Comments received by TCP# 000-0289			
TCP Comment ID	**Organization**	**Comment**	**Discussion/ Response**
559-1	Corrugated Steel Pipe Institute (CSPI)	1805.04.02.02 4th paragraph - Associated should be Association. Also suggest you add G401 following (CSA)	Text has been modified.
559-2	Corrugated Steel Pipe Institute (CSPI)	1805.04.02.02 5th paragraph - Change "issued by the CSA" to "issued by the certifying body" or something along those lines. For eg: it could an auditor from CWB.	Text has been modified.
560-1	Armtec Inc. - Manufacturer of Structural Plate	960.05.02.01 Backfill to Structure, 3rd paragraph - Remove Granular B Type I (keep Granular B Type II). Granular B Type I does not have enough gravel content and not enough crushed content to be suitable for engineering backfill on a soil-metal structure.	The MTO's standard of the Granular B Type 1 with 100% passing of the 26.5 mm sieve meets CHBDC S6-25 Zone 1 requirements. Granular B Type I will not be removed.
560-2	Armtec Inc. - Manufacturer of Structural Plate	960.05.03 Bedding Material, 1st paragraph - Remove line "... unless bedding layer has a thickness... ... not exceed 37.5 mm in diameter". Maximum bedding particle size should not exceed 25 mm (or 26.5 mm) to prevent bridging of the backfill between the corrugation profile for 152 x 51 mm corrugated plate.	Text has been modified.
560-3	Armtec Inc. - Manufacturer of Structural Plate	960.05.08 Granular Cover, 3rd paragraph - Remove Granular B Type I (keep Granular B Type II). Granular B Type I does not have enough gravel content and not enough crushed content to be suitable for engineering backfill on a soil-metal structure	Refer to response to 560-1.
560-4	Armtec Inc. - Manufacturer of Structural Plate	960.07.13 Assembly and Installation of..., 2nd paragraph - Will the Contract Administrator have proper knowledge of this this requirement. My experience is that 80% of MTO contracts cannot meet this requirement due to staged construction methods and structures involving extensions. More information/discussion can be provided is desired.	The OPSS 960 does not cover the extension of existing structures. CDED will be updated to instruct designer to include an NSSP to deal with contract specific requirements pertaining to installation and assembly, if this OPSS is required for use on a contract with an extension.
560-5	Armtec Inc. - Manufacturer of Structural Plate	960.07.13 Assembly and Installation of..., 3rd paragraph - Consider adding text "for longitudinal seams of 152 x 51 mm Structural Plate corrugated Steel Structures" at the end of the paragraph. This requirement only pertains to the longitudinal seams on 152 x 51 plate structures. It does not apply to the circumferential seams or to any seams Deep Corrugated Plate Structures.	Text has been modified.
560-6	Armtec Inc. - Manufacturer of Structural Plate	Copies of plant certification audit reports of Canadian Standards Associated (CSA), and related documentation, shall be submitted to the Owner upon request. For multi-year Contracts, verification that the plant continues to hold valid certification as issued by the CSA shall be submitted to the Contract Administrator annually for all plants supplying the work. Should reference "The Certification Body" and not CSA **1805.05 MATERIALS**	Text has been modified.

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560-7	Armtec Inc. - Manufacturer of Structural Plate	**1805.07.06 Storage** Storage of the buried corrugated steel structural plate elements shall be according to CSA G401, the Working Drawings and supporting documentation in OPSS 960, and as specified in the Contract Documents. Corrugated steel structural plates, when stored, shall be stored in such a manner to avoid damage or distortion. Storage of corrugated steel structural plates during the winter shall be in a climate-controlled facility. Storage includes, but is not limited to, storage at the fabrication plant, storage while awaiting delivery in temporary locations, or storage at the Working Area. **1805.07.07 Manufacturer's Certificate of Conformance** A MTO form PH-CC-821, Manufacturer's Cer…ntract Administrator with the Contractor's MTO form…of the corrugated steel structural plates and at least 3 …ea. The Certificate of Conformance must confirm that the elements satisfy the requirements of the Contract Documents and adheres to the Working Drawings and supporting documentation. Is this possible to have climate-controlled facility at the working area?	Specification has been modified to reflect that storage must be in a weatherproof facility or a shipping container.
