


PORT OF NEWPORT  
SPECIAL PROVISIONS  
FOR

DOCK 5 REPLACEMENT  
YAQUINA BAY  
NEWPORT, OREGON

**PROFESSIONAL OF RECORD CERTIFICATION:**


 <p>Brian D Burnham REGISTERED PROFESSIONAL ENGINEER 90603 OREGON JULY 14, 2015 BRIAN BURNHAM EXPIRES: 12/31/2019</p>	<p>I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for temporary features and appurtenances, structures, and wearing surfaces. Modified Special Provisions were prepared by me or under my supervision.</p> <p>Sections 00250, 00253, 00440, 00501, 00520, 00521, 00530, 00540, 00550, 00560, 00581, 00585, 00587, 00589, 00592, 00598, 00759, 00905, 02001, 02510, 02520, 02530, 02560, and 02690</p>
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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 <p>Brian Copeland, PE <small>Digitally signed by Brian Copeland, PE Date: 2019.01.24 10:06:10 -08'00'</small></p> <p>OREGON JULY 10, 1996 BRIAN K. COPELAND</p> <p>EXPIRES: DEC. 31, 2019</p>	<p>I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for illumination and electrical systems. Modified Special Provisions were prepared by me or under my supervision.</p> <p>Sections 00440, 00950, 00960, 00962, 00970, 02530, 02560, and 02926</p>
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 <p>EXPIRES: 06/30/20</p>	<p>I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for temporary features and appurtenances and drainage. Modified Special Provisions were prepared by me or under my supervision.</p> <p>Sections 00220, 00225, 00280, 00405, 00440, 00445, 00490, 00495, 01010 and 02510</p>
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## SECTION 00210 - MOBILIZATION

Comply with Section 00210 of the Standard Specifications.

## SECTION 00220 - ACCOMMODATIONS FOR PUBLIC TRAFFIC

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

Add the following subsection:

**00220.40(f) Port Dock Access** - Maintain pedestrian access to Port Dock 5 at all times, except as follows:

- The Contractor will be allowed to close pedestrian access to Port Dock 5 for a maximum of five Calendar Days to complete the necessary Work to connect and commission the new gangway and float.

## SECTION 00225 - WORK ZONE TRAFFIC CONTROL

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

Install an 18 by 24-inch "NO PARKING" (R8-3a) sign in every block where on-street parking is prohibited, facing incoming traffic.

## SECTION 00250 - TEMPORARY WALKWAYS

Section 00250, which is not a Standard Specification, is included in this Project by Special Provision.

### Description

**00250.00 Scope** - This Work consists of constructing, maintaining, and removing temporary walkways as shown or directed.

This Work also consists of designing, constructing, maintaining, and removing temporary utility facilities attached to the temporary walkway as necessary to maintain service during the Project.

**00250.03 Submittals** - Submit the following 14 Calendar Days before the preinstallation conference:

- Stamped working drawings and calculations for the temporary utility facilities, including load calculations pertaining to the allowable load limits shown for the temporary walkway, according to 00150.35.

**00250.04 Preinstallation Conference** - Hold a preinstallation conference with the Engineer, Contractor personnel, fabricator, and all other personnel who will be involved in installing the temporary walkway. Meet at a mutually agreed time two weeks before installation work begins. Present and discuss all phases of the temporary walkway installation work.

### **Materials**

**00250.10 Temporary Walkway** - Furnish new material for temporary walkways according to the applicable Sections of Part 00500. Furnish untreated No. 2 or better Douglas Fir-Larch timber as graded under the WWPA or WCLIB grading rules. All timber and lumber shall be S4S dimensioned. Timber and lumber with preservative treatment will not be accepted. Glued laminated lumber may be substituted for solid sawn lumber. Glued laminated lumber shall be 24F-V4, Industrial Appearance Grade.

**00250.11 Temporary Utilities** - Furnish new material for temporary utilities according to the approved temporary utility facilities design, Section 00589, and all applicable local, state, and federal codes and laws.

### **Construction**

**00250.41 Design** - Design temporary utility facilities according to Section 00589 for the following utilities:

- 2 inch potable water line
- 8 electrical conduit sleeves and 8-10 flexible electrical conduits
- 2 inch fuel line
- 3 inch fire water line
- coaxial cable TV line

Include necessary details and provisions to minimize utility service interruptions. Do not interrupt service of any of the above utilities for more than a total of three (3) Calendar Days.

**00250.43 General** - Construct temporary walkways as shown and according to the applicable Sections of Part 00500 and the requirements of applicable permitting agencies.

Perform structural steel welding according to 00560.26(a) and steel piling welding according to 00520.43(g). Do not begin welding until all of the following have been approved:

- WPS-Welding Procedure Specification
- PQR-Procedure Qualification Records
- WQTR-Welder Qualification Test Records

- MTR-Material Test Report
- CWI-AWS Certified Welding Inspector

**00250.44 Temporary Utilities** - Construct temporary utility facilities according to the approved temporary utility facilities design, Section 00589, and all applicable local, state, and federal codes and laws. Commission all temporary utility facilities into service before taking existing utilities out of service.

Notify Carson Oil in writing, with a copy to the Engineer, 14 Calendar Days before beginning any work on the fuel line.

**00250.47 Opening to Traffic:**

**(a) Before Opening to Traffic** - Before opening temporary walkways to traffic, accompany the Engineer on an inspection of the structure to confirm the structure and materials conform to the plans and specifications.

**(b) After Opening to Traffic** - On temporary walkways that are open to traffic for more than one year, coordinate with the Agency to allow for an in-service inspection of the structure.

**Maintenance**

**00250.60 Structure Maintenance** - Maintain temporary walkways, including wearing surfaces, in a safe and functional condition. Keep bracing and connections tight and immediately replace any damaged members, as directed or approved by the Engineer. For stream crossings, remove all debris or drift from the structure.

**Finishing and Clean Up**

**00250.70 Structure Removal** - When temporary walkways are no longer needed, remove them according to Section 00310. Unless otherwise shown or specified, all temporary bridge materials will remain the property of the Contractor.

Satisfy all requirements of applicable permitting agencies during bridge removal.

Restore all areas occupied by the temporary bridges to original condition or as shown.

**Measurement**

**00250.80 Measurement** - No measurement of quantities will be made for work performed under this Section.

The estimated quantities of materials for the temporary walkways are:

Item	Quantity
Structural Steel .....	6,000 Lbs.
Timber and Lumber .....	9.0 MFBM

## Payment

**00250.90 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 Walkway .....	Lump Sum
(b) Temporary Fuel Line .....	Lump Sum

Item (a) includes the temporary walkway and temporary electrical, potable water, fire water, and cable TV facilities.

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, maintaining, inspecting, and removing the temporary walkways
- designing, constructing, maintaining, and removing the temporary utility facilities
- hardware, fastenings, preservative treatment, and coatings

## SECTION 00253 - TEMPORARY WORK ACCESS AND CONTAINMENT

Comply with Section 00253 of the Standard Specifications modified as follows:

Add the following subsection:

**00253.42 Safety Requirements** - Replace the paragraph that begins "Follow approved procedures for evacuating..." with the following paragraph:

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.

## SECTION 00280 - EROSION AND SEDIMENT CONTROL

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

**00280.06 Erosion and Sediment Control Manager** - Delete this subsection.



**00280.62 Inspection and Monitoring** - Replace this subsection, except for the subsection number and title, with the following:

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

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

**00280.90 Payment** - In the paragraph that begins "Item (a) includes..." delete the bullet that specifies "providing the Erosion and Sediment Control Manager".

Replace the paragraph that begins "When only Item (a) is..." with the following paragraph:

When only item (a) is listed in the Contract Schedule of Items, additional ESC devices required for permit compliance will be paid for as Extra Work according to Section 00196.

## **SECTION 00290 - ENVIRONMENTAL PROTECTION**

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

**00290.30(a) Pollution Control Measures** - Add the following subsections and bullets:

### **(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 any waters of the State or U.S. until it has been satisfactorily treated (for example: bioswale, filter, settlement pond, pumping to vegetated upland location, bio-bags, dirt-bags). Treatment shall meet the turbidity requirements below.
- 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.
- Underwater blasting is not allowed.
- Implement containment 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 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.

**(8) Meter Turbidity Monitoring** - Perform meter turbidity monitoring each day when working in regulated work areas according to the following:

- Use a turbidity meter that has been calibrated to meet manufacturer requirements.
- Before beginning work, take in stream turbidity readings approximately 100 feet upstream and, based on the wetted stream width, at the compliance distance listed in Table 00290-1 downstream of the in-water work area.
- Take in stream turbidity readings upstream and downstream at four hour intervals or more frequently and perform in-water work based on turbidity measurements according to the following:
  - If the downstream reading at the compliance distance is 0 to 4 nephelometric turbidity units (NTU) above upstream levels, continue to work and take readings every four hours.
  - If the downstream reading at the compliance distance is 5 to 29 NTU above upstream levels, modify work procedures and best management practices (BMP) and take a subsequent downstream reading four hours later. If at the subsequent four hour reading, the downstream reading is still 5 to 29 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 30 to 49 NTU above upstream levels, modify work procedures and BMP and take a subsequent downstream reading two hours later. If, at the subsequent two hour reading, the downstream reading is still 30 to 49 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 50 NTU or more above upstream levels, stop all in-water work and implement BMP. Resume in-water work activities the next morning.

**Table 00290-1**

<b>Wetted Stream Width</b>	<b>Compliance Distance</b>
≤ 30 feet	50 feet
> 30 feet to 100 feet	100 feet
> 100 feet to 200 feet	200 feet
> 200 feet	300 feet
Lakes, Ponds, and Reservoirs	Lesser of 100 feet or max. surface dimension

Document all turbidity monitoring results including date, time, and location on the Agency provided form or another form approved by the Agency. Submit reports to the Engineer weekly when working in regulated work areas and keep copies of the reports at the project site.

If work activities violate permit conditions or cause water quality violations which may endanger the health of aquatic life or environment, stop all in-water work activities and notify the Engineer. Submit a written report of violations to the Engineer within 5 Calendar Days of violation.

**00290.34 Protection of Fish and Fish Habitat** - Add the following paragraph:

Meet with the Agency Biologist, Resource Representative, Project Manager, and inspector on site, before moving equipment on-site or beginning any work, to ensure that all parties understand the locations of sensitive biological sites and the measures that are required to be taken to protect them.

**00290.34(a) Regulated Work Areas** - Add the following to the end of this subsection:

The regulated work area is the area at or below the highest measured tide (HMT) elevation shown on the plans.

For this Project, the regulated work area is the area at or below 10.90 feet elevation.

Perform work within the regulated work area only during the in-water work period. The in-water work period is from November 1 to February 15.

The total volume of material filled or discharged into waters of the state and waters of the U.S. shall not exceed 178 cubic yards.

The total volume of material excavated from the waters of the state and waters of the U.S. shall not exceed 95 cubic yards.

Submit a schedule to complete all work within the regulated work area within the in-water work period at least 10 days prior to the preconstruction conference.

**00290.34(b) Prohibited Operations** - Replace this subsection, except for the subsection number and title, with the following:

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.

Add the following subsection:

**00290.34(c) Aquatic Species Protection Measures Required by Environmental Permits:**

**(1) General Requirements:**

- Do not install fish ladders (for example: pool and weirs, vertical slots, fishways) or fish trapping systems.
- Do not apply surface fertilizer within 50 feet of any stream channel.

Use heavy equipment as follows:

- Choice of equipment must have the least adverse effects on the environment (for example: minimally sized, low ground pressure).
- Secure absorbent material around all stationary power equipment ( for example: generators, cranes, drilling equipment) operated within 150 feet of wetlands, waters of the State, waters of the U. S., drainage ditches, or water quality facilities to prevent leaks, unless suitable containment is provided to prevent spills from entering waters of the state or waters of the U.S.
- Do not cross directly through a stream for construction access, unless shown or approved. If shown or approved, cross perpendicular to the stream and do not block stream flow. When a crossing is no longer needed, completely remove the crossing and restore the soils and vegetation to the original condition.
- Store fuel and maintain all equipment in staging areas that are at least 150 feet away from any waters of the State, waters of the U.S., or storm inlet or on an impervious surface that is isolated from any waters of the State, waters of the U.S., or storm inlet.
- If temporary access roads are needed within 150 feet of any body of water, use existing routes unless new routes are shown or approved.
- Before beginning work on temporary access routes that are not shown, submit a proposal to the Engineer for approval.

**(2) Water Intake Screening** - Install, operate, and maintain fish screens on each water intake used for project construction, including pumps used to isolate an in-water work area. When drawing or pumping water from any stream, protect fish by equipping intakes with screens having a minimum 27% open area and meeting the following requirements:

- Perforated plate openings shall be 3/32 inch or smaller.
- Mesh or woven wire screen openings shall be 3/32 inch or smaller in the narrowest direction.
- Profile bar screen or wedge wire openings shall be 1/16 inch or smaller in the narrow direction.

Choose size and position of screens to meet the following criteria:

Type	Approach Velocity <sup>1</sup> (Ft./Sec.)	Sweeping Velocity <sup>2</sup> (Ft./Sec.)	Wetted Area of Screen (Sq. Ft.)	Comments
Ditch Screen	≤ 0.4	Shall exceed approach velocity	Divide max. water flow rate (cfs) by 0.4 fps	If screen is longer than 4 feet, angle 45° or less to stream flow
Screen with proven self-cleaning system	≤ 0.4	–	Divide max. water flow rate (cfs) by 0.4 fps	–
Screen with no cleaning system other than manual	≤ 0.2	–	Divide max. water flow rate (cfs) by 0.2 fps	Pump rate 1 cfs or less
<sup>1</sup> Velocity perpendicular to screen face at a distance of approximately 3 inches <sup>2</sup> Velocity parallel to screen				

Provide ditch screens with a bypass system to transport fish safely and rapidly back to the stream.

