SECTION 00253 - TEMPORARY WORK ACCESS AND CONTAINMENT

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include it in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and State Specifications Engineer for review and approval.)

(Use only one of the following lead-in paragraphs as instructed below.)

[Use the following lead-in paragraph when NONE of the following subsections are included in the project special provisions.]

Comply with Section 00253 of the Standard Specifications.

[Use the following lead-in paragraph when ANY of the following subsections are included in the project special provisions.]

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

(Use the following subsection .00 to describe the required temporary work access and containment for the project. Repeat the paragraph as necessary to list all work surfaces requiring containment. Delete "(s)" or parentheses as applicable.)

00253.00 Scope - Add the following paragraph(s) to the end of this subsection:

(Insert the Structure No. in the first blank. Insert a description of the work surfaces requiring temporary work access and containment in the second blank. Insert the applicable bridge spans in the third and fourth blanks.)

On Structure No. ____, provide temporary work access and containment, heating, and ventilating systems for __*(Insert description of work surfaces requiring work access and containment)*__ on spans _____ through _____.

(Use the following subsection .01 when work platforms and containment are allowed on a bridge. Fill in the blanks with the dates that work platforms and containment are allowed on the bridge.)

00253.01 General - Add the following paragraph to the end of this subsection:

Work platforms and containment are allowed on the bridge only between ____ and ____.

(Use the following lead in paragraph and subsection .02 when any of the following definitions are applicable to the work. Delete definitions for terms that do not appear in this section of the specifications.)

Add the following subsection:

00253.02 Definitions:

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

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

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

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

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

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

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

Span - A section of bridge superstructure between piers.

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

00253.03 Submittals - Add the following paragraph and bullets to the end of this subsection:

Submit the following:

(Delete bulleted items that are not applicable.)

- Stamped design calculations assuring that the bridge structural members can safely resist the combined effects of dead loads, live loads, and wind loads
- Stamped Working Drawings clearly defining dimensional limits and loading limits that satisfy the conditions listed in 00253.09 for exemption from design calculations for the bridge structural members. Identify the work platform, scaffolding, and containment system dead load (in pounds per square foot) in the loading note, and identify the maximum allowable accumulations of collected debris or water (inches depth) allowed in conjunction with the number of workers allowed and the concentrated loads (in pounds) of equipment and materials to be used within the structure. Identify the maximum wind speed at which containment wall materials remains on the structure.
- Stamped work platform and scaffolding Working Drawings, specifications and design calculations
- Stamped heating and ventilating Working Drawings, specifications and design calculations. Include in the Working Drawings a view showing the size (length by

width by height) and location of each containment to be used, and identifying the heating and air moving equipment (manufacturer, model, and capacity in cubic feet per minute), for each containment.

- Stamped barge plans detailing equipment layout, spuds, anchorages and equipment anchorages, and calculations including barge load capacity, balance and stability, strength of spuds and anchorages, and strength of equipment anchorage
- Specifications describing how barges are kept within safe load and balance/stability limits, and how the outfitting, operation, and maintenance of the barges comply with the operational, safety and environmental requirements according to 00290.30
- Stamped Working Drawings and calculations of the work bridges or trestles

(Fill in the blank with one of the following:

- ***The allowable equivalent live load class according to 3.7.2 of the AASHTO Standard Specifications for Highway Bridges;***
- ***Class of live load the bridge was designed for, such as HS20-44;***
- ***The posted load provided by the load rating; or***
- ***Load per square feet if no other information available.***

Provide vehicle descriptions if specifying equivalent vehicle loading.)

- Stamped calculations showing that equipment, vehicles, and supplies placed in a closed lane do not exceed the equivalent of _____ loading

00253.05 Containment Requirements Replace the paragraph that begins "Contain work debris that is generated from dry abrasive basting…" with the following paragraph:

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

Replace the paragraph that begins "Contain work debris that is generated from hand tool or power tool…" with the following paragraph:

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

(Use the following four paragraphs when field painting on any structure over a body of water.)

Add the following to the end of this subsection:

When field painting over a body of water with brushes, rollers, or daubers, contain paint drips with rigid containment floor decking or free-hanging tarpaulins, provided that the

tarpaulins capture and control paint drips to the same degree as the Class 1P containment requirements of SSPC-Guide 6.

