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SUBMISSION::

Utility Location Standard 2022 - Amendments

Date:: 30 September 2024

To: utilitylocation@linz.govt.nz

This submission is on behalf of the *Institute of Cadastral Surveying* (ICS).

The ICS is an organisation whose membership is primarily engaged in cadastral surveying. Some of our members also undertake data capture projects of utility (and other) assets, so we are able to contribute to this topic with some knowledge, experience and understanding from a user perspective.

The ICS provided a submission for the draft Standard in 2021.

This response represents the comments of ICS members who responded to our request for feedback so we could compile a collective response. The feedback is based on the experience and wisdom of our members whom are passionate about maintaining the integrity and value of the NZ survey system, and therefore any ancillary databases or digital information that may be linked with – or relate to – that survey system.

Our feedback is tabulated below and references the proposed amendments section number, followed by a narrative being our feedback or opinion. Responses to the questions within the consultation document are also provided.

Thank you for the opportunity to provide feedback on the proposed amendments to the published Utility Location Standard (ULS) – [LINZ OP S 01287].

Questions and clarifications related to this feedback can be requested in the first instance via the ICS Secretary (Brent George) – sec@ics.org.nz

Utility Location Standard 2022 – Proposed Amendments – Consultation Document:

We understand that:

- the document proposes to amend the Standard to include a **higher accuracy requirement for invert levels**; and that
- the S-G also seeks information from Councils as to whether they would **refer to the Standard as part of their as-built requirements** (rather than specifying their own accuracy standards).

Section	Item	Comment
1.2 Feedback since the ULS was published	...invert levels (for drainage assets) should be highly accurate....	We are aware that some Councils are influenced by engineering expectations where dimensions are expressed in millimetres. This implies that dimensions are millimetre accurate. One Council's "highly accurate" may differ from another Council's "highly accurate".
	...specifying unnecessarily high accuracies...	We would tend to agree with this. It is our experiences that sometimes $\pm 0.01\text{m}$ is specified when it is not warranted.
1.3 Council as-built requirements	$\pm 0.01\text{m}$... can be costly to achieve	Surveyors know this. Not all Council's understand that achieving this accuracy comes at an increased capture cost. Not all Council's include QC or auditing aspects to ensure that $\pm 0.01\text{m}$ is actually being achieved.
2 Proposal	...vertical accuracy requirements for (invert levels associated with gravity drainage pipes/channels) should be tighter	This statement needs to be refined to be applicable for "gravity critical" sections of lines. That is, where minimum grades are not encountered, "tighter" accuracies need not be enforced.
2.2.1 Vertical accuracy of invert levels relative to an origin mark	Vertical Class V1 to apply to Invert Levels of gravity drainage assets in urban areas.	Whilst we generally agree with the proposed refinement of the description – there needs to be a tag that this need not always apply, particularly in instances where such precision as applied to gravity drainage assets is not warranted - eg: hill slope drainage; non-minimum grades etc.
Question 1:	Are the proposed tolerances fit-for-purpose?	In short – Yes. However, as the Standard is intended to be primarily utilised by TLA's – and as Surveyors are more often the consultant or contractor involved in the capture, and so are obligated to comply with the standard(s) imposed by the TLA – then it does not behove Surveyors to be the final arbiter of the appropriateness of the standard.
Question 2:	[For territorial authorities]	No comment.

<p>Other Direct Comments: (selected feedback narratives of relevance)</p>	<p>Feedback ONE:</p> <p>It would appear that the S-G is seeking to amend the standard to provide information and for other uses beyond which it was originally intended. That is, to check flow volumes and compliance with grades.</p> <p>Whilst I support providing an origin mark and level (good survey practice for all surveys), I cannot support invert levels to $\pm 0.01\text{m}$ accuracy. I agree that levels could be quoted to this level (± 0.01), however one cannot guarantee this given that as-built levels are quite difficult to measure/obtain. They are generally measured to the man-made haunching in a manhole from the manhole lid at both the upstream and downstream extents of the lid (often not the same as the manhole sides) and given the difficulty of measurement (in the dark, often with poo/water flowing) realistically cannot be measured with absolute certainty. These figures should really be quoted as ± 0.03 at best.</p> <p>If someone wants to measure compliance with grades or flows or for pipe clashes etc, they really need to do more work than that undertaken for a location standard (maybe by measuring before backfill/uncovering the pipe etc).</p>
	<p>Feedback TWO:</p> <p>We have some real recent experience with capturing wastewater data on some main pipes on minimal gradient in a large city – requiring night-work and full-on TTM on busy roads etc.</p> <p>With our best efforts at obtaining in/out invert levels with a special tool (basically a staff with a bubble and right-angle adaptor firmly attached to poke into the right invert position – which is yet another constraint) we struggle to get $\pm 10\text{mm}$ from invert to marked lid edge – even though that is the specification, and we report that.</p> <p>With tilty-pole technology now available with GNSS capture, this may enable direct measurement to the desired invert positions with slightly greater certainty, but with deep pipes in manholes this is not the ultimate solution either. There are limitations with tilty-pole usage in enclosed manholes and deep manholes ($>1.5\text{m}$ depth).</p> <p>And on the hills when grade is not critical, why bother with chasing $\pm 10\text{mm}$? But Councils won't apply any pragmatism to such instances – if they can, they will insist on $\pm 10\text{mm}$ in all cases.</p>
	<p>Feedback THREE:</p> <p>I like the application of Vertical Class V1 standards of $\pm 0.01\text{m}$ specifically being applied to "invert levels of gravity drainage assets", with $\pm 0.03\text{m}$ to other assets.</p> <p>However, it is possible that Council's will impose the $\pm 0.01\text{m}$ standard <i>by default</i> without thinking about what they really want/need. (They tend to do this already). For example, when a minimum grade is not in play and there is more than adequate fall in a pipe - why impose a $\pm 0.01\text{m}$ build/as-built/asset capture tolerance?</p>
	<p>Feedback FOUR:</p> <p>I find the Standard very academic/geodetic.</p> <p>The amendment to include a higher accuracy requirement will likely not significantly improve the adoption of the Standard by Councils.</p>