From:	Graham, Joseph R - DNR
To:	Bessingpas, David; White, Crawford; Sager, John E - DNR; Saari, Christopher A - DNR; Endsley, Erin A - DNR; Patarcity, Jane M (Pittsburgh) USA; Evanko, Hillary M (Pittsburgh) USA; Winter, Douglas; Stuart Messur; Anderson, Paul; Pfeiffer, Danielle; Klatt, David/CHC; Seaman, Jennifer/CHC; Williams, Heather; Fassbender, Judy L - DNR; Steiger, Matthew B - DNR; Hagen, Cherie L - DNR; cieniawski.scott; Loomis, Mark
Cc:	Webb, Carrie A - DNR; Druffner, Jacob D - DNR; Von Holdt, Crystal L - DNR; Nadeau, Jacob G - DNR; Croonborg-Murphy, Jennifer M - DNR
Subject:	RE: Crawford Creek and Tributary GLLA Project: Meeting Summaries and Updates
Date:	Monday, July 15, 2024 8:47:00 AM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png

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All,

Thank you again for the 5/17/2024 presentation on the H&H Model for sub-area A of the Crawford Creek site. Please find the list below constituting the DNR's response to the 05/17/2024 presentation and memo on the H&H model for sub-area A.

1. Provide HEC-RAS model & input files to DNR for review.
2. Run the HEC-RAS model for the condition where neither the BNSF nor Hammond Avenue culverts exist (no culverts scenario).
3. Continue feasibility study and evaluation of remedial action options for sub-area A;
    a. Options 1 (raised channel) & 2 (excavated & restored channel) combined with floodplain material options from previous FFS,
    b. Include additional options as appropriate,
    c. Use model results from the no culverts scenario to evaluate remedial options and for design sub-area A.
4. Summarize communications with landowners about options under consideration for sub-area A and the landowners' willingness to approve (1) flooding easements and (2) permit applications as riparians.
5. Continue efforts to obtain access to conduct additional investigation and characterization of the potential migration pathway for hazardous substances along the high flow overflow (BNSF & Soo Line channels/ditches). DNR requests that a final supplemental site investigation (SI) report for the overflow pathway be provided no later than March 31, 2025.
6. Incorporate overflow pathway SI findings and any remedial alternatives into the overall FFS for the Crawford Creek site.

If this is of interest to the group, we can discuss it during the monthly Crawford Creek GLLA call scheduled for this Friday.

Let us know if you need anything else.

Sincerely,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Joe Graham
Cell: (715) 292-4925
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From: Bessingpas, David <David.Bessingpas@arcadis.com>
Sent: Thursday, June 13, 2024 10:34 PM
To: Graham, Joseph R - DNR <Joseph.Graham@wisconsin.gov>; White, Crawford <White.Crawford@epa.gov>; Sager, John E - DNR <John.Sager@wisconsin.gov>; Saari, Christopher A - DNR <Christopher.Saari@wisconsin.gov>; Endsley, Erin A - DNR <erin.endsley@wisconsin.gov>; Patarcity, Jane M (Pittsburgh) USA <Jane.Patarcity@TRMI.Biz>; Evanko, Hillary M (Pittsburgh) USA <Hillary.Evanko@Trmi.biz>; Winter, Douglas <Douglas.Winter@jacobs.com>; Stuart Messur <smessur@anchorqea.com>; Anderson, Paul <Paul.Anderson@arcadis.com>; Pfeiffer, Danielle <Danielle.Pfeiffer@arcadis.com>; Klatt, David/CHC <David.Klatt@jacobs.com>; Seaman, Jennifer/CHC <jennifer.seaman@jacobs.com>; Williams, Heather <williams.heather@epa.gov>; Fassbender, Judy L - DNR <Judy.Fassbender@wisconsin.gov>; Steiger, Matthew B - DNR <Matthew.Steiger@wisconsin.gov>; Hagen, Cherie L - DNR <Cherie.Hagen@wisconsin.gov>; cieniawski.scott <cieniawski.scott@epa.gov>; Loomis, Mark <Loomis.Mark@epa.gov>
Cc: Webb, Carrie A - DNR <CarrieA.Webb@wisconsin.gov>; Druffner, Jacob D - DNR <jacob.druffner@wisconsin.gov>; Von Holdt, Crystal L - DNR <Crystal.VonHoldt@wisconsin.gov>; Nadeau, Jacob G - DNR <jacob.nadeau@wisconsin.gov>; Croonborg-Murphy, Jennifer M - DNR <Jennifer.CroonborgMurphy@wisconsin.gov>
Subject: RE: Crawford Creek and Tributary GLLA Project: Meeting Summaries and Updates

