

# ORBA/MTO STRUCTURES TECHNICAL SUBCOMMITTEE MEETING NOTES (REVISION)

**Date:** May 12, 2023  
**Time:** 10:00 am to 1:00 pm  
**Location:** Hybrid meeting hosted by ORBA, Microsoft Teams and Road House Boardroom, 365 Brunel Road, Unit #1; Mississauga, ON, L4Z 1Z5

ATTENDEE	ORGANIZATION
Bart Kanters	Concrete Ontario
Dale Gaston	Algonquin Bridge Limited
Denton Hall	CRH Canada Group Inc.
Doubra Ambaiowei	ORBA, Technical Services Division
Jon Vallieres	Looby Contracting Ltd.
Mark Podhorski	Bot Construction Limited
Matt Mayer	GIP Inc.
Mike Doupe	Mclean Taylor Construction Ltd.
Richard Mulder	Decast Ltd.
Steven D’Orazio	Clearwater Structures Inc.
Tim Smith	Cement Association of Canada
Jesse Hopkins	Powell Contracting Limited

ATTENDEE	ORGANIZATION
Kevin English (co-chair)	MTO, Contract Management Office
Andrew Turnbull	MTO, Structural
Bo Ni	MTO, Engineering Materials Office
James Combe	MTO, Structures Office
Joel Magnan	MTO, Engineering Materials Office
Melissa Titherington	MTO, Engineering Materials Office
Rebecca Li	MTO, Contract Management Office
Walter Kenedi	MTO, Structures Office

<b>INTRODUCTION / ANNOUNCEMENTS</b>		
<ul style="list-style-type: none"> <li>Michelle McGrath, MTO has left the subcommittee.</li> <li>Kevin English, MTO has joined the subcommittee.</li> </ul>		
<b>REVIEW/APPROVAL OF PREVIOUS NOTES</b>		
<ul style="list-style-type: none"> <li>No comments were received for the November 2022 meeting notes, and they were posted to the MTO Technical Consultation Portal on May 5, 2023, in advance of the meeting.</li> </ul>		

<b>NEW ITEMS</b>		<b>Action</b>
Nov 22-1	<p><b>Safety Talk</b></p> <ul style="list-style-type: none"> <li>It was agreed at the May 2022 meeting that this would be a recurring item to promote safety culture. MTO and ORBA are both free to propose their own safety talk items.</li> <li>ORBA and MTO will alternate who is responsible for the safety talk at each meeting. This meeting the safety talk was led by ORBA.</li> <li>ORBA reinforces/reiterates that every safety item in construction is important and highlights critical injuries/fatalities around the use of ladders. The IHSA <i>Ladder Use in Construction Guideline</i> hasn't been updated since 2018 and members are encouraged to review the document and suggest improvements, if required, to IHSA.</li> </ul>	
May 23-1	<p><b>State of Practice for Trenchless Construction Survey</b></p> <ul style="list-style-type: none"> <li>MTO's trenchless working group developed a questionnaire early this year with the purpose of updating and improving trenchless technology practices. This survey was circulated previously, but no responses were received from contractors. An extension for the survey response time is being provided to seek input. It was requested that this subcommittee distribute the questionnaire to members who are familiar with trenchless work for MTO contracts.</li> </ul> <p><b>ACTION:</b></p> <ul style="list-style-type: none"> <li>MTO sent the questionnaire hyperlink during the meeting.</li> <li>ORBA will distribute the questionnaire to membership.</li> </ul>	<b>MTO ORBA</b>
May 23-2	<p><b>OPSS 904 Update</b></p> <ul style="list-style-type: none"> <li>OPSS 930 references OPSS 904 so there has been interpretation on site that form and pump concrete requires internal vibration. ORBA to provide examples. (Nov 19-2)</li> <li>ORBA will provide bonding agent proprietary product information to MTO for review. (Nov 19-3)</li> <li>MTO will review cold weather concrete requirements. (Nov 19-4)</li> <li>MTO will review sandblasting and power washing requirements for new concrete. (Nov 19-5)</li> <li>MTO will review fog misting systems requirements. (Nov 19-6)</li> <li>ORBA asked if the OPSS 904 draft will be ready for review prior to the next meeting in September.</li> <li>MTO is currently targeting November publication and TCP is now the forum for document review, but MTO will provide a copy of the draft when it is available.</li> </ul> <p><b>Action Item:</b></p> <ul style="list-style-type: none"> <li>The following items are consolidated into one OPSS 904 item (May 23-2):             <ul style="list-style-type: none"> <li>Nov 19-2</li> <li>Nov 19-3</li> </ul> </li> </ul>	

	<ul style="list-style-type: none"> <li>Nov 19-4</li> <li>Nov 19-5</li> <li>Nov 19-6</li> </ul>	
May 23-3	<p><b>Foundation Information Reports</b></p> <ul style="list-style-type: none"> <li>ORBA requested to include the recommendations section of the FIR with tender documents. Some other DOTs provide the description of the soils as well as the recommendations.</li> <li>MTO will review what subsoil investigation information is provided with tender documents.</li> </ul>	<b>MTO</b>
May 23-4	<p><b>Testing GU and GUL Cement to LS Methods</b></p> <ul style="list-style-type: none"> <li>ORBA noted LS-423 has verbal acceptance to test with GUL cement. There are other LS test methods that still require GU cement, but it is not available for the tests.</li> <li>MTO is still investigating the other test methods. Studies are still in progress, but some information was published about the correlation between the two types. Prism testing takes a long time to complete and is ongoing.</li> </ul>	