**(3) Special Aquatic Habitats** - The following exploration or construction activities are not allowed in special aquatic habitats:

- Use of pesticides and herbicides, unless allowed according to Section 01030.
- Use of short pieces of plastic ribbon to determine flow patterns.
- Temporary roads or drilling pads built on steep slopes, where grade, soil type, or other features suggest a likelihood of excessive erosion or slope failure.
- Exploratory drilling in estuaries that cannot be conducted from a work barge, or an existing bridge, dock, or wharf.
- Installation of a fish screen on any permanent water diversion or intake that is not already screened.
- Drilling or sampling in an EPA-designated Superfund Site, a state-designated clean-up area, or the likely impact zone of a significant contaminant source, as identified by historical information, U. S. Army Corps of Engineers representative, or the Agency.

**(4) Hydro-Acoustic** - Unless otherwise shown or approved, steel piling may be installed below the ordinary high water as follows:

- Minimize the number and diameter of pilings, as feasible.
- Repairs, upgrades, and replacement of existing pilings consistent with these conditions are allowed. In addition, up to five single pilings or one dolphin consisting of three to five pilings may be added to an existing facility.
- Whenever feasible, use vibratory hammer for piling installation. Otherwise, use the smallest drop or impact hammer necessary to complete the job, and set the drop height to the minimum necessary to drive the piling.

- For all pile installed or removed, maintain a pile installation and removal log and submit the log when the related work is completed. Include types, sizes, locations, installation or removal methods, and dates in the log.
- When using an impact hammer to drive or proof steel piling within a body of water, or as directed, use one of the following sound attenuation devices to effectively dampen sound:
  - Completely isolate the pile from the waters of the state and waters of the U.S. by dewatering the area around the pile according to Section 00245.
  - If water velocity is 1.6 feet per second or less, surround the pile being driven with a bubble curtain that distributes small air bubbles around 100% of the piling perimeter for the full depth of the water column.
  - If water velocity is greater than 1.6 feet per second, surround the piling being driven by a confined bubble curtain (for example: a bubble ring surrounded by a fabric or metal sleeve) that will distribute air bubbles around 100% of the piling perimeter for the full depth of the water column.

**(5) Treated Wood** - Treated wood includes any wood treated with any pesticide or wood preservatives. Do not use lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds below the ordinary high water (OHW) or as part of an in-water or over-water structure, except as described below:

- Store treated wood shipped to the Project out of contact with standing water and wet soil, and protected from precipitation.
- Visually inspect each load and piece of treated wood. Reject for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
- Use pre-fabrication to the extent feasible. When field fabrication is necessary, all cutting and drilling of treated wood, and field preservative treatment of wood exposed by cutting and drilling, shall occur above the OHW. Use tarps, plastic tubs, or similar devices to contain the bulk of any fabrication debris, and wipe off any excess field preservative.
- All treated wood structures, including pilings, shall have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, and floats.
- Treated wood may be used to construct a bridge, over-water structure or an in-water structure, with the exception of the work containment system, provided that all surfaces exposed to leaching by precipitation, overtopping waves, or submersion are coated with a water-proof seal or barrier are maintained. Apply and contain coatings and paint-on field treatment to prevent contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the bridge deck, are exempt from this requirement.
- During demolition of treated wood, ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
- Store removed treated wood debris in appropriate dry storage areas, at least 150 feet away from the regulated work area.

**(6) Piling Removal** - Remove temporary or permanent piling according to the following:

- Dislodge the piling with a vibratory hammer, whenever feasible.
- Once loose, place the piling onto the construction barge or other appropriate dry storage site.

**a. Non-Treated Piling** - Use the following methods to remove non-cresote piling:

- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump off at least 3 feet below the surface of the sediment and cover with a cap of clean, native substrates that match surrounding streambed materials.

**b. Treated Piling** - To minimize toxic release, sediment disturbance, and total suspended solids, use the following methods to remove treated piling:

- Install a floating surface boom to capture floating surface debris.
- Keep all equipment out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
- Dislodge the piling with a vibratory hammer, whenever feasible. Do not intentionally break a pile by twisting or bending.
- Slowly lift the pile from the sediment and through the water column.
- Place the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment.
- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump at least 3 feet below the surface of the sediment and cover with a cap of clean, native substrates that match surrounding streambed materials.

**(7) Floating Structures** - The following types of over-water or in-water structures are not allowed:

- boat house
- boat ramp made of asphalt
- buoy or float in an active anchorage or fleeting area
- covered moorage
- floating storage unit
- houseboat
- marine
- pier
- non-water related facilities (including staging areas) inside riparian management areas
- any other over-water structure more than 6-feet wide unless otherwise approved in writing by appropriate regulatory agencies through the Project Manager

The following conditions apply to floatation structures:

- Concrete boat ramps that consist of pre-cast concrete slabs below the ordinary high water elevation, and higher elevation portions that are completed in the dry so that no wet concrete that has cured less than 24 hours is allowed to contact any wetland or waters of the state or waters of the U.S.
- Rock may be used to construct a boat ramp footing, or other protection necessary to prevent scouring, down-cutting, or failure of the boat ramp, provided that the rock does not extend further than 4 feet from the edge of the ramp in any direction.
- Any replacement roof, wall, or garage door for covered moorages and boat houses must be made of translucent materials or skylights. In addition, each side, except the door, of the boat house shall have windows at least 4 feet wide installed the length of the boat house, subject to breaks only for structural support.
- An existing marina may be modified within the existing footprint of the moorage, or in the water more than 50 feet from the shoreline and more than 20 feet deep, except that structures may not be placed in areas that support aquatic vegetation or areas where boat operations may damage aquatic vegetation.
- Fit all pilings, mooring buoys, and navigational aids with devices to prevent perching by piscivorous birds.
- Permanently encapsulate all synthetic flotation material to prevent breakup into small pieces and dispersal in water.
- Install small temporary floats less than 7 Calendar Days before a scheduled event, remove them five days after a scheduled event is concluded, and do not leave them in place longer than 21 Calendar Days.
- Install mooring buoys and temporary floats (for example: shellfish traps) more than 300 feet from native submerged aquatic vegetation, more than 50 feet from the shoreline, and in water deeper than 20 feet deep at all times, or as necessary to ensure that gear does not ground out unnecessarily, and boats do not prop wash the bottom.
- Prohibit barge use within the No Work Areas shown on the Plans.

When using a barge:

- Before moving the barge to the Project Site, unless the barge is transported solely by water and entirely within the State, inspect the barge and ballast for invasive species to ensure that invasive species are not brought to the Project Site. Notify the Oregon State Marine Board if invasive species are found.
- Before moving the barge to the Project Site, clean and pressure wash the barge deck.
- Do not use impact hammers for spud placement.
- Install and maintain containment measures to prevent barge surface runoff from flushing oil, fuel, or other contaminants into the water.
- Secure all equipment, portable toilet facilities, and containers with fuel, hazardous materials, or waste to the barge deck.
- If the barge is equipped with a toilet facility, pump it out into an approved waste removal system when work requiring a barge is complete, or as often as is necessary. Move temporary toilet facilities to shore before pumping them out.



- If a fuel container is used on the barge, provide a double-walled fuel container and place an absorbent containment boom around the container when it is on the barge.
- Remove hand carried fuel containers from the barge at the end of each work shift unless containers are secured to the barge and stored within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Refill hand carried fuel containers within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Provide individual containment for each piece of equipment on the barge, including containment pans or absorbent booms to locally contain minor spills.
- Remove waste material from the barge at least every 3 working days and:
  - Before any pause in work that is longer than 1 day; or
  - Before reaching the calculated safe load weight of the barge according to Section 00253.

**(8) Temporary Power, Communication and Water Lines** - Before installing temporary power, communication, or water lines across streams or bodies of water, submit a proposed plan to the Engineer for approval. Do not begin installation before receiving approval from the Engineer. Proposed plans for installation of temporary power, communication, and water lines and stream crossings shall utilize the following design methods in the listed order of priority:

1. Aerial lines, including lines hung from existing bridges.
2. Directional drilling, boring and jacking that spans the channel migration zone and any associated wetland.
3. Trenching, which is restricted to intermittent streams and may only be used when the stream is naturally dry. For all sections of trenches below the ordinary high water line, backfill with native material and cap with clean gravel suitable for fish use in the project area.

Align each crossing as perpendicular to the watercourse as possible. For drilled, bored, or jacked crossings, ensure that the line is below the total scour prism. Return any large wood displaced by trenching or plowing as nearly as possible to its original position, or otherwise arranged to restore habitat functions.

**(9) Injured Fish Notification** - If a dead or injured fish is found in the project area, immediately notify the Agency. If the injured fish is in a location where further injury or stress may take place, attempt to move the fish to a safer location, if one is available, near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead or dies while being captured or moved, save the fish and any tags. The Agency will notify appropriate regulatory agencies about the injured or dead fish and provide additional direction to the Contractor.

Add the following subsection:

**00290.35 Protection of Marine Mammals** - As directed or approved by the Engineer, furnish and implement measures to deter marine mammals outlined in the NOAA Fisheries West Coast Region "Potential Deterrence Methods for Pacific Harbor Seals, California Sea Lions & Eastern U.S. Stock Steller Sea Lions" publication, as needed. The NOAA publication is available at the following web address:

[http://www.westcoast.fisheries.noaa.gov/publications/protected\\_species/marine\\_mammals/pinnipeds/sea\\_lion\\_removals/112515\\_potential\\_deterrence\\_methods.pdf](http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/pinnipeds/sea_lion_removals/112515_potential_deterrence_methods.pdf)

Exclusion Zones apply to the following types of work at the radius distances shown, measured from the location of work being performed:

- Impact hammer removal and installation activities
  - Phocid Pinnipeds (Harbor seals) 70 meters
  - Otariid Pinnipeds (Sea lions) 10 meters
  
- Vibratory hammer removal and installation activities
  - Phocid Pinnipeds (Harbor seals) 15 meters
  - Otariid Pinnipeds (Sea lions) 10 meters

Notify the Engineer at least 7 Calendar Days before beginning each instance of covered work activities described above.

Protected Species Observers (PSO's) will be present on-site during covered work activities described above to monitor for marine mammals within the Exclusion Zones. PSO's will be provided at no cost to the Contractor.

If the Exclusion Zone for any work activity described above is obscured by fog or poor lighting conditions, wait until the entire zones are visible before beginning the affected work.

Employ the use of an air bubble system or other noise attenuation device, as approved by the Engineer, during the use of an impact hammer unless the piles are driven in the dry during low tide.

Before commencing pile driving at the start of each work shift, strike the pile three times with the hammer at reduced energy, followed by a one minute wait period and repeat for a total of three strike/wait cycles.

Do not commence in-water work until the PSO has declared the Exclusion Zone clear of marine mammals. If a marine mammal enters the Exclusion Zone for the types of work defined above, as determined by the PSO or Engineer, cease the affected work until the marine mammal is sighted moving out of the Exclusion Zone, or until no marine mammals have been sighted within the Exclusion Zone for 15 minutes.

**00290.41 Protection of Wetlands** – Replace the title of this subsection with “**Protection of Waters of the U.S. or State**”

Delete the paragraph that begins with “For the purposes of this Section...”.

**00290.41(a) Identifying Wetlands** – Replace the title of this subsection with “**Identifying Waters of the U.S. or State, Including Wetlands**”

Add the following subsection:

**00290.42 Work Containment Plan** - A Work Containment Plan (WCP) is required on this Project for dock removal activities.

Develop and submit a WCP for approval at least 28 Calendar Days prior to mobilization for dock removal activities. Maintain a copy of the WCP on the Project Site at all times during construction, readily available to employees and inspectors. Ensure that all employees comply with the provisions of the WCP. Design the WCP to avoid or minimize disturbance to protected features (sensitive cultural or natural resources, Regulated Work Areas, aquatic life or habitat in Regulated Work Areas) related to Contractor operations.

Before developing the WCP, meet with Agency to review the Contractor’s activities that require the WCP to ensure that all parties understand the locations of protected features to be avoided and the measures needed to avoid and protect them.

Notify the Project Manager at least 10 Calendar Days before beginning work access or containment construction activities.

The Agency reserves the right to stop work and require the Contractor to change the WCP methods and equipment before any additional Contract work, at no additional cost to the Agency, if and when, in the opinion of the Agency, such methods jeopardize sensitive cultural or natural resources, Regulated Work Areas, or aquatic life or habitat in Regulated Work Areas.

The WCP shall identify how the Contractor's construction operations will protect regulated features during mobilization, construction, maintenance, and demolition. Include a narrative describing compliance with Section 00290 as related to construction, operation, and demolition activities specified in Section 00253.

Design, construct, maintain, and remove temporary work access and containment systems according to Section 00253.

**00290.90 Payment** - Add the following paragraphs to the end of this subsection:

The Work Containment Plan will be paid for at the Contract lump sum amount for the item "Work Containment Plan".

Payment will be payment in full for furnishing all materials, equipment, labor, and incidentals necessary to complete the work as specified. Payment includes providing and updating the Work Containment Plan.

The accepted quantities of turbidity monitoring will be paid for at the Contract lump sum amount for the item "Turbidity Monitoring".

Payment for turbidity monitoring 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.

**SECTION 00405 - TRENCH EXCAVATION, BEDDING, AND BACKFILL**

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

**00405.12 Bedding** - Replace the bullet that begins "3/8" - 0 PCC Fine Aggregate..." with the following bullet:

- 3/8" - 0 PCC fine Aggregate conforming to 02690.30(g).

**SECTION 00440 - COMMERCIAL GRADE CONCRETE**

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

Add the following subsection:

**00440.02 Abbreviations and Definitions:**

**ASTV – Actual Strength Test Value** – See 02001.02 for definition.

**00440.12 Proportions of Commercial Grade Concrete** - Replace the bullet that begins "Compressive strength..." with the following bullet:

- **Compressive Strength** - ASTV minimum of 3,000 psi at 28 days

**00440.14(d) Hardened CGC** - Add the following to the end of this subsection:

The ASTV at 28 Days is the average compressive strength of the three cylinders tested. Discard all specimens that show definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing. The average strength of the remaining cylinders shall then be considered the test result.

