removal - When attachments for work platforms and containment Structures are removed from the Bridge, restore points of attachment to original condition and perform touch up of Project Work so that the points of attachment match the surrounding surfaces.

Measurement

00253.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00253.90 Payment - The accepted quantities of work access and containment, including temporary work Bridges, barges, work platforms, scaffolding, containment Structures, and heating and ventilation will be paid for at the Contract Lump Sum amount for the item "Temporary Work Access and Containment".

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 designing, installing, maintaining, and removing work access and containment, including temporary work Bridges, barges, work platforms, scaffolding, containment Structures, heating and ventilation, or restoring the existing Structure.

No payment will be made for Materials on hand.

Payment for Work under this Section will be limited to 90 percent of the lump sum amount until satisfactory removal of the temporary work access and containment Materials and Equipment is complete.

Section 00270 - Temporary Fences

Description

00270.00 Scope - This Work consists of constructing, maintaining, and removing temporary fences, gates, and gateways as shown or directed.

Materials

00270.10 Material - Provide new Material meeting the requirements of 01050.10.

Provide temporary barrier meeting the requirements of 00226.11(a).

Construction

00270.40 Construction - Construct temporary fences, gates, and gateways according to the applicable parts of Section 01050.

00270.42 Rock Protection Fence - Construct concrete barrier according to Section 00820. Attach fence to barrier as shown.

Maintenance

00270.60 Maintenance - Maintain temporary fences and appurtenances in good condition. Keep the fences in place until they are no longer needed.

Finishing and Cleaning Up

00270.70 General - When temporary fences and appurtenances are no longer needed remove and dispose of them according to the applicable parts of Section 00310 except fence fabric, fence wire, posts, and braces may be used in permanent fence installations if the following conditions are met:

- The material was new when installed for temporary purposes.
- The material has not been used on previous projects.
- The material meets the requirements of 01050.10.
- The material is undamaged.
- The material is acceptable to the Engineer.

Measurement

00270.80 Measurement - The quantities of temporary fence will be measured on the length basis of each type of temporary fence. Measurement will be from center to center of posts, measured along the line and grade of each separate continuous run of fence as constructed, exclusive of gates.

The quantities of temporary gates will be measured on a unit basis regardless of size or type.

The quantities of temporary rock protection fence, barrier mounted will be measured on the length basis. Measurement will be from center to center of posts, measured along the line and grade of each separate continuous run.

Payment

00270.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Temporary Type ____ Fence.....	Foot
(b) Temporary Gates	Each
(c) Temporary Rock Protection Fence, Barrier Mounted.....	Foot

In item (a) the type of fence will be inserted in the blank.

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

Section 00280 - Erosion and Sediment Control

Description

00280.00 Scope - This Work consists of controlling Soil erosion by wind, water, or other means and preventing eroded sediments and other construction-generated pollutants from moving off the Project Site, Agency controlled material sources, disposal sites, and off-site mitigation areas in order to comply with federal, State, and local laws, rules and regulations, and the Agency's National Pollutant Discharge Elimination System (NPDES) 1200 Permit or Permits applicable to the Project.

For Agency funded projects, the City will provide a Construction Site Management Plan (CSMP) for all projects and a permit, if required. The Contractor shall be responsible for ensuring the conditions of the permit are implemented and that the project meets the outcomes required by City Administrative Order No. 58-03-01-F (OA 6.645-D).

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) for the Project, the Specifications, or as directed, until the site is permanently stabilized.

The Work described in the Specifications and shown on the Plans is part of the Project ESCP and represent the minimum requirements for all Project Sites and conditions.

00280.01 Abbreviations:

CSMP - Construction Site Management Plan

ESC - Erosion and Sediment Controls

ESCP - Erosion and Sediment Control Plan (synonymous with CSMP)

ESCM - Erosion and Sediment Control Manager

00280.02 Definitions:

Active Project Site - Projects under construction according to the CSMP.

Effective Functioning - Preventing erosion, controlling runoff, or controlling sediment in each location where an ESC is needed so erosion-related impacts of site construction are mitigated as required.

Erosion - The wearing away of the land surface by water, wind, ice, gravity or other geological agents.

Expected Rain Event – A storm event that is predicted at 30% (or greater) chance of occurrence by the National Weather Service of precipitation within a 24-hour period.

Inactive Project Site – A project site in which earth disturbing activities have not occurred for 7 consecutive days or more.

Perimeter Controls - Perimeter controls include sediment fences, ditches, filter berms in flatter areas, and other methods for preventing sediment and other construction-generated pollutants from leaving the construction site.

Permanent Stabilization - Maintenance-free measures or methods necessary to prevent erosion or sediments from leaving the Project Site.

Runoff - That portion of precipitation that flows from drainage area on the land surface, in open channels or in stormwater conveyance systems.

Sediment - Fragmented material originated from weathering and erosion of Rock and unconsolidated deposits. Sediment also includes fragmented materials from man-made materials. The material is transported by, suspended in, or deposited by water.

Temporary Stabilization - Measures or methods necessary to prevent erosion or sediments from leaving the Project Site until permanent stabilization measures are in place and established.

Wet Season Work - Wet season Work is defined as Work between October 15 and April 30 ~~May 31~~.

00280.03 Standards - When designing, applying, installing maintaining, inspecting, and removing erosion and sediment control devices, use and follow the version in effect on the date the Project is advertised, of the ODOT *Erosion and Sediment Control manual*.

00280.04 Erosion and Sediment Control Plan on Agency Controlled Lands - For Work on Agency-Controlled Lands use either the Agency's ESCP, a Contractor modified version of the Agency's ESCP, or a Contractor developed ESCP. Submit the following for approval at least 10 Calendar Days before the preconstruction conference:

- When using the Agency's ESCP without modification, a written notification indicating the Agency's ESCP will be used without modification.
- When using a Contractor modified version of the Agency's ESCP or when using a Contractor developed ESCP, include the following:
 - Proposed ESCP showing all ESC Work and quantities of all Work.
 - Implementation schedules for the ESCP based on each phase of the Contractor's Work.

Do not begin any site activities that have potential to cause erosion or sediment movement until the ESCP and implementation schedules are approved by the Engineer.

Update the ESCP and schedule as needed to ensure that sediment does not leave the construction site.

Additional or revised erosion and sediment control features, not shown on the initial ESCP, may be required depending on the Contractor's methods of operation and schedule to provide effective functioning of ESC.

Ensure that the Contractor's construction ESCP and implementation schedules are prepared by an individual who meets qualifications of 00280.30. Furnish a signed copy of the ESCP with individual's name, title, state certifications, and employing firm if different than Contractor's firm.

Keep a copy of the approved ESCP with updated changes on-site during all construction activities. If there are approved changes, add them to the ESCP no later than 24 hours after implementation.

During inactive periods longer than 7 Calendar Days, keep the ESCP on-site or provide a copy to the Engineer to retain.

00280.05 Erosion and Sediment Control Plan on Non-Agency Controlled Lands - For Work on non-Agency controlled lands, in addition to the requirements of 00280.04, submit the following for review 10 days before the preconstruction conference:

- A Contractor-developed ESCP for each unique site covered under a Non-Agency NPDES 1200 Permit.
- A description of how the ESCP will be implemented and monitored on these sites.
- A complete list of other applicable permits controlling Work on these lands, whether the Agency is one of the permittees or not, and copies of the applicable permits or proof that permits are not required from all pertinent federal, State, county, city, and local agencies.
- Signed letter from the property owner that allows the Contractor access to the property. Include a statement in the letter that holds the Agency harmless for all consequences related to the Contractor's use of the property.
- Signed agreement with the property owner detailing the Contractor's operation, use of the property, and stating that Contractor will abide by permits, if any.

If the Contractor's operations require Work on non-Agency controlled lands not presented 10 days before the preconstruction conference, or if changes to the Contractor's submitted ESCP are necessary, obtain approval of a new or revised ESCP from the Engineer before beginning Work.

00280.06 Erosion and Sediment Control Manager - Designate and provide a representative as the Erosion and Sediment Control Manager (ESCM) who meets the qualifications of 00280.30.

Materials

00280.14 Erosion Prevention Materials:

(a) Plastic Sheeting - Furnish plastic sheeting slope protection, anchoring system, and toe protection meeting the following requirements:

- **Plastic Sheeting** - Minimum 6-mil thick polyethylene plastic sheeting.
- **Rock** - Class 50 riprap conforming to Section 00390.
- **Sand Bags** - Sand bags meeting the requirements of 00280.15(a). Sand bags may also be filled with sand.
- **Sediment Barrier** - Fiber rolls and compost filter sock meeting the requirements of 00280.15(a).
- **Staples** - 1/8 inch diameter steel wire staples. 2 inch "U" width with a length of 6 inches minimum.

(b) Chemical Controls:

(1) Chemical Soil Binder - Furnish a liquid stabilizer emulsion meeting the requirements of 01030.16.

(2) Chemical Dust Control - Furnish tackifier meeting the requirements of 01030.16.

(c) Non-Chemical Control - Furnish water meeting the requirements of Section 00340.

(d) Mulching and Seeding - Furnish temporary and permanent seeding, fertilizing, and mulching meeting the requirements of Section 01030.

