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September 1, 2023

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BY ELECTRONIC SUBMISSION (ero.ontario.ca/notice/019-4706)

Re: Technical Bulletin – Flooding Hazards: Data Survey and Mapping Specifications
Draft, For Comment – July, 2023
ERO# 019-4706
CH File: APPO-84

Conservation Halton (CH) has reviewed the draft *Technical Bulletin – Flooding Hazards: Data Survey and Mapping Specifications* posted on the Environmental Registry of Ontario (ERO number 019-4706). We had an opportunity to contribute to Conservation Ontario's submission and offer our key comments below and additional comments in Appendix A.

CH is generally supportive of the bulletin's technical guidance and recommendations, which will be an important resource for flood hazard mapping practitioners.

The draft Bulletin focuses on data requirements to support 1D hydraulic modeling and the subsequent mapping. A key recommendation would be to expand the Bulletin to include similar guidance for data required to support 2D hydraulic modeling of floodplains and spills as well as the mapping of modelled spills. We also recommend the Province consider incorporating the important role of public outreach and stakeholder input for larger studies.

Thank you for the opportunity to provide input on the draft *Technical Bulletin – Flooding Hazards: Data Survey and Mapping Specifications.*

Sincerely,

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APPENDIX A

Table 1 - General Comments

1	We are generally supportive of the bulletin's technical guidance and recommendations.
2	We support the recognition in Section 1.2 that the documentation presents commonly accepted and recommended best practices but that they are not intended to be applied rigidly in all circumstances, and that it "remains the users' responsibility to recommend and justify procedures, methods and parameters that best represent the conditions of the study area."
3	We also support Section 3.4.1's paragraph 2, that states "The optimal approach can be determined by comparing costs vs. benefits but should mainly be guided by where information is needed vs. where assumptions can be made. Any method should consider the on-the-ground data needs in the professional judgement of the modeler".
4	Stakeholders have local knowledge and an interest in contributing to flood hazard studies. They can be a valuable resource in validating the data used, study results, and subsequent mapping. Consider incorporating the role of public outreach and stakeholder input for larger studies as well as guidance on how stakeholders (including public) can be involved in the process.
5	Several sub-sections of the bulletin focus on data requirements to support 1D hydraulic modeling of channels and floodplains. Consider refining Section 3 to include similar guidance for data required to support 2D hydraulic modeling of floodplains and spills. Examples of the type of guidance we would find beneficial include: o Further direction on the minimum accuracies identified in Section 3.3.2, Table 3-1 (i.e., should they be applied to 2D modelled and mapped spills or are higher accuracies recommended?). o Collection of topographical data required specifically to support 2D hydraulic modelling in addition to the discussion provided in Section 3.4.1 on the topographical, geomorphologic and bathymetry measurements used for 1D model cross sections.
6	Consider providing additional guidance in Section 5 on the mapping of modelled spills. For example, in cases where spills are modelled and mapped (i.e., the spill is not just identified by an arrow), should the mapping differentiate spills from floodplain?
7	Review document for typographical errors and opportunities to simplify figure titles.

Table 2 - Comments on Individual Sections

8	Section 1.2.1: a) Consider placing equal emphasis on selection of hydraulic and hydrologic parameters in the bulleted list on page 4. b) Figure 1-1 - Consider if the buildings/roads/critical infrastructure box should/could also be blue grey indicating available data sets in addition to being data extracted from the High-Resolution Imagery.
9	Section 3.3: a) The current wording alludes to a fragmented approach to flood hazard mapping between municipalities and CAs. Consider incorporating discussion and recommendations as to how flood mapping is, or can be, coordinated amongst agencies. b) Figure 3-1 includes the acronym FGD and H&H. Consider adding these to the List of Acronyms.
10	Section 3.4.1: a) It would be useful to clarify instances where detailed bathymetric survey data may not be warranted and/or feasible (e.g., cases where LiDAR will be sufficient for the purposes of regulatory flood hazard mapping). b) This section states “Field surveyed cross section data should be used whenever possible” for both channels and floodplains. While the section also discusses a range of options, including LiDAR, for acquiring channel bathymetry data it does not present similar options to collection of the floodplain topography as currently worded. Consider wording refinements to clarify that use of LiDAR may be the optimal approach for collecting floodplain topographical data, particularly for watershed scale studies or where the LiDAR exceeds the minimum accuracy criteria for Risk Level 1. c) In Section 3.4.1.1 – Expand the direction on cross section alignment to reference consideration of the valley form in addition to the stream centreline. Given the purpose of this guide is to support flood hazard mapping, consider placing greater emphasis on picking up floodplain and valley constrictions as opposed to riffles, pools, and bar forms. d) In Section 3.4.1.2 – Revisit the last bullet on page 20 to clarify the meaning of “front right upper pad’ and ‘front left upper pad”.
11	Section 3.4.2 states a requirement to represent buildings within the DEM or cross-sections used for hydraulic modelling. Consider providing recommended mechanisms for updating this data.
12	In Section 3.6, consider adding establishment of GPS averaging when measuring benchmarks.
13	In Section 5.3, consider including the reasoning for producing paper maps (e.g., AODA Standards, etc.).
14	In Section 5.4, consider including online open data portal as an example.
15	Section 5.5: a) The inclusion of an example map would be helpful in this section. The sample map could, amongst other things, illustrate the preferred approach to indicate crossings and drops as discussed in Section 5.5.4. b) Consider revising “Buildings (Ruins) to “Buildings (including ruins)” since buildings are not otherwise listed.