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

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

Add the following subsection:

**00445.80(k) Pipe Cleanouts** – The quantities of pipe cleanouts will be measured on the unit basis.

**00445.91** – Add the following pay item:

- (m) Pipe Cleanouts, \_\_\_\_ Inch .....Each

Add the following paragraphs after the paragraph that begins “In item (l)...”:

In item (m), the nominal pipe diameter will be inserted in the blank.

Item (m) includes pipe wyes, caps, and other required fittings.

#### **SECTION 00490 - WORK ON EXISTING SEWERS AND STRUCTURES**

Comply with Section 00490 of the Standard Specifications.

#### **SECTION 00495 - TRENCH RESURFACING**

Comply with Section 00495 of the Standard Specifications.

## SECTION 00501 - BRIDGE REMOVAL

Comply with Section 00501 of the Standard Specifications modified as follows:

**00501.00 Scope** - Replace the paragraph that begins "This Work consists of..." with the following paragraph:

This Work consists of removing portions of the existing Dock 5 structure as shown or specified.

Add the following subsection:

**00501.03 Submittals** - Provide unstamped dock removal plans according to 00150.35 21 calendar days before beginning removal work.

Include the following information in the submittal:

- Removal sequence, including contractor staging and traffic staging.
- Detailed schedule of dock removal work.
- Type of equipment that will be used, including size and capacity.
- Equipment location during removal operations.

Do not begin dock removal work until the dock removal plans have been approved.

Add the following subsection:

**00501.45 Salvage** - Salvage the following items and deliver them to a designated location in the Port parking lot, as directed by the Engineer:

- Existing 6 ft x 48 ft gangway
- Existing steel rail panels for reuse
- Existing timber stringers

**00501.90 Payment** – Replace the paragraph that begins “The accepted quantities...” with the following:

The accepted quantities of dock removal Work will be paid for at the Contract lump sum amount for the item “Dock Removal Work”.

Add the following to the end of this subsection:

The accepted quantities of salvaging and stockpiling portions of the existing dock structure will be made at the Contract lump sum amount for the item "Extra for Salvaging and Stockpiling Structure".

Payment includes removing, salvaging, and stockpiling and reinstalling portions of the existing structure as shown and specified.

## SECTION 00520 - DRIVEN PILES

Comply with Section 00520 of the Standard Specifications modified as follows:

**00520.11 Engineer's Estimated Length List** - Add the following to the end of this subsection:

The Engineer's estimated lengths of steel piling are:

Location	No.	Length (Feet)	Type and Size
Bents 1-4	8	66	PP24x0.5
Bents 5-9	10	67	PP24x0.5

**00520.43(d) Reinforced Pile Tips** - Add the following sentence to the end of this subsection:

For steel pipe piling, provide outside fit, open end cutting shoes meeting the requirements of 02520.10(e).

## SECTION 00521 – PASSIVE CATHODIC PROTECTION OF PILES

Section 00521, which is not a Standard Specification, is included in this Project by Special Provision.

### Description

**00521.00 Scope** - This Work consists of designing, furnishing, and installing passive cathodic protection systems on driven steel piles.

### Materials

**00521.10 Materials** - Furnish materials conforming to the submitted and accepted stamped Working Drawings.

### Labor

**00521.30 Qualifications** – Perform the cathodic protection system design and testing Work using qualified and experienced personnel. Submit a list to the Engineer for approval identifying the designer and on-site testing personnel. Before the preconstruction conference, provide the following information to verify the design and testing personnel qualifications:

- Provide design services by personnel meeting at least one of the following qualifications:
  - Has a National Association of Corrosion Engineers (NACE) CP3: Cathodic Protection Technologist certification or greater.



- Is a licensed Professional Engineer in the State of Oregon with a minimum of 5 years experience performing cathodic protection system design.
- Submit a project reference list documenting at least three separate projects performed by the designer that included the design of galvanic cathodic protection systems for partially submerged structures.
- Provide verification and adjustment testing services by personnel meeting at least one of the following qualifications:
  - Has a National Association of Corrosion Engineers (NACE) CP2: Cathodic Protection Technologist certification or greater.
  - Has a minimum of 5 years experience testing and evaluating galvanic or impressed current cathodic protection systems.
- Submit a project reference list documenting at least three separate projects performed by the testing personnel that included testing and evaluating galvanic or impressed current cathodic protection systems.

### **Construction**

**00521.40 Required Submittals** – Submit stamped Working Drawings and calculations for passive cathodic protection systems according to 00150.35. Design passive cathodic protection systems with replaceable sacrificial anodes. Design the passive cathodic protection systems for a minimum initial service life of 20 years in a tidal environment consistent with the location of the Work.

Submit for review complete details of the materials, including the method of connecting sacrificial anodes to piles and locations of sacrificial anodes.

Submit for review a Monitoring and Maintenance Plan, outlining methods of evaluating the effectiveness of the cathodic protection system and methods for extending the service life of the cathodic protection system.

Do not install the passive cathodic protection system until the stamped Working Drawings and monitoring and maintenance plan have been reviewed and accepted by the Engineer.

**00521.41 System Installation** – Install the passive cathodic protection system according to the accepted stamped Working Drawings and Section 00290. Install the passive cathodic protection system within 60 days of pile installation.

### **Finishing and Testing**

**00521.70 System Performance Verification and Adjustment** – Inspect the passive cathodic protection system in the presence of the Engineer 180 Calendar Days after system installation. Notify the Engineer 14 Days prior to performing the inspection. Test the performance of the system at high and low tides according to the procedures outlined in the submitted and accepted monitoring and maintenance plan. Testing shall be performed at 50 percent of the piles protected by the cathodic protection system.

Submit the test results and a comparison analysis of the apparent in-service performance of the system to the as-designed performance of the system to the Engineer for review. Comparison analysis shall include corrections for the submerged length of pile at time of testing.

Adjust the configuration and size of the anode system to achieve the intended polarization potential of the cathode and current consumption necessary to meet a minimum service life of 20 years. Repeat the system tests, comparison analysis, and system adjustments until the cathodic protection system is functioning as intended and provides a minimum service life of 20 years and the Engineer agrees in writing.

Submit revised stamped working drawing and calculations documenting the final cathodic protection system installation. Submit a revised monitoring and maintenance plan addressing the final in-service passive cathodic protection system.

### **Measurement**

**00521.80 Measurement** - No measurement of quantities will be made for design and installation of the passive cathodic protection system.

### **Payment**

**00521.90 Payment** - The accepted quantities of passive cathodic protection systems for piles will be paid for at the Contract lump sum amount for the item "Passive Cathodic Protection System for Piles".

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 the passive cathodic protection systems
- preparing and revising the monitoring and maintenance plan
- furnishing and installing the cathodic protection systems
- inspecting, testing, and adjusting passive cathodic protection systems
- furnishing and installing fasteners and wiring

## **SECTION 00530 - STEEL REINFORCEMENT FOR CONCRETE**

Comply with Section 00530 of the Standard Specifications modified as follows:

**00530.80(a) Lump Sum** - Add the following to the end of this subsection:

The estimated quantity of reinforcement is:

<b>Structure</b>	<b>Quantity Coated (Pound)</b>
Dock 5	5,200

The weight of miscellaneous metal, based on weights listed in 00530.80(b) and Project quantities, is included in the estimated quantity of uncoated reinforcement.

### **SECTION 00540 - STRUCTURAL CONCRETE**

Comply with Section 00540 of the Standard Specifications modified as follows:

**00540.17(a) Aggregate** - Replace this entire subsection, including 00540.17(a)(1) and 00540.17(a)(2), with the following subsection:

**00540.17(a) Aggregate** - Acceptance of aggregate will be according to 02690.12.

**00540.17(c)(2) Actual Strength Test Value** - Replace this subsection, except for the subsection number and title, with the following:

The ASTV at 28 Days is the average compressive strength of the three cylinders tested. Discard all specimens that show definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing. The average strength of the remaining cylinders shall then be considered the test result.

**00540.49(a)(1) Hot Weather** - Replace the paragraph that begins "Maintain the concrete temperature..." with the following paragraph:

Maintain the concrete temperature during hot weather as specified. When concrete temperatures approach the maximum allowable temperature according to 02001.20(d), take appropriate action to lower the concrete temperature.

**00540.51(a) General Requirements** - Replace the paragraph that begins "Cure cast-in-place concrete..." with the following paragraph:

Cure cast-in-place concrete surfaces with water, wet burlap, and a layer of 4 mil polyethylene film, except polypropylene fabric may be used in place of wet burlap on horizontal surfaces. Begin curing as soon after placement as possible without damaging the freshly placed concrete. Continue curing for 7 Calendar Days (14 Calendar Days for bridge decks) after placement.

Add the following paragraph to the end of this subsection:

If the ambient temperature falls below 50 °F, or is forecasted to be below 50 °F, provide a 24-hour continuous recording thermometer and place it directly on the surface of the concrete. Once placed, the thermometer shall remain in place for the duration of the cure period. Use methods approved by the Engineer to maintain a concrete temperature of at least 50 °F during the cure period.

**00540.53(b) Class 1 Surface Finish (Ground and Coated)** - Replace this subsection with the following subsection:

**00540.53(b) Class 1 Surface Finish (Ground, Sacked, and Coated)** - After completion of the general surface finish, grind the surface with a power grinder or an equivalent method to remove laitance and surface film. Sack the surface to fill all holes using a paste of fine mortar sand, cement, water, and bonding agent. The ratio of bonding agent to water shall be one part bonding agent to two parts water, or as recommended by the manufacturer. Apply coating according to 00540.53(d).

**00540.80(a)(1) Lump Sum** - Add the following to the end of this subsection:

The estimated quantity of concrete is:

<b>Type and Class</b>	<b>Quantity (Cu. Yd.)</b>
General Structural Concrete, Class HPC4500	5
Deck Concrete, Class HPC4500	61

## FALSEWORK DESIGN CHECKLIST

**Instructions** - This checklist was developed to facilitate the design, review, and erection of falsework to be used for Oregon Department of Transportation bridge construction projects. This checklist is intended to act as a reminder to design or check for specific important aspects of this construction. It is not a substitute for plan and/or design criteria or specification requirements.

The Checklist is to be completed and signed by the Falsework Design Engineer. Answer every question. Attach to the Checklist an explanation of any negative responses.

Submit the Checklist according to 00540.41(a).

	YES	NO	N/A
<b>A. Contract Plans, Specifications, Permits, Etc.</b>			
1. Are the falsework plans prepared, stamped and signed by an engineer registered to practice in Oregon?	_____	_____	_____
2. Have three complete sets (five if railroad approval is required) of the design calculations been included with the falsework drawings submittal?	_____	_____	_____
3. Are falsework plans in compliance with the requirements of the construction plans general notes?	_____	_____	_____
4. Are falsework plans in compliance with contract plan structural details?	_____	_____	_____
5. Are falsework plans in compliance with the requirements of the Oregon Standard Specifications for Construction, subsection 00150.35?	_____	_____	_____
6. Are all existing, adjusted or new utilities in proximity with the proposed falsework shown on the falsework plans and is protection of these utilities addressed?	_____	_____	_____
7. Are clearance requirements satisfied and shown on the falsework plans?	_____	_____	_____
8. For construction in or over navigable waters have all requirements for construction of falsework that are called for in the Coast Guard Permit been incorporated in the falsework design?	_____	_____	_____
9. Has possible damage from traffic been considered in the falsework design?	_____	_____	_____

- 10. Has damage from stream drift been considered in the falsework design? \_\_\_\_\_
- 11. Is the concrete placing sequence shown and is it consistent with the contract plans? \_\_\_\_\_

**B. Foundation Requirements**

- 1. Are driven falsework piling provided as called for on the contract plans? \_\_\_\_\_
  - a. Is a minimum pile tip elevation or penetration indicated on the drawings? \_\_\_\_\_
  - b. If timber falsework piles are specified, are the recommended order lengths sufficient to virtually eliminate the possibility of pile splices? \_\_\_\_\_
  - c. Is a detailed static pile capacity analysis included in the calculations? \_\_\_\_\_
  - d. If lateral loads are applied to the piling by equipment, dead loads, flowing water, or drift, is a detailed lateral load analysis included in the calculations? \_\_\_\_\_
  - e. When piling are in an active waterway, have the potential effects of scour on axial and lateral pile support been addressed in the calculations? \_\_\_\_\_
  - f. Does the proposed falsework pile hammer meet the minimum field energy requirements as listed in 00520.20(d)(2)? \_\_\_\_\_
  - g. Will a driving criteria graph [FHWA Gates Equation, in 00520.42(b)] plotting blow count versus stroke for an acceptable pile hammer be provided for the project inspector? \_\_\_\_\_
- 2. Is falsework supported on spread footings or mud sills? \_\_\_\_\_
  - a. Are the spread footing elevations shown on the drawings? \_\_\_\_\_
  - b. Has a rational method for determining the ultimate bearing capacity of the foundation materials been presented and described in the calculations? \_\_\_\_\_

- c. Have the soil parameters used in calculating the ultimate bearing capacity been listed and confirmed by the designer? \_\_\_\_\_
- d. Has an appropriate Factor of Safety been used for calculating the allowable bearing capacity of the foundation materials? \_\_\_\_\_
- e. Are spread footing settlement estimates included in the calculations? \_\_\_\_\_
- f. Have effective stresses been used in the calculations, when applicable? \_\_\_\_\_
- g. When spread footings are founded near the top of a slope or in a slope, have the ultimate bearing capacity calculations been modified accordingly? \_\_\_\_\_
- h. When spread footings may be subjected to flowing water, have the potential effects of scour on ultimate bearing capacity been addressed in the calculations? \_\_\_\_\_

**C. Loads**

- 1. Are the magnitude and location of all loads, equipment and personnel that will be supported by the falsework shown and noted on the falsework plans? \_\_\_\_\_
- 2. Has the mass of specific equipment units to be supported by the falsework been included in the calculations or on the falsework plans? \_\_\_\_\_
- 3. Is the deck finishing machine supported in a manner that will not impose load on concrete forms except deck overhang brackets? \_\_\_\_\_
- 4. Are design loads and material properties used to determine design stresses for each different falsework member shown on the falsework plans? \_\_\_\_\_
- 5. Is the worst loading and member property condition, rather than the average condition, used to obtain design loads? \_\_\_\_\_
- 6. Are deck forms for concrete box girders supported from the girder stem and not from the bottom slab? \_\_\_\_\_
- 7. Are diaphragm loads or other concentrated loads included in the analysis of supporting beams? \_\_\_\_\_
- 8. If sloping structural members exert horizontal forces on the falsework, is bracing or ties used to resist these loads? \_\_\_\_\_