(e) Slope and Channel Liner Matting - Furnish matting from the QPL that meets the following performance criteria categories:

- **Type A** - Slope protection mat, fully biodegradable, for Clay Soil Slopes 1V:3H or flatter.
- **Type B** - Slope protection mat, fully biodegradable, for sandy Soil Slopes 1V:3H or flatter.
- **Type C** - Slope protection mat, fully biodegradable, for Clay Soil Slopes steeper than 1V:3H.
- **Type D** - Slope protection mat, fully biodegradable, for sandy Soil Slopes steeper than 1V:3H.
- **Type E** - Flexible channel liner, fully biodegradable, for shear stress from 0 to 2 pounds per square foot.
- **Type F** - Flexible channel liner for shear stress from 2 to 4 pounds per square foot.
- **Type G** - Flexible channel liner for shear stress from 4 to 6 pounds per square foot.
- **Type H** - Flexible channel liner for shear stress from 6 to 8 pounds per square foot.

Where shown, furnish rolled slope protection matting or hydraulically applied bonded fiber matrix slope protection matting that consists of fully biodegradable long fiber strands held together by a water resistant bonding agent. Channel liner mattings, types F, G and H may be installed as permanent features and are not required to be fully biodegradable.

Furnish check slot and anchor trench material and fasteners for matting meeting the following requirements:

(1) Check Slot and Anchor Trench:

- **Class 50 Riprap** - Class 50 riprap meeting the requirements of Section 00390.
- **Soil** - Soil meeting the requirements of 00330.13.

(2) Fasteners - U-shaped wire staples or pins as follows:

- **Staples** - 1/8-inch diameter steel wire staples. 1-inch "U" width with a length of 9 inches minimum for cohesive Soils, and 1/2-inch "U" width with a length of 12 inches minimum for non-cohesive Soils.
- **Pins** - 3/16-inch diameter steel pin with a 2-inch diameter steel washer secured at the head of the pin with a length of 18 inches minimum for cohesive Soils and 24 inches minimum for non-cohesive Soils.

(f) Compost Erosion Blanket - Furnish commercially manufactured medium compost material meeting the requirements of Section 03020. ~~Add tackifier meeting the requirements of 01030.16.~~

Apply tackifier at the rates shown or as recommended by the manufacturer.

(g) Straw Bales - Furnish rectangular straw bales weighing between 80 and 100 pounds, meeting the requirements of 01030.15(b).

00280.15 Runoff Control Materials:

(a) Check Dams - Furnish check dam materials meeting the following requirements:

- **Type 1: Aggregate** - Aggregate sized between 4 inches maximum and 1 inch minimum meeting the requirements of 00330.16.
- **Type 2: Fiber Rolls** - Fiber rolls or wattles that are pre-manufactured, filled with plant based, naturally occurring fiber (e.g.: straw, wood, excelsior, hemp or coconut fiber) that contains no weed seeds and that is not moldy, caked, decayed or of otherwise low quality. When straw is used, furnish straw meeting the requirements of 01030.15(b). Furnish fiber roll that is fully biodegradable with enclosing netting derived from natural fibers (e.g.: jute, sisal, hemp or coir fiber). Furnish rolls with a minimum density of 2.75 pounds per cubic foot and constructed to hold its shape to provide a diameter of between 8 and 10 inches.
- **Type 3: Biofilter Bags** - Minimum size 18 by 6 by 30-inch plastic mesh bags with 1/2-inch openings filled with approximately 45 pounds of clean, non-toxic 100 percent recycled wood product waste containing no fine materials or sediments, or as shown on the Standard Drawings for this device.

- **Type 4: Sand Bags** - Durable, weather-resistant bags woven tightly enough to prevent leakage of filler material. Fill bags with at least 75 pounds of firmly-packed fine PCC 3/8" - 0 Aggregate, or round 3/8" - 3/16" pea gravel.
- **Type 5: Prefabricated System** - Prefabricated check dam system conforming to the manufacturer's recommendations and on the QPL. Field fabricated systems are not acceptable.
- **Type 6: Compost Filter Sock** - Filter sock material, compost, and stakes meeting the requirements of 00280.15(f).

(b) Interceptor Dikes and Swales - Furnish interceptor dike and swale materials meeting the following requirements:

- **Seeding, Fertilizing and Mulching** - Permanent or temporary seeding, fertilizing and mulching meeting the requirements of Section 01030.
- **Dike Material** - Soil meeting the requirements of 00330.13.

(c) Temporary Drainage Curbs - Furnish temporary drainage curb material meeting the following requirements:

- **Type 1** - Concrete drainage curb meeting the requirements of 00480.10.
- **Type 2** - Asphalt concrete drainage curb meeting the requirements of 00480.10.
- **Type 3** - Sand bags meeting the requirements of 00280.15(a).

(d) Temporary Slope Drains - Furnish either plastic pipe and flared end sections meeting the requirements of Section 02410 or metal pipe and flared end sections meeting the requirements of Section 02420. Flared End Sections shall be prefabricated of the same material and comply with the same material specifications as the Temporary Slope Drain.

(e) Flow Spreader - Furnish Aggregate for flow spreaders with a maximum size between 1 inch and 4 inches meeting the requirements of 00330.16.

(f) Compost Filter Sock - Furnish filter sock material, compost, and stakes meeting the following requirements:

(1) Filter Sock Material - 5-mil thick woven tubular mesh netting with 1/8 to 3/8-inch openings, and consisting of continuous HDPE filament or polypropylene material or 100 percent biodegradable mesh netting from the QPL.

(2) Compost - Commercially manufactured coarse compost material meeting the requirements of Section 03020.

(3) Stakes - 2 by 2 inch (nominal) untreated wood stakes.

(g) Compost Filter Berm - Furnish commercially manufactured coarse compost material meeting the requirements of Section 03020.

00280.16 Sediment Control Materials:

(a) Construction Entrances - Furnish materials meeting the following requirements:

- **Aggregate** - Clean, durable, open-graded angular Aggregate sized between 4 inches maximum and 1 inch minimum with less than 2 percent of the material, by weight, passing the No. 4 sieve.
- ~~according to the following grading requirements:~~

Sieve Size	Percent Passing (by weight)
6"	100
4"	60 - 90
3"	40 - 70
2"	20 - 50
1"	0 - 20
#4	0 - 2

- **Geotextile** - Subgrade geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).

(b) Tire Wash Facility - Furnish tire wash facility materials meeting the following requirements:

- **Aggregate** - Aggregate meeting the requirements of 00280.16(a).
- **Geotextile** - Subgrade geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Corrugated Steel Panels** - Corrugated steel panels with flexural strength adequate to bear the weight of the vehicles accessing the construction site without deformation.

(c) Sediment Fence - Furnish sediment fence materials meeting the following requirements:

- **Geotextile** - Geotextile meeting requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Posts** - Untreated wood posts (wood stain is acceptable).

(d) Inlet Protection - Furnish inlet protection materials meeting the following requirements:

- **Type 2:**
 - **Wire Mesh** - 19-gauge steel-wire mesh with 3/8 by 3/8-inch openings.
 - **Geotextile** - Type 1 geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
 - **Aggregate** - Open-graded Aggregate meeting the requirements of 02630.11.
- **Type 3: Prefabricated Filter Inserts** - Prefabricated filter inserts manufactured specifically for collecting sediment in drainage inlets and from the QPL. Include handles and fasteners sufficient to keep the insert from falling into the inlet during maintenance and removal of the insert from the inlet. Above ground or above grate prefabricated products that are also pre-approved are:
 - ERTEC Combo Guard
 - PSI Above Ground Grate Filter (AGG 2 Filter)
 - UltraTech International Grate Guard Plus
 - UltraTech International Inlet Guard Plus

All prefabricated inserts shall be installed and maintained in accordance with manufacturer's recommendations. Inserts shall have overflow capability. Use one piece pre-fabricated inlet protection for combination inlets.

- **Type 4:**
 - **Biofilter Bags** - Biofilter bags meeting the requirements of 00280.15(a).
 - **Reinforcing Steel** - Commercial grade reinforcing steel meeting the requirements of 02510.

- **Type 6: Sod** - Grass sod meeting the requirements of 01040.19(h).
- **Type 7:**
 - Filter sock material, compost, and stakes meeting the requirements of 00280.15(f).
 - Sand bags conforming to 00280.15(a).
- **Type 10: Curb Inlet Sediment Dam** - Provide one (or more) of the following curb inlet sediment barrier from products, or as approved:
 - Ertec - Curb Inlet Protection
 - ACF - Econo Curb
 - GEI Works - Taurus Curb Inlet Filter
 - GEI Works - Ultra-Curb Inlet Guard
 - Ultratech - Ultra-Curb Guard Plus
 - Cardwell – Curb Inlet Sediment Dam

(e) Sediment Barriers - Furnish sediment barriers and sediment barrier stakes meeting the following requirements:

- **Type 2: Biofilter Bags** - Biofilter bags meeting the requirements of 00280.15(a).
- **Type 3: Fiber Rolls** - Fiber rolls or wattles meeting the requirements of 00280.15(a).
- **Type 4: Sand Bags** - Sand bags meeting the requirements of 00280.15(a).
- **Type 5: Brush Barrier** - Maximum 6-inch diameter woody debris brush or Topsoil strippings for brush barriers. Provide Type 1 sediment fence geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Type 6: Aggregate Barrier** – Clean, well-graded, angular Aggregate with maximum size between 4 inches and 1 inch, meeting the requirements of 00330.16, except no more than 5 percent of the material (by weight) shall pass the No. 40 sieve.
- **Type 7: Prefabricated Barrier System** - Prefabricated barriers manufactured specifically for temporarily obstructing the flow of sediment-laden water and from the QPL.
- **Type 8: Compost Filter Sock** - Filter sock material, compost, and stakes meeting the requirements of 00280.15(f):
- **Type 9: Compost Filter Berm** - Commercially manufactured coarse compost material meeting the requirements of Section 03020.

