

*1:00 P.M. to 3:00 P.M. PDT, Monday, June 15th, 2026
Delta Hotel Grand Okanagan Resort*

Committee Attendance:

Pat Mayne (Chair)	Atlantic	Derek Niezen	Ironside
Todd Gray	ACI	Cameron Hock (abs)	Island Culvert
Kamran Derayeh	AMD	Byron Nelson (abs)	Leland
Sarodha Rajkumar	AMD	Mike Green	Leland
Scott MacRae	Armtec	Richard Northcutt	MarMac
Graham Nickerson	Armtec	P.C. Drouin (abs)	SDI
Terry Dunn	Atlantic	Mike Mounts	Valgroup
Oliver Kearns (abs)	Atlantic	Jonathan Paton	Warner
Mitchell Swisher (abs)	C. Cliffs	Mike McGough (abs)	NCSPA
Mike Williamson	E.S. Hubbell	Ray Wilcock	CSPI
Bruce Matheson (abs)	Frontier		

Members in Attendance

Marcia Stinson	AMD	David Soanes	Armtec
Jina Robertshaw	AMD	Jason Sherwood	Atlantic
Jason Johnston	Armtec	Matt Field	Atlantic
Roger Leger	Armtec	Bobby Weir	MarMac

1. Welcome and Opening Remarks

Pat opened the meeting at 1:00 p.m. and welcomed everyone. Attendance was taken and is recorded above.

2. Review Minutes from April 10th, 2026, and Approve

Minutes were sent to all committee members and those in attendance. A motion for approval was made by **Scott MacRae**, second by **Graham Nickerson** and was carried unanimously.

3. Project List Update

a) CSA G401-24 update

CSA Committee – 23 members

DOT's	8
Cities	1
Consultants	3

University	1
Manuf. & Producers	8
CSA	1
CSPI	1

Standard contains 87 updates – some errata, some new

Key updates include:

1. References
2. Definitions
3. Differentiate metric versus imperial
4. Explanation of wet storage stain
5. Polymer laminated field repairs
6. New couplers
7. Errata edits

Next steps:

- Public Review of Draft, Quality Review and Editing April 2026
- Made 3 comments on Coupler Bolts and deletion of two figures
- Committee Ballot and Ballot Disposition pending
- Production, Final Editing and English Publication pending
- French Translation and Publication pending

b) EPD's update

- AMD reviewed NA 2024 and determined there was an issue with recycling rates – republished and posted.
- 2024 results show a 3% decrease from 2018
- AMD XCARB results show a 33% decrease

Next step:

- Carbon calculator to be updated and include HDPE if an EPD can be found this summer.

c) MTO – OPSS for Structural Plate Package

Specification on Buried Bridges, OPSS 960 – Construction, 1805 – Materials, 1863 – Geomembrane Liners released in May 2026.

Covers the following:

1. Design & Submission Requirements
2. Materials
3. Equipment
4. Construction
5. Quality Assurance

Next steps:

1. Meeting scheduled for June 30th to discuss progress on HOC tables and standard drawings.

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Question 1: Loose bolts, torque control specifications improvement is required, lock tight on bolted connections may be required?

Response: The torquing of bolts is contained in Chapter 7, Page 320 of our Handbook. "The bolts should be torqued to a minimum 200 N.m and a maximum of 340 N.m."

Please confirm that torquing is contained in the drawings.

This is a requirement on supplier drawings and is the responsibility of each manufacturer.

Question 2: Could you provide the map of PH acidity with red spots to MTO?

Response: Will be sent once I respond. [Agreed.](#)

Question 3: Is reinstatement of black polymeric coating in field possible?

Response: Yes. Please see CSA G401 and technical bulletin 2 on our website at <https://cspi.ca/1-resources-technical-bulletins/>. Agreed.

Question 4: Can you provide a standard drawing for connection at the foundation due to loss of backfill improvement?

Response: Ask for clarification & a photo.

Question 5: We have experienced cracks at the connections mostly after re-lining. May be overdesign by increase of plate thickness?

Response: Ask for clarification & a photo of some examples. This may not be installed with improper lapping.

Question 6: Vibration issues on long spans with a lower backfill. Again, overdesign or double plates reinforcement should be recommended in the manual?

Response: [CHBDC covers fatigue design. What stage is MTO referring to?](#)

Question 7: Looking for Information on the coating, if it has any effect on the water quality?

Response: [Will send a study that was done in BC some time ago. Mike Mounts to send me MSDS on polymer.](#)

Question 8: Information on repairs, if we used this for a large wildlife culvert, how would we do repairs down the line and what kind of repairs would be typical?

Response: [Coating repairs / relining. Send them T.B.'s.](#)

Question 9: How do we ensure waterproofing for 75 years in a wildlife crossing?

