



STAFF REPORT

File No. SPC Report - #02/10

Date: February 8, 2010

To: Source Protection Committee

Prepared by: Glenda Rodgers, Project Manager

RE: Groundwater Vulnerability: Fraserville PLANNED Municipal System

XCG Consultants Ltd. was contracted by the Trent Conservation Coalition to undertake the groundwater vulnerability assessment for the PLANNED groundwater municipal drinking water system, located in the Township of Cavan Monaghan (as identified in the Otonabee-Peterborough Source Protection Area Terms of Reference).

The findings of the draft study were presented to the Source Protection Committee at the September 15, 2009 meeting. The draft report was also circulated to the Township of Cavan Monaghan. No comments were received from the municipality.

The draft report was peer reviewed by Stan Denhoed, Harden Environmental Ltd. The Peer Reviewer requested only minor changes to the document, suggesting that the methodology for increasing the vulnerability using transport pathways be explained in the report. The report was updated accordingly. The Peer Reviewer did note that only a preliminary analysis has been done (for a test well as the actual wells are still not drilled) using very coarse analytical tools. As such, he indicated that the findings are theoretical and expressed reservations about using the results for planning. The Committee will need to consider the high degree of uncertainty in the development of source protection plan policies for this PLANNED system.

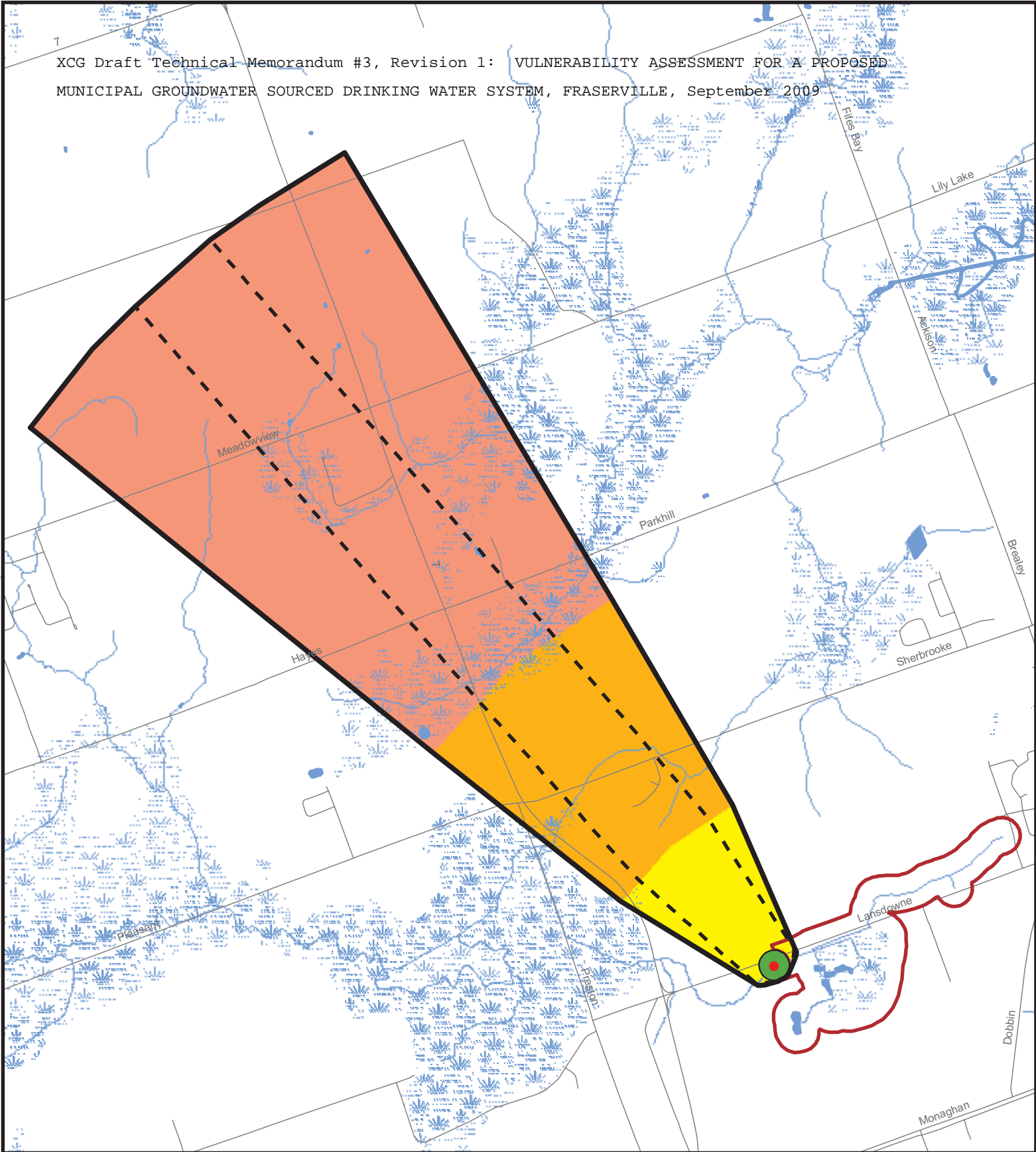
Attached are a map of the wellhead protection area (WHPA) and a map showing the vulnerability scores. These have been extracted from the updated report prepared by XCG Consultants (Draft Technical Memorandum #3 , Revision 1: *VULNERABILITY ASSESSMENT FOR A PROPOSED MUNICIPAL GROUNDWATER SOURCED DRINKING WATER SYSTEM, FRASERVILLE*, September 2009).

