MEMO

TO: Planning Advisory Committee, Town of Yarmouth

FROM: Maurice Lloyd, Planning Consultant

SUBJECT: Canadian Geodetic Datum

Attached please find a report prepared by Caroline Robertson earlier this year and modified by me in terms of the placement of the change.

In the attached Caroline states "Council should be aware that soon, it may be necessary to change the Town's Planning Documents to reflect the 2013 Geodetic Datum". This stage has not been reached but upcoming regulations with respect to the Coastal Zone Protection will benefit from this clarification.

The proposed change is to add the following to the note at the end of 36.1.

For readers information, Canadian Geodetic Vertical Datum of 1928 (CGVD28, land elevation vertical datum) is based on the Yarmouth CD-CGVD28 offset of 2.31 m.

RECOMMENDATION

For the Planning Advisory Committee to recommend to Council to proceed to a Public Hearing.

Maurice Lloyd, Planning Con**sultant**

Canadian Geodetic Datum

APPLICANT

Town of Yarmouth, to be added to the Proposed Planning Amendments for the Waterfront to align with the Waterfront Action Plan.

What is the problem?

A resident has expressed concern over the lack of explanation for the Canadian Geodetic Datum within the Municipal Planning Strategy (MPS) and Land Use By-Law (LUB). It has been requested that, somewhere within the Municipal Planning Strategy, a statement be included that outlines that the Canadian Geodetic Datum changes within each community and reference the difference between the Canadian Geodetic Datum and Tide Chart Datum for Yarmouth in order to provide clarity to readers who are not part of the Nova Scotia Land Surveyors Association.

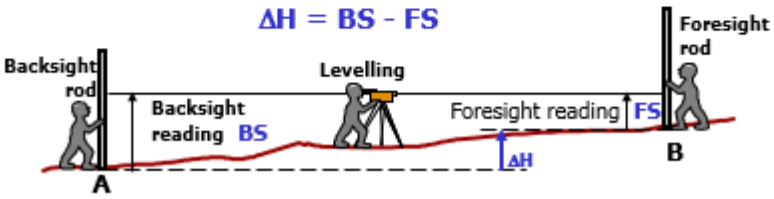
The Canadian Geodetic Vertical Datum of 1928 (CGVD28) is the former vertical datum for Canada. It was adopted by an Order in Council in 1935 and repealed on February 5, 2015. CGVD28 is a tidal datum defined by the mean water level at five tide gauges: Yarmouth and Halifax on the Atlantic Ocean, Pointe-au-Père on the St-Lawrence River, and Vancouver and Prince-Rupert on the Pacific Ocean. In addition, the definition includes an elevation at a benchmark in Rouses Point, NY (next to Lake Champlain) accepted as fixed by the United States and Canada in 1925. The datum is propagated in land using geodetic levelling measurements. The vertical datum is accessible through some 94,000 benchmarks anchored to the ground and stable structures. The heights in terms of CGVD28 are normal-orthometric (H^{no}).

CGVD28 is the Canadian Geodetic Vertical Datum of 1928. Until 2013 this was the standard geodetic vertical datum as maintained by Natural Resources Canada (NRCan). In that year NRCan established a new geodetic datum (CGVD2013); however, NRCan advises it will continue to publish heights at benchmarks in CGVD28 for the foreseeable future. For this reason, the Town of Yarmouth Climate Change policies were written using the 1928 standard.

The Nova Scotia Land Surveyors Regulations states that elevation uses in the determination of a property boundary shall be based on the Canadian Vertical Datum of 2013, CGVD2013.

WHAT is the Canadian Geodetic Vertical Datum of 1928 (CGVD28)?

Name:	Canadian Geodetic Vertical Datum of 1928
Abbreviation:	CGVD28
Type of datum:	Tidal (Mean sea level)
Vertical datum:	Mean sea level at tide gauges in Yarmouth, Halifax, Pointe-au-Père, Vancouver and Prince-Rupert, and a height in Rouses Point, NY.
Realisation:	Levelling (benchmarks). Multiple local adjustments over the years since the general least-squares adjustment in 1928.
Type of height:	Normal-orthometric



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	How does this relate to the Municipal Planning Strategy? CGVD28 was used within the Municipal Planning Strategy to find the worst-case storm surge and sea level rise scenarios for the Town of Yarmouth Waterfront. The finding was then used to establish Minimum Building Grade Elevation for present-2050 and 2051-2100 for new developments.
	What are the recommended changes? Proposed Municipal Planning Strategy amendments: Insert in the Note at the end of Section 36.1 of the Land Use By-Law the statement in green: Note: CGVD28 -=Canadian Geodetic Vertical Datum of 1928. Until 2013 this was the standard geodetic vertical datum as maintained by Natural Resources Canada (NRCan). In that year NRCan established a new geodetic datum (CGVD2013); however NRCan advises it will continue to publish heights at benchmarks in CGVD28 for the foreseeable future. For readers information, Canadian Geodetic Vertical Datum of 1928 (CGVD28, land elevation vertical datum) is based on the Yarmouth CD-CGVD28 offset of 2.31 m.
	How does this affect the community? The proposed change is intended solely for information purposes and should have no impact on development in the future.
	Does this have financial implications for the Town? There are no financial implications for the Town.

⟶	What is next? This is a Municipal Planning Strategy Amendment recommendation that has arisen from the current public participation program for the Proposed Waterfront Amendments. It is recommended that this change be included in the process for the Application to Align the Planning Regulations with the Waterfront Action Plan. Council should be aware that soon, it may be necessary to change the Town's Planning Documents to reflect the 2013 Geodetic Datum. The 2013 model was developed using precise satellite data and is more accurate and can cover all of Canada as we are now able to recover orthometric heights from GPS ellipsoidal heights using this model.
Respectfully Submitted by Caroline Robertson, Director of Planning to the Planning Advisory Committee. Revised by Maurice Lloyd, Planning Consultant	