

1:00 P.M. Thursday December 7th, 2017 – Kitchener, Ontario

Present:

Kevin Williams (Chair)	Atlantic	Kamran Derayeh	ArcelorMittal
Nick Spence	Atlantic	Byron Nelson	Leland
Jason Sherwood	Atlantic	Ian Berry	Warner
Heba Ahmed	Armtec	Mike Mounts	Valfilm
Lyndsay Dokas	Armtec	Jim Evans	AK Steel
Bruce Matheson	Frontier	Ray Wilcock	CSPI
Marc Warden	Hubbell		

Guests:

Janine Yetke	Armtec	Mike McGough	NCSPA
Riley Wilson	Atlantic	Chuck Hitt	Worthington
Dave Newbigging	AMD		

Absent:

Phil Carroll	Atlantic	John Buckner	Tee Group
Shane Setter	Ironside	Dave Watson	Leland
Randy McDonald	Armtec		

1. Welcome and Opening Remarks

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

2. Review Minutes from October 6th, 2017

Minutes were reviewed and a motion for approval was made by **Jason Sherwood**, second by **Byron Nelson**.

3. Outstanding Items to Complete

a) Bolt & Nut Research

- **MTQ Report update - Ray**
- Still waiting to hear back from MTQ on bolt specification.
- Pete Ault – U.S. tests to start in two weeks
- [Post MTQ lab report on the website \(members section\)](#)

➤ **Product Specification - Kevin**

- Content complete – post on website (members section)

➤ **Technical Bulletin sign off - Kevin**

- Bulletin was distributed to the TAC Committee for review
- Kevin suggested the removal of abrasion classes 1, 2 & 3 for the present as they can be added later based upon further tests – all agreed
- Format & post to the website (members section)

b) Rehabilitation Gap Analysis Literature Review - Nick

- MTO issues requiring rehabilitation brought up at latest buried bridge presentation:
 - Flattening of the crown
 - Seam openings – pull apart
 - Haunches buckling – invert rising
 - Crimping of the conduit walls (along the wall haunches)
 - Bolt hole tears
 - Excessive deformation of the conduit especially along the crown and shoulders
 - Water leakage along plate seams and through bolt holes
 - Corrosion and cross section losses (difficult to quantify and repair)
- Nick spoke with Ian Moore who is very interested
- Move forward in the 1st Q 2018

c) MTO – Structural Plate Standards Advancement - Nick

CSPI will put together all of the documents related to polymer coated plate as follows:

- All test results (MTQ and others)
 - Durability Technical Bulletin
 - Map of Ontario – polymer coated sites
 - MTQ S.P. Specification
 - Provide standard backfill drawings
 - Set up a visit to Warner Custom Coating in Guelph (presentation and plant tour)
 - Polymer Coated SP is in the Ontario Design Build Specification
 - CSPI Technical Committee to decide if we go forward with a S.P. Design Manual
 - Target 1st Q 2018
- Put together a package containing research reports, material standards, site reports for Nick & Heba to review
 - Set up meeting date in the 1st Q with Magdy (MTO)

d) Galvalume - Kamran

Report from Pete Ault - comments made to the initial draft

1. The hardness result was that “Aluminized Type 2 exhibited slightly more rust speck than the other two materials.” I’m not sure that “rust speck” correlates to service life as we typically measure it, but I will re-visit the limits.
2. Sorry, my statement “Galvalume would be positioned somewhere between Type 2 and galvanized” was not very clear. I believe that based on the data, a slightly wider environmental range can be justified for Galvalume, but I see no data showing that the service life of Galvalume will be longer for Galvalume in an environment suitable for both Galvalume and Aluminized hence the service life for Galvalume may be equal to or slightly less than Aluminized. Finally, note that the dataset is pretty sparse to support any of these conclusions.
3. It’ll be interesting to see how the field tests perform over time.
 - An updated white paper and data compilation should be ready before the end of the year
 - Ray purchased a PosiTector 6000 thickness gauge for all member CSPI use. It was used in Thunder Bay on November 2nd at the test site for Polymer Laminated, Aluminized and Galvanized. In 2018, it will be used during the visits to Port Alberni and Algonquin Park.
 - [Committee to review white paper and determine next step](#)

e) Technical Bulletin on Invert Reline - Ray

[Action: Ray to draft a technical bulletin using the article from Sweden in the 1st Q 2018, to be reviewed at the next TAC meeting.](#)

f) OPS Height of Cover Tables - Ray

CSPI responded to OPSD on the following:

805.010 CSP & SPCS Round Pipe
805.030 Spiral Rib Round Pipe
805.040 Spiral Rib Pipe-Arch

[805.020 CSP & SPCS Pipe-Arch – Kevin to finalize review and seal document.](#)

- Milestone #5: April 30, 2018 – OPS Drainage Committee complete the review of the height of fill table material
- Milestone #6: November 30, 2018 – publication of updated height of fill table in the OPS system

g) Sustainability(EPD) - Ray

Summarized report was sent to Stan Lipkowski of AMD. Agreement was signed with SCS Global Services. Project in process.

Latest update from Stan:

"I hope to have the modeling complete in the next few weeks. I then have to write the LCA report (at least edit the CSSBI report which shouldn't take too long) and submit it for peer review. Peer review should take a month and once it's done we'll have to put it in the EPD template and have the EPD approved by the program operator."

"It should be all done by April certainly before your summer meeting."

4. Long Term Items

a) ASTM A742 Review & Testing – Ian

As per the conference call held on April 21st 2016 it was agreed to proceed with the following tests:

- Adhesion in ASTM A742 (mandrel bend);
- Adhesion in ASTM D3359
- Boiling water adhesion test
- Salt spray.
- Samples were supplied to Warner.
- [Ian has reached out to a supplier for testing \(external lab\) – s/b completed by the end of the 1st Q 2018](#)

b) SWM/Buried Bridge Action items – PPC Top 5 Items

Feedback from DOTS and Municipalities:

- 1) Municipalities do not allow steel in Storm Sewers / SWM within the city)
- 2) Municipalities allow steel in culverts and bridges (Provincial Specs / CHBDC)
- 3) Municipalities knew very little of coatings for durability
 - [Education has started during meetings / presentation](#)
- 4) Many municipalities are open to new technology and have asked CSPI back to present
 - [In progress – meetings / presentations to be scheduled](#)
- 5) PEI – backfill has to be brought in from NB, thus a bias to concrete structures (analysis required)
- 6) Many referred to past experiences of CSP rusting at the inverts and having short life
 - [Education – in progress](#)
- 7) Many concerned with proper installation and manufacturing issues (polymer)
- 8) Alberta - Polymer Plate, hole in the valley being damaged by torquing of bolts
 - [Initiate technical bulletin](#)
- 9) Alberta asked CSPI to post certified Provinces on our website.
 - [PPC Committee approval required.](#)

- 10) Edmonton concerned with the ultimate responsibility (Engineer / Designer of record) as nobody wants to take responsibility
- 11) Sask DOT would like a CSPI guideline on optimal equipment (size of compactors) as job sites as per span / size of project
- 12) Sask DOT – what material can they use in environments with resistivity < 200 ohm cm
- 13) Sask DOT – clarification of CSA G401 on # of bolts per coupler size (300mm / 600mm) and who makes semi corrugated couplers (in CSA G401)
 - [CSA update in 2019](#)
- 14) MTO – would like copy of MTQ bolt research report
 - [TAC Committee approval required](#)
- 15) MTQ – testing of Polymer Coated plate in tidal / brackish waters (send Gerard the west and east coast sites)
 - [Visit BC / NS test sites for updates. Quebec test started in September 2017.](#)
- 16) MTQ – what type of membrane to be used for bridge water tightness
 - [Check with Ten Cate.](#)
- 17) Minimum diameter of spiral rib pipe is 450mm – median drains are 300mm
- 18) Full review of the Supplemental Specifications for Municipal Services (DGSSMS) is required
 - [Winter project](#)
- 19) MAN DOT – moving to certification in 2017 / 2018
 - [CSPI to follow up](#)
- 20) MAN DOT issue – require piles due to soft soil which could compromise cost savings

The five items as voted on by the committee were:

1. [Municipalities – focus on standards for storm sewers and culverts](#)
 2. [Education on durability / coatings available](#)
 3. [Education on proper installation and manufacturing of polymer](#)
 4. [Analysis for PEI DOT – bringing backfill in from N.B. \(plate versus concrete envelopes\)](#)
 5. [a\) Full review of the of the DGSSMS](#)
 - b) [Technical bulletin on alternatives to granular backfill](#)
- Jason suggested a life cycle cost analysis on the entire project of the Coquihalla highway. He suggested that CSPI could partner with BCMOT and University of British Columbia (grad student).
 - [Ray will reach out to Frank Dacho of BCMOT in the new year to determine interest.](#)

c) Thermopolymer plate in brackish/salt water - Ray

There are three sites requiring a review (1 in BC, PQ & NS). New site in Quebec, Cap A L'aigle – report to be issued. MTQ are extremely interested in these sites as this is their number one concern.