**D. Allowable Stresses**

- 1. Has the method used for falsework design of all members except for manufactured assemblies been noted in the design calculations? \_\_\_\_\_
- 2. Are manufactured assemblies identified as to manufacturer, model, rated working capacity and ultimate capacity? \_\_\_\_\_
- 3. Is the allowable stress and the calculated stress listed in the summary for each different falsework member, except for manufactured assemblies? \_\_\_\_\_

**E. Timber Falsework Construction**

- 1. Are timber grades consistent with material to be delivered to the construction site, and noted on falsework drawings, and in accompanying calculations for all timber falsework material? \_\_\_\_\_
- 2. If "rough" lumber is specified for falsework by the falsework designer are the actual lumber dimensions used in calculations shown? \_\_\_\_\_
- 3. If plywood spans are governed by the strength of the plywood, are the allowable stress and the calculated stress shown on the submitted calculations? \_\_\_\_\_
- 4. If plywood spans are governed by the allowable spacing of supporting joists, are the allowable and the proposed spacing shown on the falsework plans? \_\_\_\_\_
- 5. Have timber stringers been checked for bending, shear, bearing stresses, and 1/240 of the span length deflection? \_\_\_\_\_
- 6. Are joists identified as being continuous over 3 or more spans when they are not analyzed as simple spans? \_\_\_\_\_
- 7. Have stringers and cap beams been checked for bearing stresses perpendicular to the grain as well as for bending and shear stresses? \_\_\_\_\_
- 8. Have posts been checked as columns as well as for compression parallel to the grain? \_\_\_\_\_



**F. Steel Falsework Construction**

- 1. Are steel structural shapes and plates identified by ASTM number on the falsework plans and in the calculations? \_\_\_\_\_
- 2. Have steel beams been checked for bending, shear, web crippling and buckling of the compression flange? \_\_\_\_\_
- 3. Has horizontal plane bracing been shown where required to limit compression flange buckling? \_\_\_\_\_

**G. Deflections and Settlement**

- 1. Is falsework deflection for concrete dead load shown on the plans for all falsework spans? \_\_\_\_\_
- 2. Is falsework deflection from concrete dead load limited to 1/240 of the span length for all falsework spans? \_\_\_\_\_
- 3. Do stringers supporting cast-in-place concrete compensate for estimated camber? \_\_\_\_\_
- 4. For beam spans with cantilevers, has the upward deflection of the cantilevers due to load placed on the main spans been investigated? \_\_\_\_\_
- 5. Are provisions shown for taking up falsework settlement? \_\_\_\_\_

**H. Compression Members, Connections and Bracing**

- 1. Has general buckling been evaluated for all compression members? \_\_\_\_\_
- 2. Has bracing been provided at all points of assumed support for compression members? \_\_\_\_\_
- 3. Was bracing in each direction considered in establishing the effective length used to check post capacity? \_\_\_\_\_
- 4. Is bracing strength and stiffness sufficient for the intended purpose? \_\_\_\_\_
- 5. If temporary bracing is required during intermediate stages of falsework erection, is it shown on the falsework plans? \_\_\_\_\_
- 6. Have all connections been designed and detailed? \_\_\_\_\_
- 7. Are web stiffeners required on steel cap beams to resist eccentric loads? \_\_\_\_\_

- |           |  |       |       |       |
|-----------|--|-------|-------|-------|
| 8.        | Are wedges required between longitudinal beams and cap beams to accommodate longitudinal slope or to reduce eccentric loading?   | _____ | _____ | _____ |
| 9.        | Has the width to height ratio of wedge packs been verified to fall within the limits given in the special provisions?  | _____ | _____ | _____ |
| 10.       | If overhang brackets are attached to unstiffened girder webs, has the need for temporary bracing to prevent longitudinal girder distortion been investigated?                  | _____ | _____ | _____ |
| 11.       | Have beams and stringers with height/width ratios greater than 2.5:1 been checked for stability?   | _____ | _____ | _____ |
| 12.       | Have sloping falsework members that exert horizontal forces on the falsework been braced or tied to resist these loads?  | _____ | _____ | _____ |
| 13.       | If beams supporting cast-in-place concrete have cantilever spans, have the falsework plans been noted to require the main spans be loaded before loading the cantilever spans? | _____ | _____ | _____ |
| 14.       | Have timber headers set on shoring towers been checked for eccentric loads, and for shear and bending stresses produced by the eccentricity?                                   | _____ | _____ | _____ |
| <br>      |  |       |       |       |
| <b>I.</b> | <b>Highway and Railroad Traffic Openings (For falsework over or adjacent to highway or railroad traffic openings.)</b>   |       |       |       |
| 1.        | Do falsework plans satisfy construction clearances shown on the contract plans?  | _____ | _____ | _____ |
| 2.        | Are posts designed for 150% of the calculated vertical loading and increased or readjusted for loads caused by prestressing forces?  | _____ | _____ | _____ |
| 3.        | Are mechanical connections 2,000 pounds minimum capacity shown at the bottom of posts to footing connections?  | _____ | _____ | _____ |
| 4.        | Are mechanical connections 1,000 pounds minimum capacity shown at the top of the post to cap connections?  | _____ | _____ | _____ |
| 5.        | Are beam tie downs 500 pounds minimum capacity shown for all beams?  | _____ | _____ | _____ |
| 6.        | Are 5/8 inch or larger diameter bolts used at connections for timber bracing?  | _____ | _____ | _____ |
| 7.        | Are temporary erection and removal bracing shown?  | _____ | _____ | _____ |

**J. Additional Requirements for Railroad Traffic Openings**

- 1. Do falsework plans show collision posts as shown on the contract plans? \_\_\_\_\_
  
- 2. Do posts adjacent to the openings have a minimum section modulus of?
  - a. steel - 9.5 cubic inches \_\_\_\_\_
  - b. timber - 250 cubic inches \_\_\_\_\_
  
- 3. Are soffit and deck overhang forming details shown? \_\_\_\_\_
  
- 4. Are falsework bents within 20 feet of centerline of the track sheathed solid between 3 feet and 17 feet above top of rail with 5/8 inch thick minimum plywood and properly blocked at the edges? \_\_\_\_\_
  
- 5. Is bracing on the bents within 20 feet of the centerline of the track adequate to resist the required assumed horizontal load or minimum 5,000 pounds, whichever is greater? \_\_\_\_\_

\_\_\_\_\_  
Designer's Signature                      Date

## SECTION 00550 - PRECAST PRESTRESSED CONCRETE MEMBERS

Comply with Section 00550 of the Standard Specifications modified as follows:

**00550.12(c)(3) Acceptance** - Replace this subsection with the following two subsections:

**(3) Actual Strength Test Value** - The ASTV at 28 days is the average compressive strength of the three cylinders tested.

Discard all specimens that show definite evidence, other than low strength, of improper sampling, molding, handling, curing, or testing. The average strength of the remaining cylinders shall then be considered the test result.

**(4) Acceptance** - Hardened concrete members with an ASTV meeting or exceeding the specified design strength,  $f'_c$ , will be acceptable for strength.

If the ASTV is less than  $f'_c$  but at least 85 percent of  $f'_c$ , the Engineer may review the results to determine if the member is suitable for the intended purpose. If suitable, the concrete represented by an ASTV less than  $f'_c$  may be accepted subject to a price adjustment according to 00150.25.

Concrete that has an ASTV less than 85 percent of  $f'_c$  will not be accepted. All costs of removal, replacement, and all related work are the Contractor's responsibility.

**00550.90 Payment** - In the paragraph that begins "No separate or additional payment will be...", add the following bullet to the bullet list:

- surface finish on members

## SECTION 00560 - STRUCTURAL STEEL BRIDGES

Comply with Section 00560 of the Standard Specifications modified as follows:

**00560.29(a) General** - In the paragraph that begins "When shown or specified, assemble...", replace the words "AASHTO M 164 (ASTM A325)" with the words "ASTM F3125, Grade A325 or Grade F1852".

**00560.29(b) Washer Requirements** - In the second and third bullets in the bullet list, replace the words "AASHTO M 164 (ASTM A325)" with the words "ASTM F3125, Grade A325 or Grade F1852".

**00560.29(c)(2) Non-Coated Weathering Steel Members** – Add the following paragraph to the end of this subsection:

Prior to final bolting, ensure all steel-to-steel contact surfaces have maintained the minimum requirements of SSPC-SP 6 "Commercial Blast Cleaning". The minimum appearance of the surface shall approximate Pictorial Standard Sa 2 of SSPC-VIS 1,

Pictorial Surface Preparation Standards for Painting Steel Surfaces. Surfaces that do not meet the requirements of SSPC-SP 6 shall be hand tooled or re-blasted until the appearance of the blast-cleaned surface closely resembles Pictorial Standard Sa 2-1/2 of SSPC-VIS 1 as determined by the Engineer.

**00560.29(d) Verification Testing, Installation, and Inspection** - In the paragraph that begins "Verify correct lengths of all AASHTO...", replace the words "AASHTO M 164 (ASTM A325)" with the words "ASTM F3125, Grade A325 or Grade F1852".

**00560.29(d)(3)(c) Inspection** - In footnote 3 of Table 00560-3, replace the words "ASTM A325" with the words "ASTM F3125, Grade A325 or Grade F1852".

**00560.80 Measurement** - Add the following to the end of this subsection:

The estimated quantity of structural steel is:

<b>Structure</b>	<b>Steel Type</b>	<b>Quantity (Pound)</b>
Dock 5	Structural Steel	60,500

**00560.90 Payment** - Add the following pay item:

- (i) Structural Steel..... Lump Sum

### **SECTION 00581 - BRIDGE DRAINAGE SYSTEMS**

Comply with Section 00581 of the Standard Specifications.

### **SECTION 00585 - EXPANSION JOINTS**

Comply with Section 00585 of the Standard Specifications modified as follows:

**00585.01 Definitions** – Add the following to the list of definitions:

**Plate Joint** – A joint using steel plate to close a gap and prevent debris from passing through the joint.

Add the following subsections:

**00585.49 Steel Plate Expansion Joints** – Submit unstamped Working Drawings according to 00150.35 for each joint at least 21 Calendar Days before beginning Work.

Locate plate joints within 1/2" of the plan location. Construct joint parallel to the opening below. Anchor joints with lag screws according to 00570.41 and as shown. Countersink plates so that lag screw heads are flush with or recessed below the top of the steel plate.

Apply a non-slip surface to the exposed top surface of expansion joints.

**00585.80 Measurement** - Add the following to the end of this subsection:

The estimated quantities of expansion joints are:

Structure	Joint Type	Quantity (Foot)
Dock 5	Steel Plate Expansion Joint	21

**00585.90 Payment** - Add the following pay items to the pay item list:

- (f) Steel Plate Expansion Joint ..... Lump Sum

**SECTION 00587 - BRIDGE RAILS**

Comply with Section 00587 of the Standard Specifications modified as follows:

**00587.80 Measurement** - Add the following to the end of this subsection:

The estimated quantity of bridge rail is:

Structure	Rail Type	Quantity (Foot)
Dock 5	Pedestrian Rail	349

**00587.90 Payment** – Add the following paragraph at the end of the section:

No separate or additional payment will be made for transporting and installing the existing rail panels on the new rails.

**SECTION 00589 - UTILITIES ON STRUCTURES**

Section 00589, which is not a Standard Specification, is included in this Project by Special Provision.

## Description

**00589.00 Scope** - This work consists of designing and constructing permanent potable water, fire water, fuel line, and cable TV utilities and associated attachments to new Structures as shown or directed.

This work also consists of furnishing and installing attachments for electrical utilities on new Structures.

**00589.03 Required Submittals** – Submit the following documents according to 00150.35 at least 21 Calendar Days before fabricating precast prestressed slabs:

- Stamped Working Drawings and design calculations for the potable water, fire water, fuel line, and cable TV utilities, including but not limited to the following information:
  - plan views showing the routing of each facility
  - details of all connections and assemblies
  - materials specifications and requirements
  - locations of all inserts in the precast prestressed slabs for utility attachments

**00589.04 Design Requirements and Parameters** – Design potable water, fire water, fuel line, and cable TV utilities and attachments according to all local, state, and federal codes and laws, and the following requirements:

**(a) General** – Design all utility facilities with necessary details and provisions such that the new facilities are commissioned into service before the temporary utilities are taken out of service so that there will be no interruption in service through the duration of the Project.

**(b) Water Lines** - Design potable and fire water lines according to the applicable parts of Sections 01140, 01150, and 01170.

**(c) Fuel Line** – Obtain design requirements for the fuel line from the facility owner, Carson Oil. Design fuel lines according to these requirements.

Steve Carver, Manager  
Carson Oil  
308 NW A St.  
Toledo OR 97391  
Phone: 541.336.2512  
carver@CarsonTeam.com

## Materials

**00589.10 Water Lines** - Furnish water line materials for potable water and fire water utilities according to Sections 01140, 01150, and 01170 and all applicable local, state, and federal codes and laws.

**00589.11 Fuel Line** - Furnish fuel line materials according to the requirements of Carson Oil and all applicable local, state, and federal codes and laws.

**00589.12 Coaxial TV Cable** – Furnish coaxial TV cable meeting the requirements of all applicable local, state, and federal codes and laws.

**00589.15 Utility Attachments** - Furnish utility attachment systems using materials from the QPL and meeting the following requirements:

Structural Steel .....	02530
Forgings, Shafting, Castings, and Nonferrous Materials ...	02540
Fasteners .....	02560
Reflective Sheeting .....	02910.20(a)
Resin Bonded Anchor System .....	00535.10

Furnish brackets constructed of stainless steel or hot-dip galvanized structural steel.