(f) Sediment Mat - Furnish sediment mat from the QPL.

(g) Temporary Energy Dissipater - Furnish temporary energy dissipater materials meeting the following requirements:

- **Geotextile** - Type 1 riprap geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Class 100 Riprap** - Class 100 riprap meeting the requirements of Section 00390.

(h) Temporary Sediment Trap - Furnish sediment trap materials meeting the following requirements:

- **Geotextile** - Type 2 drainage geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Aggregate Base** - Aggregate Base meeting the requirements of Section 00640.
- **Aggregate** - Aggregate meeting the requirements of 00280.16(a).

(i) Concrete Washout - Furnish water tight prefabricated portable containers delivered to the site. Concrete washout waste shall not splash or leak during transport. Alternatively, construct a concrete washout according to the Standard Drawing with materials meeting the following requirements:

~~Furnish concrete washout materials meeting the following requirements:~~

- **Geotextile** - Type 2 drainage geotextile and Subgrade geotextile meeting the requirements of Section 02320. Provide documentation according to 02320.10(c).
- **Straw Bales** - Standard rectangular straw bales, with straw material meeting the requirements of 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.

(j) Floating Turbidity Barrier - Furnish floating turbidity barriers shown and as directed.

(k) Flocculant - Furnish chitosan flocculant material in gel or powdered form packaged in a pervious sleeve.

(l) Pipe Plug – Furnish pipe plug according to section 445.10

Labor

00280.30 Erosion and Sediment Control Manager - If the Agency's NPDES 1200-CA Permit is applicable to the Project, designate and provide an ESCM who possesses a valid ODOT ESCM certificate or who has successfully completed an erosion control training that is acceptable to the Engineer.

The ESCM duties include:

- Manage and ensure proper implementation of the ESCP.
- Accompany the Engineer during field review of the ESCP prior to construction activities.
- Monitor rainfall on and in the vicinity of the Project Site.
- Monitor water quality in receiving streams in the vicinity of the Project Site.
- Inspect ESC on active construction sites weekly for effective functioning.
- Inspect ESC on inactive sites every 2 weeks for effective functioning.
- Inspect ESC on all active and inactive sites at least daily during rainy periods when 1/2 inch or more of rain has fallen within a 24-hour period for effective functioning.
- Ensure that ESC are regularly cleaned and maintained.
- Mobilize crews to make immediate repairs to ESC or install additional ESC during working and non-working hours when ESC is not effectively functioning.
- Record actions taken to clean up significant amounts of sediment.
- Immediately report potential permit violations or other non-stormwater discharges to the stormwater system to the Agency
- Report potential permit violations to the Agency in a timely manner.
- Regularly update the approved ESC Monitoring form.
- Update the ESCP monthly and within 24 hours after changes or major ESC modifications are implemented.

- Prepare a contingency plan in preparation for emergencies and the rainy season.
- Accompany the Engineer on inspections and, if required, on inspections by representatives of regulating agencies.

Provide the ESCM name, qualifying certifications, and 24-hour contact phone number 10 days before the preconstruction conference. If changes in the appointment of the ESCM occur during the term of the Contract, provide written notice to the Engineer within 5 Calendar Days.

If the Agency's NPDES 1200 CA-Permit is not applicable to the Project, comply with all requirements of the applicable permits.

Construction

00280.40 Installation - Install ESC as shown and according to the ESCP. Install these ESC before performing clearing, grading, or other land-altering activities. Ensure effective functioning of ESC such that sediment does not leave the Project boundaries, enter drainage systems or waterways, or violate applicable water quality standards.

Coordinate temporary ESC with permanent ESC and all related Project Work.

If ESC are not effective, modify or change ESC so they become effective.

Permit approval shall not be effective until a site inspection has occurred and the permit is endorsed with the approval of the site inspector, which approval may include additional conditions imposed as a result of the inspection.

00280.41 Work Restrictions - Do not start construction activity until the initial erosion inspection has been completed by the Agency and deficiencies have been correctedThe following Work restrictions apply:

(a) Disturbance Limits - Delineate all construction site clearing limits with high visibility markings and do not disturb areas outside the clearing limits. Maintain the markings during Project construction.

(b) Perimeter Controls - Install all appropriate perimeter controls before beginning any ground-disturbing activities.

(c) Wet Season Work and Temporary Work Suspension - Update the ESCP and schedule for Work proposed during the wet season to ensure that all appropriate controls, including ESC during Work suspensions, are implemented and maintained. Submit the updated ESCP and schedule to the Agency and receive approval before beginning any Work during the wet season.

During the wet season, limit excavation and bare ground activities to only those required for immediate operations. Stabilize stockpiles at the end of each workday by diverting flows, placing covers, or installing sediment barriers.

(d) Disturbance Restrictions - Limit the amount of disturbed areas to that which can be effectively controlled.

00280.42 Stabilization - Stabilize Soil areas as follows:

(a) Soil Exposure Limitations:

- **Statewide (Entire Year)** - Within 7 days of exposure, stabilize all areas within 100 feet of waterways, Wetlands, or other sensitive areas using methods that do not rely solely upon germination to control erosion.
- **West of the Cascades (Entire Year)** - Stabilize all other areas within 14 days of exposure.
- **East of the Cascades (October 1 through April 30)** - Stabilize all other areas within 14 days of exposure.

- **East of the Cascades (May 1 through September 30)** - Stabilize construction areas in stages based on site conditions, weather, and as determined by the Engineer.

(b) Temporary Stabilization - Temporarily stabilize exposed Soils:

- Every 14 days or more frequently as needed or directed.
- Upon approval, active work areas scheduled for re-disturbance may be left unstabilized for 14-Day periods if erosion is not occurring or imminent.
- By 3:00 p.m. the dayA minimum of 1 Day before expected rain events.
- At the end of each Day during wet season work and other wet periods.
- As an emergency measure when rain is falling on unprotected areas, such as exposed or disturbed soils.
- When wind or vehicle traffic is visibly causing more than minor dust.
- At finish grade when working outside the permanent seeding dates.

Temporary stabilization methods include, but are not limited to:

- Straw mulch, compost mulch, plastic sheeting, matting, chemical soil stabilization, etc.
- If using seeding for temporary stabilization, vegetation must achieve 70% or greater ground surface coverage with live plants.

Document all implemented ESC on the ESCP. Ensure that permanent slope stabilization is achieved before removing temporary ESC.

(c) Permanent Stabilization - Permanently stabilize exposed Soil surfaces at finished grade. Perform permanent stabilization at each completed excavation and embankment area except for areas that are scheduled to be redisturbed.

If seeded areas are not sufficiently stabilized by an established stand of vegetation according to 01030.60, or if the Soil surface is not sufficiently protected with temporary stabilization ESC by October 1 of each year, do the following:

- Use ESC necessary to redirect water flows away from disturbed areas.
- Re-grade disturbed areas to finish grade.
- Apply permanent seeding at the original specified rate.
- Apply temporary mulching or matting.

If areas for temporary stabilization are too steep or lack access for effective straw mulch application, apply, upon approval, another effective measure.

Incorporate permanent erosion control features into the Project at the earliest practicable time.

00280.43 Area Preparation - Prepare areas according to 01040.48(d) and track-walk all fill slopes at finished grade steeper than 1V:3H and flatter than 1V:1.5H so that track impressions run parallel to slope contours. Maintain at least 1 3/8-inch tall track grousers.

00280.44 Erosion Prevention - Perform erosion prevention Work as shown and according to the following:

(a) Plastic Sheeting - Place plastic sheeting on disturbed, temporary slopes or stockpiles where immediate protection is required and mulching or other methods of Soil stabilization are not feasible.

Cover exposed Soil with plastic sheeting as shown. Keep sheeting in place during rain events. Direct runoff away from areas above plastic sheeting to prevent undermining. Control runoff from plastic sheeting so water discharges without causing further pollution.

(b) Erosion and Sediment Control by Chemical Methods:

(1) Chemical Soil Binder - Hydraulically apply a liquid stabilization emulsion at the following rates unless the manufacturer recommends a different rate of application:

- **Long-Term Control of Exposed Soil Surfaces** - Apply 35 gallons per acre of emulsion. Dilute with water at the rate of one part emulsion to 20 parts water.
- **Steep Slopes with Raveling Small Rock** - Apply 45 gallons per acre of emulsion. Dilute with water at the rate of one part emulsion to 10 parts water.

(2) Chemical Dust Control - Apply tackifier for dust control for wind or equipment-caused erosion according to the following:

- **Liquid Stabilizer Emulsions** - Dilute the emulsion with water at a rate of one part emulsion to 30 parts water. Apply the diluted mixture at the rate of 865 gallons per acre unless the manufacturer recommends a different rate of application.
- **Dry Powder Tackifier** - Apply at a rate of 140 pounds per acre unless the manufacturer recommends a greater rate of application.

(c) Erosion and Sediment Control by Non-Chemical Methods - Apply water according to Section 00340.