Response: [CHBDC – waterproofing membranes & proper installation. OPSS 1863 – send them a copy.](#)

d) MTQ Standards update

- October 7th in Quebec City – met with 3 ministry personnel and 5 members attended.
- We discussed the responsibilities for the geotechnical consultant, structural engineer, manufacturer, & contractor to clear up foundation design confusion.
- The ministry is open to receiving some examples covering the roles within bridge projects. (AIL & Armtec to obtain). [Outstanding](#)
- Sent Ministry information on the direction of HOC. Table pending completion.
- [HOC should be ready by fall of 2026. AIL & Armtec to submit.](#)

e) AT Standards update

- Meeting: Wednesday April 22nd in Edmonton
- Very interested in MTO OPSS Buried Bridges
- Move forward on eliminating mandatory rerolled ends on culverts.

f) DOT updates

Saskatchewan

Question 1: For a given DSL, suitable materials are first identified using the pH vs resistivity charts (data point must fall to the right and above the boundary lines).

The selected materials are then further checked against abrasion level, CaCO_3 , and chloride using the corresponding charts.

Is our understanding of the selection steps correct? In the Bulletin charts, the boundary lines appear independent of culvert thickness (e.g., applicable to 1.6 mm to 3.5 mm). This suggests that EMSL is governed by the first perforation concept, regardless of thickness.

Response: Correct. These charts were developed from extensive lab testing for corrosion and abrasion. The culvert thickness is the minimum required for site conditions displayed in the charts. As diameters increase, thicknesses will increase as per the CSPI Handbook. [TB #1 – increased service life due to thickness.](#)

Question 2: If this interpretation is correct, and if so, is this approach conservative given that thicker culverts typically have longer service lives?

Response: Absolutely. There are several factors that are used to determine steel thickness such as structural loads, abrasion, corrugation profiles, etc. These charts are used to determine corrosion parameters for material coatings. [Follow the charts as designed.](#)

Question 3: We are also considering whether consultants could use the CSPI online Service Life Calculator instead, as the Bulletin method may not be straightforward for all users. However, we noted the following:

Chloride is not an input in the tool.
Results are thickness dependent (thicker culverts result in longer life).
The tool follows the NCSA Design Manual methodology.

Could you confirm whether the online tool is based on the NCSA method rather than the CSPI Tech Bulletin?

Response: Yes. It was based upon the NCSA calculator converted to metric and dates to prior to my time of joining CSPI in 2014. It is a guide, but you are correct that it does not take into consideration chloride levels. Thus, needs updating and is in our to do list. [For the Canadian market use the Technical Bulletins.](#)

Question 4: How should this tool be used relative to the Bulletin? Can consultants rely on it for design?

For reference, using the following example:

- DSL = 50 years
- Resistivity = 1800 ohm-cm
- pH = 6.5
- Abrasion = 1

- $\text{CaCO}_3 = 400 \text{ ppm}$

The Bulletin suggests Aluminized Type 2 and Polymer-laminated CSP, while the online tool indicates that galvanized CSP (e.g., 14 gauge) may also meet the service life.

We aim to include the most appropriate and practical guidance in our Hydraulic Manual.

Response: Presently, as you pointed out, the calculator does not take into consideration chlorides, plus gave you a different selection based upon the criteria shown, thus should not be used in your manual. The bulletin is up to date based upon our latest lab and field tests and was updated in 2020. [In addition, use HOC tables.](#)

Question 5: Chapter 6 of the Handbook, Table 6.2 does not include the plastic section modulus, Z of the shallow structural plate while Table 6.3 has plastic modulus Z given for deeper plates.

I know the values can be calculated for the structural plates, but it might not be straight forward as the corrugation varies. Can you inquire if these values can be included in future revisions, as these can be used in calculation of plastic moment, for example in page 268 of Chapter 6?

I will appreciate as well if there is a common formula that was used to find Z for deeper section and I can use that as reference to find for a shallower section.

Response For the 152 x 51 mm profile, please use the following and this will be included in our handbook in the next update. [Agreed. Will need chart for 500 x 237 mm profile.](#)

*Nominal Thickness mm t	Design Thickness mm t _a	Area mm ² /mm A	Moment of Inertia mm ⁴ /mm I	Radius of Gyration mm r	Elastic Section Modulus (mm ³ /mm) S	Plastic Section Modulus (mm ³ /mm) Z _x	Plastic Moment Strength kNm/m M _p
3.00	2.84	3.52	1057.3	17.33	39.42	53.87	12.39
4.00	3.89	4.83	1457.6	17.38	53.30	73.83	16.98
5.00	4.95	6.15	1867.1	17.43	66.98	94.04	21.63
6.00	6.00	7.46	2278.3	17.48	80.22	116.04	26.69
7.00	7.00	8.71	2675.1	17.52	92.56	135.52	31.17

PEI

Question 1: Can one connect two pipes in a trench full of water?

Response: Yes. While challenging it can be done with Hugger Bands, CSP couplers, etc. [Agreed.](#)

Question 2: Can one produce an offset lateral S-shape in the field, or does it have to be done in the fabricating plant?