- [Ray will visit during 2018 travel and will report back once complete.](#)

5. Ongoing Items

a) Kleskun Hills Report – approval of August 10th report

- [Send report to Heba for sign off.](#)

b) ASTM

- Kevin mentioned A742 discussed above in 4(a).
- [Mike Mounts will be doing some salt spray testing on polymer laminate with Valfilm's European customers to compare against their North American results – there appears to be conflicting results](#)

c) NCSPA

Mike McGough update:

- Polymer plate testing is the final phase of salt spray (corrosion) and abrasion - results expected end of January 2018
- ASTM draft specifications for polymer plate – 1st ballot in the 1st Q of 2018
- CSP joint tests with Queens to continue in 2018. Will include non-rerolled and rerolled ends with dimple band couplers. This could lead to elimination of rerolled ends.
- Ian Moore wants to stick with steel only as RCP and HDPE need approval from related companies / associations
- Have set up data collection sites in a number of states to prove durability using thickness gauges (science) to prove material service life performance. Recently convinced the state of Ohio to use this method to determine service life.
- Design Manual containing over 50 edits will be published in the new year.
- [Submit comments to Mike on ASTM polymer plate specification by January 31st, 2018](#)

d) TRB

[Kevin to supply comments – missed the notes on this one](#)

e) CSA G401

CSA G401 Revisions List

5.1.3 Helical Lockseam CSP – for 1.1 change the diameter to a range (100mm – 3600mm) and tables 10 and 11 to standard sizes.

5.1.3.8 Welding of Coil Ends – wording required to address the reference to CSA W59 and its reference to CSA W47.1 certification requirement.

6.1 Quality of Work – (f) refers to defective welds (as defined in CSA W59) – thus the reference back to butt welds. We need to define certified welding between CSP & SPCS.

6.2.1 Repair of damaged metallic coating – references CAN/CGSB-1.181 which was withdrawn in October 2011. The equivalent standard is ASTM A760 which references A780 for repair.

Table 1 Chemical Composition of Steel – exceeds AASHTO M218 total composition cannot exceed 0.70. S/B updated for compliance.

Table 18 Minimum Coupler Dimensions – breakout corrugated and semi-corrugated couplers (very confusing). Semi corrugated 600mm couplers – does anyone manufacture this in Canada? In addition, identify that 600mm diameter refers to 5 bolts (can be interpreted incorrectly).

Other:

1. AASHTO M218 lists mechanical requirements of coil prior to fabrication
 - Tensile – 310 MPa minimum
 - Yield – 230 MPa minimum
 - Elongation in 50mm – 20% minimumG401 does not have a mechanical properties requirement for CSP material.
2. Welded lockseams for the North – permafrost
3. Markings – on both sides / logos versus names?
4. Polymer Laminated Repair – Denso 35?
5. Bolts
 - Mock up standard and send to committee for review – 1st Q 2018
 - Submit to CSA for costing & review

f) AREMA

No update.

g) CSCC (Canadian Steel Construction Council)

Nothing to report.

h) AISI 2018 Projects Presented

There were two meetings with AISI since June 5th. On June 20th, CSPI presented the status on 2017 projects and on August 30th the 2018 project list for funding. Decision will be made by year end.

2018 Projects Presented

1. Polymer Laminated Steel	10,000
2. CSA Certification Programs	10,000
3. University Outreach Program	5,000
4. Galvalume Projects in 3 Provinces	5,000

5. Floodnet	1,000
6. Environmental product declaration	5,000
7. Life cycle comparison	5,000
8. CSA G401 rewrite for 2019	5,000
9. Rehabilitation of Older Culverts/Bridges	5,000
Total	\$51,000
No update	

6. Discussion / New Business

a) Winter Storage Technical Bulletin

- Phil sent three documents for review. Ray will summarize and put together a technical bulletin draft for review - Winter 2019

7. Adjourn & Next Meeting

The meeting was adjourned at **2:30 p.m.** Next meeting will be at the call of the chair.

Secretary
Ray Wilcock