<b>OPEN ITEMS</b>		<b>Action</b>
Nov 22-2	<p><b>Subcommittee Terms of Reference (TOR)</b></p> <ul style="list-style-type: none"> <li>MTO has committed to making Terms of Reference for all stakeholder subcommittees. This commitment is the result of a 2016-2017 audit recommendation regarding stakeholder engagements.</li> <li>Terms of Reference will be sent to ORBA for review/comments. Once the subcommittee's have reviewed the documents, they will be sent to the executive for endorsement.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Details of the TOR were sent to the subcommittee for feedback, and it has been posted to the MTO Technical Consultation Portal. Any future feedback will be communicated with MTO.</li> <li>Item closed.</li> </ul>	
Nov 22-3	<p><b>Meeting Notes Publication</b></p> <ul style="list-style-type: none"> <li>The MTO has committed to making stakeholder engagements public. This commitment is the result of a 2016-2017 audit recommendation regarding stakeholder engagements.</li> <li>From this point, moving forward, all meeting notes will be published on the Technical Consultation Portal (TCP). The notes are not for consultation, there will be an additional tab added for meeting notes.</li> <li>Notes will not be posted on TCP until they have been reviewed and endorsed by the subcommittee.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>No comments were received on the draft notes for the November 2022 meeting.</li> <li>There is a new section on the TCP for committees and meeting notes are now being published there. The November 2022 meeting was the first published notes for this subcommittee.</li> <li>Item closed.</li> </ul>	
Nov 22-4	<p><b>Waterproofing Membrane Bubbling</b></p> <ul style="list-style-type: none"> <li>There has been a quality issue with waterproofing membrane this year (2022) on some contracts, but not all of them. Some contractors have been</li> </ul>	

	<p>successfully mitigating the bubbling issue. Best practices are encouraged to mitigate issues.</p> <ul style="list-style-type: none"> <li>MTO will be reviewing OPSS 914 this winter with the intent that 2024 contracts will have consistent requirements and will be administered consistently. Work has been ongoing with suppliers, but more testing and research is required on the materials side. The intent is a version of the specification where it may be decided up front whether to add reinforcement to the waterproofing membrane or not. The issue for MTO is that these contracts were already tendered and ongoing, so an NSSP was put together after the fact to try and assist administration of currently tendered contracts.</li> <li>ORBA is aware of the MTO position that bubbling/voids in the waterproofing membrane is a rejection criterion but is not sure how that is clear in OPSS 914. MTO is aware and will be working on this on a couple of fronts.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>There has not been any new waterproofing experience yet to evaluate and investigations are ongoing. There may be a progress update when waterproofing operations begin again this construction season.</li> </ul>	
<p>Nov 22-5</p>	<p><b>Bridge Barriers – MASH</b></p> <ul style="list-style-type: none"> <li>MTO presentation on bridge barrier and MASH crash test standards.</li> <li>There are both height and load changes which impact typical MTO bridge barrier standards. Changes are expected to be needed to the TL-3, TL-4 and potentially the TL-5, but there may be different reasons for changes to the different standard drawings.</li> <li>USA DOTs seem to prefer the single slope, so barriers may change to single slope from the safety shape.</li> <li>ORBA can change forms to meet 1070mm for TL-5 barrier but wants to know that the change from 1050mm to 1070mm will be consistently applied by MTO first.</li> <li>MTO notes this is currently an FYI that changes will be coming in the future, but it is a larger undertaking and progress will be slow.</li> <li>ORBA asks about mitigation of salt scaling at the base of concrete barrier by applying sealers. MTO has been opposed to sealers in the past, but there are different de-icing chemicals being used now and the issue seems to be getting worse.</li> <li>Salt scaling is not a new issue for MTO, but it has been discussed more recently. Work is ongoing between Concrete and Structures Offices trying to find the right balance for the specification update. Changes aren't anticipated to be in any contracts until 2024.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>ORBA notes that salt scaling is still an issue and asks if MTO is investigating options to make a better barrier, e.g., new materials, sealers, etc. It was suggested that de-icing chemicals applied to the road are the problem, not the barrier materials.</li> <li>MTO notes that many factors impact the durability of barriers, and many are being investigated. MTO does not intend to use sealers.</li> </ul>	
<p>Nov 22-6</p>	<p><b>Ready Mixed Concrete Industry Average Environmental Product Declarations (EPDs)</b></p> <ul style="list-style-type: none"> <li>Concrete Ontario presented on Environmental Product Declarations.</li> <li>The Federal government is mandating reductions in CO<sub>2</sub> in its contracts and the concrete industry has been working on ways to reduce concrete CO<sub>2</sub> content.</li> <li>The purpose of the EPDs is transparency/accountability when it comes to carbon. The newly published document uses regional averages so Ontario</li> </ul>	