Response Clarification of S, however it can be field or plant. [Agreed.](#)

Question 3: What diameters are available in spiral rib pipe?

Response 450 mm – 2600 mm, please confirm. [Agreed.](#)

g) Handbook Committee update

- a) 2 Year Project
- b) Member participation
- c) Chapter by chapter
- Work underway on design / HOC / standard references / compaction tables / culvert location / rehabilitation.
- Plan is to keep HOC to ASTM <3M, CHBDC >3M
- [Next Meeting – August TBD](#)

4. Member / Ongoing Items update

a) AMD – T.B. on wild / forest fires deferred to summer

Discussion from last meeting:

Centered on water storage tanks in development areas where TUBAO in France have had great success. An issue brought up concerned the water tightness of the tanks and susceptibility to leaking.

Action Item:

[Reach out to TUBAO for more information for discussion at the next meeting.](#)

b) Cleveland Cliffs

[Mitchell – not in attendance.](#)

c) Valgroup

[Mike – nothing to report.](#)

d) Leland

[Mike - nothing to report.](#)

e) Warner

[Jonathan – nothing to report.](#)

f) Ironside

Derek – nothing to report.

g) ACI - alternate products to RanVar

Todd – nothing to report.

h) MarMac

Richard – positive feedback on QR sticker attached to the couplers that takes one through installation.

i) Steel Dynamics

P.C. – not in attendance.

5. Other Associations - Updates

a) NCSPA update – Mike McGough (from virtual NCSPA TAC Meeting)

1. Design Manual is in final stages of completion – 120 updates including seismic in design, tracked vehicles and expect to be live by year end.
2. EPD – final stages of review and results should be released this summer.
3. AGM was held weekend of April 18th – 19th.

b) ASTM update

1. Spring meetings held in May 2026 in Dalla Texas.
2. Fall meetings November 1st – 3rd in Jacksonville Florida.
3. AO5 Main – 2 ballots covering coatings.
4. AO5-17 CSP Committee – Mike is new chair taking over from Phil Perry who has retired.
5. Attended a virtual meeting on A96 (*Structural Design of CSP & Arches for Sewers*) chaired by Kevin Williams on May 11th. Ballot is pending.

c) TAC update / 2026 Spring Meetings & October Conference in Winnipeg

Spring Meetings (virtual)

- Apr 8th Climate Change Integrated Committee
- Apr 13th Environmental Issues Committee
- Apr 14th Structures Committee
- Apr 15th Environmental Legislation Committee

Conference

- Abstract on "Buried Bridges" accepted.
- Paper & Presentation submitted – pending approval.

d) **AASHTO / TRB / AREMA / AISI**

AASHTO Nothing to report.

TRB Nothing to report.

AREMA Nothing to report.

AISI Nothing to report.

6. Discussion / Old / New Business

a) **Polymer repair Technical Bulletin updates**

To be finalized this summer.

b) **Bolt issue identified in Newfoundland and Labrador with salt seepage. Report to be prepared.**

To be finalized this summer.

c) **Technical Bulletin #13, Performance Guideline for Buried Steel Structures – reference to AASHTO electrochemical tests to previous version. Update pending.**

Updates include:

- References & definitions
- Grammar consistency
- AASHTO test methods
- New profiles added
- Bolt coatings

Outstanding:

- Soil environments, zinc & carbon loss rates, corrosion allowance
- Update to CHBDC S6:25, table 2.5, etc.

Pat looking after the update with regards to CHBDC.

d) **Online Tool – CSP configurator**

[Remove.](#)

e) **Rerolled ends for Aluminized Type II – cracking – why? then must paint. Continue discussion from last meeting.**

[Remove as this is being discussed at DOT meetings.](#)

f) **Technical bulletin for safe handling, stacking, bundling of CSP.**

Will be reviewed and written this summer. Obtain copy from Jason Johnston.

New Business

- a) Review online calculator to align with Technical Bulletins.
- b) Update Technical Bulletin #31 (Geomembranes over Buried Bridges & Culverts) to align with CHBDC – Pat
- c) CHBDC – Table 5, 7.6 – work with Pat & Kevin.
- d) SWM
 - 1) Sub Committee
 - 2) Target Applications
 - 3) Stelligence, 1 or 2 projects
 - 4) Calculator – CD
 - 5) Members – Matt, Pat, Richard, Rodrigo Silva, Dominic Turner, Kamran
 - 6) Set up a date in the fall
- e) Sustainability – presently not in tenders or contracts at this time in Canada. There is a great deal of talk and questions from DOT's, however no requirements. Only durability and economics for part of tenders.

7. Adjourn & Next Meeting TBD by Chair

The meeting was adjourned at **2:25 pm** motioned by **Kamran Derayeh** and second by **Terry Dunn** and was carried unanimously.

Pat Mayne
Chair

Ray Wilcock
Executive Director