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

Comply with the requirements of 00290.30.

Add the following subsection:

00253.09 Work Platform, Scaffolding and Containment Structural Design Requirements -

(Fill in the blank in the following paragraph with the basic wind speed. Determine the basic wind speed, taken as 90 mph for special wind regions as indicated in ASCE 7-10 Figure 26.5-1A and 72 mph outside special wind regions.)

Design work platforms, scaffolding, and containment structures for dead load, live load, and wind load with a basic wind speed of ___ mph, applied in the most critical direction. For structures with fundamental frequency less than 1 Hz, design for wind loads accounting for structural dynamic effects.

Provide designs with a factor of safety of at least six for wire ropes and connecting hardware and at least four for all other components for containment structure and work platform components.

Verify structural adequacy of the bridge with added loading from containment structures and work platforms using AASHTO Standard Specifications for Highway Bridges, Group II, III, V, and VI load combinations.

(Use the following paragraph and bullets to describe conditions that are allowable without structural analysis of the span if the work platforms and containments are placed symmetrically on the span [i.e. each end of the span is loaded equally]. This language may be repeated as necessary to address different spans of the bridge. List the span description, allowable work platform loading, allowable point loading & spacing, allowable projected area of containment(s) above and below a limiting wind speed for wind transverse to roadway, allowable projected area of containment(s) above and below a limiting wind speed for wind parallel to roadway, and allowable protrusion of platform(s) & containment(s) below the structure.)

For containment structures positioned symmetrically on any span, design calculations for the bridge structural members are not required if all of the following conditions are satisfied:

- Total combined live load and dead load of all work platforms and containment structures supported by the span, including all personnel, equipment, materials, and collected debris or water, does not exceed ___ pounds per square foot.
- Point loads do not exceed ___ pounds at each point and point loads are spaced at least ___ feet in both horizontal directions. Point loads are applied to deck within one

foot of a girder, cross beam, or diaphragm, or directly to a girder, cross beam or diaphragm.

(Use the following bullet when a temporary structural system is <u>NOT</u> provided to fully resist transverse wind forces applied to the platform(s) & containment(s). Fill in the first blank with "a single" or a description of a specific span, depending on the need for specific loading requirements.)

- For winds transverse to roadway, total combined projected area of containments installed on ___ span does not exceed ___ square feet if wind speeds are at or below ___ mph and does not exceed ___ square feet if wind speeds are above ___ MPH.

(Use the following bullet when a temporary structural system is <u>NOT</u> provided to fully resist longitudinal wind forces applied to the platform(s) & containment(s). Fill in the first blank with "a single" or a description of a specific span, depending on the need for specific loading requirements.)

- For winds parallel to roadway, total combined projected area of containments installed on ___ span does not exceed ___ square feet if wind speeds are at or below ___ mph and does not exceed ___ square feet if wind speeds are above ___ mph.

(Use the following bullet when there is a limitation on how far the containment or work platform can extend below the structure.)

- Containment and work platforms do not extend more than ___ feet below bottom of existing structure.

(Use the following paragraph and bullets to describe conditions that are allowable without structural analysis of the span if the work platforms and containments are placed asymmetrically on the span [i.e. each end of the span is loaded differently]. This paragraph may be repeated as necessary to address different spans of the bridge. List the span description, allowable work platform loading, allowable point loading & spacing, allowable projected area of containment(s) above and below a limiting wind speed for wind transverse to roadway, allowable projected area of containment(s) above and below a limiting wind speed for wind parallel to roadway, and allowable protrusion of platform(s) & containment(s) below the structure. Fill in the blank with "a single" or a description of a specific span, depending on the need for specific loading requirements.)

For containment structures positioned asymmetrically on ___ span, design calculations for the bridge structural members are not required if all of the following conditions are satisfied:

- Total combined live load and dead load of all work platforms and containment structures supported by the span, including all personnel, equipment, materials, and collected debris or water, does not exceed ___ pounds per square foot.
- Point loads do not exceed ___ pounds at each point and point loads are spaced at least ___ feet in both horizontal directions. Point loads are applied to deck within one foot of a girder, cross beam, or diaphragm.