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Hi Joe,

Here is new link for the Sub-Area A Modeling Tech Memo: https://we.tl/t-K77nLuj2Wg

Please confirm whether or not this works. If it doesn't, I can try something different.

Thanks, Dave

David Bessingpas
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From: Graham, Joseph R - DNR <Joseph.Graham@wisconsin.gov>
Sent: Thursday, June 13, 2024 8:23 AM
To: White, Crawford <White.Crawford@epa.gov>; Sager, John E - DNR <John.Sager@wisconsin.gov>; Saari, Christopher A - DNR <Christopher.Saari@wisconsin.gov>; Endsley, Erin A - DNR <erin.endsley@wisconsin.gov>; Patarcity, Jane M (Pittsburgh) USA <Jane.Patarcity@TRMI.Biz>; Evanko, Hillary M (Pittsburgh) USA <Hillary.Evanko@Trmi.biz>; Winter, Douglas <Douglas.Winter@jacobs.com>; Bessingpas, David <David.Bessingpas@arcadis.com>; Stuart Messur <smessur@anchorqea.com>; Anderson, Paul <Paul.Anderson@arcadis.com>; Pfeiffer, Danielle <Danielle.Pfeiffer@arcadis.com>; Klatt, David/CHC <David.Klatt@jacobs.com>; Seaman, Jennifer/CHC <jennifer.seaman@jacobs.com>; Williams, Heather <williams.heather@epa.gov>; Fassbender, Judy L - DNR <Judy.Fassbender@wisconsin.gov>; Steiger, Matthew B - DNR <Matthew.Steiger@wisconsin.gov>; Hagen, Cherie L - DNR <Cherie.Hagen@wisconsin.gov>; cieniawski.scott <cieniawski.scott@epa.gov>; Loomis, Mark <Loomis.Mark@epa.gov>
Cc: Webb, Carrie A - DNR <CarrieA.Webb@wisconsin.gov>; Druffner, Jacob D - DNR <jacob.druffner@wisconsin.gov>; Von Holdt, Crystal L - DNR <Crystal.VonHoldt@wisconsin.gov>; Nadeau, Jacob G - DNR <jacob.nadeau@wisconsin.gov>; Croonborg-Murphy, Jennifer M - DNR <Jennifer.CroonborgMurphy@wisconsin.gov>
Subject: RE: Crawford Creek and Tributary GLLA Project: Meeting Summaries and Updates

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Crawford and others,

Thank you for the update and summaries of the recent meetings and activities. Please consider distributing notes from future calls sooner to help ensure a fresh understanding of discussions, decisions, and action items.

Below are two clarifications that DNR suggests should be made to the notes along with an update on our review of the technical memo.

05/17 9:00 AM Discussion – Notes should be amended to include:

Time of call, i.e., 9:00 AM

Joe from DNR asked if the team considered the alternative when all the flow is seen by the outfall channel in the event the size of the culverts at BNSF and Hammond Ave. are increased or no longer exist. Jennifer from Jacobs indicated this was not evaluated.

05/17 10:00 AM Presentation – Notes should be amended to include:

Time of call, i.e., 10:00 AM

H&H Model Presentation Slide 17/17, Next Steps indicated WDNR Review of Tech Memo. Dave Bessingpas said the following input from DNR was wanted: (1) Has what been done good enough, or should anything be done differently? (2) Does DNR agree that both options are feasible and can be carried into the FS for review? (3) identify any fatal flaws.

Update on WDNR Review of the Tech Memo

At 1:32 PM on 5/17/2024, we received an email from Dave Bessingpas with the subject line, RE: Crawford Creek and Tributary GLLA Project: Sub-Area H&H Modeling Updates. Dave's email included a copy of the presentation and a link to the Modeling Technical Memo.