	<p>has its own EPD now and it will be updated every 5 years. The CO<sub>2</sub> for diesel fuel for driving to the job site is not included, but everything else from material extraction to batching is included.</p> <ul style="list-style-type: none"> <li>The CO<sub>2</sub> value is impacted by the time of year, so that is another issue for average values. However, the EPD does provide a baseline average. The EPDs are not intended to prescriptively set carbon limits, they are only informational and provide an order of magnitude for changes in mix designs on the average carbon content of mixes.</li> <li>It is stressed that the concrete needed should be specified and the EPD is a method of quantifying the rough carbon impact of the work, carbon values should not be specified for the concrete mix.</li> <li>The MTO is aware of EPDs, but they are not currently included in specifications.</li> <li>MTO is meeting with Concrete Ontario on Nov 24<sup>th</sup></li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>ORBA asked how new federal funding requirements impact MTO contracts and if EPDs will be required for concrete.</li> <li>MTO will follow up if funding from federal government includes EPDs.</li> </ul>	<p><b>MTO</b></p>
<p>Apr 17-4</p>	<p><b>Temporary Bracing Requirements for Precast Concrete Girders</b></p> <ul style="list-style-type: none"> <li>ORBA noted a specific constructability issue with the requirement to place rebar across the top of the girders. In some situations, it may be difficult for the contractor to access locations where bracing is required.</li> <li>ORBA noted there is still an issue with welding reinforcing bar that is 5m away from the abutment as this location is difficult to access. ORBA also noted an issue with steel plate requirements, particularly on skewed bridges as these plates are not in a continuous line.</li> <li>ORBA noted that the new standard drawing has been included in contracts.</li> <li>MTO proposed moving the rebar tie closer to the abutment and/or pier to address the accessibility issue.</li> <li>ORBA requested that a change in the timing requirement would also alleviate some challenges. (i.e., 7 days or 14 days, rather than immediately)</li> <li>MTO and ORBA have set up a small working group to resolve this issue and identify loading that must be designed for.</li> <li>MTO has completed several different types of analysis to identify the loading and determine the need for bracing. The analysis confirmed that the braces at 5m from the supports are effective at transferring forces. MTO also confirmed that moving the supports into the span greatly reduces the MTO is currently working on identifying the applicable loading and what load combination is most applicable.</li> <li>MTO has completed several different types of analysis to identify the loading and determine the need for bracing. The analysis confirmed that the braces at 5m from the supports are effective at transferring forces and moving the supports into the span greatly reduces the deflections and vibrations. A draft of what the internal forces that the bracing must be able to resist.</li> <li>OBRA noted that MTO has done a great job demonstrating the effectiveness of bracing by using modelling software.</li> <li>ORBA recently received documents from MTO and is reviewing. Comments will be gathered and will be sent to the subcommittee for review at the next meeting. Comments are expected to be provided prior to the next meeting (May 2022).</li> <li>MTO drawing publication is twice a year for standard drawings, but stamped drawings may be issued with any contract so they may be used prior to standard drawing publication.</li> </ul>	

	<ul style="list-style-type: none"> <li>ORBA received a draft back from the MTO and had a recent meeting to discuss it. ORBA will provide comments on the draft to the MTO.</li> <li>ORBA does not believe the requirements can be met immediately, the construction sequence is an issue. Contractors would like to be able to address bracing by at least the end of a full working shift.</li> <li>This concern was discussed with the working group.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>The SSP and drawings have been published. ORBA will identify any challenges that come up in the future.</li> <li>Item closed.</li> </ul>	
<p>May 19-4</p>	<p><b>OPSS 903 Update</b></p> <ul style="list-style-type: none"> <li>ORBA suggested organizing a meeting to discuss workability issues with pouring concrete for caissons. Caissons may go deep into the ground where no vibration of concrete is possible. Caissons may have congested reinforcement so larger sized aggregate can get hung up which can pull the reinforcing cage down significantly.</li> <li>Representatives of MTO and ORBA met on November 18, 2019. The group met again in the new year.</li> <li>MTO is planning to address some of the more straight forward concerns by developing a NSSP for short term use and work on updating OPSS 903 in the longer term.</li> <li>A meeting was held on May 6<sup>th</sup>. OPSS 903 is being split into two different specifications, drilled and driven piles.</li> <li>Andrew Weltz gave an overview of the work being completed. Generally, the work is considered to be a modernization of the specification. Previously, OPSS 903 focused on driven piles rather than caissons. The new specifications will be split into Driven Piles and Caissons.</li> <li>For Caissons, the following issues have been the focus of the updates:             <ul style="list-style-type: none"> <li>The ratio of concrete aggregate size and rebar spacing. The root cause of this issue was a design philosophy. The solution is to establish a designer guide for rebar spacing in the cage.                 <ul style="list-style-type: none"> <li>Traditionally, you use a higher slump mix so that the concrete can make it through the cage, but the dense cage stops the aggregate from passing through and leads to quality issues. Designer guide will provide a minimum spacing.</li> </ul> </li> <li>Improve the requirements and guidance for use of Tremie concrete.</li> <li>Tony is bringing in a testing regime for caissons which involves sophisticated testing to gain a better understanding of what the load bearing capacity will be prior to loading.</li> </ul> </li> <li>The group will be focusing on the driven pile specification shortly.</li> <li>MTO asked how they plan to ensure the quality of the Tremie Concrete. A.W noted that Cross Hole Sonic Logging will be used to verify the overall quality of the concrete. The holes will be installed by the contractor, and testing will be completed by an independent testing lab.</li> <li>MTO asked how they plan to provide the notes to the designer regarding the spacing of rebar in the spiral. A.W noted that the specification will have a Notes to Designer section where it will state the rebar spacing requirements (i.e., Rebar Spacing = 5*Max Agg. Size)</li> <li>A NSSP was created to put into contracts. It will likely be another year before projects use the specification and lessons learned can be prepared.</li> <li>Item left on the agenda and will be addressed once another working group meeting occurs or there is more information from new projects.</li> <li>Draft caisson specification issued as an NSSP.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Another meeting is scheduled for June for the working group to review the pile driving specification.</li> <li>• The specification has been worked on for about three years now.</li> <li>• ORBA members missed one meeting last year and were surprised to find the specification was finalized. Meetings have resumed and expect the specification won't be ready for the new year. Understand that in the meantime the NSSP is being issued with contracts, but ORBA considers this problematic because it hasn't been fully reviewed by the working group but does expect that MTO will not be willing to use the previously published specification now that the draft NSSP has been issued in contacts.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>• The caisson NSSP has been used on several contracts now. It is a challenging specification with a number of changes, but it is now on par with other jurisdictions.</li> <li>• Driven piles specification draft is currently under review.</li> </ul>	
<p>June 20-2 (Nov.19-1)</p>	<p><b>Concrete Aggregates – SP 110S17 and OPSS 1002</b></p> <ul style="list-style-type: none"> <li>• MTO met with OSSGA (Ontario Stone, Sand and Gravel Association) on June 24, 2019, to discuss the changes to the specification and industry concerns. Some changes were made in response to the OSSGA concerns, but the changes would not affect contracts already tendered. MTO is open to consider change proposals on active contracts on a case-by-case basis.</li> <li>• ORBA reiterated concerns with the requirement for separate stockpiles for each contract from one supplier. This can be problematic as a large number of stockpiles requiring a lot of space would be necessary.</li> <li>• ORBA noted there are concrete aggregate suppliers who will not supply aggregate for MTO concrete as a result of the new requirements. The main issue is the risk taken on by the aggregate supplier if samples are taken from the concrete plant where they are out of the supplier's control. Suppliers are also concerned that financial adjustments are too harsh.</li> <li>• OSSGA sent a letter to the Minister. There are several aggregate suppliers that will not supply to MTO projects for concrete supply. The reasoning is due to the potential penalties, which can be up to 5% of the contractors tendered price. ORBA indicated this exceeds the margins of what some suppliers are making and therefore the risk is not worth it.</li> <li>• MTO recently heard from OSSGA, and similar concerns were raised.</li> <li>• MTO is working on a new framework for how to deal with gradation where there is a non-conformance and wants to provide a prescriptive requirement for dealing with non-conformances by providing a sliding scale. The sliding scale is being checked in various situations to ensure a proper outcome.</li> <li>• CO noted that there are three critical issues: gradation, sample location, and size of penalty. CO noted that smaller aggregate suppliers for concrete will not except the penalty. For concrete, this is a supply chain issue.</li> <li>• MTO again noted that sampling must be at the concrete facility and not at the suppliers. MTO plans to circulate the new framework with the sliding point scale shortly.</li> <li>• ORBA has made its position known: concerns with the location of aggregate testing, cost associated with penalties, the addition of gradation to penalties, that remove and replace was in the specification but was not applied so adding penalties now is a significant concern. There are issues with getting suppliers to provide aggregates for MTO contracts only.</li> <li>• MTO shared proposals with OSSGA to address the issues brought up. It is important for MTO to sample the latest point in the supply chain to check material is in conformance, this has been communicated to OSSGA. Positive</li> </ul>	