560-7	Armtec Inc. - Manufacturer of Structural Plate	Section 1805.07.08 Lifting, transporting, and delivery shall be as specified in the Working Drawings and supporting documentation in OPSS 960. Advertising by means of removable signing on corrugated steel structural plates shall not be permitted within the Working Area. Any permanent markings on the surface of plates that would be visible after structural installation shall not be permitted. **180…** **180…** The …times as the Owner may consider necessary to ens… as specified in the Contract Documents. Cor…quirements specified in the Contract Documents shall be rejected and replaced. Replace "and" with "or". It is more relevant to have transportation and delivery on a separate document. These items do not fit well with engineered sealed shop drawings from the manufacturer.	Text has been modified.

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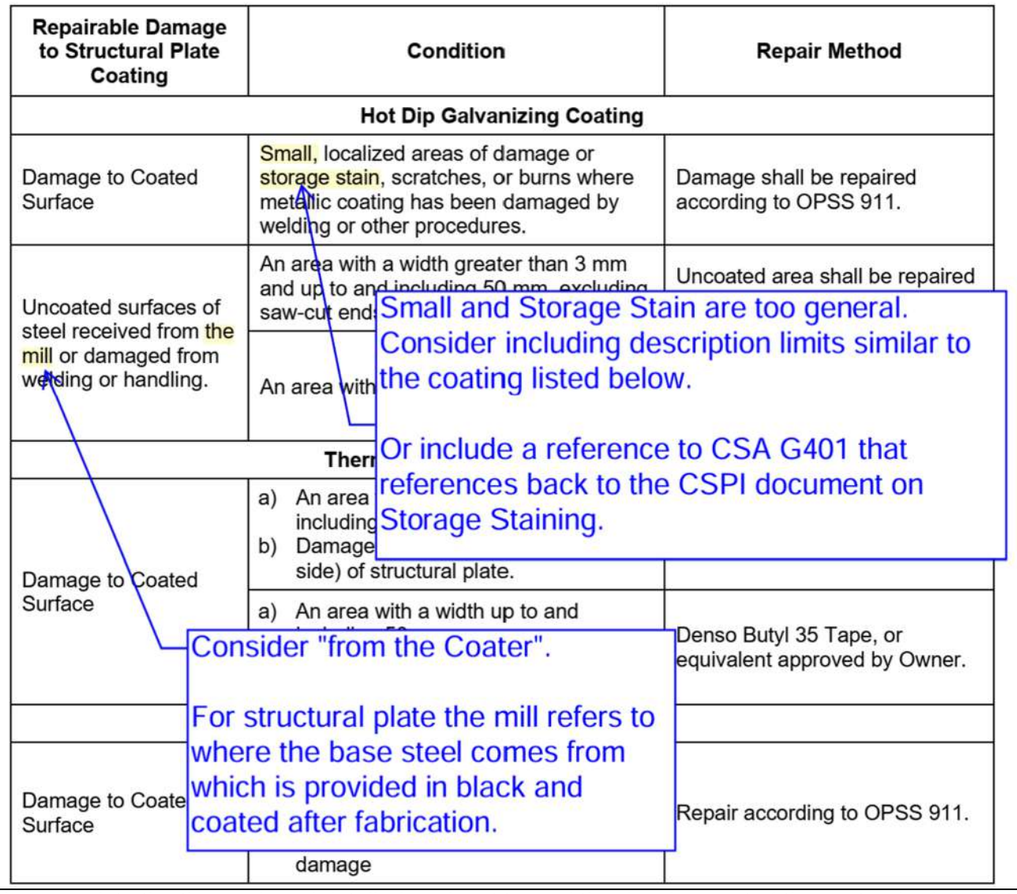
TCP Comment ID	**Organization**	**Comment**	**Discussion/ Response**
560-8	Armtec Inc. - Manufacturer of Structural Plate	**TABLE 1** **Damage to Corrugated Steel Structural Plate Coating Repairable by Standard Methods**  Small and Storage Stain are too general. Consider including description limits similar to the coating listed below. Or include a reference to CSA G401 that references back to the CSPI document on Storage Staining. Consider "from the Coater". For structural plate the mill refers to where the base steel comes from which is provided in black and coated after fabrication.	Text has been modified.
