

ACEC/MaineDOT Bridge Design Subcommittee

MEETING NOTES

March 22, 2023

Location

Hybrid: Virtual/MDOT HQ Room 317

Time

9:00 AM to 11:00 AM

Purpose of Meeting

1st Quarter Meeting - 2023

Invitees

- | | |
|---|---|
| <input checked="" type="checkbox"/> Garrett Gustafson, MaineDOT | <input checked="" type="checkbox"/> Daniel Taylor, Stantec |
| <input checked="" type="checkbox"/> Laura Krusinski, MaineDOT | <input checked="" type="checkbox"/> Keith Wood, Kleinfelder |
| <input checked="" type="checkbox"/> Ron Taylor, MaineDOT | <input checked="" type="checkbox"/> Ashley Stephens, HNTB |
| <input checked="" type="checkbox"/> Richard Myers, MaineDOT | <input checked="" type="checkbox"/> Andrew Blaisdell, GZA |
| <input checked="" type="checkbox"/> Devan Eaton, MaineDOT | <input checked="" type="checkbox"/> Ben Toothaker, TYLIN |
| <input checked="" type="checkbox"/> Joshua Hasbrouck, MaineDOT | |
| <input type="checkbox"/> Chad Lewis, MaineDOT | |
| <input checked="" type="checkbox"/> Joe Stilwell, MaineDOT | |

AGENDA ITEMS

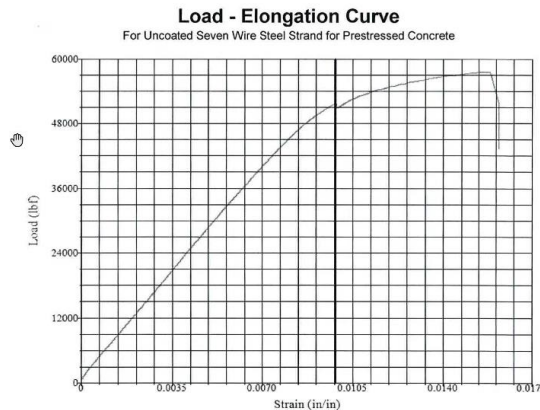
1. Members
 - a. Josh Hasbrouck & Chad Lewis new members.
 - b. Shannon Beaumont will replace Dan Taylor next meeting.
2. Meeting Minutes Submission – minutes have been posted to the website.
3. Information Dissemination by MaineDOT
 - a. Contracting/workload
 - 2023-2025 work plan available to the public. Note that numbers reported at last meeting were new projects only, not total.
 - b. Federal Grants & Federal Funding Updates
 - PDRs by June of that year for Grant candidate projects.
 - \$75 mil per year.
 - One \$100+ mil Grant opportunity
 - Augusta-Waterville 8 Bridge Bundle – 2024 Grant Application.
 - All but 2 are active.
 - I-395 Bangor-Brewer 6 bridge bundle – 2026 Grant Application.
 - Mega grant 25 bridges in Portland-South Portland area.
 - c. MaineDOT Staffing Update:
 - Tony Beaulieu – Promoted to Region 3 Engineer.
 - Senior Structural Engineer in team north available
 - Tim Aguilar – TE2 team south
 - North – Assistant transportation engineer starting in June.
 - Jeremiah promoted to senior tech north utility coordinator.
 - Rich Myers – promoted assistant program manager.
 - Will be down to 4 detailers soon in the program.
 - d. Construction Cost Estimating/Bid Result updates
 - Precasters Type 3 cement is 30% more this season.
 - \$2.60-2.75 / lb for steel. \$18/SF for metalizing.
 - Rebar prices are fairly stable. Stainless is still higher, but trending in right direction.
 - GFRP – keep bar lengths under 50’.
 - NEXT beams – 6 month fabrication timeline.
 - Box culverts – get out 3rd or 4th quarter if you want them built the next year.