	<p>feedback was received on the sliding scale payment adjustment, and it is the same as what is in all other MTO aggregate specifications. The sliding scale adjustment is to replace the remove and replace provision, it is not an addition. Payment adjustments were applied to real examples and were determined to be reasonable. The only benefit to MTO with this change is application consistency.</p> <ul style="list-style-type: none"> <li>ORBA stresses this is a general supply chain change, and it is making a dramatic change to the aggregate supply industry. This does not apply to municipal or industrial/commercial contracts, only MTO. This is a political/financial issue and there are suppliers that don't want to do MTO contracts anymore at a time when demand is high. Technical comments will be provided again when the specification is published in the portal.</li> <li>MTO will report back on the response from the portal.</li> <li>OSSGA met recently to review the changes made to the specification. The general view is that the changes will not encourage more engagement from aggregate producers and does not address industry concerns.</li> <li>MTO plans to get this specification consulted on soon and it is in the queue, but there is currently a backlog of specifications under review.</li> <li>Both specifications have been consulted on through TCP. A decision has been posted and the specifications will be published to CPS shortly.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>ORBA stated that the specification was not sent to ORBA for comment before it was published. Also, that discussions were going on alongside OSSGA and that there is an issue with the 60% requirement for fine aggregates. The fine aggregates requirement will be challenging for industry and will result in supply issues. Members continue to express concerns with specific regions on specifications.</li> <li>MTO pre-consulted on the specification and posted it to TCP for comment. The TCP decision was also posted before publication. Comments were received about insoluble residue, but that requirement has been in place since 2016 for riding surface concrete so it already covers the majority of concrete placed. The change being discussed is for concrete base and MTO's safety concern about extended periods that base may be exposed to traffic.</li> <li>ORBA does not believe that base courses are exposed long enough to have reduced friction concerns.</li> <li>MTO has experienced issues with new concrete surfaces having dramatic reductions in friction properties over short time periods; this led to the insoluble residue requirement in surface courses and the requirement has worked well. Any exposed concrete, based on internal review (phasing requirements, etc.) will implement this requirement.</li> <li>ORBA notes another challenge is how to administer sublots as a result of testing.</li> <li>MTO will need specific wording for the testing question to take it back to the technical team for review of exactly how specification language is applied.</li> </ul> <p><b>ACTION:</b></p> <ul style="list-style-type: none"> <li>ORBA will provide specific questions about materials acceptance testing for MTO review.</li> <li>MTO to review ORBA concerns on how sublots are to be administered.</li> </ul>	<p>ORBA MTO</p>
<p>Nov 20-3</p>	<p><b>SSP 721S09, SSP 107S06: Clarifications</b></p> <ul style="list-style-type: none"> <li>Ashley de Souza provided a general update on the conversations had at the separate meeting arranged to discuss Highway Safety Systems.</li> <li>There was a focus on 0\$ change order requests for use of different systems.</li> <li>MTO will work on ways of notifying designers on these changes.</li> </ul>	