562-1	Atlantic Industries Limited	We appreciate the thorough and detailed work put toward the development of these standards, and the opportunity to provide feedback. Comments/suggestions for each standard are detailed below and in the attached document. Thanks. 960.03 Engineered Fill Definition - Add clarification that Engineered Fill shall be placed adjacent to, and over top of the structure to the limits specified by the structure design. This typically refers to zone 1 and 2 as detailed in section 7.6.7.3 if CHBDC 2025.	Thank you. Text has been modified.
562-2	Atlantic Industries Limited	960.04.02.01 h) "Suggest rewording slightly: . Bedding, Backfill, Engineered Backfill: (1) type of material to be used, (2) method of installation, (3) material chemical properties for engineered backfill including PH, Resistivity, Sulphates, Chlorides, and Organics content.	Thanks for bringing this to discussion. Please note backfill testing requirements do not belong to OPSS 960, in future if there is a need to introduce the backfill testing MTO may consider issuing Standard Special Provisions. The electrochemical

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		(4) material unit weight, (5) material test results and gradation, according to OPSS 1010. "	testing of soil regarding durability design (i.e., PH, Resistivity, Sulphates, Chlorides, and Organics content) has been covered in CHBDC 25 & Structural Manual. The text will remain unchanged.
562-3	Atlantic Industries Limited	960.05.08 Granular cover shall be engineered fill to the elevation specified by the structure design. Alternative fill material may be used above engineered fill zone, and below the road base, if accounted for in the structure design, and at the discretion of the contract administrator.	960.05.02.02 addresses the material requirements beyond the engineered fill zone. Updates have been made to more clearly include competent native material as fill beyond the engineered fill zone, if specified.
562-4	Atlantic Industries Limited	960.07.10 A request to proceed and notice to proceed is required after inspection of subgrade, and placement of bedding. These operations may be performed in the same day. Suggest combining inspection of subgrade and placement of bedding (if applicable) into one request to proceed.	The inspection of excavation before placement of bedding will ensure that the bedding is placed on verified excavation limits, we appreciate the suggestion, however we don't see a need to change.
562-5	Atlantic Industries Limited	960.07.11 The width of uncompacted bedding for closed bottom structures is typically span/2 and may vary for pipe arches depending on radii. Suggest noting that the bedding width shall be specified on the design drawings.	The CDED has been revised to include a requirement for the designer to specify bedding width on the contract drawings.
562-6	Atlantic Industries Limited	960.07.13 The "valley bolt closest to visible edge" rule only applies to SPCSP. Suggest clarifying that SPCSP (152x51 corrugation) shall be bolted with the valley bolt closet to the visible edge. All structures shall be bolted per manufacturer requirements.	Text has been modified to reflect this.
562-7	Atlantic Industries Limited	960.07.13 Bolt torque is typically 200 to 340 Nm for 19mm bolts. Higher torque is required for 22mm bolts. Suggest adding text to clarify this. Bolt torque requirements are specified on working drawings, ref. 960.04.02.01 f).	Text has been modified to include a higher torque range for 22 mm bolts.
562-8	Atlantic Industries Limited	960.07.13 Does variations in alignment refer to the overall position and placement of the structure relative to the intended surveyed location, or changes in the vertical and horizontal alignment over the length of the structure? Suggest clarifying. If this intended to check alignment, suggest a tolerance of 1% along the length in the vertical or horizontal direction. 300mm change in horizontal alignment could impact assembly and performance of some structures.	We have Alignment tolerances. Text has been modified to include Table 1 with tolerances. Separate tolerances have been created for span and rise and alignment (vertical and horizontal), for clarity.
562-9	Atlantic Industries Limited	960.07.13 dimensional tolerances of 1:1800 or 5mm are more stringent than what is practical for these types of structures. For example, where two 5mm plates are lapped, this limit is already met. Suggest removing this paragraph as limits reflective of bridge code values are already provided above. Suggest adding a line that additional project specific or manufacture tolerances may apply.	This requirement has been removed. Additional project-specific tolerances can be captured by the language already included in the specification, so no additional text is added.
562-10	Atlantic Industries Limited	960.07.16.01 Suggest adding a note that more stringent tolerances may be specified in the working drawings.	Text has been modified.
562-11	Atlantic Industries Limited	CAIS No. 960: Administration and Inspection Activities for Buried Corrugated Steel Structures with Span Greater than 3.0 m 940.02.01 or 960.05.05 Check backfill unit weight test results are less than or equal to the unit weight assumed for the design. 940.02.01 or 960.05.05 Check engineered fill chemical properties meets the limits for the specified coating	Requirements to check backfill unit weight have been added.