### **Construction**

**00589.40 General** – Commission utilities installed under this Section into service before taking temporary utilities out of service so that there will be no interruption in service through the duration of the Project.

**00589.41 Water Lines** – Construct potable and fire water lines according to the approved design submittal.

**00589.42 Fuel Line** – Construct fuel lines according to the approved design submittal and according to the requirements of Carson Oil. Notify Carson Oil in writing, with a copy to the Engineer, 14 Calendar Days before beginning any work on the Fuel Line.

**00589.42 Coaxial TV Cable** – Construct coaxial TV cable according to the approved design submittal.

**00589.47 Utility Attachments** - Provide sufficient space around utilities for maintenance activities.

Furnish inserts in the precast prestressed slabs at the appropriate locations, according to the approved design submittal and as shown in the Plans, for all utility attachments. Do not field-drill the precast prestressed slabs for the purposes of attaching utilities.

**00589.48 Labeling** - Clearly label all piping or conduit systems according to the following APWA color code:



**Table 00589-1**

<b>Material</b>	<b>Marker Background Color</b>
Electrical Power Lines, Cables, Conduits, Lighting Cables	Red
Gas, Oil, Steam, Petroleum, Gaseous Materials	Yellow
Communications, Alarm, Signal Lines, Cables, or Conduits	Orange
Potable Water	Blue
Reclaimed Water, Irrigation, Slurry Lines	Purple
Sewers, and Drain Lines	Green

Generate purple by placing purple transparent film over white reflective sheeting. The purple tint of the transparent film shall match Federal Standard Color 595B No. 37100.

Minimum length of label shall be as shown in Table 00589-2.

**Table 00589-2**

<b>Pipe O.D. Min.</b>	<b>Pipe O.D. Max.</b>	<b>Length of Label</b>	<b>Width of Label</b>
3/4"	1 1/4"	8"	3/4"
1 1/2"	2"	8"	1"
2 1/2"	6"	12"	2"
8"	10"	12"	2"
10"	—	12"	2"

Place labels on each pipe or conduit, on each side of every bent, and at each entrance to a box girder.

Where piping is above or below normal line of sight, place pipe labels so that label may be seen from normal eye height.

**Measurement**

**00589.80 Measurement** - No measurement of quantities will be made for Work performed under this Section.

**Payment**

**00589.90 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:

<b>Pay Item</b>	<b>Unit of Measurement</b>
(a) Utility Attachment on Structure, Electrical.....	Lump Sum
(b) Utilities on Structure, Potable Water .....	Lump Sum
(c) Utilities on Structure, Fire Water .....	Lump Sum
(d) Utilities on Structure, Fuel Line .....	Lump Sum
(e) Utilities on Structure, Cable TV .....	Lump Sum

Item (a) includes furnishing and installing attachment materials for all electrical utilities attached to the Structure. Payment for furnishing and installing electrical conduit, fittings, and conductors will be made for the appropriate items under which that Work is required.

Items (b), (c), (d), and (e) include designing, furnishing, and constructing the utility facilities and associated attachments to the Structure.

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

### **SECTION 00592 – STRUCTURAL ALUMINUM GANGWAYS AND PLATFORMS**

Section 00592, which is not a Standard Specification, is included in this Project by Special Provision.

#### **Description**

**00592.00 Scope** - This Work consists of furnishing and constructing structural aluminum gangways.

**00592.02 Proprietary Gangways** – Furnish structural aluminum gangways from the following supplier, or approved equal:

- Topper Industries, Inc., telephone: 1-360-841-8320

**00592.03 Required Submittals** – Submit the following documents according to 00150.35 at least 21 Calendar Days before ordering or fabricating gangways:

- Stamped Working Drawings and design calculations, including but not limited to the following information:
  - plan and elevation views of all structural and non-structural members
  - details of all connections and assemblies necessary and pertinent to the gangway fabrication and installation, including connections and transition plates at both ends of the structure
- Manufacturer’s data sheets or catalog cuts of all materials and products to be fabricated and installed under this Section, including proposed floor grating product

- Weld procedure specifications (WPS) and procedure qualification records (PQR) for all structural welds and welders qualification test records or certificates for all persons anticipated to perform structural welding in conformance with AWS D1.2-14

Submit the following documents according to 00150.35 at least 21 Calendar Days before shipping or installing gangways:

- All test reports and certificates substantiating the required mechanical properties of all materials incorporated into the work
- Manufacturer's suggested handling, shipping and installation procedures and maintenance recommendations

**00592.04 Design Requirements and Parameters** – Verify measurements in field, as required, for work fabricated to fit job conditions.

Design the gangway for the loads shown in the Plans and to conform with the latest editions of all applicable design codes and all local, state, and federal laws.

Design and fabricate all guard rails such that a 4" diameter sphere will not pass between the horizontal members.

Design and fabricate the gangway to be fully compatible with the precast concrete float furnished under Section 00598.

### **Materials**

**00592.10 Materials** – Furnish Materials as shown and according to the approved design submittal.

### **Construction**

**00592.40 Welding** – Perform all welding by operators qualified by tests as prescribed by the AWS in Standard Qualification Procedure for performance of the type of work required.

Weld all shop connections unless noted otherwise. All steel welds shall be minimum 3/16 inch Fillet and sealed for galvanizing. Field welding of aluminum is not allowed.

Remove all weld spatter from exposed surfaces.

**00592.41 Structural Aluminum Gangway** – Fabricate and install all assemblies as shown and specified, and in accordance with the manufacturer's recommendations.

### **Measurement**

**00592.80 Measurement** - No measurement of quantities will be made for work performed under this Section.

## Payment

**00592.90 Payment** - The accepted quantities of work performed under this Section will be paid for at the Contract lump sum amount for the item "Structural Aluminum Gangway".

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:

- modifications for integration and compatibility with precast concrete float
- connections to adjacent structures and transition plates
- inserts, fasteners, and cutouts

## SECTION 00598 – STRUCTURAL PRECAST CONCRETE FLOATS

Section 00598, which is not a Standard Specification, is included in this Project by Special Provision.

### Description

**00598.00 Scope** - This Work consists of furnishing and constructing precast concrete floats.

**00598.01 Proprietary Concrete Floats** – Furnish precast concrete float systems from one of the following suppliers, or approved equal:

- Topper Industries, Inc., telephone: (360) 841-8320
- Bellingham Marine, telephone: (360) 676-2800

**00598.03 Required Submittals** – Submit the following documents according to 00150.35 at least 21 Calendar Days before ordering or fabricating precast concrete floats:

- Stamped Working Drawings and design calculations, including but not limited to the following information:
  - float layout
  - connection details
  - calculations showing that freeboard and draft requirements are satisfied
- Concrete mix design
- The manufacturer must have an ongoing quality assurance program approved by a qualified independent source. Submit a copy of the manufacturer's operational quality assurance program.

- Manufacturer's data sheets or catalog cuts of all materials and products to be fabricated and installed under this Section, including proposed grating product

**00598.04 Design Parameters** – Design the concrete float according to the parameters and requirements shown in the Plans, and the following:

- Design float to support the additional concentrated loads as imposed by the 85-foot gangway designed for a 100 PSF live load. Design float to have freeboard as follows:
  - Dead Load (float plus gangway):
    - match freeboard of existing floats or 14 inches, whichever is greater ; and
    - match freeboard of existing floats or 24 inches, whichever is least
  - Dead Load Plus Live Load (float plus gangway) - Not less than 10 inches
- Design connections to the existing floats so that no residual stresses or tilting occurs. Structural connections may be necessary to transfer some of the live and dead loads to adjacent floats to meet freeboard requirements.
- Walking Surface - level and flush with respect to the adjacent floats with a non-slip, broom finish.
- Light and Water Passage – design the top surface of the float with open grating comprising a minimum of 50 percent of the top surface area in order to meet permit requirements for water and light passage.
- Exercise caution to insure that all dead loads are accurately determined and included in buoyancy calculations. Include appropriate safety factors if used and any specific manufacturing considerations that will affect the final freeboard.
- Density of Lumber for Calculations - no less than forty (40) pounds per cubic foot.
- Locate flotation units within the structure so as to be capable of supporting a 400 pound point load moving in any area on a float without excessive rolling or tilting on the float, once the system is totally connected and in its final intended condition. Fully encapsulate flotation in accordance with Oregon law.
- Design floats to float level under float and gangway dead loads only. The allowable level tolerances for float decks are:
  - Maximum transverse slope for floats: 1% or one (1) inch per eight (8) feet of width.
  - Maximum longitudinal slope: 1% or one (1) inch per eight (8) feet.
- Minimum Cover over Reinforcement – 1 inch.
- In addition to designing for dead and live load requirements, design steel reinforcement to facilitate handling, transportation, and assembling the floats without incurring structural damage or cracking of the floats.

### **Materials**

**00598.10 Materials** – Furnish Materials meeting the following requirements:

**(a) Form Materials** - steel sheets or plates free of defects which could cause blemishes. Forms must be removable without injuring the concrete and must be constructed to maintain a tolerance of not more than 1/8 inch from the dimensions shown on the shop drawings between mating surfaces of structures components.

Design forms in such a way to prevent unsightly finished surfaces or definite lines that could result in crack planes. Any rough edges, form marks, or defects shall be cleaned, ground smooth, or patched.

Form coating shall be non-staining type that will not leave residual matter on surface of concrete or adversely affect proper bonding of subsequent coatings, caulking, grout, or adhesive applied to concrete surfaces.

Where form liner is used, use form release agent or coating as recommended by manufacturer of the form liner.

Coating containing mineral oils or other nondrying ingredients will not be permitted.

**(b) Concrete Reinforcement** – Furnish concrete reinforcement meeting the following requirements:

- Galvanized welded wire fabric used as concrete reinforcement shall be a min. 2"x 2" / 14x14 ga. Welded wire fabric cage is required in the deck, side, and bottom sections centered in concrete thickness. Where splicing occurs, a six (6) inch minimum overlap at seams is required. Galvanized wire mesh shall meet ASTM A-185.
- Reinforcing steel shall be grade 60, conform to ASTM 615, shall be epoxy coated after bending in accordance with ASTM A-775, and shall be placed as shown on the drawings. All field cuts shall be hand painted with epoxy.
- All reinforcement shall be new and clean, free from dirt, oil, paint, grease, loose mill scale, and loose or thick rust when placed.
- Tie wire shall be 16 gauge conforming to ASTM A-82.

**(c) Concrete** - Furnish concrete meeting the following requirements:

- Concrete shall be supplied by a ready-mix or precast concrete products firm regularly engaged in the business.
- Prior to the manufacturing of any flotation units, the concrete mix design shall be approved by the Engineer.
- Concrete shall have a minimum twenty-eight (28) day compressive strength of 4000 psi, per ASTM C-94. Floats made of concrete with less than specified strength may be rejected by the Agency.
- The mix shall contain a minimum of 564 pounds (six sacks) of Portland Cement per cubic yard, either Type I or Type II modified, and low alkali. Type III cement may be used if the Tri-Calcium Aluminate of the cement is certified by the manufacturer to be between five (5) and eight (8) percent, and alkali content (Na<sub>2</sub>O) and (K<sub>2</sub>O) is less than 0.6 percent.

- The theoretical concrete unit weight shall not be more than 150 pounds per cubic foot.
- Coarse and fine aggregates shall conform to ASTM C-33-86 or ASTM C-330 lightweight aggregates for structural concrete.
- All concrete shall be air-entrained from four (4) to seven (7) percent and shall be tested in accordance with ASTM C-138, C-173, or C-231.
- Water/cement ratio shall not exceed 0.45 for lightweight concrete.
- Slump range shall be three (3) inches to six (6) inches when tested in accordance with ASTM C-143-78.
- Admixtures:
  - Air-entraining, ASTM C 260, such as, but not limited to "Protex," "Darex," "MB-VR," "Castle-VR," or "ADZ-Air."
  - Water reducing agent, ASTM C 494, Type A.
  - Use of other admixtures is subject to approval by the Agency.

**(1) Quality Control Testing** – Perform all concrete testing under the guidance by certified personnel. Certification shall be in accordance with the National Ready Mix Concrete Association guidelines or equivalent. Take samples in accordance with AASHTO T-141 or ASTM C 172. Complete the following tests and immediately report the results to the Engineer:

- Slump of Portland Cement Concrete, AASHTO T-119 or ASTM C 143: 1 for each truck delivery or batch.
- Air Content of Freshly Mixed Concrete, AASHTO T-152 or ASTM C 231: 1 for each truck delivery or batch.
- Compressive Strength of Cylindrical Concrete Specimens, AASHTO T-23 and AASHTO T-22 or ASTM C 39: 4 cylinders for each batch, daily or 2 cylinders per 20C.Y. placed, whichever is greater.

Furnish to the Engineer concrete batch tickets for each load to record and attest to the source, day, time and batch, size of load and quality of individual constituents in the load.

Additional tests may be run by the Engineer, a designated representative, or a testing firm and will be the responsibility of the Agency.

Provide at least 24 hours notice to the Engineer prior to any concrete placement so that test arrangements may be made.

**(d) Concrete Curing Compound** - colorless, complying with ASTM C-309, Type I or 1-D.

**(e) Grout and Mortar** - non-shrink grout shall be Sika 212, EUco N-S, Flve-Star, or approved equivalent non-metallic cementitious commercial grout exhibiting zero shrinkage per ASTM C-287 and CRD-C-621. Grout shall not be amended with sand or cement and shall not be reconditioned with water after initial mixing. Unused grout shall be discarded after 20 minutes and shall not be used.

## Construction

**00598.40 Form Work** – Support and brace forms sufficiently to prevent distortion of forms due to pressure of the concrete during concrete placement, vibrating of concrete, and the curing period. Form ties will not be allowed in any concrete under this Section. Remove all snow, ice, dirt, sawdust, shavings, or other debris within the forms before placing concrete.

**(a) Removal of Forms** – Assume all responsibility for determining when to remove the concrete floats from the forms without causing structural damage to the floats. Damaged floats will be rejected.

**(b) Reuse and Coating of Forms and Formliners** – Thoroughly clean forms and form liners before each use. Apply form coating and form release agent on all forms and form liners in accordance with the manufacturer's recommendations.