	<ul style="list-style-type: none"> <li>• One specific issue that was disused was the application for maintenance contracts. Current maintenance contracts require like for like replacement, which is difficult and often easier to replace the system with the current standard.</li> <li>• MTO will work on how to better incorporate these new items into maintenance contracts where the standard is to replace like for like even when the system is outdated.</li> <li>• Highway safety systems damaged in maintenance contracts are replaced like-for-like. ORBA would like a like-for-like or equivalent option so there are more options for replacement or repair of systems.</li> <li>• ORBA will look at information/support that can be provided to address this.</li> <li>• MTO will look at updating language in maintenance contracts for attenuators.</li> <li>• MAIN4001 language has been updated to replace attenuators with a current system and if a legacy system wants to be used then that case will need approval. This only applies to the new specification so it will become active as new AMCs are released.</li> <li>• ORBA asks if there is an information campaign that could be done to inform CA's about the product matrices that exist within the OPSS for traffic barriers / attenuators.</li> <li>• <b>ACTION:</b> ORBA and MTO will work on an information campaign for AMC CA's.</li> <li>• Members are not in attendance; this item is marked as a work in progress.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>• ORBA noted that there is older equipment on the highway in terms of installation date as well as by crash testing standard requirement. End terminals aren't repaired and are replaced with newer systems instead, however energy attenuators and guide rail don't have this same requirement.</li> <li>• ORBA also noted that permanent energy attenuators have a service life, so they should be evaluated. End terminals, high tension cable and attenuators don't appear to have a policy like guiderail for evaluation.</li> <li>• Specific request notes will be prepared for review by the MTO specialist.</li> </ul>	<p><b>ORBA</b></p>
<p>Nov 20-4</p>	<p><b>Guide Rail Measurements in Contracts</b></p> <ul style="list-style-type: none"> <li>• Bid items to be based on standard length rail requirements.</li> <li>• MTO to confirm with our staff on how these changes are being completed.</li> <li>• Guiderail panels come in set lengths of 3.81m. The length is not being accounted for in contracts properly for payment; the panel quantity doesn't match the need length quantity and CA's are requiring justification for every PQP adjustment.</li> <li>• MTO will look at new language for a special provision and the CDED manual for actual panel length and field adjustments.</li> <li>• ORBA would like adjustments to TCB payment as well, they also come in set lengths.</li> <li>• MTO will review TCB options as well, but the changes made to TCB make this more difficult because there are lots of barrier options the contractor may use now, and they are not the same lengths.</li> <li>• MTO has updated the CDED to provide language about standard length of panels and to determine the number of panels required by calculated length of need and then rounding to the nearest multiple.</li> <li>• ORBA will monitor how the changes affect new construction contracts and will report findings at a future meeting.</li> <li>• Members are not in attendance. No updates are noted.</li> </ul> <p>Update:</p>	

	<ul style="list-style-type: none"> <li>The roadside design manual has been updated. The publication has not been released yet, but it's believed the issue has been addressed.</li> <li>Item closed.</li> </ul>	
<p>Nov 20-6</p>	<p><b>Concrete Supply</b></p> <ul style="list-style-type: none"> <li>ORBA/CO noted that there is a significant disruption to the concrete supply chain specifically related to cement. Cement production has been seriously impacted by Covid; the maintenance period was during the shutdown periods of Covid (March/April) which is usually lower demand. However, the maintenance had to take place later in the year during higher demand periods, reducing production.</li> <li>During Covid, residential concrete supply also increased 10%, creating the scenario where we are using more cement than there is available.</li> <li>Recently, Quebec is no longer experiencing shortages, but Ontario continues to be on allocation with cement suppliers. Ontario recently began borrowing from Quebec.</li> <li>CO also noted that there is a shortage in slag; Dofasco is in their 20-year shutdown therefore significantly reducing the local supply of slag.</li> <li>Individual raw materials are experiencing supply issues, e.g., admixtures and steel fibres. There are no issues for MTO contracts from these materials.</li> <li>MTO would like the item to remain on the agenda until supply chains stabilize.</li> <li>Two of five cement plants are currently not in production so a supply issue may be coming once industry comes back to full production. Rehabilitation contracts in particular may experience supply problems because they are more difficult (nights, weekends, etc.), and the quantities can be small. With cement allocations, larger orders are prioritized.</li> <li>Currently, all five cement plants are in production. Typically, demand drops in the winter so the hope is that the demand reduction will provide some room to catch up on production.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Cement allocations continued into January but has since ended. There are currently still supply issues with raw materials, however residential demand has decreased so it is not expected that there will be any concrete supply issues through June/July. MTO will be updated if anything changes.</li> <li>Item closed.</li> </ul>	
<p>May 21-1</p>	<p><b>OPSS 1202, 1203, 1210 (Bearing Specifications)</b></p> <ul style="list-style-type: none"> <li>ORBA provided comments about bearing specifications. One of concern is the removal of the option to submit a proposal to bring bearings to full contact, the MTO is requiring a Change Proposal. ORBA does not believe a Change Proposal is appropriate.</li> <li>MTO will review specification language about change proposals and provide a response.</li> </ul> <p>Post-meeting Update:</p> <ul style="list-style-type: none"> <li>Where terms are capitalized in a specification, they are OPSS 100 definitions such as "Change Proposal".</li> <li>The words "proposal" and "Change Proposal" do not appear in the construction specification OPSS 922. SSP 199S48 was replaced with 199S66 which still includes the corrective action proposal language.</li> <li>OPSS 1202 and 1203 language will be clarified that both mean a "Change Proposal" where there are changes proposed to the materials, design and fabrication of DSM listed bearings.</li> </ul>	