562-12	Atlantic Industries Limited	960.07.13 Bolt torque is typically 200 to 340 Nm for 19mm bolts. Higher torque is required for 22mm bolts. Suggest adding text to clarify this. Bolt torque requirements are specified on working drawings, ref. 960.04.02.01 f).	Text has been modified to include a higher torque range for 22 mm bolts.

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562-13	Atlantic Industries Limited	CDED B960: Detail Estimating 960.1.2 Where water contact is anticipated, water chemical testing to determine values for PH, resistivity, chlorides, hardness, and sulphate should be obtained to determine the exposure conditions defined in CSA S6, section 2. The soil exposure condition can typically be considered non-aggressive and can be confirmed through testing of the engineered fill prior to construction. 960.7.3.8 mentions concrete culvert. Should reference buried corrugated metal structures, and differential settlement limits outlined in CSA S6 section 7.	For 960.7.1.2: This has already been covered by the Structural Manual (Dec. 2025), Section 14. For 960.7.3.8. Text has been modified. The FIDR should include design parameters based on CSA S6 and will cover differential settlement considerations.
562-14	Atlantic Industries Limited	CDED B960: 960.9.1 "Contract drawing requirements - for information includes on the contract drawings, add: Corrugation profile, material thickness, coating requirement, design live load, fill unit weight, minimum and maximum design cover heights. Consider using a fill unit weight of 23.5 kN/m3. This is heavier than CHBDC default of 22, but is more conservative, and fill weights (accounting for moisture content) heavier than 22 are common in Ontario. Making design or source pit changes after award of tender could add costs and risks to the project.	Text has been revised regarding the contract drawing requirements. MTO is currently developing design standards for buried corrugated structures, consideration will be given to use a whole number of 23kN/m^3 for the fill unit weight as the use of decimal values may be misinterpreted and could lead to unnecessary variability in design parameters.
562-15	Atlantic Industries Limited	OPSS.PROV 1805: Material Specification for Corrugated Steel Structural Plate 1805.05.01 Min. steel thickness of 5mm. Use of a thinner steel, particularly when coated with a copolymer, can provide a cost saving option while still meeting 75 year CHBDC design life criteria, or where a 75 year life is not required. Consider removing this limitation for "MUNI" versions of this standard.	For MTO applications, 5 mm is desirable for durability and will remain requirement for PROV standard specifications. Comments on MUNI specifications should be provided to the OPSS Structures Committee in future when MUNI version is developed.
562-16	Atlantic Industries Limited	1805.07.06 Storage - Storage of plates in a climate controlled facility is not always practical. Storage concerns are generally limited to galvanized coating, additional information can be found in CSPI technical bulletin 28. Suggest the following alternative text: Fabricated and coated plates stored outside for extended period of time during the winter shall be raised off the ground, spaced to allow airflow between plates, stacked to avoid standing water, and covered or wrapped for environmental protection**.**	Requirements for storage in a climate-controlled facility has been removed. Text has been modified to reflect the recommendations of technical bulletin 28: “storing plate inside a weatherproof building or shipping container that provides ventilation without moisture accumulation, minimizes the risk of wet storage stain”.
562-17	Atlantic Industries Limited	CAIS 1805 1805.07.06 See storage comment above.	Text has been revised.

Comments received by email			
Number	**Organization**	**Comment**	**Response**
1-1	Layfield	OPSS 1863: Definition of Lat – Not a term widely used. Referencing the circumference of a roll? The length of a roll is useful, the circumference doesn’t give much useful info	Thanks for your comment. The use of term “Lat” is consistent with MTO’s standard.

1-2	Layfield	Textured is the term used in the industry to indicate a surface treatment on the geomembrane. PVC is not available textured. Why is a textured liner being requested. Typically, textured liner is used to increase friction angle for greater side slope angle	The terminology & requirement is provided as per CSA S6 (Canadian Highway Bridge Design Code).
1-3	Layfield	3 samples per 1000m^2 is very high rate of sampling. Some test methods take up to 90days to complete. Each roll could be over 1000m^2 of product requiring 3 samples. This will increase the cost dramatically due to 3rd party lab costs.	MTO will collect samples for quality assurance testing, which will be tested by the MTO QA Laboratory at MTO's discretion.