Mississippi Valley Conservation Authority

Technical Review Memorandum

To:	Diane Reid, Environmental Planner
From:	Christopher Stoddard, Geotechnical Engineer
RE:	Slope Stability Analysis, Engineering Review of the Draft Plan of Subdivision Application for the Brown Lands Subdivision, Townships of Mississippi Mills
MVCA File No.:	PMMSB-32
Munic. Ref. ID.:	09-T-23005
Date:	October 15, 2024

Mississippi Valley Conservation Authority (MVCA) was circulated the following revised report and correspondence regarding the above Draft Plan of Subdivision application:

- Geotechnical Investigation Report, prepared by Paterson Group, dated September 20, 2024;

- Geotechnical Responses to MVCA Comments PG6260-MEMO.03, prepared by Paterson Group, dated September 20, 2024

In reference to the response to MVCA's previous comments regarding the slope stability analysis, we note the following:

- In section 6.9 Slope Stability Analysis under Field Observations, it states "The slope observed at the west portion of the site was observed to have an approximate incline ranging between 2.5H:1 to 3.5H:1V". Is this describing the "West Tributary" area of the site's slope that is referenced throughout the report? If so, please clarify what the slope's properties are based on i.e. slope height, toe of slope location, distance from toe of slope to water's edge, etc.

  Paterson Group Response: Yes, the slope described as being along the "west portion of the site" is referring to the slope along the West Tributary. The slope was noted to range between 4 m and 6 m in height, with a toe located about 10 m or greater from the West Tributary. This has been clarified in the current Geotechnical Investigation Report, referenced above.

  MVCA Reponse: Noted, the Geotechnical Investigation Report has been revised in section 6.9 Slope Stability Analysis under Field Observations and added "The slope was noted to mostly range between 4 m and 6 m in height, with the exception of the western-most part of this slope which has a height of up to 9 m. The toe of this slope is 10 m or greater away from the West Tributary." No further action is required.

- In section 6.9 Slope Stability Analysis under Field Observations, it states "The slope observed at the east portion of the site was observed to have an approximate incline ranging between 2H:1 to 3H:1V". Is this describing the "Mississippi River" area of the site's slope that is referenced throughout the report? If so, please clarify what the slope's properties are based on i.e. slope height, toe of slope location, distance from toe of slope to water's edge, etc.

  Paterson Group Response: Yes, the slope described as being along the "east portion of the site" is referring to the slope along the Mississippi River. The slope has an approximate height of 7 m with a toe which varies from being located along the Mississippi River to being setback about 25 m from the river. This has been clarified in the current Geotechnical Investigation Report, referenced above.

  MVCA Reponse: Noted, the Geotechnical Investigation Report has been revised in section 6.9 Slope Stability Analysis under Field Observations and added "The Mississippi River was located along the slope at the east portion of the site, varying from being located along the toe of the slope to being setback about 25 m." No further action is required.

- Section 6.9 Slope Stability Analysis under Toe Erosion and Erosion Access Allowance for the "West Tributary" does not include a discussion of erosion access allowance. However, a 6 m erosion access allowance is shown in the cross sections Figure 2A and 2B in Appendix 2. Please add the relevant discussion to the body of the report.

  Paterson Group Response: Yes, an erosion access allowance has been included where there is a stable slope allowance setback along the West Tributary. A discussion about this erosion access allowance been added to the current Geotechnical Investigation Report, referenced above.

  MVCA Reponse: Noted, the Geotechnical Investigation Report has been revised in section 6.9 Slope Stability Analysis under Toe Erosion and Erosion Access Allowance West Tributary and added "However, for the highest part of this slope, which has a stable slope allowance of 9 m, a 6 m erosion access allowance has also been provided should future repair of the slope be required following stability issues.." No further action is required.

- Section 6.9 Slope Stability Analysis under Toe Erosion and Erosion Access Allowance for the "North Tributary"states "Given that no stable slope setback or toe erosion setback is required along the slope adjacent to the north tributary, an erosion access allowance is not required." Using this rationale to justify a 0 m erosion access allowance is not generally accepted, and a 6 m access allowance is generally required to allow for future maintenance of the slope as per the MNR Technical Guide for Erosion Hazard Limit.

Paterson Group Response: Given that there are no slope stability nor toe erosion issues along the North Tributary, there is no need for an erosion access allowance since maintenance or repair of the slope will not be required once the site is developed. It would only be if a slope failure or toe erosion was anticipated that an erosion access allowance would be needed to provide access for future repair or maintenance of slope.

It should be noted that Page 6 of the Technical Guide - River & Stream Systems: Erosion Hazard Limit from the Ontario Ministry of Natural Resources states that this guide "is not intended to be a list of mandatory instructions on technical methodologies to be rigidly applied in all circumstances. Instead, the Guide serves to assist technical staff experienced in natural hazards management to select the most appropriate methods and flexible implementation measures in the identification of riverine erosion lands." Accordingly, it is our interpretation that a 6 m erosion access allowance is not required under all circumstances, with this slope being one of those circumstances.

MVCA Reponse: Noted, no further action is required.

All comments have been addressed regarding the slope stability analysis.

Should any questions arise, please contact the undersigned.

Christopher Stoddard

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Geotechnical Engineer