(Use the following bullet when a temporary structural system is NOT provided to fully resist transverse wind forces applied to the platform(s) & containment(s). Fill in the first blank with "a single" or a description of a specific span, depending on the need for specific loading requirements.)

- For winds transverse to roadway, total combined projected area of containments installed on ___ span does not exceed ___ square feet if wind speeds are at or below ___ mph and does not exceed ___ square feet if wind speeds are above ___ mph.

(Use the following bullet when a temporary structural system is NOT provided to fully resist longitudinal wind forces applied to the platform(s) & containment(s). Fill in the first blank with "a single" or a description of a specific span, depending on the need for specific loading requirements.)

- For winds parallel to roadway, total combined projected area of containments installed on ___ span does not exceed ___ square feet if wind speeds are at or below ___ mph and does not exceed ___ square feet if wind speeds are above ___ mph.

(Use the following bullet when there is a limitation on how far the containment or work platform can extend below the structure.)

- Containment and work platforms do not extend more than ___ feet below bottom of existing structure.

For movable containment structures, provide positive restraint to prevent movement except when containment structures are being relocated.

(Replace "XX.XXXXX" with the latitude and "XXX.XXXXX" with the longitude of nearest weather station, in 5 decimal place format in degrees (Example: Replace "XX.XXXXX" with "43.381159" and "XXX.XXXXX" with "124.23273").)

If removal of containment walls is used to comply with projected area limits at high wind speed, removal is required when actual wind speed or predicted wind speed exceeds allowable limits. 24-hour weather watch is required during non-work times. Predicted wind speeds are obtained from:

forecast.weather.gov/MapClick.php?lat=XX.XXXX&lon=-XXX.XXXX&unit=0&lg=english&FcstType=graphical

(Select one of the options in orange parentheses, delete the option that does not apply, and delete all orange parentheses.)

Actual wind speeds are measured using ***(***a handheld wind speed measuring instrument with certified accuracy 3% of reading***)(***an ODOT provided wind meter***)***.

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.

(Use the following lead in paragraph and subsection .43 when there is a need to list the plan sheets detailing structural repairs that must be completed before platform and containment installation.)

Add the following subsection:

00253.43 Structural Repairs - Complete the structural repairs detailed on plan sheets _____ through _____ before installation of work platform or containment.

(Use the following lead in paragraph and subsection .44 when the project contains a bridge over navigable water.)

Add the following subsection:

00253.44 Marine Traffic Restrictions -

(Use the following paragraph when a bridge may <u>NOT</u> be closed to marine traffic. Fill in the blank with the bridge number.)

Bridge No. _____ may not be closed to marine traffic.

(Use the following paragraph to list the dates of allowable marine traffic partial closure. Fill in the blank with the bridge number and the dates of allowable partial closure.)

U.S. Coast Guard approval has been obtained for partial closure of Bridge No. ____ to marine traffic between ____ and ____.

(Use the following lead in paragraph and subsection .45 when the project contains a structure over a navigable waterway.)

Add the following subsection:

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

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

(Use the following lead in paragraph and subsection .46 when required to provide a staging area by closing a lane or shoulder. Coordinate the closure with ODOT Traffic Section during project design. The closure is allowable if the bridge can safely support all permit loads, the allowable work platform & containment loading detailed in 00253.09~~12~~, temporary concrete barrier (if applicable), and the staging area loading detailed in this subsection.

Fill in the blanks with one of the following:

- ***The allowable equivalent live load class according to 3.7.2 of the AASHTO Standard Specifications for Highway Bridges;***
- ***Class of live load the bridge was designed for, such as HS20-44;***
- ***The posted load provided by the load rating; or***
- ***Load per square feet if no other information available.***

Provide vehicle descriptions if specifying equivalent vehicle loading.)

Add the following subsection:

00253.46 Staging Area - When lane or shoulder closures are allowed, equipment, vehicles, and supplies may be placed in the closed traffic lane or shoulder on the bridge. Within a closed lane, one vehicle operating under D.O.T. overload permit will be allowed on each bridge span and the combined effect of all loads in the closed lane will be limited to the equivalent of ____ loading on each bridge span.

Actual loading does not exceed the equivalent of ____ loading if the actual loading produces maximum shear and bending moment less than that produced by one lane of ____ loading on a beam of the same span.