The link has since expired, and most, if not all, of the DNR staff were unable to retrieve a copy of the report. Unfortunately, the critical reviewers have been unable to begin their review. Yesterday morning, I sent emails to Dave B. and Crawford about this. We hope the tech memo can be provided via a renewed link or other means soon and apologize for not downloading the memo when Dave B's email arrived. I will schedule an internal DNR discussion of the tech memo, though it looks like this will be well into July, given staff workload, holidays, and vacation schedules. I expect to provide another update on the 6/21 call.

Sincerely,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Joe Graham
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joseph.graham@wisconsin.gov

From: White, Crawford <White.Crawford@epa.gov>
Sent: Thursday, June 06, 2024 3:29 PM
To: Graham, Joseph R - DNR <Joseph.Graham@wisconsin.gov>; Sager, John E - DNR <John.Sager@wisconsin.gov>; Saari, Christopher A - DNR <Christopher.Saari@wisconsin.gov>; Endsley, Erin A - DNR <erin.endsley@wisconsin.gov>; Patarcity, Jane M (Pittsburgh) USA <Jane.Patarcity@TRMI.Biz>; Evanko, Hillary M (Pittsburgh) USA <Hillary.Evanko@Trmi.biz>; Winter, Douglas <Douglas.Winter@jacobs.com>; Bessingpas, David <David.Bessingpas@arcadis.com>; Stuart Messur <smessur@anchorqea.com>; Anderson, Paul <Paul.Anderson@arcadis.com>; danielle.pfeiffer@arcadis.com; Klatt, David/CHC <David.Klatt@jacobs.com>; Seaman, Jennifer/CHC <jennifer.seaman@jacobs.com>; Williams, Heather <Williams.Heather@epa.gov>; Fassbender, Judy

L - DNR <Judy.Fassbender@wisconsin.gov>; Steiger, Matthew B - DNR <Matthew.Steiger@wisconsin.gov>; Hagen, Cherie L - DNR <Cherie.Hagen@wisconsin.gov>; cieniawski.scott <cieniawski.scott@epa.gov>; Loomis, Mark <Loomis.Mark@epa.gov>
Subject: Crawford Creek and Tributary GLLA Project: Meeting Summaries and Updates

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Hi All,

We have quite a few things to share in this update email:

- Summaries of our two meetings on 5/17;
- Summary of the 5/21 OHWM field day; and,
- Figure summarizing current DGI progress.

No fieldwork this week but will continue next week and the week after.

5/17: Crawford Creek and Tributary GLLA Project: DGI Progress Report, Project Updates

Attendees

- White, Crawford (Meeting Organizer)
- Graham, Joseph R - DNR
- Sager, John E - DNR
- Saari, Christopher A - DNR
- Endsley, Erin A - DNR
- Patarcity, Jane M (Pittsburgh) USA
- Evanko, Hillary M (Pittsburgh) USA
- Winter, Douglas
- Bessingpas, David
- Stuart Messur
- Anderson, Paul
- danielle.pfeiffer@arcadis.com
- Klatt, David
- Seaman, Jennifer
- Williams, Heather
- Fassbender, Judy L - DNR
- Steiger, Matthew B - DNR
- Hagen, Cherie L - DNR
- Cieniawski, Scott
- Loomis, Mark
- Havlicek, Kevin
- Justin Drehs
- Baker, Joseph

Field Work Update

- 32 borings completed this week

- So far, have seen visual impacts in 4-5 borings in expected areas (inside meanders or in beaver pond area).
- No visual impacts in the perimeter borings - no step outs needed so far.
- 10 locations at lower elevations with standing water (3 inches to 1.5 ft) - the field team skipped these for now. Considering another method to get continuous core (hand auger might not be the best method).
- Lab has a weekly quota on samples received, so the team finished early this past week. However, good to give the field team a break after hand augering.

OHWM Mapping

- DNR crew (3 people from water/waste program) will be onsite and will flag the OHWM from Sub-Areas A through D (confluence with Nemadji River)
- Meeting at Tues 9:30 am at start of Sub-Area A.
- Will be marking based on indicators in the field.
- DNR will not be getting coordinates or elevations of flags.
- The surveyor is available next week - Dave B is hoping they will be able to survey alongside DNR real-time.
- Dave B requests that the OHWM is well-marked - surveyor should not interpret between markings, especially within the tributary.
- Crawford plans to be onsite this day when they are mapping the OHWM.
- Will need to consider weather next week and how it impacts the field work. DNR will coordinate with USEPA and the Beazer team.
- The surveyor can remove the flags/markings if they need to survey the OHWM later instead of real-time.