	<ul style="list-style-type: none"> <li>The specifications have been added to the list for review, but it won't be done until next year.</li> <li>ORBA notes testing of bearings has not been meeting specification timelines. Contractors have been trying to build the testing time into the schedule, but the results are not always provided in time and some contracts have received instructions to lower the bridge without waiting for test results.</li> <li>MTO is aware of the testing timeline issue. There were issues with moving to the new building and setting up new lab equipment that delayed testing. The lab issues are almost resolved so things should improve going forward.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>ORBA relies on the 60-day testing timeline for bearing testing, but some results are still not being received.</li> <li>MTO has addressed equipment setup issues from the move to the new building. There is currently a concerted effort underway to address any backlogs in bearing testing.</li> <li>Item closed.</li> </ul>	
<p>May 21-4</p>	<p><b>New Nssp for Corrugated Steel Pipe (CSP) for Integral Abutments</b></p> <ul style="list-style-type: none"> <li>ORBA will be sending their comments shortly.</li> <li>It appears that the onus is being put on the contractor to design the system.</li> <li>ORBA noted that there is a 3" variation on pile driving, but only 2" for CSP's.</li> <li>MTO to review ORBA's comments once sent.</li> <li>MTO has not finished review of all comments yet and will follow-up with ORBA once review is complete.</li> <li>MTO responded to comments and issued the specification as a standard Nssp in CPS. It may be used in contracts but is not posted to TCP or the technical publications sites.</li> <li>ORBA asks if MTO can provide a copy of the response.</li> <li>ORBA asks if response to comments can be re-sent again.</li> <li>MTO re-sent the comments on May 16 following the last meeting.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Re-sent comments were received by ORBA.</li> <li>Item closed.</li> </ul>	
<p>May 21-5</p>	<p><b>SSP 599S23 – RSS Wall SSP Update</b></p> <ul style="list-style-type: none"> <li>MTO provided a brief overview of the changes made in the RSS Wall SSP update. The following items were added:             <ul style="list-style-type: none"> <li>Added Steam curing as an option for curing.</li> <li>Relaxed surface tolerance requirements for the back side of the panels.</li> <li>Added requirement for dry-casting concrete</li> <li>Separated it into 3 Items (Delivery, Fabrication, Installation), consistent with other precast concrete specifications. Payment reductions will only apply to the fabrication item.</li> </ul> </li> <li>MTO thanked ORBA for providing comments on the specification update. A number of changes were made to the specification based on ORBA's comments. MTO provided a written response to all of ORBA's comments on May 20, 2021.</li> <li>MTO has kept the requirement that the lifting mechanisms must be parged. MTO noted that this is a not a new requirement and is also in the 2018 specification.</li> <li>ORBA noted that if there is ever a need to go back and lift a panel, then this will be a challenge.</li> </ul>	

	<ul style="list-style-type: none"> <li>MTO noted that changes have been made to the DSM requirements to add provisions for dry-cast concrete. MTO will send the final draft of the specification with updates based on their comments as well as those of DSM supplier to ORBA for information.</li> <li>MTO has reviewed comments and the update will be posed to the technical consultation portal.</li> <li>SSP has not been posted to TCP yet, it is in the queue.</li> <li>Decision notice has been posted to TCP.</li> <li>MTO and ORBA will check again to make sure all comments were received.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Both specifications finished review in TCP and decisions were posted. Both specifications were published in January 2023.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-2</p>	<p><b>Vibration of concrete during form &amp; pump placement</b></p> <ul style="list-style-type: none"> <li>ORBA is finding consultants and MTO are now interpreting OPSS 930 calling on OPSS 904 as a requirement to vibrate concrete in form and patch procedures which hasn't been done before.</li> <li>MTO is aware of one contract where this was an issue. If ORBA has others, please provide them. MTO will review the information and attempt to provide clarity to the specifications.</li> <li>MTO has flagged this issue for the general update of OPSS 904.</li> <li>ORBA will provide some examples of where CA's required vibration of form and pump concrete.</li> <li>Where there are disagreements with the CA in contracts, the Contractor is encouraged to ask the CA for MTO QA to weigh in on interpretation.</li> <li>ORBA notes this has still been an issue on some contracts.</li> <li>MTO has just started work on OPSS 904 and will consider comments during the review.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>OPSS 904 and OPSS 1350 are being updated, but this update does not include OPSS 930.</li> <li>There is general consensus that you can't internally vibrate form and pump concrete. The OPSS 930 reference to OPSS 904 is noted and will be reviewed further. MTO requests any specific examples of internal vibration of form and pump concrete.</li> <li>Items related to OPSS 904 are being bundled in one new common item.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-3</p>	<p><b>Tensile bond testing on wall patches – Type C (form and pump)</b></p> <ul style="list-style-type: none"> <li>ORBA is experiencing issues with tensile bond testing of from and pump concrete when combined with temperature and time restriction limitations and patch locations. Proposed solutions include longer closures times, adding admixtures at the plant instead of on site, increasing concrete dispensing times and bonding agents.</li> <li>MTO made changes to the LS for the tensile bond test as a result of extensive research. It's believed the test is representative and reliable, often the issue is related to the patch and not the test.</li> <li>ORBA doesn't disagree, the problem is the other restrictions which makes achieving the appropriate bond difficult. Euroweld is suggested which was used on Finch West LRT and the results were good.</li> <li>MTO will review product proposals. The bonding agent feedback will be reviewed as an option for the specification.</li> <li>ORBA will send proprietary product information to MTO for review.</li> </ul>	