(d) Temporary and Permanent Mulching and Seeding:

- **Mulching** - Evenly apply dry mulch and tackifier materials according to Section 01030. In areas not accessible to heavy equipment, mulch by hand or by other approved methods. Areas not prepared according to 01040.48(d) will require a greater rate of application to obtain complete coverage, which shall be at no additional cost to the Agency.
- **Seeding** - Seed according to Section 01030.

(e) Slope and Channel Liner Matting - Install matting according to the ESCP or the manufacturer's recommendations, whichever is more stringent. Install fully biodegradable matting within 25 feet of water resources, and within vegetated stormwater treatment facilities.

(1) Area Preparation - Remove all materials larger than 2 inches in size. Smooth the surface and remove undulations sufficiently to allow the matting to be placed in complete contact with the Soil.

(2) Seeding - Apply seeding according to the following:

a. Seed before Matting Installation - Apply at the application rate for seed specified in Section 01030.

b. Seeding after Matting Installation - Apply at double the application rate for seed specified in Section 01030.

c. Single Application: Matting and Seed:

- **Hydraulically Applied Matting** - Apply seed at double the rate specified in Section 01030.

- **Manually Applied (Pre-seeded) Rolled Matting** - Pre-seed the matting at double the rate specified, with the seed mix specified in Section 01030.

(3) Matting Placement - Apply matting loosely so it is in complete contact with the Soil.

(4) Bonded Fiber Matrix Matting Placement - Follow the manufacturer's recommended practices to hydraulically apply bonded fiber matrix at the rates shown on the ESCP or as recommended by the manufacturer, whichever is more stringent.

(f) Compost Erosion Blanket - ~~Blend tackifier with compost according to the manufacturer's recommendations.~~ Apply compost and tackifier with Equipment that propels the material directly at the Soil surface and achieves direct contact with the Soil. Apply compost at a uniform depth of 2 inches to all exposed Soil surfaces.

(g) Straw Bales - Break straw bales apart and spread as mulch to a thickness of 2 inches. ~~Tack in place according to 01030.48(b)(3).~~

Do not use straw bales for any other application unless approved.

00280.45 Runoff Controls - Install runoff controls according to the following:

(a) Check Dams - Construct check dams as shown or directed.

(b) Interceptor Dikes and Swales - Construct interceptor dikes and swales as shown or directed. After construction of interceptor dikes and swales, construct temporary stabilization according to 00280.42(b).

(c) Temporary Drainage Curbs - Construct temporary drainage curbs as shown or directed.

(d) Temporary Slope Drains - Construct temporary slope drains as shown or directed.

(e) Flow Spreader - Construct flow spreaders as shown or directed.

(f) Compost Filter Socks - Construct compost filter socks as shown or directed.

(g) Compost Filter Berm - Construct compost filter berms as shown or directed.

00280.46 Sediment Controls - Install sediment controls as shown and according to the following:

(a) Construction Entrances - Install construction entrances at every point of access onto paved surfaces.

(b) Tire Wash Facility - Construct tire wash facility as shown or directed.

(c) Sediment Fence - Construct sediment fence as shown or directed.

(d) Inlet Protection - Construct inlet protection as shown or directed. Install inlet protection, Type 10 - curb inlet sediment dam according to manufacturer's recommendations.

(e) Sediment Barriers - Construct sediment barriers as shown or directed.

(f) Sediment Mat - Construct sediment matting as shown or directed. Remove the mats not later than 48 hours after stream activities are complete.

(g) Temporary Energy Dissipater - Construct temporary energy dissipaters as shown or directed.

(h) Temporary Sediment Trap - Construct temporary sediment traps as shown or directed.

(i) Concrete Washout - Construct or place concrete washouts prior to performing any concrete work at the locations as shown or directed. Do not place concrete washout facilities within 20 feet of storm drains or vegetated Stormwater facilities and 150 feet from open ditches, wetlands or waterbodies. Construct concrete washouts as shown or directed.

(j) Temporary Pipe Plug – Install pipe plug, where shown or directed prior to commencing work upstream of the isolation point. Remove sediment upstream of the plug prior to removing plug.

00280.47 Work Quality - Comply with 01030.49.

00280.48 Emergency Materials - Provide, stockpile, and protect emergency materials on-site for unknown weather or erosion conditions. A list of emergency materials will be provided in the Special Provisions. Replenish emergency materials as they are used.

The emergency materials are in addition to the other erosion control materials required to implement and maintain the ESCP.

Remove all unused emergency materials from the Project site at the completion of the Project.

Maintenance

00280.60 General - Maintain installed ESC devices in good working order and effective functioning at all times. Keep the devices in place until the Agency issues notification of acceptance of stabilization. All maintenance and repairs are at no additional cost to the Agency.

Engineer may direct Contractor to remove ESC's prior to storm events that are anticipated to cause flooding issues. Engineer will attempt to provide Contractor at least one day advance notice of items that need to be removed prior to and reinstalled after the storm event.

00280.61 Ineffective Controls - If an ESC device does not meet effective functioning, repair, replace, or provide additional devices. Devices repaired, replaced, or added due to improper installation, insufficient maintenance, or damage from Contractor operations will be made at no additional cost to the Agency.

00280.62 Inspection and Monitoring - Ensure that regular site inspection and monitoring are performed according to the schedule and record keeping requirements of the NPDES permit.

(a) Inspection - Perform general site inspection, complete all applicable parts of the approved ODOT Erosion Control Monitoring Form, and submit the form to the Agency as follows:

- Weekly for active sites.
- Every 2 weeks for inactive sites.
- Within 24 hours after 1/2 inch or more rainfall occurs including weekends and holidays.
- When directed by the Engineer.

(b) Rainfall - Furnish and install a rain gauge at the Project site or is reported by a weather service approved by the Engineer such as the National Weather Service or the National Oceanic and Atmospheric Administration. Notify the Agency if 1/2 inch or more of rainfall occurs at the Project site within a 24 hour period.

(c) Monitoring Receiving Stream – When required in the Special Provisions, observe and record color and turbidity or clarity within 30 feet upstream and downstream of locations where surface waters from the construction site enter the receiving stream. Describe in the report any apparent differences in color and the clarity of the discharge, and any observable difference in comparison with the receiving stream. Note whether sheen and floating matter are present or absent.

If a permit noncompliance or serious water quality issues occur verbally report to the Engineer within 24 hours and submit a written report within 5 Calendar Days.

00280.63 Sediment Removal - Remove sediment and upgrade or repair the devices as needed as soon as practicable, but not later than 2 days after the surrounding exposed ground has dried sufficiently to prevent further damage from Equipment needed for repair operations.

If rainfall continues over a 24-hour period, or other circumstances that preclude Equipment operation in the area, hand-carry and install additional ESC devices.

(a) Catch Basins - Maintain inlet protection by removing trapped sediment when storage capacity has been reduced by 50 percent. Prevent release of sediments during maintenance or removal Work.

(b) Sediment Controls - Remove sediment from sediment fences, sediment barriers, check dams, and sediment traps once it has reached one third of the exposed height of the device or storage depth.

(c) Paved Areas - Keep all paved areas clean for the duration of the Project. Use cleaning methods that do not transport sediment-laden water to receiving streams. Adjust the frequency of cleaning to ensure compliance with the ESCP.

(d) Permanent Stabilization – Maintain permanent stabilization Work by restabilizing areas disturbed by the Contractor's operations or other causes within 2 Calendar Days.

(e) Concrete Wash Out - Clean out concrete washout when filled to 75% capacity. Leaking concrete washouts shall be repaired or replaced prior to continued use. Remove liquids or cover the facility before an expected rain event to prevent overflow. Dispose of material waste (liquids and solids) according to 00290.

Finishing and Cleaning Up

00280.70 Removal - All temporary erosion and sediment control features that are not incorporated into the permanent Work remain the property of the Contractor. Within 30 days of the notification of acceptance of permanent stabilization, remove temporary erosion and sediment control devices and materials from the area. Dispose of accumulated sediment before removing the devices and materials according to 00280.71. Immediately shape and permanently stabilize areas affected by the removal process. Do not remove temporary erosion and sediment control devices before permanent stabilization is accepted.

If shown or directed, compost filter material may be dispersed in place. Cut open compost filter socks and dispose of sock material according to 00290.20

00280.71 Sediment Disposal - Regrade removed sediment into slopes or remove and dispose off-site according to 00290.20.

00280.72 Sawcut Waste Removal & Disposal – All waste generated from saw cutting shall be vacuumed immediately behind the saw cutting and core drilling operation and disposed of according to 0290.20, except waste generated from dry circle cutting for utility structure adjustments. Waste generated from dry circle cutting shall be broomed into the cut until the cut is filled and then the remainder of the waste shall be swept up, removed and disposed of according to 0290.20.

Measurement

00280.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Lump Sum Basis - No measurement of quantities will be made for lump sum items.

(b) Unit Basis - Unit basis items will be measured on the unit basis, of each device or location where the device is constructed or placed.

(c) Length Basis - Length basis items will be measured on the length basis along the line and grade of the item or device constructed or placed.

- Flow spreaders and diversion dikes and swales will be measured along the long axis.
- Sediment barrier, when measured on the length basis, will be measured along the long axis of the barrier regardless of type.

- Temporary slope drains will be measured from the beginning of the metal end pieces to the end of the drain. Measurement will be made when each installation is at its maximum length.

(d) Area Basis - Area basis items will be measured on the area basis along the lines and grades of the surface area actually covered as shown or as required.