Modeling

- Modeling shows that the 24-inch culvert under the BNSF RR Crossing doesn't have sufficient capacity under higher flow events.
- Under normal flow conditions, water flows towards the east in the drainage ditch.
- Under higher rain events (5-year and higher storm events), the flow backs up in the ditch along the BNSF RR and reverses to the west.
- In even higher storm events, water can overtop the drainage ditch, spill over into the Soo Line RR "brow ditch", flow towards the north in the ditch, and connect back to the tributary.
- Implications are that impacts from the site could have migrated west through the ditch and then to the north.
- The inundation area crosses the property lines - two different RR entities (SOO Line and BNSF).
- Beazer team is looking into getting access to the RR properties; would want to first do some survey work to confirm the model and LiDAR.
- The next question would be: any impacts from the site migrated into the ditches? Consider if investigation work is needed.
- Joe would like to see Beazer/EPA approach RR first to try and obtain access. However, Joe Graham states that DNR also has tools that they can use to help get access from the RR, if necessary.
- First option considered for sampling is to limit any further investigation sampling in the RR drainage ditches to dioxin and not sample PAHs to avoid conflict with the RR.
- Regarding the Sub-Area A FFS: we plan to move forward with Sub-Area A FFS and explore access with RR as a parallel path item.
- Would also have implications on implementation of the remedy - would want to remediate any site-related impacts on the RR properties prior to, or in conjunction with, the remediation of Sub-Areas A-D.
- Dave B asks if DNR has a position regarding PAHs along RR tracks. Does DNR have background concentrations of PAHs along RR? Judy states that they don't; however, we could look at other resources (e.g., "rails to trails" program).
- Chris S - states that they have used enforcement discretion to stop sampling along the RR tracks.

5/17: Crawford Creek and Tributary GLLA Project: Sub-Area H&H Modeling Updates

Attendees

- White, Crawford (Meeting Organizer)
- Graham, Joseph R - DNR
- Sager, John E - DNR
- Saari, Christopher A - DNR
- Endsley, Erin A - DNR
- Patarcity, Jane M (Pittsburgh) USA
- Evanko, Hillary M (Pittsburgh) USA
- Winter, Douglas
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- Seaman, Jennifer
- Williams, Heather
- Fassbender, Judy L - DNR
- Steiger, Matthew B - DNR
- Hagen, Cherie L - DNR
- Cieniawski, Scott
- jacob.druffner@wisconsin.gov
- Havlicek, Kevin
- Paul Drew (Anchor QEA water resources engineer)
- Steiner, Thomas (Arcadis - modeling lead)
- Croonborg-Murphy, Jennifer M - DNR
- Von Holdt, Crystal L - DNR
- Loomis, Mark
- Baker, Joe (Arcadis modeler)
- Justin Drehs (Anchor QEA - FFS support)
- Jennifer Croonborg-Murphy - DNR
- Carrie Webb - DNR

Site Overview

- Dave B gives a site overview and describes the physical characteristics of Sub-Area A (focus of the modeling).
- Dave B provides a summary of road and railway crossings and culverts.
- Note: no FEMA flood study for the tributary, but there is for the Nemadji River.
- Inundation shown around Crawford Creek is a backwater effect from the Nemadji River.

Alternatives Considered:

- Option 1 - raised channel with partial filling/capping.
- Option 2 - sediment removal and capping.
- DNR raised concerns in letter (4/27/23) for alternatives considered in the draft FFS - modeling was performed to address these concerns, answer questions, and further evaluate the options.

Sub-Area A Tributary H&H Modeling Results

- **Objective**: screening-level evaluation to assess the viability of including either/both options in the FFS. Note that this is not a draft design or permit application to DNR.
- **Methods**: TR-55, HEC-RAS

Updated Remedial Options

- **Option** 1: considered more natural channel lining options - loose riprap/rock with bank plantings (biotechnical) to stabilize the slopes. Raised bed 4.5 feet.