**00598.41 Concrete Reinforcement** – Design, furnish and construct in accordance with the requirements in this Section, the Plans, and ACI 318.

Center steel reinforcement in the cross-sectional area of the walls and deck. Accurately place and adequately support reinforcing steel or strand in final position prior to starting placement of concrete. The maximum allowable variation for center-to-center spacing of reinforcing steel is 1/2 inch.

Use full lengths of reinforcing steel whenever possible and keep the number of splices to a minimum. When splices are necessary on long runs, splices shall be alternated from opposite sides of the component for adjacent steel bars. Lap bars #4 or smaller a minimum of 12 inches. Lap bars larger than #4 a minimum of 24 bar diameters.

Bend bars cold unless otherwise approved by the Engineer.

**00598.42 Cold Weather Concrete** – Perform cold weather concrete placement in accordance with ACI 306 and the requirements in this Section.

Do not place concrete if ambient temperature is expected to be below 35° F during the curing period unless heating equipment is readily available to maintain the concrete surface temperature of at least 45° F.

Do not use materials containing frost or lumps of frozen materials.

**00598.43 Hot Weather Concrete** – Do not allow the temperature of the concrete to exceed 80° F at time of placement. When the ambient temperature reaches 90° F, the protect concrete with moist covering or other methods approved by the Engineer.

**00598.44 Placing and Consolidating Concrete** – After reinforcing steel has been placed in the forms, notify the Engineer at least 24 hours before any concrete placement to allow for the Engineer's inspection of forms and reinforcing.

Avoid segregation of concrete during placement. Place in layers not more than 24 inches deep. Do not move concrete with vibrators or tampers.



Consolidate the concrete with suitable mechanical vibrators operating within the concrete or attached to steel forms. Vibrate at any point sufficiently to accomplish compaction, but do not prolong to a point where segregation occurs.

**00598.45 Deck Finish** – Finish the float deck surface with a steel trowel and a slip-resistant finish applied transversely to the walking surface.

Establish finishing methods and procedures to insure an even and consistent broomed or screed finish on all deck surfaces.

Provide a 3/8 inch tooled radius with a minimum 1-1/2 inch wide smooth hard steel finished face on all top edges.

**00598.46 Cracks** – With the approval of the Engineer, repair cracks located below the structural deck that do not indicate migration to the deck surface.

Cracks which are open or which exceed two (2) feet in length shall be V-cut out and patched with a non-shrink patching compound approved by the Agency.

Single flotation units with cracking that is excessive, as determined by the Engineer, will be rejected and must be replaced at no additional cost to the Agency.

Fill small holes, depressions, and air or rock pockets in all surfaces with non-shrinking portland cement based patching material while concrete is still green and within one day of form removal. Furnish patch material matching the color, finish, and texture of surrounding surface.

Rock pockets exceeding one (1) inch in diameter and/or 3/8 inch in depth and/or honey combing, shall be patched with an approved non-shrink grout of a color similar to the cured concrete. Any pockets which expose mesh or rebar shall be chipped out, cleaned, filled with an approved epoxy patching compound.

Patching will not be allowed on any component with holes, chips, or exposed reinforcement totaling more than 18 cubic inches or with any defects more than 2 inches deep. Those components will be rejected and must be replaced at no additional cost to the Agency.

**00598.47 Curing, Handling, and Storage** – Except as otherwise approved by the Engineer, cure floats for a minimum of seven (7) days before transporting or assembling. Select the method of curing and be responsible for the result, except that all curing shall be under cover and with complete protection from direct sunlight, wind, and freezing for a period of seven (7) days.

Take care in establishing handling methods to avoid damage to floats during form removal, storage, assembly, and installation.

Store flotation units on level surfaces.

### **Measurement**

**00598.80 Measurement** - No measurement of quantities will be made for work performed under this Section.

## **Payment**

**00598.90 Payment** - The accepted quantities of work performed under this Section will be paid for at the Contract lump sum amount for the item "Precast Concrete Float".

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.

## SECTION 00759 - MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES

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

**00759.00 Scope** - Add the following paragraph to the end of this subsection:

This work includes furnishing and installing precast concrete wheel stops in locations shown on the plans.

Add the following subsection:

**00759.04 Concrete Wheel Stops Submittals** - Submit unstamped Working Drawings and installation details for precast concrete wheel stops for approval according to 0150.35.

**00759.80 Measurement** - Replace this subsection, except for the subsection number and title, with the following:

The quantities of Structures constructed under this Section will be measured according to the following:

- **Volume Basis** - Measurement will be limited to the Neat Lines of the finished Structure as shown or directed.

**Area Basis** - Measurement will be the finished surface, limited to the Neat Lines shown or directed.

Measurement of concrete walks will include the total area of concrete walk, including the area of concrete curb ramps within the footprint of the concrete walk.

When monolithic curb and sidewalks are measured on the area basis, measurement will include the total area of monolithic curb and sidewalk, including the area of concrete curb ramps within the footprint of the monolithic curb and sidewalk.

Measurement of concrete islands will include the total area of concrete islands, including the area of concrete curb ramps within the footprint of the concrete islands.

When concrete curb ramp construction is not adjacent to concrete walk, monolithic curb and sidewalk, or concrete island Work, the area of the concrete curb ramp Work will be included in the measurement of concrete walks.

- **Length Basis** - Measurement of concrete items will be along the face of the Structure, from end to end including curb tapers or depressed lengths at driveways and ramps. Measurement of metal handrail will be along the top rail member, from center of end post to center of end post.
- **Each Basis** - Measurement will be by actual count. Extra for Curb Ramps will be counted for each instance of where a curb ramp crosses a curb at the transition between a pedestrian facility and a roadway.

**00759.90 Payment -**

Add the following pay item to the pay item list:

(q) Concrete Wheel Stops .....Each

## **SECTION 00905 - REMOVAL AND REINSTALLATION OF EXISTING SIGNS**

Comply with Section 00905 of the Standard Specifications.

## **SECTION 00950 - REMOVAL OF ELECTRICAL SYSTEMS**

Comply with Section 00950 of the Standard Specifications modified as follows:

**00950.02 Definitions** - Add the following after the electrical systems definition:

The electrical systems to be removed under this Contract include:

1. Flood lights and supports on pier
2. Service cabinet, including support, on pier
3. Two conduits and wiring on pier from existing meter service to existing service cabinet
4. Conduit and wiring (8 conduit sleeves and 8-10 flex conduits) on gangway from existing service cabinet to existing junction boxes at bottom of gangway
5. Two junction boxes at the bottom of the gangway

**00950.42 Salvaging and Stockpiling Materials** - Add the following to the end of this subsection:

The following materials will remain the property of the Agency. Salvage, store, and protect the materials for subsequent re-installation as shown on the Plans.

1. CCTV camera system on pier

## **SECTION 00960 - COMMON PROVISIONS FOR ELECTRICAL SYSTEMS**

Comply with Section 00960 of the Standard Specifications modified as follows:

**00960.01 Regulations, Standards, and Codes** - Replace the paragraph that begins "Wherever reference is made..." with the following paragraph:

Use the code, order, or standard in effect on the date the Project is advertised unless otherwise shown.

Replace the paragraph that begins "Do not begin installations..." with the following paragraph:

Safe wiring labels normally required by the Department of Consumer and Business Services, Building Codes Division will not be required for traffic management systems listed

on the Red Sheets (see 00160.00) as allowed by ORS 479.540 and OAR 918-261-0037. The Red Sheets may be viewed on ODOT's web site.

**00960.02 Equipment List and Drawings** - Replace this subsection with the following subsection:

**00960.02 Equipment List and Drawing Submittals** - Within 30 Calendar Days after execution of the Contract, submit two copies of the Blue Sheets (see 00160.00) and two copies of the Green Sheets (see 00160.00) according to 00150.37 for all materials the Contractor proposes to install. Blue Sheets and Green Sheets will be made available to the Contractor by the Engineer.

Fill out the Blue Sheets and Green Sheets based on the Project requirements. Check off all pre-approved items to be used on the Project. When proposing write-in items, check off the box under "Write-in items" and follow the instructions. Use the current version of the Blue Sheets and Green Sheets that is in effect on the date of Advertisement.

Within 14 Calendar Days after receipt of submittals, the Engineer will review the submittals and designate them in writing as "approved", "approved as noted", or "returned for correction". Do not proceed with the Work before receiving written approval of the submittals from the Engineer.

Add the following subsection:

**00960.03 Permits** – Provide the Engineer with copies of all required electrical permits prior to performing any work.

**00960.10 Materials** - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials meeting the following requirements:

Commercial Grade Concrete.....	00440
Controlled Low Strength Materials .....	00442
Delineators .....	00840.10 and 00840.11
Metal Illumination and Traffic Signal Supports .....	00962
Selected General Backfill .....	00330.13
Selected Granular Backfill .....	00330.14
Steel Reinforcement.....	00530

Furnish electrical Materials that have been approved through the Blue Sheet and Green Sheet submittal process in 00960.02.

Anchor rods shall conform to 02560.30 and to the types and sizes shown.

Use commercially available 30 pound nonperforated asphalt-saturated felt where shown.

Use commercially available No. 10 - 0 sand when sand blanket is required.

Use commercially available UL listed insulating vinyl plastic tape where shown.

Use commercially available UL listed silicon bronze (or copper alloy) split bolt where shown.

Use commercially available galvanized steel weatherproof compression fittings where shown.

**00960.42 Conduit** - Replace this subsection, except for the subsection number and title, with the following:

**(a) Cleaning New Conduit** – Before cable and wire installation, clean all new conduit with cylindrical mandrel of the proper size for that conduit and blow out with compressed air. Mechanical pulling methods may be used for conduit cleaning.

**(b) Cleaning Existing Conduit** - Before installation of new cable(s) or wire(s) in an existing conduit, temporarily remove all existing cable(s) and wire(s). Clean existing conduit with cylindrical mandrel of the proper size for that conduit and blow out with compressed air. Mechanical pulling methods may be used for conduit cleaning. Stop work and notify the Engineer immediately if there are any difficulties cleaning the existing conduit. Reinstall existing cable(s) and wire(s) in existing conduit unless otherwise shown.

**(d) Connecting Non-Metallic Conduit to Metallic Conduit** - Use a nonmetallic female threaded connector to connect nonmetallic conduit to metallic conduit.

**00960.47 Wood Poles** - Delete this subsection.

**00960.48 Coating** - Delete this subsection.

**00960.49 Electrical Service** - Delete this subsection.

**00960.50 Grounding and Bonding** - Replace this subsection, except for the subsection number and title, with the following:

**(a) General** - Make all ground rods, metal conduit, metal poles, grounding wire, metallic junction boxes, metallic junction box covers, and cabinets mechanically and electrically secure to form a continuous, effectively grounded and bonded system.

**(b) Grounding/Bonding Wire** - Use a THWN No. 6 AWG stranded copper grounding/bonding wire in conduit or as shown. Use an un-insulated No. 4 AWG stranded copper grounding/bonding wire outside of conduit or as shown.

**(c) Ground Rods** - Ground each above ground metallic Structure with a separate ground rod.

**(1) Located in Junction Box** - Install ground rod in a junction box if shown. Drive ground rods into the ground with the top of the ground rod 2 inches to 3 inches above the bottom of the junction box to allow for an accessible clamp.

**(2) Located in Foundation** - Install ground rod in a foundation if shown, with the ground rod 2 inches to 3 inches above the top of the foundation to allow for an accessible clamp.

**(d) Services and Cabinets** - Bond the neutral conductor, the control cabinets, and the metal base to the grounding electrode system.

**(e) Structure Mounted Poles and Cabinets** – Bond all poles and cabinets mounted on Structures or walls to a common ground rod at the end of the Structure. Ground the system at the first convenient acceptable location off the Structure.

**(h) Metallic Junction Boxes and Lids** - Bond metal junction boxes and lids to form a continuous effectively grounded and bonded system with metallic conduit, grounding wire, metal standards and controller cabinets. Leave enough slack in the bond wire connected to the lid to allow complete removal of the lid. Junction boxes only containing circuits that operate at less than 25 V do not need to be bonded.

Add the following subsection:

**00960.60 Maintenance, Operation and Power Costs** - The Agency will continue normal maintenance and operations of the existing systems including the furnishing of electrical energy. Do not use for construction purposes electrical energy billed to the Agency or other agencies.

**00960.70 Electrical Energy** - Replace this subsection with the following subsection:

**00960.70 Service Cabinet and Electrical Energy** - Install service cabinet and associated equipment early on to allow the Utility to schedule its Work before project completion. Have the service cabinet inspected by the Utility providing power. Arrange for the Utility to make the electrical hookup.

The following table contains Utility contact information to arrange for the Utility to make electrical hookups:

Location	Utility	Utility Contact Person's Name, Email and Phone Number	Utility Job Number
North end of Dock 5 pier	Central Lincoln PUD	Brandy Gwynn (541)574-3643 bgwynn@cencoast.com	N/A

Add the following subsection:

**00960.71 As-Built Plans** - Upon completion of the installation, submit a red-lined copy of the original Plans noting all changes made. The information furnished shall include all modifications made and shall represent the material installed and in operation. It shall be sufficiently detailed to enable maintenance forces to replace or repair any part of the Project under routine or emergency maintenance by direct reference.

## **SECTION 00962 - METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS**

Comply with Section 00962 of the Standard Specifications modified as follows:



**00962.05(c) Illumination Supports** - Add the following to the end of this subsection:

- Valmont/Whatley TR34-20-AB-BLK-SMS-23-DTC
- Valmont/Whatley WMA-0415 (Mast Arm for Cobra head)
- Valmont/Whatley WOPAR-0.7 (Mast Arm for Flood Light)

**00962.46(j)(2)(d) Final Tightening** - In the table, replace the words "ASTM A325" with the words "ASTM F3125, Grade A325"

## **SECTION 00970 - HIGHWAY ILLUMINATION**

Comply with Section 00970 of the Standard Specifications modified as follows:

**00970.42 Cable and Wire** - Replace the paragraph that begins "Support the conductors..." with the following paragraph:

Support the conductors at the top of the pole using a flexible metal cable support grip to prevent insulation damage at the upsweep arm opening. When splicing cable into a new or existing circuit at a pole base (minimum wire length: 18 inches outside handhole), install a watertight, in-line fuse holder in the pole base for each underground wire going up the pole. This fuse holder shall be constructed so the wire to the ballast can be disconnected without cutting or disconnecting wiring at the ballast. Insulate terminal ends of the in-line fuse holder using either heat shrink tubing or electrical insulating rubber tape over-wrapped with electrical vinyl plastic tape as specified.