(e) Limitations - The quantities of emergency Materials listed in 00280.48 of the Special Provisions are included in the items listed in the Contract Schedule of Items.

Payment

00280.90 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) Erosion Control	Lump Sum
 Erosion Prevention	
(b) Plastic Sheetting	Square Yard
(c) Chemical Soil Binder.....	Acre
(d) Chemical Dust Control	Acre
(e) Temporary Mulching, ____	Acre
(f) Matting, Type ____	Square Yard
(g) Compost Erosion Blanket	Square Yard

Item (a) includes:

- providing the Erosion and Sediment Control Manager
- developing, revising, and documenting the ESCP
- mobilization
- monitoring activities to maintain effective functioning
- 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
- vacuum sweeping
- all work necessary to meet the erosion permit requirements for the project.

When only item (a) is listed in the Contract Schedule of Items, no separate or additional payment will be made for modifications or additions to the ESCP that become necessary for permit compliance during construction.

Partial payments for item (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%

Item (b) includes protecting exposed slopes with plastic sheets, anchoring devices, and providing toe protection.

In item (e), the word "Hydromulch", "Straw", or "Compost" will be inserted in the blank.

In items (f), the type will be inserted in the blank.

Item (f) includes preparing the slope surface and stabilizing exposed Soil with erosion matting Material and bonded fiber matrix matting application.

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, Borrow pits, haul roads, disposal sites, and Equipment storage sites

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.

00280.91 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:

Runoff and Sediment Control

(a) Check Dam, Type _____	Each
(b) Temporary Interceptor Dike/Swale	Foot
(c) Temporary Slope Drain	Each or Foot
(d) Flow Spreader	Foot
(e) Compost Filter Berm	Foot
(f) Construction Entrance, Type _____	Each
(g) Tire Wash Facility, Type _____	Each
(h) Concrete Washout Facility	Each
(i) Sediment Fence	Foot
(j) Inlet Protection, Type _____	Each
(k) Sediment Barrier, Type _____	Each or Foot
(l) Sediment Mat	Square Yard
(m) Temporary Energy Dissipater	Each
(n) Temporary Sediment Trap	Each
(o) Straw Bale	Each

In items (a), (f), (g), (j), and (k), the type will be inserted in the blank.

Items (a), (j), and (k) includes the biofilter bags, sand bags, and sediment fence as applicable.

Emergency Materials that are incorporated into the Project will be paid for under the appropriate items listed in the Contract Schedule of Items.

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, Borrow pits, haul roads, disposal sites, and Equipment storage sites

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.

Section 00290 - Environmental Protection

Description

00290.00 Scope - This Section describes the Contractor's duties and obligations with respect to protection of the land, waters, air, wildlife, and other environmental resources of the State.

Comply with all applicable federal, State, and local environmental, health, safety, and other laws, acts, statutes, regulations, administrative rules, ordinances, orders, and permits, as they may be amended from time to time (referred to in this Section as "Laws"). Comply with all applicable Laws, whether or not specifically referenced in this Section or elsewhere in the Contract.

Federal, State, and local agencies known to have enacted ordinances and regulations relating to environmental pollution and the preservation of natural resources that may affect the performance of the Contract are listed in 00170.01.

If any provision of the Specifications appears to conflict with one or more Laws, the more stringent requirement shall apply, unless the Engineer directs otherwise in situations where the Specifications are more stringent.

Comply with all additional requirements or Laws imposed by any agency or governmental unit having authority to enforce the Endangered Species Act (ESA) and other Laws.

All penalties assessed against the Agency because of the Contractor's violation of Laws referenced above, or permits applicable to the Project, will be withheld from the progress or final payments according to 00195.50(e).

No condition of the Contract releases the Contractor from any responsibility or requirement under any environmental or other Law.

00290.10 Staging and Disposal Sites - Locate staging areas and disposal sites in previously improved or disturbed sites, including existing Roadways, pullouts, turnouts, parking lots, and storage yards that have been compacted, and graveled or paved, unless otherwise specified or approved, in writing, by the Engineer.

Do not stage Equipment, park Equipment or store Materials in any City, County, State, or Federal park, wayside or recreational facility.

00290.11 Water Conservation - Minimize use of water by maintaining Equipment, immediately fixing water line and container leaks, ensuring water valves are turned off promptly, and using recycled water when feasible.

00290.12 Construction Waste Reuse and Recycling Plan and Summary - The Contractor shall complete and submit the "Contractor's Construction Waste Reuse and Recycling Report" form included in the bid booklet upon completion of the site work reporting the quantities of material reuse, recycling and disposal for the project. The Agency may provide estimated amounts on the form in Column B for informational purposes. These Agency estimated amounts are for informational purposes and shall not be relied upon for bidding or payment. The Agency will not issue third notification until submission and Agency acceptance of the Construction Waste Reuse and Recycling Report.

00290.20 Waste, Hazardous Waste, and Hazardous Substances - Comply with all applicable federal, State, and local Laws as they pertain to the storage, handling, management, transportation, disposal, and documentation of waste, hazardous waste, and hazardous substances.

(a) Hazard Communication - Ensure the following documents are readily available on-site to employees, Subcontractors and inspectors:

- Material Safety Data Sheets (MSDS) for all hazardous substances stored or used on-site.
- Written hazard communication program, including employee training documentation.

The Oregon Occupational Safety and Health Division (OR-OSHA) provides guidance to meet these requirements in their publication *Hazard Communication: A Safe-Work-Practice Guide*.

(b) Fuel Storage - Store fuel according to the current edition of the International Fire Code and all applicable federal, State, and local Laws.

If total fuel and petroleum storage, in containers 55 gallons or larger, exceeds 1,320 gallons, comply with the applicable spill prevention control and countermeasures (SPCC) requirements of 40 CFR 112. If applicable, submit the professional engineer stamped SPCC plan, 10 days before the preconstruction conference. Comply with the plan and keep a copy on-site and readily available. The SPCC plan may be combined with the Pollution Control Plan required under 00290.30(b).

(c) Waste Management:

(1) General - Prepare a hazardous waste determination for all waste generated on-site to determine whether the waste is classified as hazardous waste, universal waste, excluded waste, waste water, or solid waste. The Agency may provide initial analytical results for some wastes such as lead-based paint and asbestos containing material. Conduct additional testing necessary for waste characterization and disposal using an Oregon Environmental Laboratory Accreditation Program (ORELAP) accredited laboratory, under chain of custody procedures.

Segregate all demolition and construction debris according to its intended end use (reuse, recycle, or dispose). If required, store in designated areas in a manner that prevents contamination to Soil and water and prevents fugitive dust emissions. Remove all waste materials recovered from the site unless otherwise approved, in writing. Retain disposal and recycling facility receipts for wastes generated on site for at least 1 year after completion of the Project. Provide copies of the receipts to the Engineer within 7 Calendar Days of the disposal or recycling.

~~Dispose of noxious weeds and Specified Weeds according to Section 01030.~~

Do not reuse demolition material, coated or treated materials, or concrete and masonry materials in waters of the State or U.S.

(2) Clean Fill - Clean fill, as defined by OAR 340-093-0030, becomes the property of the Contractor at the place of origin.

(3) Reuse, Recycle, Compost and Dispose of Materials - Waste materials become the property of the Contractor at the place of origin. Unless prohibited by Law, treat waste materials according to the following priority:

- Reuse demolition and construction debris.
- Recycle demolition and construction debris.
- Compost or mulch yard waste material from lawn and landscape maintenance.
- If it is not feasible to reuse, recycle, or compost, ("feasible" is defined as a facility that is capable of handling the material, will take the material and the cost of transportation plus the cost to reuse or recycle the material is equal to or less than the costs of disposal) dispose of waste material according to the following:

a. Burnable Materials - Dispose of burnable material, that cannot be reused or recycled, according to 00290.30(c)(3).

b. Woody Matter - Woody matter may be burned according to 00290.30(c)(3) or may be chipped to a size of no more than 3 inches in any direction then uniformly spread over selected landscape areas, as directed, in loose layers not more than 3 inches thick. Burying wood, stumps, or other woody material is not allowed.

c. Preserved and Coated Wood - Dispose of chemically preserved wood, pressure treated wood, and wood coated with latex paint that does not contain lead according to the following:

- Reuse whole.
- Provide to others to reuse.
- Burn as fuel at an energy recovery facility with a DEQ or LRAPA stationary source permit.
- Deliver to a DEQ permitted municipal solid waste landfill or a DEQ permitted construction and demolition landfill.

Dispose of wood coated with lead-containing paint at a DEQ permitted municipal solid waste landfill or a DEQ permitted construction and demolition landfill.

Test wood as required by the receiving facility.

d. Concrete and Masonry - Concrete and masonry that are not recycled and do not contain hazardous substances may be reused to fill basements or be buried in embankments on-site, provided that the materials are broken into pieces not exceeding 15 inches in any dimension, and placed so that:

- No part of any piece is within 2 feet of the top, side or end surface of the basement, embankment, or other Structure.
- The fill or embankment is constructed and compacted according to 00330.42 and 00330.43.