Option 2: provides a basis of comparison for Option 1. Considers biotechnical measures in lieu of or in addition to gabions. The channel bed generally matched to existing conditions. However, restored slopes to 1.5H:1V max (existing conditions are much steeper). Would likely require slope stabilization with geotextile or other measures.

H&H Model Results

- Channel alignment held to existing alignment, but took out some very sharp bends
- Tom Steiner describes the water surface profiles for modeling (options 1 and 2) - existing grade, proposed grade, existing flood levels, and predicted flood levels
- Displays chart with average channel velocity, max channel velocity, avg max flow depth, and average top width for the 2-year and 100-year storm event for Existing conditions, Option 1, and Option 2.
    - Option 1 shows a notable decrease in max channel velocity - slows flows coming out of East Hammond Ave culvert.
    - Option 1 shows a slight increase in the avg top width for the 100-year storm event, which was expected.
    - Not showing max top width - controlled by undersized 24-inch culvert on RR property (upstream conditions).
- Tom discusses the inundation mapping.

Conclusions

- Option 1 and Option 2 are both viable FFS alternatives
- Flood flow capacity maintained
- Inundation limits slightly greater for Option 1 vs Option 2 - no impacts to existing structures or property uses.
- Existing sinuosity maintained - final option to be refined to optimize engagement of floodplain.
- Erosion potential similar to existing.
- Loose rock and biotechnical measures are anticipated to be stable for predicted flow conditions.
- Jacob Druffner/DNR - from a community standpoint, Sub-Area A is not regulated. However, Sub-Areas B through D would be. The creek would have to have its own analysis from a regulatory standpoint. Need to show the existing to proposed conditions for Sub-Areas B through D, even though the inundation is due to Nemadji backwater effects.
- Jacob will send along the DNR H&H checklist to make sure that all necessary components are included. Paul Drew later indicated that he is aware of the checklist and it was considered during modeling even though that was not technically a requirement.
- Jacob suggests using 1 complete model from Sub-Area B through D.
- Question from Jacob: Asked if the average channel velocities indicated for each alternative (and existing conditions) were averages across the entire area; Tom replied that they were averages across the entire area. Maximum velocities are true velocity, not change from existing conditions.
- Question from Jacob: when model is submitted for permit (eventually), Jake asks that the actual model is submitted, not just results summary. Arcadis indicated they understood. Tom asked for clarification if DNR would like the model to be submitted alongside the tech memo. Jake indicated that was not necessary at this time. Arcadis will submit the tech memo and DNR will let Arcadis know if the model itself is needed.

Next Steps

- Discussed next steps (development of alternatives for FFS); Dave B. asked if DNR agreed that the H/H model results indicated that the two alternatives could be carried forward. Jake Druffner indicated he saw nothing in the model that precluded that but could not speak to the alternatives themselves.

5/21: OHWM Field Work and Survey

In-Person Attendees

- Dave Bessingpas (Arcadis)
- Matt O'Fallon (LHB, Surveyor)
- Cullen Meurer (Jacobs)
- Crawford White (USEPA GLNPO)
- Joe Graham (WDNR)

- Jennifer Croonborg-Murphy (WDNR)
- Jacob Nadeau (WDNR)
- Crystal Von Holdt (WDNR)
- Carrie Webb (WDNR)

Summary

- Group met at 8:00 AM on Hammond Avenue at the Outfall 001 channel crossing.
- WDNR started in tributary between Hammond Avenue and the BNSF RR Tracks. Determined it was navigable at that point.
- WDNR flagged 33 locations in the tributary (right and left bank), and 33 points in Crawford Creek (right bank only; facing downstream). Reached Nemadji at about 11:45. WDNR group demobilized shortly after. The surveyor finished locating all Crawford Creek and all but 10 tributary points by mid-afternoon. The remaining tributary points were surveyed the following morning (except L-19 and R-19, which could not be located and were likely submerged or washed away).
- Surveyor also shot top of bank elevations at all Area B-D OHWM flag locations.
- Rain through the day and night caused water levels to rise in the floodplain on 5/22, resulting in a DGI fieldwork delay until the following week.

Thanks,
Crawford Creek GLLA Team.

Crawford White, Ph.D., PG
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