	<ul style="list-style-type: none"> <li>ORBA will send proprietary product information to MTO for review.</li> <li>ORBA has not sent any proprietary product information for bonding agents to the MTO.</li> <li>MTO has conducted more tensile bond testing and don't have results to share yet but have been undertaking testing correlations.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>No proprietary product information has been sent.</li> <li>Items related to OPSS 904 are being bundled in one new common item.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-4</p>	<p><b>Cold weather concrete and constraints for patches and refacing</b></p> <ul style="list-style-type: none"> <li>ORBA notes inconsistent interpretation of cold weather requirements. There seems to be confusion about the temperature inside and outside an enclosure, and when temperature is low and rises during the day. Suggested language revision was proposed before the meeting.</li> <li>MTO will review the cold weather language for concrete, it should not be ambiguous. It's noted that it's not in MTO's interests to allow concrete to reach proposed temperatures, where it can be anticipated it should be protected to achieve the intended properties and behaviour.</li> <li>ORBA is noticing more issues with respect to interpretation of specifications lately. There is a deficiency in the number of experienced people in the industry. Specifications may need smaller corrections/clarifications, so the intent is being carried forward.</li> <li>MTO will try to discuss interpretation issues on site through QA until the next scheduled specification update.</li> <li>MTO is grouping this with May 21-6. Language will be reviewed in the OPSS 904 update to improve consistency and interpretation for administration where possible. The MTO is also looking into implementing additional training for CA's.</li> <li>This type of issue (specification language interpretation) is discussed at QA committee, so it will be brought up there and provide information /instruction at spring meetings with CAs/MTO.</li> <li>MTO has just started work on OPSS 904 and will consider comments during the review. Comments will also be forwarded to OPSS 930 for review.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>MTO is not currently working on a OPSS 930 update. OPSS 904 is under review.</li> <li>Items related to OPSS 904 are being bundled in one new common item.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-5</p>	<p><b>OPSS 904 &amp; OPSS 929 requirements on sandblasting and power washing new concrete before placing concrete against structural steel surfaces</b></p> <ul style="list-style-type: none"> <li>Sandblasting was always sufficient in the past but now the specification says power washing so there have been instances where CA's are requiring ORBA members to do both sandblasting and power washing. Is this the intent of the specification, wetting was expected for saturated surface dry condition for concrete placement/bond but that shouldn't require pressure washing.</li> <li>MTO highlights the words "pressure washing" for review of the specification language.</li> <li>MTO is currently updating OPSS 929, and this is being added to the review. OPSS 904 will be updated in the future.</li> <li>ORBA would like a copy of the proposed changes from MTO, or at least notice when the OPSS updates are posed to TCP.</li> </ul>	

	<ul style="list-style-type: none"> <li>Structures office will look into notifications but will be following the process current at the time of posting.</li> <li>MTO has just started work on OPSS 904 and will consider comments during the review.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Items related to OPSS 904 are being bundled in one new common item.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-6</p>	<p><b>Fog Misting Systems: Financial Adjustments, Infractions and OPSS 904 requirements</b></p> <ul style="list-style-type: none"> <li>An ORBA member was issued an infraction for setting up a fog misting system even though it is a CSA recommendation. Are there concerns with for misting or is this another misinterpretation of specification intent?</li> <li>OPSS 904 does not say fog misting can't be used, just that the water from nozzles can't be worked into the concrete to assist finishing. MTO requests the contract information for follow-up with QA committee. ORBA will provide examples.</li> <li>MTO is reviewing this, and language will be reviewed to improve consistency and interpretation for administration where possible. The MTO is also looking into implementing additional training for CA's.</li> <li>Additional training for contract administration staff will be provided at the MTO spring meeting.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>Fog misting systems will be reviewed for uses other than HPC during the OPSS 904 update review. MTO has concerns with adding water to the surface of the deck and blasting the surface with high pressure water.</li> <li>Items related to OPSS 904 are being bundled in one new common item.</li> <li>Item closed.</li> </ul>	
<p>Nov 19-7</p>	<p><b>OPSS 1301: Clause 1301.07.05 Testing</b></p> <ul style="list-style-type: none"> <li>ORBA would like to work with MTO on proposing language updates for the MUNI and PROV specification updates similar to the CON0006 updates.</li> <li>MTO will work with ORBA on proposed language for the MUNI, but MTO is just one member of the OPS specialty committee and can't decide whether the language is accepted. MTO will review language at the time of the PROV update.</li> <li>ORBA submitted proposed language to the MTO for review.</li> <li>MTO received the proposed language and will be responding shortly.</li> <li>MTO has just started work on OPSS 1301 and will consider comments during the review.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>CONC0006 modifies OPSS 1350 and that Nssp is published.</li> <li>OPSS 1301 update is ongoing and will be posted to TCP for comment prior to publication.</li> </ul>	
<p>Nov 19-8</p>	<p><b>Linear shrinkage performance requirements</b></p> <ul style="list-style-type: none"> <li>MTO provided a letter to Concrete Ontario about these issues.</li> <li>Suppliers do not want to supply ORBA members because the MTO is prescriptively limiting materials which can be used on MTO contracts and there is a remove and replace penalty clause associated with performance.</li> <li>ORBA will provide a response to the MTO letter, MTO will review and provide additional information.</li> <li>MTO to provide a response.</li> </ul>	