Add the following paragraph to the end of this subsection:

Color coding of illumination circuits will be required for three phase systems only. Color coding of each phase conductor shall remain consistent throughout the entire electrical system.

**00970.90 Payment** – add the following:

Item (d) includes modifications to the electrical system as shown on the Plans.

## SECTION 01010 - STORMWATER CONTROL, WATER QUALITY STRUCTURES

Section 01010, which is not a Standard Specification, is included for this Project by Special Provision.

### Description

**01010.00 Scope** - This work consists of furnishing and installing a water quality Structure as shown.

**01010.02 Definitions:**

**Water Quality Structure** - An underground self-activating Structure with no moving mechanical parts or external power sources which removes pollutants from stormwater runoff and retains the pollutants in the Structure.

**01010.03 Submittals** - Furnish the following water quality Structure:

SFMH48 Stormfilter, manufactured by Contech Engineered Solutions, 9025 Centre Point Dr., Suite 400, West Chester, OH 45069; ph: (800) 338-1122, [www.conteches.com](http://www.conteches.com)

Submit the following according to 00150.35:

- Unstamped Working Drawings that include the following information:
  - All design and construction details.
  - Structure plan view with dimensions.
  - Typical section with dimensions.
  - All appurtenances labeled.
  - Installation and pipe connection details.
  - Peak flow bypass details.
- Manufacturer prepared product brochures.
- Design calculations showing the water quality design flow rate and online peak flow rate requirements for each water quality Structure listed in the following table.

Drainage Facility Identification Number	Location (Station)	Contributing Impervious/Drainage Area (Acres)	On-line or Off-line	Water Quality Design Flow Rate (cubic feet per second)	On-line Water Quality Structure Peak Flow Rate (cubic feet per second)
WQ MH	n/a	0.04	On-line	0.03	0.12

## **Construction**

**01010.40 General** - Construct water quality Structures according to the manufacturer's recommendations.

**01010.41 Pipe connections** - Place connecting pipe at the required alignment and grade. Set the connecting pipe through the full thickness of the wall and flush with the inner face of the wall. Ensure that pipe connections to the Structure are watertight. Connect all pipes to water quality Structure according to the manufacturer's recommendations.

## **Maintenance**

**01010.70 Cleaning** - Remove all accumulated sediment and debris before completing the facility.

## **Measurement**

**01010.80 Measurement** - No measurement of quantities will be made for Work performed under this Section.

## **Payment**

**01010.90 Payment** - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Storm Filter Manhole, Low Drop".

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.

## SECTION 02001 - CONCRETE

Comply with Section 02001 of the Standard Specifications modified as follows:

**02001.02 Abbreviations and Definitions** - Replace this subsection, except for the subsection number and title, with the following:

- ASTV** - Actual Strength Test Value - average of test cylinder compressive strengths
- $f'_c$  - Minimum Specified Compressive Strength at 28 days
- $f'_{cr}$  - Average Compressive Strength Over-design. The average strength required to assure that, with normal variations, the concrete will meet  $f'_c$
- GGBFS** - Ground Granulated Blast Furnace Slag
- HPC** - High Performance Concrete
- HRWRA** - High-Range Water-Reducing Admixture (super-plasticizer)
- PPCM** - Precast prestressed concrete member
- SCM** - Supplementary Cementitious Materials
- SSD** - Saturated Surface-Dry
- w/cm Ratio** - Water-Cementitious Material Ratio
- WRA** - Water Reducing Admixture

**Cementitious Materials** - Portland cement and supplementary cementitious materials.

**High Performance Concrete** - Concrete designed for enhanced durability and performance characteristics. High performance concrete is identified on the Plans by the letters "HPC" in front of the concrete class designation (for example, HPC4500 - 1 1/2).

**Moderate Exposure** - Elevations below 1,000 feet.

**Pozzolans** - Fly ash, silica fume, and metakaolin.

**Severe Exposure** - Elevations 1,000 feet and above.

**Supplementary Cementitious Materials** - Fly ash, silica fume, metakaolin, and ground granulated blast furnace slag.

**02001.10 Materials** - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials meeting the requirements of the following:

Aggregates .....	02690
Cement.....	02010
Chemical Admixtures .....	02040
Concrete Modifiers .....	02035
Supplementary Cementitious Materials.....	02030
Synthetic Fiber Reinforcing .....	02045
Water.....	02020

**02001.20(a) Strength** - Replace this subsection, except for the subsection number and title, with the following:

Provide concrete meeting the required Classes shown in the Contract Documents. The class of concrete designates the minimum required compressive strength,  $f'_c$  at 28 days.

**Table 02001-1**

<b>Concrete Strength and Water/Cementitious Material (w/cm) Ratio</b>		
<b>Type of Concrete</b>	<b>Strength (PSI)</b>	<b>Maximum w/cm Ratio</b>
Structural	3300	0.50
	3300 (Seal)	0.45
	4000	0.48
	HPC4500	0.40
	5000 and Above	0.40 <sup>1</sup>
	HPC5000 and above	0.40
Drilled Shaft	4000	0.48
Paving	4000	0.44
<sup>1</sup> PPCM's with cast-in-place decks and no entrained air may have w/cm as follows: 5000 psi - 0.48; 5500 psi - 0.44; 6000 psi and up - 0.42		

**02001.30 Concrete Mix Design** - Replace the bullet that begins "Cementitious material with modifiers proportioned according..." with the following bullet:

- Cement with SCM proportioned according to 02001.31(b) and with trial batches performed to demonstrate that the proposed alternate mix design provides a maximum of 1,000 coulombs at 90 days when tested according to AASTHO T 277.

**02001.31 Concrete Constituents** - Replace this entire subsection with the following subsection:

**02001.31 Concrete Constituents:**

**(a) Portland Cement** - Use AASHTO M 85 or ASTM C150, Type I or II cement for structural or paving concrete. Use AASHTO M 85 or ASTM C150, Type III cement for precast prestressed concrete. Provide all cement from the QPL.

**(b) Supplementary Cementitious Materials** - SCM may be used separately or in combinations up to the specified maximum percentage by mass according to the following:

<b>Separate SCM</b>	<b>Maximum</b>
Fly Ash + Other Pozzolans	25%
GGBFS	50%
Silica Fume	5%

<b>Combined SCM</b>	<b>Maximum</b>
Fly Ash + Other Pozzolans + GGBFS + Silica Fume	50%*
Fly Ash + Other Pozzolans + Silica Fume	30%*

\* Fly ash + other pozzolans shall constitute no more than 25% and silica fume shall constitute no more than 5% of the total weight of cementitious materials.

When silica fume is added to truck mixed concrete, mix the batch a minimum of 100 revolutions at the mixing speed specified by the manufacturer before leaving the batch plant.

**(c) Blended Hydraulic Cement** - Blended hydraulic cement may be used subject to the limits of 02001.31(b) and 02010.20.

**(d) Chemical Admixtures** - Use chemical admixtures according to the manufacturer's recommendations. Use WRA in all seal concrete and in Class 5000 concrete or greater. Use HRWRA in all HPC.

Use a superset extender from the QPL in all concrete for bridge decks. Use an appropriate amount to extend the initial set time of the concrete by 90 minutes.

**(e) Aggregate** - If the nominal maximum size of the coarse Aggregate is not included as a part of the class of concrete, or shown on the Plans, any size from 1 1/2-inch to 3/8-inch nominal maximum size Aggregate may be used according to ACI guidelines except:

- Use 1 1/2 inch nominal maximum size Aggregates in bridge deck concrete.
- Use 1 1/2 inch nominal maximum size Aggregates in paving concrete unless otherwise indicated.
- Use 3/8 inch nominal maximum size Aggregates in drilled shafts unless otherwise indicated.

Proportion all HPC for a minimum coarse Aggregate absolute solid volume according to Table 02001-4:

**Table 02001-4**

<b>Absolute Solid Volume</b>	
<b>Maximum Nominal Aggregate Size</b>	<b>Cu. Yd. (Aggregate) / Cu. Yd. (Concrete)</b>
3/8"	0.36
1/2"	0.38
3/4"	0.40
1"	0.42
1 1/2"	0.44

Two or more Aggregate products or sources meeting Specifications may be blended to improve concrete properties. Blending non-specification Aggregate Materials, except for gradation, with specification Materials is not allowed.

**02001.35 Required Submittals for Mix Designs** - Replace this entire subsection with the following subsection:

**02001.35 Required Submittals for Mix Designs** - Submit the following information for each concrete mix design:

**(a) Supplier's Information** - Provide the supplier's unique mix design identification number and batch plant location.

**(b) Mix Design Constituent Proportions:**

- Weight per cubic yard (pounds per cubic yard) of cement, SCM, fine Aggregates and coarse Aggregates (SSD), mix water, concrete modifiers, and chemical admixtures
- Absolute volumes of cement, SCM, fine Aggregates and coarse Aggregates (SSD), mix water, air content, concrete modifiers, and chemical admixtures
- Dosage rates for chemical admixtures (ounces per cubic yard)
- w/cm ratio including all chemical admixtures

**(c) Aggregates** - Identify the Aggregate source by the ODOT source number. Report current values of the following:

- Bulk specific gravities (SSD)
- Fine Aggregate absorptions
- Coarse Aggregate absorptions
- Dry-rodded density of coarse Aggregates
- Average stockpile gradations
- Fineness modulus of sand used in the mix design calculations

**(d) Cement** - For each cement used, provide the following:

- Manufacturer
- Brand name
- Type
- Source or location plant
- QPL product number

**(e) SCM** - For each SCM used, provide the following:

- Manufacturer
- Brand name
- Source
- Class
- QPL product number

**(f) Concrete Modifiers** - For each concrete modifier used, provide the following:

- Manufacturer
- Brand name
- QPL product number

**(g) Admixtures** - For each admixture used, identify the following:

- Manufacturer
- Brand name
- Design dosage rate
- QPL product number

**(h) Synthetic Fiber Reinforcing** - For each synthetic fiber reinforcing used, provide:

- Manufacturer
- Brand name
- Design dosage rate
- QPL product number

**(i) Water** - Identify the source of water to be used and provide a certificate of compliance certifying that the water meets the requirements of 02020.10.

**(j) Plastic Concrete Tests** - Report the temperature, slump, density, air content, yield, and w/cm ratio of the trial batch or the average of these values for the cylinder sets presented for evaluation of a current mix design.

For drilled shaft concrete, report the following additional information:



- The total time estimate from initial batching through drilled shaft placement, including haul time, placing concrete, and temporary casing extraction.
- Initial slump test results and subsequent results at 15-minute intervals, verifying a minimum slump of 4 inches is maintained for the total time estimated for drilled shaft placement, including temporary casing extraction. Report data in a table or graph format.

**(k) Compressive Strength Test Results** - Report the individual test results and the ASTV of cylinders from the trial batch for new mix designs. For current designs, provide the individual tests and the average of the cylinder sets presented for evaluation.

**(l) Strength Analysis** - Provide an analysis, showing all calculations, demonstrating that the mix design meets the requirements of 02001.33.

**(m) Quality Control Personnel** - Provide the name and certification number of the CCT who prepared the mix design, the QCT who performed the plastic concrete tests and cast the test cylinders, the CSTT who tested the cylinders, and the ODOT certification number of the laboratory where the cylinders were tested.

## **SECTION 02510 - REINFORCEMENT**

Comply with Section 02510 of the Standard Specifications modified as follows:

**002510.10 Deformed Bar Reinforcement** - Replace this subsection, except for the subsection number and title, with the following:

Furnish deformed bar reinforcement from the QPL and conforming to the requirements of ASTM A706, AASHTO M 31 (ASTM A615), or AASHTO M 334 (ASTM A1035 CS). Unless otherwise specified or shown, all reinforcing bars shall be Grade 60.

## **SECTION 02520 - STEEL AND CONCRETE PILES**

Comply with Section 02520 of the Standard Specifications modified as follows:

**02520.10(b) Steel Pipe Piles** - Replace this subsection, except for the subsection number and title, with the following:

Steel pipe piles shall be either spirally welded or longitudinally welded, and shall be constant in section. Steel piles shall conform to ASTM A252 or API 5L and the grade shown.

## SECTION 02530 - STRUCTURAL STEEL

Comply with Section 02530 of the Standard Specifications modified as follows:

**02530.70 Galvanizing** - Replace the paragraph that begins "Steel that will be finished by hot-dip galvanizing..." with the following paragraph:

Steel that will be finished by hot-dip galvanizing for use as sign bridges, illumination poles, traffic signal poles, sign supports, bridge rail and items designated on the Plans as "Galvanize - Control Silicon" shall have controlled silicon content. The silicon content shall be in either of the ranges 0 - 0.06 percent or 0.13 - 0.25 percent. Before galvanizing, submit mill test certificates verifying silicon content to the Engineer and the galvanizer.