If the Engineer provides written approval, concrete may be reused as Aggregate if it meets the requirements of Section 02610 through Section 02690.

e. Disposal on Agency-Owned Lands - Do not dispose of waste materials on Agency-owned or Agency-Controlled Lands, except when shown, specified, or allowed in writing to be used as fill. If allowed, place waste materials only at specified locations, as directed.

f. Off-Site Disposal - Dispose of waste at an energy recovery facility with a DEQ or LRAPA Stationary Source Permit, at a permitted landfill, or at other waste disposal facilities as required depending on the type of waste.

Subject to local zoning codes and the requirements of 00280.05, materials that meet the definition of clean fill may be placed on other properties in a manner consistent with environmental requirements, and with the written permission of the property owner. Furnish the Engineer a copy of the signed agreement with the owner before placing the clean fill material. Do not place the clean fill material at locations that are visible from a public Highway, road, or street unless the site is zoned and licensed for landfill.

g. Asphalt Concrete Pavement - Recycle Asphalt Concrete Pavement (ACP) removed from the project to the greatest extent possible. ACP removed by means of excavation shall be sorted into trucks containing only ACP, and shall be taken to a location with the intent of using the material as RAP. Perform cold plane pavement removal in a manner that allows the materials to be added to a RAP pile or used on the project as specified in 00640.

h. Greenwaste - Greenwaste consists of plants, vegetation and associated organic matter removed from the project area. Greenwaste may be disposed of at a DEQ licensed or certified composting facility, except where not allowed by law. Noxious weeds shall be contained, transported and disposed of in accordance with applicable laws and ordinances. Dispose of greenwaste that may not be composted at a DEQ permitted municipal solid waste landfill or a DEQ permitted construction and demolition landfill.

(d) Hazardous Waste Management - Determine the generator category for the Project, based on the amount and type of hazardous waste generated. Use the following definitions. If they differ from current Laws, use the current Laws.

- **Conditionally Exempt Generator** - A conditionally exempt generator (CEG) generates 220 pounds or less of hazardous waste per month or 2.2 pounds or less of acutely hazardous waste per month and accumulates up to 2,200 pounds of hazardous waste or 2.2 pounds of acutely hazardous waste on-site.

- **Small Quantity Generator** - A small quantity generator (SQG) generates 220 to 2,200 pounds of hazardous waste per month, can accumulate up to 13,200 pounds of hazardous waste on-site (or more with a permit), and ships hazardous waste off-site within 180 days of generation.
- **Large Quantity Generator** - A large quantity generator (LQG) generates more than 2,200 pounds of hazardous waste per month or more than 2.2 pounds of acutely hazardous waste per month, and has no accumulation limit, but ships all hazardous waste off-site within 90 days of generation.

In addition to current Laws, comply with the following:

- If the Project generator category is SQG or LQG, or if it requires a hazardous waste identification number, obtain a Resource Conservation and Recovery Act (RCRA) site identification number from the DEQ. Pay all fees and complete the RCRA application form as follows:
 - List the Contractor as the Site Contact, the Site Operator, the Hazardous Waste Form Contact, and the Hazardous Waste Fee Contact.
 - List ODOT as the Site Location, the Land Owner, and the Legal Owner.
 - Fill in the Comments section with the following statement:

"[Contractor name] is responsible for the following: All hazardous waste management on-site for the duration of this construction Project, for delivery of the waste to a permitted recycling or disposal facility, and for all forms and fees associated with the hazardous waste management including cancellation of the RCRA site identification number at the end of the Project. ODOT is the owner of the waste and maintains long-term responsibility for the waste as required by RCRA, excluding all wastes generated solely from materials brought to the site by the Contractor, which remain the property of the Contractor."
 - The Contractor may sign hazardous waste manifests for the off-site shipment of hazardous wastes as the "offeror" rather than as the "generator".
- Maintain all required waste management records, including monthly hazardous waste generation records, manifests, recycling and disposal receipts, test results, and annual DEQ reports. Submit monthly records to the Engineer by the fifteenth Day of the following month and submit DEQ reports to the Engineer concurrently with DEQ. Keep copies for at least 3 years following completion of the Project and resolution of any regulatory violations or citations.
- If the quantity of hazardous waste projected to be generated meets the requirements for a LQG, prepare a full Hazardous Waste Contingency Plan according to 40 CFR 265 Subpart D. Maintain a copy of the Contingency Plan on-site at all times during construction activities, readily available to employees and inspectors.
- If the quantity of hazardous waste projected to be generated meets the requirements for an SQG, prepare a modified Hazardous Waste Contingency Plan according to 40 CFR 262.34(d)(5) and 40 CFR 265 Subpart C. Maintain a copy of the modified Contingency Plan on-site at all times during construction activities, readily available to employees and inspectors.
- If the quantity of hazardous waste projected to be generated meets the requirements for a CEG, follow the contingency planning and storage requirements of the SQG unless the only potentially hazardous waste is aerosol cans smaller than 20 ounces. Limit storage to 180 days and 2,200 pounds. Prepare a modified Hazardous Waste Contingency Plan and keep a copy on-site with emergency response procedures and contact information.

- If the Project is an SQG or LQG, retain a Certified Hazardous Materials Manager (CHMM) in good standing and with experience managing the hazardous wastes associated with the Project to oversee waste management at the site.
- All employees involved in the handling and management of CEG hazardous waste shall comply with the federal and State Laws for hazardous waste management. All employees involved in the handling of SQG and LQG hazardous waste shall be trained according to federal and State Laws. For LQG hazardous waste projects, keep employee training records on-site and readily available.
- If the quantity of hazardous waste generated in a month changes the generator category, immediately implement the requirements for the new category and comply with them for the remainder of the year. Complete the new documentation and training requirements within 30 Calendar Days of the change.
- Ensure hazardous waste containers are clearly and visibly labeled with the contents and accumulation start date, compatible with the contents and in good condition. Store them in a designated weather-protected area that is secured from public access, has secondary containment adequate to contain a release, and has sufficient aisle space to safely maneuver containers and respond to spills (minimum 30 inches).
- If hazardous waste will be treated on-site, obtain approval from DEQ and the Engineer for each specific treatment or recycling process, treat wastes within accumulation tanks or closed containers that meet RCRA requirements, conduct treatment within the storage time for the applicable generator category, maintain current copies of all required notifications and waste analysis plans readily available on-site and request DEQ technical assistance prior to starting any on-site recycling or treatment.

(e) Hazardous Substance Transportation - Comply with the following requirements for transportation of hazardous substances and hazardous waste:

- Train all employees involved in transportation and shipping as required by US DOT.
- Use drivers who have a commercial drivers license with a hazardous materials endorsement when required.
- Ship hazardous wastes from SQG and LQG projects using a DEQ-registered hazardous waste transporter under a hazardous waste manifest.
- Ensure shipments are appropriately packaged and labeled, and vehicles are appropriately placarded.
- Submit copies of the completed manifests and documentation to the Engineer and retain copies for at least 1 year.

(f) Unexpected Contamination - If, during construction, unanticipated hazardous substances are discovered that threaten the health and safety of workers, the public, or the environment, do the following:

- Immediately remove all affected employees and secure the area to prevent access.
- Notify the Engineer immediately and provide written notification within 24 hours, setting forth a description of the hazardous substances encountered.

The Engineer will attempt to resolve the unanticipated situation expeditiously according to 00140.40. Delays to Work due to the discovery of unexpected contamination shall be considered for exclusion from Contract Time according to 00180.50(e).

(g) Spills and Releases - Obtain a response agreement with a professional on-call spill response team. The professional on-call spill response team, identified in the pollution control plan (PCP), agrees to be available and respond to spills that cannot be cleaned up with on-site resources. A

professional spill response team is a company or section of a company specifically dedicated to hazardous materials emergency spill response, insured, and bonded for hazardous materials cleanup, and employing experienced personnel certified according to 29 CFR 1910.120.

In the event of a spill or release of a hazardous substance or hazardous waste or the release of any other material that has the potential to harm human health or the environment, do the following:

- Immediately commence response actions to protect human health and the environment. Follow the PCP, SPCC Plan and Contingency Plan, as appropriate. If any of the provisions in these plans conflict, implement the actions providing the greatest protection of public health and safety and the environment.
- If the spill cannot be safely contained and cleaned up with on-site resources, activate the professional on-call spill response team.
- Immediately notify the Engineer.
- If the quantity released exceeds the State or federal reportable quantities, or if the release impacts or threatens to impact any surface water body, immediately notify DEQ by the Oregon Emergency Response System (OERS) at 1-800-452-0311 and the EPA and U.S. Coast Guard through the National Response Center (NRC) at 1-800-424-8802 (federal reportable quantities or spills impacting or potentially impacting water only). If the quantity released is unknown, proceed with OERS and NRC notifications. Reportable quantities are listed at 40 CFR 302.4 and OAR 340-142-0040 to OAR 340-142-0050.
- Conduct cleanup of the released material according to all applicable Laws and DEQ requirements. Clean up to background levels unless otherwise agreed to by the Agency in writing.
- Provide a written report to the Engineer, using the DEQ Spill/Release Report form, within 10 Calendar Days of completing spill response, but no more than 30 Calendar Days after the initial event. If the spill was reported to DEQ, submit the report to DEQ concurrently. Include a description of how future releases will be prevented.

00290.29 Health and Safety - Comply with all applicable health and safety Laws as they pertain to the hazardous substances and wastes used, stored and generated on-site. If any of these requirements are in conflict, the more stringent requirements apply.

00290.30 Pollution Control - Prevent, control, and abate pollution of the environment. Comply with new or amended environmental pollution Laws, not contemplated at the time of Bid preparation, according to 00140.50 and ORS 279C.525.