	<ul style="list-style-type: none"> <li>No additional letters have been sent, MTO and ORBA agree to disagree.</li> <li>ORBA has issues with 19mm aggregate being required for form and pump in the soffit for some deeper fills. The mix is more difficult to pump, and there are small spaces with 25mm chipping around reinforcing bars. There is also different interpretation across contracts on how to address this issue.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>MTO does not have any plans to change the depth requirement.</li> <li>ORBA notes that there is an inconsistency between regions and contracts on that item, there was at least one bid enquiry last year about this where the response provided was to not change mix designs from 13mm to 19mm aggregate regardless of the patch thickness.</li> <li>ORBA will continue to consult with members and will pass on any possible solutions for MTO consideration.</li> </ul>	
<p>Nov 19-9</p>	<p><b>Form and Fill Groove payment</b></p> <ul style="list-style-type: none"> <li>The specific form and fill groove item was selected as an example, but ORBA notes it is common of a broader practice, especially with structures, and the concern is the catch-all language for items if they're not included elsewhere. Inconsistency is the biggest problem, e.g., form and fill groove might be paid under its own item, in the joint, or with the waterproofing, or some combination of those. An example is given where 4 of 6 lines were paid under the form and fill groove item, the other 2 were not.</li> <li>ORBA will provide specifics on where there is item payment confusion for the next meeting.</li> <li>ORBA will provide some specific examples of payment language where work that doesn't have an item is grouped into a different 'appropriate' item. ORBA notes this is common throughout the structural standards and should be viewed as needing a global change.</li> <li>ORBA will provide some specific examples of payment language where work that doesn't have an item is grouped into a different 'appropriate' item.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>MTO is currently updating OPSS 914. Any examples ORBA provides about the waterproofing and form and fill groove items are appreciated. The specification will also be posed to TCP for comment.</li> <li>ORBA will provide details of examples.</li> </ul>	<p>ORBA</p>
<p>Nov 19-10</p>	<p><b>500W Requirement for Reinforcing Steel</b></p> <ul style="list-style-type: none"> <li>ORBA has received concerns from producers with managing 500W reinforcing steel. 500W is common in 30M and 35M but is generally wrapped with 400W 10M and 15M in other industries. 500W 15M bars can be procured, but mills want 100 tonne minimum orders. ORBA would also like clarification on if MTO will be changing to 500W just for bridges, or will it also change the OPSS so all reinforcing will be 500W potentially impacting, among others, the precast industry.</li> <li>MTO considered mixing bar grades but decided to only use 500W to avoid confusion about materials. The intention is to use 500W for all components and mill surveys suggested additional lead times for material, but this did not appear to be an insurmountable issue.</li> <li>ORBA notes potential impact of 500W on precast cutting/bending/ prestressing equipment and is unsure of the benefit of 500W on some of these precast components, e.g., culverts.</li> <li>WWR is being considered for these components and WWR is already about 500MPa. However, WWR is not an immediate project.</li> </ul>	

	<ul style="list-style-type: none"> <li>ORBA will monitor and will notify MTO if there are issues with implementing 500W.</li> <li>MTO will review impacts to specifications referencing OPSS 1440 if it's updated to 500W.</li> <li>ORBA asks if precast industry was consulted for 500W, specifically girders.</li> <li>MTO has broadly consulted with industry, and everyone is aware. Stainless steel is also ~500MPa so anyone handling stainless can handle 500W uncoated. Work is underway to make sure materials are well identified and separate for the transition period. Some suppliers are already on the DSM for 500W as well. Precast concrete culvert standards were recently implemented and aware of the 500W update so there are 400W and 500W designs.</li> <li>ORBA asks how 400W components already precast will be handled. MTO may consider allowing a 400W component, but it would be a Change Proposal and the reasonableness of the proposal would be contract specific.</li> <li>ORBA asks if 500W will apply to all reinforcing steel including precast, culverts, standard drawings, etc.</li> <li>During the interim period, some MTO contracts will be 400W and some will be 500W. All new designs will choose 500W so the number of 500W contracts will increase as the stock of already completed designs with 400W are tendered. It is expected that all components in a contract will use the same grade of steel. Standard drawings will be updated, but until the drawing is updated the 500W may be directly substituted for the 400W steel.</li> <li>There were no updates at the November 2022 meeting.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>ORBA asked if there are more suppliers approved for coil rebar now.</li> <li>Item closed.</li> </ul> <p><b>Post Meeting Update:</b> There is currently only one mill listed on DSM #9.65.80 that has both the DSM approval and capacity to supply 500W coil. MTO is awaiting test samples from other vendors.</p>	
<p>May 22-5</p>	<p><b>Concrete Pavement 7-Year Warranty Nssp (DB and DBB), Nssp BITU0010 and Nssp BITU0011 – Status</b></p> <ul style="list-style-type: none"> <li>ORBA is waiting on some replies to comments.</li> <li>MTO asks if ORBA can please re-send the comments.</li> <li>ORBA provided comments, MTO replied and ORBA provided a second set of comments. The reply being waited on is for the second comments.</li> <li>MTO will follow up.</li> </ul> <p>Update:</p> <ul style="list-style-type: none"> <li>MTO reviewed and provided a response, but ORBA was confused by the response. There have been multiple comments and responses to comments. ORBA was asking about the second set of comments that were sent to MTO in 2021, not the 2022 consultation.</li> <li>ORBA will re-send the 2<sup>nd</sup> comments and MTO will review them and respond.</li> </ul>	<p><b>ORBA/ MTO</b></p>
<p>May 22-6</p>	<p><b>Resistance Welding Reinforcing Steel</b></p> <ul style="list-style-type: none"> <li>Resistance welding has been proposed in contracts for precast members, specifically deck panels. ORBA asks if MTO has any comments.</li> <li>MTO is currently reviewing resistance welding for precast concrete partial depth deck panels. Currently, welding is not permitted in OPSS 905, so a proposal needs to be submitted for each contract.</li> <li>ORBA asks if MTO can clarify what resistance welding is. They don't believe resistance welding of reinforcing steel is welding because it is not adding material.</li> </ul>	



	<ul style="list-style-type: none"><li>• MTO to review and provide a response</li></ul> <p>Update:</p> <ul style="list-style-type: none"><li>• MTO is reviewing use of resistance welding in partial depth deck panels. There is a new provision for it in the Structural Standard Drawing posted to TCP earlier this year. The comments are still under review.</li></ul>	
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Next Meetings:

Friday, September 8, 2023 – MTO to host  
Friday, November 24, 2023 – ORBA to host