The uncertainty for the WHPA delineation and vulnerability scoring are summarized in the table below:

Portion of Assessment	Summary of Delineation Uncertainty		Summary of Vulnerability Uncertainty	
	Uncertainty Rank (High or Low)	Major Reasons	Uncertainty Rank (High or Low)	Major Reasons
WHPA (Zone A)	Low	-Well location was confirmed with GPS	Low	-Specified in Rules
WHPA (Zones B-D)	High	-Limited field data for calibration -Literature values for hydraulic conductivity, porosity -Limitations of analytical model	High	-Data is through interpolations of MOE Well Water Records
WHPA (Zone E)	High	-Desk top analysis only -No numerical models -No field measurements or observations -No specific information on Jackson Creek tributary flows or cross-sections	Low	-Regional Approach to scoring -Limited available options

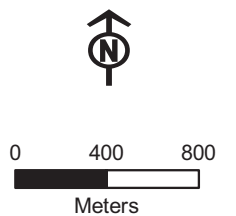
Staff Recommendation:

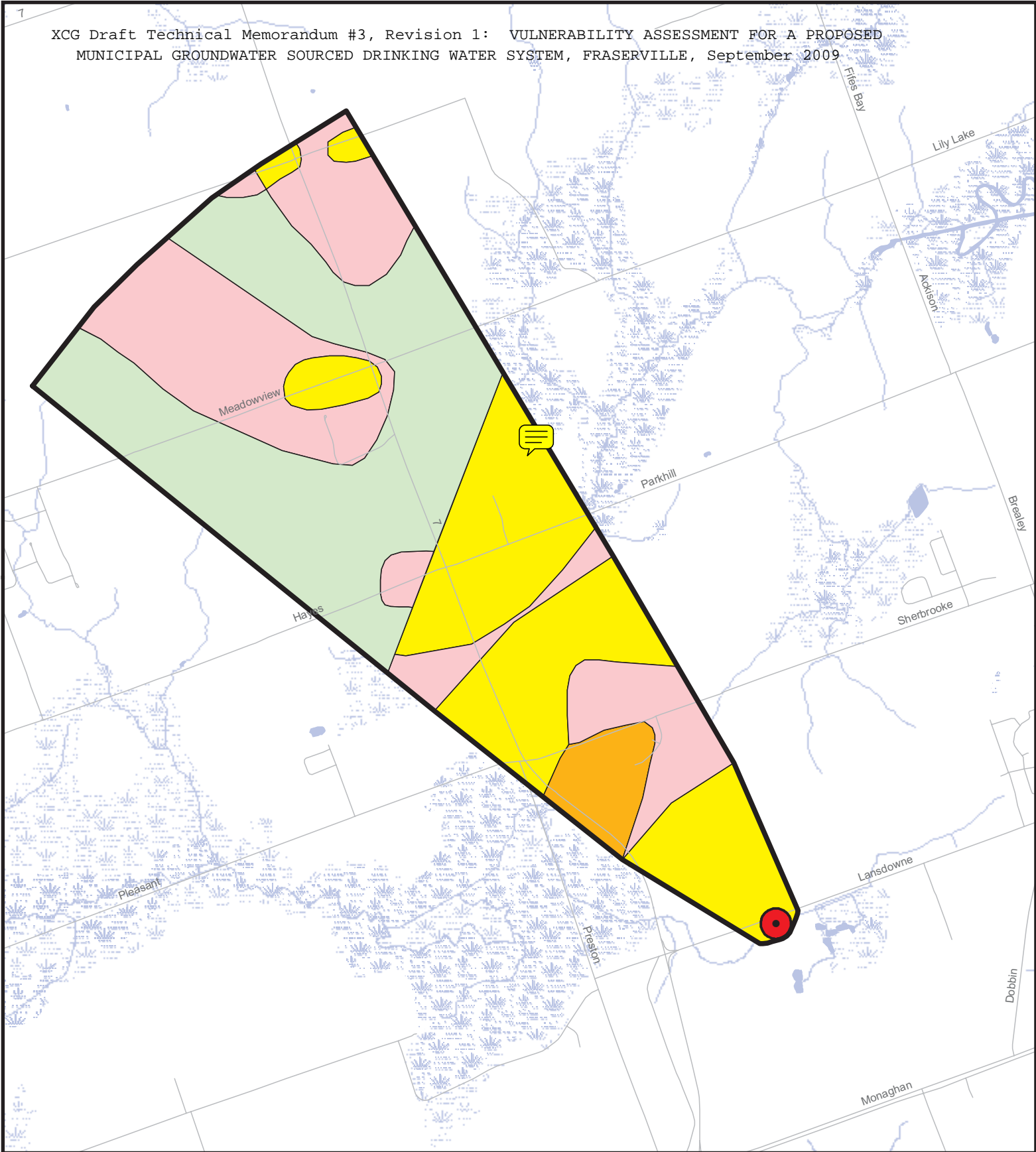
That the results of the vulnerability study completed by XCG Consultants Ltd. for the PLANNED Fraserville Municipal Well System, as presented in Draft Technical Memorandum #3, Revision 1: *VULNERABILITY ASSESSMENT FOR A PROPOSED MUNICIPAL GROUNDWATER SOURCED DRINKING WATER SYSTEM, FRASERVILLE*, September 2009), be accepted by the Source Protection Committee for inclusion in the Trent Conservation Coalition draft proposed Assessment Report (for the Otonabee-Peterborough Source Protection Area).









Fraserville WHPA Zones

- Well Site
- Calculated WHPA
- Final WHPA
- Roads
- Waterbodies
- Wetland Areas
- Streams
- Zone A (100m)
- Zone B (2 Years)
- Zone C (5 Years)
- Zone D (25 Years)
- Zone E





Fraserville Vulnerability Scores

-  WHPA
-  Well Site
-  Roads
-  Waterbodies
-  Wetland Areas
-  Streams

Vulnerability Scores

-  2
-  4
-  6
-  8
-  10



0 400 800
Meters