(a) Pollution Control Measures - Comply with the following requirements:

(1) General:

- Allow no pollutant of any kind (e.g., petroleum products or fresh "green" concrete) to come in contact with an active flowing stream or waters of the State and U.S.
- Comply with the erosion prevention and sediment control requirements of Section 00280 and all applicable DEQ NPDES 1200 Permit requirements.
- Do not cause turbidity to waters of the State and U.S. outside of regulated levels.

(2) Materials and Waste Management:

- Store construction Equipment, materials and debris in a manner that prevents contamination of water and Soil and prevents fugitive dust.

- Store hazardous substances in the original containers or labeled compatible containers according to State Fire Marshal's regulations, International Fire Code and product MSDS.
- Locate areas for storing fuels and other potentially hazardous materials at least 150 feet away from any waters of the State and U.S. or storm inlet, unless otherwise approved by the Engineer.
- Dispose of material waste according to 00290.20.
- Do not use treated timbers within any waters of the State and U.S.

(3) Equipment Fueling, Repair and Maintenance:

- Promptly correct or repair operational procedures, leaks, or Equipment problems that may cause pollution at the Project Site. If Soils or other media become contaminated as a result of operational procedures or Equipment problems, remove and dispose of them according to applicable Laws and 00290.20(g).
- Locate areas for parking, refueling and servicing mobile Equipment and vehicles at least 150 feet away from any waters of the State and U.S. or storm inlet, unless otherwise approved by the Engineer.
- For large Equipment that is not easily moved, prevent fuel and operating fluids from reaching any waters of the State and U.S. or storm inlet by, at a minimum, using spill containment systems designed to completely contain potential spills during all refueling and Equipment repair operations.

(4) Equipment Cleaning and Washouts:

- Inspect and clean all Equipment prior to operating it within 150 feet of any waters of the State and U.S. or storm inlet. Check for fluid leaks and remove all external oil, grease, weed seed, and dirt.
- Do not discharge untreated wash and rinse water into any waters of the State and U.S. or storm inlet.
- Establish wash areas that contain all fluids and debris, at least 150 feet from any waters of the State and U.S. or storm inlet, such that untreated waste water does not impact those systems.
- Clean concrete Equipment in washout areas that contain all fluids and debris. Recycle washout materials into fresh mixes or dispose of according to applicable permits.

(5) Off Site Tracking:

- Limit water leakage from trucks carrying saturated Soils to less than 1 gallon per hour before allowing them to leave the Project Site.
- Remove all loose dirt and debris from trucks prior to leaving the Project Site.

(6) Other Spill Prevention and Response Measures:

- Inspect heavy Equipment, storage containers, staging areas and other potential sources of hazardous substances daily to identify and prevent potential releases.
- If flooding of the Project site is expected to occur within 24 hours, evacuate areas used for staging, access roads, or storage and remove materials, Equipment, and fuel.
- Immediately contain and repair leaking Equipment or containers and clean up any releases according to 00290.20(g).
- Maintain hazardous material containment kits and spill containment kits on-site to facilitate the cleanup of hazardous material spills on dry land and/or waters of the State and U.S.

(7) Water Quality:

- Do not discharge contaminated or sediment-laden water, including drilling fluids and waste, or water contained within a work area isolation, directly into the City's stormwater or wastewater system or any waters of the State or U.S. until it has been satisfactorily treated (for example: filter, settlement pond, pumping to vegetated upland location, bio-bags, dirt-bags). Treatment shall meet the turbidity requirements below.
- Do not cause turbidity in waters of the State or U.S. greater than 10% above background reading (up to 100 feet upstream of the Project), as measured 100 feet downstream of the Project.
- During construction, monitor in-stream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately meeting treatment requirements.
- If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than 4 feet per second, and do not exceed an aperture size of 1 inch.
- If monitoring or inspection shows that the erosion and sediment controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.
- Underwater blasting is not allowed.
- Implement protection measures adequate to prevent pollutants or construction and demolition materials, such as waste spoils, fuel or petroleum products, concrete cured less than 24 hours, concrete cure water, silt, welding slag and grindings, concrete saw cutting by-products and sandblasting abrasives, from mobilizing and entering waters of the state or U.S.
- End-dumping of riprap within the waters of the state or U.S. is not allowed. Place riprap from above the bank line.
- Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
- The Project Manager retains the authority to temporarily halt or modify the Project in case of excessive turbidity or damage to natural resources.

(b) Pollution Control Plan - When required in the Special Provisions or included in the Bid Schedule, develop a PCP using ODOT Form 734-2445 and submit it for approval at least 10 Calendar Days before the preconstruction conference. Maintain a copy of the PCP on-site at all times during construction activities, readily available to employees and Inspectors. Ensure that all employees comply with the provisions of the PCP.

Include the following information in the PCP:

- Identify a professional on-call spill response team.
- Identify all Contractor activities, hazardous substances used and wastes generated.
- Describe how hazardous substances and wastes will be stored, used, contained, monitored, disposed of and documented. Include pollution prevention, spill response, waste reduction, dust prevention, off site tracking prevention, washout facility design, vehicle and Equipment fueling and maintenance procedures, employee training and emergency contact information.
- Include the waste determination results from 00290.20(c)(1). Provide reuse, recycle, and disposal options and the reasons for selecting those alternatives.
- Include or refer to the SPCC plan and the hazardous waste contingency plan, if required.
- Include scaled site plans showing locations for hazardous substance storage, spill response Equipment, communications Equipment and fire suppression Equipment.

(c) Air Pollution Control Measures - Comply with ORS Chapter 468, ORS Chapter 468A, OAR 340-014, OAR 340-200 through OAR 340-268, and all other applicable Laws.

(1) Vehicle and Equipment Idling - Establish truck staging areas for diesel-powered vehicles located where truck emissions have a minimum impact on sensitive populations, such as residences, schools, hospitals and nursing homes.

Limit idling of trucks and other diesel powered Equipment to 5 minutes, when the Equipment is not in use or in motion, except as follows:

- When traffic conditions or mechanical difficulties, over which the operator has no control, force the Equipment to remain motionless.
- When operating the Equipment's heating, cooling or auxiliary systems is necessary to accomplish the Equipment's intended use.
- To bring the Equipment to the manufacturer's recommended operating temperature.
- When the outdoor temperature is below 20 °F.
- When needed to repair Equipment.
- Under other circumstances specifically authorized by the Engineer.

(2) Dust Control and Permitting - Prevent airborne dust and fugitive dust emissions from construction activities including Rock, concrete, and asphalt crushing operations, and obtain permits according to 00160.70. Do not use oil, waste, waste water, or other illegal materials as dust suppressants.

(3) Burn Restrictions - Burn wastes only if open burning is allowed by State, LRAPA, and local burning Laws. Obtain and comply with all required permits including DEQ permits required by OAR 340-264-0010 through OAR 340-264-0020, LRAPA permits, and local fire district permits. Provide copies of all permits to the Engineer prior to burning. Do not conduct burning within riparian areas. Conduct burning at locations where existing Structures will not be damaged and where smoke will not impact traffic. Do not burn the following materials on-site:

- Rubber products
- Tires
- Plastic
- Wet garbage
- Petroleum and petroleum treated materials
- Asphalt or industrial waste
- Any material that creates dense or noxious odors
- Painted materials
- Asbestos, mercury or PCB-containing materials or equipment
- Hazardous wastes
- Scrap wiring or electrical equipment
- Painted or treated wood

Buildings intended for demolition may be burned by the local fire department for training purposes provided that all hazardous substances have been removed from the building before burning. Contact the local fire department for applicable restrictions.

00290.32 Noise Control - Comply with ORS Chapter 467, OAR 340-035, ordinances or resolutions enacted or adopted by the local authorities, all other applicable Laws, and the following construction noise abatement measures:

- Do not perform construction within ~~34,000~~ 3,000 feet of an occupied dwelling on Sundays or legal holidays, or between the hours of ~~7:40:00~~ 7:00 p.m. and ~~7:6:00~~ 6:00 a.m. on other days, without the approval of the Engineer.
- Use Equipment with sound control devices no less effective than those provided on the original Equipment. Equipment with un-muffled exhausts is prohibited.
- Use Equipment complying with pertinent equipment noise standards of the EPA and DEQ.
- Do not drive piling or perform blasting operations within 3,000 feet of an occupied dwelling on Sundays or legal holidays, or between the hours of 8:00 p.m. and 8:00 a.m. on other days, without the approval of the Engineer.
- Mitigate the noise from Rock crushing or screening operations performed within 3,000 feet of all occupied dwellings by placing material stockpiles between the operation and the affected dwellings, or by other means approved by the Engineer.

If a specific noise impact complaint occurs during the construction of the Project, one or more of the following noise mitigation measures may be required, at no additional cost to the Agency, as directed by the Engineer:

- Locate stationary construction Equipment as far from nearby noise sensitive properties as feasible.
- Shut off idling Equipment.
- Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy Work will be occurring.
- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Operate electric-powered Equipment using line voltage power or solar power.

00290.34 Protection of Fish and Fish Habitat - Comply with the Laws of the Oregon Department of Fish and Wildlife, National Marine Fisheries Service, and U.S. Fish and Wildlife Service, and the rules and practices developed through the Oregon Plan for Salmon and Watersheds. Conduct operations to avoid any hazards to the safety and propagation of fish and shellfish in waters of the State and U.S.