- Girders – 12-16 months fab time.
 - Fabrication has a database that they track all prefab items including cost.
 - e. Standards Update (BDG, PDR/PIC, CADD, Notes) –
 - BDG update
 - Chapter 1 and 2 (shortly) are in a good place. Few months may distribute to larger group. 1 – general philosophy, 2 – project development. 3 – prelim design, etc. 4 – hydraulics.
 - New standard details have been posted to the website. FRP drain details. Diaphragm/xframe general notes. Reinforcing details around drains have been updated to not be specific to black bar. Note 18 is redundant and will be removed. Concrete transition barriers have been updated.
 - Should the FRP type listed in the special provision be shown on the standard details? Long term to-do list goal.
 - Standard notes – most common notes have been updated and are posted. There are still some less common notes that are still outdated.
 - f. OpenRoads schedule/update.
 - AJ – group of people developing training for each discipline. Working on a customized MaineDOT workspace.
4. Summary of Designer Meetings
- a. 4 meetings.
 - Jan 11 – Asphaltic plug joints. Few “failures” that brought this to light – Wilson Street in Brewer and Bangor Ohio Street. Deep approach slabs. Both semi- or integral. Wilson Street there is a 2” dip in the approach – lots of settlement right in the APJ.
 - Biddeford Interchange plate failure.
 - Pavement thickness may play into it.
 - Could be installation issue.
 - Maximum spacing of rebar in decks. 18” okay, as shown in BDG for temp bars.
 - The box culvert rail post detail that’s embedded in concrete is not crash tested. Should be detailed with base plate and typical anchorage. There will be some standard plans developed for this.
 - Reducing bridge deck cracking – fiber reinforced concrete will be an option to look at. NHDOT uses this in their approach slabs.
 - Valmont – press brake tub girder U-beam. Galvanized. Shipping from TN. MaineDOT willing to try on low priority bridge.
 - Typical detail for shoulder widening for mill & overlay. Work outside the pavement area. Lot of different details, looking for something more consistent.
 - Shim is typically only for the interstate.
 - BDG re-write – new PDR cost estimate template. Relaxing need to round totals and perfectly match PDR write-up. Should be simpler than old format. LS should have CY or unit item shown. Don’t include inflation separately, just use latest best information. Should be updated throughout the project. Contingencies will be limited to complex or rehab projects. Potentially submit Excel with cost references included, but probably not in PDR. Coordinate with PM on PE costs.
 - ROW costs – check with PM. Typical numbers: No impact \$5k, sliver take \$15k, full taking needs to be worked out.
 - 10% typical CE cost. For large projects, dial back.
5. Geotechnical Update (Laura K.)
- a. Research proposal – Aaron Gallant – TIDC – elastic inclusion behind long span skewed integral structure. Didn’t get funding for Milo. Laura to identify candidate project before it will continue. Shapearrays (dropped down traditional casing) to

replace inclinometers for lateral deformations to get real-time data. 7 installed in Brewer-Eddington. MaineDOT purchased some – 40' lengths.

6. Discussion Topics

- a. MassDOT – Moratorium on micropiles on integral abutment bridges. No more until further research.
 - MaineDOT feels that micropile IABs have their place.
 - 2020 research paper for micropile IABs.
 - Don't locate threads in high moment regions.
- b. Stainless steel strands in prestressed beams.
 - Woolwich Pleasant Cove – 1/3 of the strands ruptured during de-tensioning. First in country, maybe world. No harped strands. Precaster needed to submit detensioning sequence. 90% initially – 3 girder setup. 9' free end.



- New guidance needed on strand stick out, etc.
- Second attempt: 2 girder setup – 75%. 24' free end.
- Blue hill – 15' free end. Differential pull force. Outside full, inside reduced.
- Moving forward – design – do preliminary de-tensioning sequence to see if we're close to 1%. Ideally want to be 80% of 1% strain.
- A white paper will be developed between HNTB, Cararra, and MaineDOT. Taylor will be working on this, hopefully out this summer.
- c. Fabrication
 - Concrete suppliers are moving to 1L cement. Active now. Little less workable.
 - Research with UMaine to do Portland limestone cement. Work in progress – end of April.
 - EBC sediment issue?

7. NHDOT ACEC Meeting Topics (held 3/10)

- a. Adding extra longitudinal bar in face of curb for steel bridge rail due to MASH testing recommendation, though it likely will be moved to above the anchor plate. Once MaineDOT knows what changes they plan to adopt, if any, please reach out to NHDOT.
- b. Mechanical coupler changes as a result of ASTM reduction in tensile strength from 90 to 80 ksi for grade 60 rebar. Affected vertical bars during drilled shaft construction. Bolted couplers may be prohibited by MaineDOT spec anyway:

a. Tension Couplers Couplers shall be able to develop 1.25 times the theoretical yield strength of the spliced bar in tension. Bolted and wedge-lock type couplers will not be allowed.

8. Future Discussion Topics

- a. Training Areas
- b. Pedestal type bridge seats with 15% wash. All abutment types, including semi-integral?

- c. Curved girder, high skew, detailing fit preference. No load fit (NLF), total dead load fit (TDLF), steel dead load fit (SDLF).
 - d. Thermal Integrity Profiling: Accept as standard QA procedure for drilled shaft integrity testing, and eliminate CSL testing, for cost savings on future drilled shaft projects?
 - e. Open consultant questions/topics on ACEC website in the works.
9. Subcommittee Rotation for Consultants
- a. Active:
 - Dan Taylor, Stantec Q2 2021 thru Q1 2023
 - Keith Wood, Kleinfelder Q1 2022 thru Q4 2023
 - Ashley Stephens, HNTB Q2 2022 thru Q1 2024
 - Andrew Blaisdell, GZA Q2 2022 thru Q1 2024
 - Ben Toothaker, TYLIN Q4 2022 thru Q3 2024
 - b. Future:
 - Shannon Beaumont, Fuss & O'Neill Q2 2023 thru Q1 2025
10. The Next Meeting is set for: June xx