DEPARTMENT OF PUBLIC SAFETY
WILLIAMSVILLE TOWN OFFICE

PRESS RELEASE

May, 2008

For the fourth time this year, the town of Williamsville was rocked by an earthquake. These disturbances come on the heels of a major outpouring of lava that covered many square kilometers of valuable agricultural property to the northwest of the town. Williamsville town officers seek to understand the nature of this geologic unrest so as to best plan for the future safety of the town and its citizens. A full review of the geologic history of the area is needed.

To this end, the Williamsville Department of Public Safety (DPS) solicits the services of three-person geologic teams to draw up a report on the geology of a 26 x 26 square km area centered on the town. Williamsville is in an area that is exceedingly flat, but characterized by a number of rock outcrops on which the desired report should be based.

This solicitation requests:

I.) A complete geologic map of the designated study area, with two accompanying cross-sections completed by each 3-person team executed to the following specifications:

- The map should be drawn on the grid base map supplied by DPS, Inc., on which the grid spacing represents 1 km, the northwest corner is at A1, the northeast corner is at Z1.
- The map and cross-sections should be colored, using a different color for each rock unit and the same coloring scheme for both map and sections. Do not use heavy, dark, or vibrant colors that would obscure other data (such as strikes and dips) plotted on the map. Neatness is essential!
- The map should be given a title that indicates the location of the mapped area (e.g. "Geologic map of the Stinky Swamp Area").
- The map and sections should be accompanied by a "Key" or "Explanation" in which each rock unit is named (e.g. "Amherst Arkose") with its map color indicated. In this key, all rock units should be listed in chronological order, with the oldest at the bottom. To the extent possible, the ages of units should be shown in the key. All geologic symbols used should appear in the key as well.
- Two cross sections should be drawn: A-A' between the north and south sides of the area, and B-B' between the west and east sides of the map. These sections should be drawn with A and B to the left and A' and B' to the right, and both ends of the sections should be clearly labeled. The vertical and horizontal scales in the cross-section must be exactly the same, and must match the horizontal scale in the map. The geology of these cross-sections must, of course, correspond exactly where the two sections cross. A protractor will be necessary to draw the cross-sections accurately. Remember, sedimentary units tend to maintain a constant thickness.

- The map must have a north arrow and both the map and cross-sections must have an appropriate bar scale shown. Cross-sections also need vertical scales.

II.) That each member of a study team also submit an individually written summary of the geologic history of the study area. Each member of each geologic consulting team must independently prepare this part of the geologic report to the following specifications:

- The report may be written in discursive form or in outline form.
- While concise, the report should be as complete as possible, including but not limited to: the formation of individual units and the nature of the environment in which they formed; uplift, erosion, and the creation of unconformities; orogenesis and the deformation and/or metamorphism of rocks; igneous events; and plate tectonic dynamics. The report should indicate the specific observations on which interpretations are based.
- Every attempt should be made to place dates on these events, where possible, as well as to place the events in relative order.
- Conclude the report with an assessment of the geologic hazards you think the citizens of Williamsville might face in the future. Be sure to substantiate your assessment with the observations and reasoning on which it is based.

Data are already available to aid your team in its investigations. The locations of the epicenters of the four recent earthquakes, along with the depth to the earthquake foci, are shown on the base map of the study area. The firm of Williamsville Hazard Investigators for Municipal & Public Safety (W.H.I.M.P.S.) initially undertook a study of the area's geology but did not prove equal to the task, fleeing the study area after the second magnitude 6.5 earthquake. The W.H.I.M.P.S. team made numerous strike and dip measurements, nine (9) fossil identifications, and completed one (1) radiometric date. Their strike and dip data are given on the base map of the study area, and known dates are given in the table below. Finally, the logs for five (5) pre-existing deep water wells surrounding the town are given below. Please note that the ill-educated W.H.I.M.P.S. team was unable to provide proper rock names for any of the rock types encountered in the drill cores, and logged the units generically as "Unit A" or "Unit B", etc. They were at least able to reliably recognize the same rock when encountered more than once and so have consistently given each rock type only one generic name. All of these data can be applied to the completion and interpretation of your map.

Finally, reports in response to this solicitation must be submitted to the DPS Office (Room 320, ESMNH Building) by noon on Friday, May 16, 2008.

W.H.I.M.P.S. GEOLOGIC DATA

FOSSIL IDENTIFICATIONS

Site A26	*Climactichnites wilsoni*	(trace fossil)
Site E22	*Climactichnites wilsoni*	(trace fossil)
Site F7	*Platycrinus sp.*	(echinoderm)
Site J4	*Platycrinus sp.*	(echinoderm)
Site L10	*Bellerophon sp.*	(gastropod)
Site N10	*Childleyenoceras sp.*	(cephalopod)
Site P1	*Clathopteris sp.*	(fern)
Site P10	*Climactichnites wilsoni*	(trace fossil)
Site X7	*Machaeroprosopus gregorii*	(reptile)

RADIOMETRIC DATE

Site S23 1.1 $\pm$ 0.005 Ga

DRILL HOLE DATA

data are given in meters below the ground surface

DRILL HOLE A1
(Site D/E2)

0-300	Unit A
300-1730	Unit B
1730-2400	Unit C
2400-3350	Unit D
3350-4300	Unit E
4300-7500	Unit F

DRILL HOLE A2
(Site O20)

0-6150	Unit G
6150-7500	Unit H

DRILL HOLE B1
(Site G/H-11/12)

0-350	Unit D
350-1200	Unit E
1200-3250	Unit F
3250-7400	Unit I
7400-7401	mylonite
7401-7500	Unit J

DRILL HOLE B2
(Site S5)

0-300	Unit K
300-1100	Unit L
1100-1101	breccia
1101-3200	Unit I
3200-3201	mylonite
3201-7500	Unit J

DRILL HOLE B3
(Site X2)

0-1300	Unit M
1300-4550	Unit N
4550-4551	breccia
4551-7500	Unit J