(a) Regulated Work Areas - Perform Work within regulated work areas only within the regulated in-water work periods. Do not allow Equipment to enter any waters of the State or U.S. or the regulated work area except as allowed in permits issued for the Project.

The regulated work area, if any, will be identified in the Special Provisions.

(b) Prohibited Operations - Except where allowed by the Contract or by permit, do not:

- Blast underwater
- Use water jetting
- Release petroleum products or chemicals in the water
- Disturb spawning beds
- Obstruct stream channels
- Cause silting or sedimentation of waters of the State or waters of the U.S.
- Use treated timbers within the regulated work area
- Impede adult and juvenile fish passage, including intermittent streams
- Allow equipment to enter or work in or on the water.

00290.36 Protection of Wildlife and Wildlife Habitat - Comply with the Laws of the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Conduct operations to avoid any hazards to the safety and propagation of wildlife.

(a) Migratory Birds - Comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712) which protects most species of birds in Oregon and prohibits the removal of nests containing eggs or dependent young (i.e., active nest) without a permit. Migratory birds include most birds in Oregon; the few exceptions include rock pigeons, house sparrows, and European starlings.

Except where allowed by the Contract and by permit, do not disturb an active migratory bird nest, do not inhibit the ability of adult birds to care for eggs or dependent young, and do not impact the supporting structure on which an active nest is built.

If active migratory bird nests are encountered stop all actions that may disrupt the nest and its occupants (including visual and auditory impacts) and contact the Engineer. Do not resume Work that may disrupt nesting until approved by the Engineer.

(b) Bats - If bats are encountered, stop all actions in the area and contact the Engineer. Do not disturb bat colonies. In the event that a bat colony is encountered during construction, the Engineer may suspend Work according to 00180.70. Do not resume Work until approved by the Engineer.

Protect bats by doing the following:

- Prevent destruction of bat colonies as shown.
- If bats gain access to excluded areas, stop actions in the area and contact the Engineer. Do not resume Work until approved by the Engineer.

00290.38 Protection of Plants - Plant habitats to be protected will be shown with the plant habitat boundaries flagged by the Engineer. Avoid destruction of plant habitats by ensuring construction personnel, Equipment, and associated pollutants, including sediment, chemical contaminants, discharge water, non-native grass and weed seed, do not enter the habitat.

00290.40 Protection of Forests - Obtain necessary permits according to ORS 477.625 and ORS 527.670, and comply with the Laws of any authority having jurisdiction for protection of forests.

00290.41 Protection of Waters of the U.S. or State - Comply with and require that all the Contractor's employees, agents, and Subcontractors on the Project Site comply with the following:

- Clean Water Act Section 404 (33 U.S.C. 1344); Federal Rivers and Harbors Act of 1899, Section 10 (33 U.S.C. 403 et seq.).
- ORS 196.800 to ORS 196.990 (Oregon Removal-Fill law).
- ORS 390.805 to ORS 390.925 (Oregon Removal and Filling in Scenic Waterways law).
- All other applicable Laws governing preservation of Wetland resources.

Willful violation of permit conditions and applicable laws exposes the offending Contractor and other violators to criminal and civil sanctions. Civil sanctions include, but are not limited to, the offender's sole liability for all costs associated with site restoration, maintenance and additional mitigation Work required by federal or State authorities.

(a) Identifying Waters of the U.S. or State, Including Wetlands - Wetlands known to be on the Project Site will be shown and identified either as "permanently filled or excavated" or as "temporarily impacted". Wetlands to be protected will be shown as "no work zones".

(b) Disturbing Waters of the U.S. or State, Including Wetlands - If Wetlands are shown, meet with the Agency Wetland Specialist, the Engineer, and Inspector on-site prior to moving Equipment onto the site or beginning any Work, to ensure that all parties understand the locations of Wetlands and the measures that shall be taken to protect them.

Ensure protection of no work zones as follows:

- Fence off no work zones using work zone fencing from section 00221.13 of the QPL.
- Except as authorized by the Engineer for the purpose of installing or maintaining approved Wetland protective measures, keep all persons, Equipment and materials off no work zones.
- The Engineer has the authority to bar from the Project any person entering a protected site other than for the purpose of installing or maintaining protective measures.

Install all site protection for Wetlands required by the Plans and Special Provisions prior to staging Equipment or starting Work near the sites.

The Engineer may suspend Work until the Contractor, Engineer, Agency Wetland Specialist, and other required federal and State personnel, if any, meet to determine damage to the site and the nature and scope of necessary site restoration and maintenance. The Engineer may require the Contractor to submit a written plan for protection of other sites for the duration of the Project before Work resumes.

00290.50 Protection of Cultural Resources - Comply with all Laws governing preservation of cultural resources. Cultural resources may include, but are not limited to, dwellings, Bridges, trails, fossils, and artifacts.

If cultural resources are encountered on the Project area or in material sources, and their disposition is not addressed in the Special Provisions, do the following:

- Immediately discontinue operations or move to another area of the Project Site or material source.
- Protect the cultural resource from disturbance or damage.
- Notify the Engineer.

The Engineer will do the following:

- Arrange immediate investigations.
- Arrange for disposition of the cultural resources. The Engineer may direct the Contractor to perform salvage operations according to 00140.30 or 00140.60.
- Notify the Contractor when to begin or resume construction operations in the affected area.

00290.51 Protection of Sensitive Cultural Sites - Comply with and require that all the Contractor's employees, agents, and Subcontractors on the Project Site comply with all Laws applicable to the preservation and protection of sensitive cultural sites. The existence of any sensitive cultural sites affecting the Project, and the mandatory preservation and protection measures applicable to the sites, are determined according to the Laws including, but not limited to, the following:

- National Historic Preservation Act (NHPA) of 1966, Section 106, codified in 36 CFR Part 800 (Protection of Historic Properties).
- ORS 97.740 to ORS 97.760, ORS 97.990(5), and ORS 97.990(6) (Indian Graves and Protected Objects).
- ORS 358.905 to ORS 358.955 (Archaeological Objects and Sites).
- ORS 390.235 to ORS 390.240 (Archaeological Sites and Historical Material).

Ensure protection for sensitive cultural sites according to the following:

- Except as authorized by the Engineer for the purpose of installing or maintaining approved sensitive cultural site protective measures, keep all persons, Equipment, and materials off known sensitive cultural sites.
- Install all sensitive cultural site protection required by the Plans and Special Provisions prior to staging Equipment or starting Work near the sites.
- Instruct all Contractor and Subcontractor personnel to regard the locations of these sites and their contents as confidential.

The Engineer has the authority to bar from the Project any person entering a protected site other than for the purpose of installing or maintaining protective measures.

If sensitive cultural sites are known to be on the Project, additional information will be provided in the Special Provisions.

(a) Disturbing Known Sensitive Cultural Sites - Willful violation of Laws exposes the offending Contractor and other violators to criminal and civil sanctions. Civil sanctions include, but are not limited to, the offender's sole liability for all costs associated with monitoring, recovery, site restoration or other archaeological Work required by Tribal, federal, and State authorities. Costs can exceed \$100,000.

The Engineer may suspend Work until the Contractor and the Engineer meet to determine damage to the site and the nature and scope of necessary site restoration and maintenance. The Engineer

may require the Contractor to submit a written plan for protection of other sites for the duration of the Project before Work resumes.

(b) Disturbing Unknown Sensitive Cultural Sites - If the Contractor finds a previously undiscovered sensitive cultural site, immediately cease all activities at that site, follow procedures listed in 00290.50, and notify the Engineer. If the Contractor inadvertently disturbs unknown sensitive cultural sites, but immediately ceases all activities and follows the procedures listed in 00290.50, the Agency, to the extent permitted by Article XI, section 7 of the Oregon Constitution and by the Oregon Tort Claims Act, will indemnify, within the limits of the Tort Claims Act, the Contractor for costs associated with monitoring, recovery, site restoration or other required archaeological Work, provided neither the Agency nor the State shall be required to indemnify the Contractor for such costs resulting from, arising out of or relating to the willful misconduct, negligence or other wrongful acts attributable to the Contractor or other persons on the Project site.

Delays to Work due to new cultural resource finds will be considered for exclusion from Contract Time according to 00180.50(e).

Work required for monitoring and site restoration for newly discovered sensitive cultural sites encountered by the Contractor will be paid for according to 00195.20.

Measurement

00290.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00290.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the following items:

- (a) - "Pollution Control Plan"
- ~~(a)~~(b) "Construction Waste Reuse and Recycling (CWRR) Report"-

Partial payments will be made as follows:

- When the initial PCP is approved 20%
- When 30 percent of the Contract is complete, excluding advances on Materials 20%
- When 60 percent of the Contract is complete, excluding advances on Materials 20%
- When 90 percent of the Contract is complete, excluding advances on Materials 20%
- At completion of the Contract and all waste is removed from the Project site and all reports, receipts, and documents have been submitted 20%

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 includes, but is not limited to, the following:

- Contractor's Pollution Control Plan
- Spill Prevention Control and Countermeasures plan
- Hazardous Waste Contingency plan
- hazardous waste determination
- determination of generator category
- the Certified Hazardous Materials Manager
- the Professional on-call Spill Response Team

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.

Item (b) Construction Waste Reuse and Recycling (CWRR) Report: Accepted reports will be paid at the Contract lump sum amount.