## SECTION 02560 - FASTENERS

Comply with Section 02560 of the Standard Specifications modified as follows:

**02560.10(b) Nuts**— Replace this subsection, except for the subsection number and title, with following:

Nuts for carbon steel bolts shall conform to the requirements of the following, or equivalent:

### Plain (Noncoated) Bolts:

- 1/4" - 1 1/2" - ASTM A563, Grade A, hex
- Over 1 1/2" - 4" - ASTM A563, Grade A, heavy hex

### Galvanized Bolts:

- All - ASTM A563, Grade A, C, D, or DH, heavy hex

**02560.20(a) Bolts** – Replace this subsection, except for the subsection number and title, with following:

High-strength bolts used in noncoated weathering steel connections shall be Type 3. High-strength bolts shall conform to the requirements of the following:

### Heavy Hex Head:

- ASTM F3125, Grade A325

### Twist-Off:

- ASTM F3125, Grade F1852

**02560.20(b) Nuts** – Replace this subsection, except for the subsection number and title, with following:

Nuts for high-strength bolts shall conform to the requirements of the following, or equivalent:

**Type 1 Plain (Noncoated) Bolts:**

- All - Heavy hex ASTM A563, Grade C, D, or DH

**Type 1 Galvanized Bolts:**

- All - Heavy hex ASTM A563, Grade DH

**Type 3 Bolts:**

- All - Heavy hex ASTM A563, Grade C3 or DH3

**02560.20(f) Lock-Pin and Collar Fasteners** - Delete this subsection.

**02560.30(c) Nuts** – Replace this subsection, except for the subsection number and title, with following:

Nuts for tie rods, anchor bolts, and anchor rods shall conform to the requirements of the following, or equivalent:

**Plain Steel Tie Rods, Anchor Bolts, and Anchor Rods:**

- All - Heavy hex ASTM A563, Grade A

**Galvanized Steel Tie Rods, Anchor Bolts, and Anchor Rods:**

- All - Heavy hex ASTM A563, Grade A, C, D, or DH

**Plain Or Galvanized High-Strength Tie Rods, Anchor Bolts, or Anchor Rods:**

- All - Heavy hex ASTM A563, Grade DH

**02560.40 Galvanizing and Coating** - Replace this subsection with the following subsection:

**02560.40 Galvanizing and Coating:**

**(a) High Strength Fasteners** - When specified, hot-dip galvanize Grade A325 fasteners or mechanically deposit zinc to Grade F1852 fasteners according to ASTM F3125.

**(b) Tie Rods, Anchor Bolts, Anchor Rods and Carbon Fasteners** - Hot-dip galvanize, tie rods, anchor bolts, anchor rods, nuts, washers and carbon fasteners according to ASTM F2329 as appropriate to the product.

Overtap nuts for galvanized fasteners, galvanized tie rods, galvanized anchor bolts, and galvanized anchor rods according to ASTM A563.

Measure the zinc thickness on the wrench flats or top of bolt head of galvanized bolts and on the wrench flats of galvanized nuts.

**(c) Direct Tension Indicators** – When specified, apply mechanically deposited zinc according to ASTM F959.

**(d) Repair of Hot-Dip Galvanizing** - Repair damaged hot-dip galvanizing according to ASTM A780. Minimum zinc content for Method A2 is 94 percent on the dry film.

**02560.60(b) Other Test Requirements** - In the paragraph that begins "Wedge test all bolts according..." replace the words "AASHTO M 164 (ASTM A325)" with the words "ASTM F3125, Grade A325 or Grade F1852".

**02560.70 Lubricating Fasteners** - Replace this subsection, except for the subsection number and title, with following:

Furnish all galvanized and coated fasteners with a factory applied commercial water-soluble wax that contains a visible dye of a color that contrasts with the color of galvanizing or coating. Black fasteners shall be "oily" to the touch when installed.

Field lubricate galvanized bolts in tapped holes, galvanized anchor rods, and galvanized tie rods with a lubricant from the QPL. Apply lubricant to threads and to bearing surfaces that will turn during installation.

Protect fasteners from dirt and moisture at the Project site.

Retest heavy hex head fasteners that do not pass the field rotational capacity test. Clean and relubricate heavy hex head fasteners with a lubricant from the QPL prior to retesting.

Relubrication of Twist-Off fasteners is not permitted.

## **SECTION 02690 - PCC AGGREGATES**

Replace Section 02690 of the Standard Specifications with the following Section 02690:

### **SECTION 02690 - PCC AGGREGATES**

#### **Description**

**02690.00 Scope** - This Section includes the requirements for coarse and fine aggregates for portland cement concrete.

**02690.01 Definitions:**

**Coating** - Foreign or deleterious substances found adhering to the aggregate particles.

**Detrimental Materials** - Materials that adversely affect concrete, including but not limited to clay, shale, mica, silt, bark, alkali, sticks, organic matter, soft and flaky particles.

**Nominal Maximum Size Of Aggregate** - One sieve larger than the first sieve that retains more than 10 percent of the material using an agency specified set of sieves based on cumulative percent retained. Where large gaps in specification sieves exist, intermediate sieves may be inserted to determine nominal maximum size.

### **Materials**

**02690.10 Materials** - PCC Aggregates shall consist of natural or crushed rock that is hard, strong, durable and free from adherent coatings or other detrimental materials.

Produce, handle and store the aggregates in a way that will maintain passing material properties and avoid introducing deleterious materials or segregation prior to its use in portland cement concrete.

**02690.11 Alternate Grading** - The Contractor may request approval to produce coarse and fine aggregates in sizes other than those stated in 02690.20 and 02690.30. The request shall be in writing, and shall state the proposed target value and specified tolerances for each of the individual sieve sizes of the materials the Contractor proposes to produce.

**02690.12 Acceptance of Aggregate** - Acceptance of aggregate will be according to Section 00165 and based on the Contractor's quality control testing, if verified, according to Section 00165.

**(a) Aggregate Gradation** - A stockpile contains specification aggregate gradation when the quality level for each sieve size calculated according to 00165.40 is equal to or greater than the quality level indicated in Table 00165-2 for a PF of 1.00. Each required sample represents a subplot. When the quality level indicated in Table 00165-2 yields a PF of less than 1.00 for any constituent, the material is non-specification.

**(b) Non-specification Aggregate Gradation** - Stockpiled aggregates that contain non-specification aggregate gradation will be rejected by the Engineer unless non-specification material is removed from the stockpile. Do not add additional material to the stockpile until enough non-specification material is removed so that the quality level for each constituent is equal to or greater than the quality level in Table 00165-2 for a 1.00 PF.

Reprocessing of non-conforming material and the testing required for acceptance will be at no additional cost to the Agency. Acceptance of reprocessed material will be based on passing test results or accepted visually by the Engineer.

**02690.20 Coarse Aggregate:**

**(a) Harmful Substances** - Harmful substances shall not exceed the following limits:

Test	Test Method		Percent (by Weight)
	ODOT	AASHTO	
Lightweight Pieces	–	T 113	1.0
Material passing No. 200 sieve	–	T 11	1.0
Wood Particles	TM 225	–	0.05

**(b) Soundness** - Coarse aggregates for concrete shall be tested for soundness using sodium sulfate salt, according to AASHTO T 104. The weighted percentage loss shall not exceed 12 percent by weight.

**(c) Durability** - Coarse aggregates shall meet the following durability requirements:

Test	Test Method		Requirements
	ODOT	AASHTO	
Abrasion	–	T 96	30.0% Max.
Oregon Air Aggregate Degradation:			
Passing No. 20 sieve	TM 208	–	30.0% Max.
Sediment Height	TM 208	–	3.0" Max.

**(d) PCC Paving Aggregate** - In addition to requirements above, comply with the following:

**(1) Fracture** - Provide aggregate with at least two fractured faces on at least 50 percent of the particles retained on the 3/8 inch, 1/2 inch, 3/4 inch, 1 inch, and 1 1/2 inch sieves, as determined by AASHTO T 335.

**(2) Elongated Pieces** - Provide aggregate with elongated pieces not exceeding 10 percent by weight of the material retained on the No. 4 sieve when tested according to ODOT TM 229 with the proportional caliper device set at a ratio of 5:1.

**(e) Grading and Separation by Sizes for Prestressed Concrete** - Sampling shall be according to AASHTO T 2 and sieve analysis shall be determined according to AASHTO T 27 and AASHTO T 11. PCC coarse aggregate shall conform to grading and separated sizes as follows:

**(1)** Where indicated in Table 02690-1, the coarse aggregate shall be separated into two sizes and each separated size shall be measured into the batch in the quantity determined by the mix design.

For each of the indicated maximum sizes of coarse aggregates, the separated sizes shall be as indicated in Table 02690-2:

**Table 02690-1**

Maximum Nominal Size of Aggregates	Separated Sizes
1"	1" - No. 4
3/4"	3/4" - No. 4
3/4"	3/4" - 1/2" and 1/2" - No. 4

3/4"

3/4" - 3/8" and 3/8" - No. 4

(2) The grading of each of the specified separated sizes of coarse aggregate shall conform to the following:

**Table 02690-2**

**Separated Sizes**

**Sieve Size 1" - No. 4 3/4" - No. 4 3/4" - 1/2" 3/4" - 3/8" 1/2" - No. 4 3/8" - No. 4**  
**Percent Passing (by Weight)**

1 1/2"	100	—	—	—	—	—
1"	90 - 100	100	100	100	—	—
3/4"	50 - 80	90 - 100	85 - 100	85 - 100	100	100
1/2"	—	—	0 - 15	—	85 - 100	—
3/8"	15 - 40	20 - 50	—	0 - 15	35 - 65	85 - 100
No. 4	0 - 10	0 - 10	—	—	0 - 15	0 - 15
No. 200	*	*	*	*	*	*

\* See 02690.20(a). Do not evaluate material passing the No.200 sieve according to 00165.40.

(f) **Grading and Separation by Sizes for Other Concrete** - Sampling shall be according to AASHTO T 2. Sieve analysis shall be according to AASHTO T 27 and AASHTO T 11. Provide aggregates meeting the gradation requirements of Tables 02690-3 and 02690-4 for structural concrete. Provide a CAgT to perform sampling and testing when required.

**Table 02690-3**

**Gradation of Coarse Aggregates**

**Sieve Size**  
**Combined\* Sizes 1 1/2" - No. 4**  
**Separated Sizes 1 1/2" - 3/4"**  
**Separated Sizes 1" - No. 4**  
**Separated Sizes 3/4" - 1/2"**

**Percent Passing (by Weight)**

2"	100	100	—	—
1 1/2"	90 - 100	90 - 100	100	—
1"	70 - 89	20 - 55	90 - 100	100
3/4"	35 - 70	0 - 15	—	85 - 100
1/2"	—	—	25 - 60	0 - 15
3/8"	10 - 30	0 - 5	—	—
No. 4	0 - 5	—	0 - 10	—
No. 8	—	—	0 - 5	—
No. 200	**	**	**	**

\* For 1 1/2 inch coarse aggregate use two or more separated sizes which when combined shall meet the gradation limits for 1 1/2" - No. 4

\*\* See 02690.20(a). Do not evaluate material passing the No. 200 sieve according to 00165.40.

**Table 02690-4  
Gradation of Coarse Aggregates**

Sieve Size	Separated Sizes	Separated or Combined Sizes	Separated Sizes	Separated Sizes
	3/4" - 3/8"	3/4" - No. 4	1/2" - No. 4	3/8" - No. 8
	<b>Percent Passing (by Weight)</b>			
1"	100	100	—	—
3/4"	90 - 100	90 - 100	100	—
1/2"	20 - 55	—	90 - 100	100
3/8"	0 - 15	20 - 55	40 - 70	85 - 100
No. 4	0 - 5	0 - 10	0 - 15	10 - 30
No. 8	—	0 - 5	0 - 5	0 - 10
No. 16	—	—	—	0 - 5
No. 200	*	*	*	*

\* See 02690.20(a). Do not evaluate material passing the No. 200 sieve according to 00165.40.

**02690.30 Fine Aggregates:**

**(a) Different Sources** - Do not mix fine aggregates from different sources of supply, or store in the same pile. Do not use alternately in the same class of mix, without prior approval.

**(b) Harmful Substances** - The amount of harmful substances shall not exceed the following limits:

Test	Test Method (AASHTO)	Percent (by Weight)
Lightweight Pieces	T 113	2.0%
Material passing No. 200 sieve	T 11	3.0%

**(c) Soundness** - Fine aggregate shall be tested for soundness using sodium sulfate salt, according to AASHTO T 104. The weighted percentage loss shall not exceed 10 percent by weight.

**(d) Organic Impurities** - All fine aggregate shall meet the requirements of AASHTO M 6 for organic impurities.

**(e) Sand Equivalent** - Fine aggregate shall be tested according to AASHTO T 176 and shall have a sand equivalent of not less than 75.

**(f) Sand for Mortar** - Sand for mortar shall conform to the requirements of this Section.

**(g) Grading** - Sampling shall be according to AASHTO T 2. Sieve analysis shall be determined according to AASHTO T 27 and AASHTO T 11. Provide aggregates meeting the gradation requirements of Table 02690-5 for structural concrete. Provide a CAgT to perform sampling and testing when required.



**Table 02690-5**  
**Gradation of Fine Aggregate\***

Sieve Size	Percent Passing (by Weight)
3/8"	100
No. 4	90 - 100
No. 8	70 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	5 - 30
No. 100	0 - 10
No. 200	**

\* Determine the fineness modulus according to AASHTO T 27 and AASHTO T 11. Maintain the fine aggregate fineness modulus within plus or minus 0.20 from the fineness modulus used in the Contractor's mix design. Fine aggregates in which the fineness modulus varies by more than 0.20 from the mix design target shall not be incorporated until an assessment is done to determine whether an adjustment in the aggregate proportions is necessary. Proportion changes must be performed by a CCT according to the provisions of ACI 211. Submit analysis of FM and mix design adjustments to the Engineer for approval.

\*\* See 02690.30(b). Do not evaluate material passing No. 200 sieve according to 0165.40.

## SECTION 02926 - HIGHWAY ILLUMINATION MATERIALS

Comply with Section 02926 of the Standard Specifications modified as follows:

**02926.54 LED Luminaires** - Replace subsections (a) and (b) with the following:

Furnish one of the following approved models or an approved equal:

- CREE LED RSWS-A-HT-3L-30K8-UL-BK-N (Cobra Head)
- CREE LED OSQ-A-AA-4ME-B-30K-UL-BK (Flood Light)
- CREE Mount OSQ-AABK (For Flood Light)

**02926.54(c) Submittals** - Replace the paragraph that begins "Within 21 Calendar Days..." with the following paragraph:

Within 21 Calendar Days after receipt of submittals, the Engineer will review the submittals and designate them in writing as "approved", "approved as noted", or "returned for correction". Do not begin LED luminaire installation before receiving written approval of submittals from the Engineer.