

Reply to Comments on Stability Risk Assessment

As noted above, the SRA assumes engineering properties which are of a natural soil source. If, when compiling additional information on the waste types, it is identified that the engineering properties of the additional wastes are different to the soils found at the natural source, you will need to review your SRA in light of this.

Soils for use in landfill engineering works include

- materials to build to formation
- clays used in mineral basal liner construction, and
- restoration soils placed onto capping areas.

Each use has its own geotechnical and chemical considerations that leads to a design specification for the works. In the specification, the performance of the soils in terms of geotechnical properties and limits on the concentration of substances is defined. The design specifications are submitted as an appendix to the Construction Quality Assurance Plan for NRW review and acceptance before any proposed works can be undertaken.

In order for any candidate waste soil to be considered acceptable for use in the landfill engineering works, its performance has to be evaluated. For geotechnical design this will include geotechnical laboratory testing and a review of these results against the design of the works. Only materials able to meet the specification would be proposed for the works and the use of these materials would have to be agreed by the Regulator during the review of pre-construction documentation.

A similar safeguard is in place for the chemical compatibility of the soils. Waste soils would have been sampled and tested by the donor site and these data would be reviewed and compared against chemical criteria developed to be protective of the environment. Only if it can be shown that the soils present no risk to the local environment would their use be proposed as part of the CQA Plan.

Soils used in engineering works at the landfill are routinely sampled and tested in accordance with the CQA Plan. The Plan has to be approved by NRW before works can commence, so the sampling and testing regime for the pre-selected materials will already be defined before soils are used. This approach provides a robust means to control the use of waste soils and to ensure that they are fit for purpose.

In the event that a material with geotechnical properties that are not equivalent to or better than those assumed in the SRA is proposed for the works, then any design proposal will have to be supported by re-running calculations made in the SRA. All materials used for engineering purposes will be verified to meet the engineering requirements of the SRA.

Only one cross section has been provided to illustrate the revised profiling. Please can you provide more cross sections from across the site, comparing the approved and proposed waste thickness and slope angles.

A series of cross sections have been produced as Drawing 2365/17 which is submitted along with this response. NRW is reminded that it has access to the full 3d modelling and topographic survey system shared with it by RML. In the event that any of the review team would like instruction on the use of the system Geotechnology will be happy to assist.

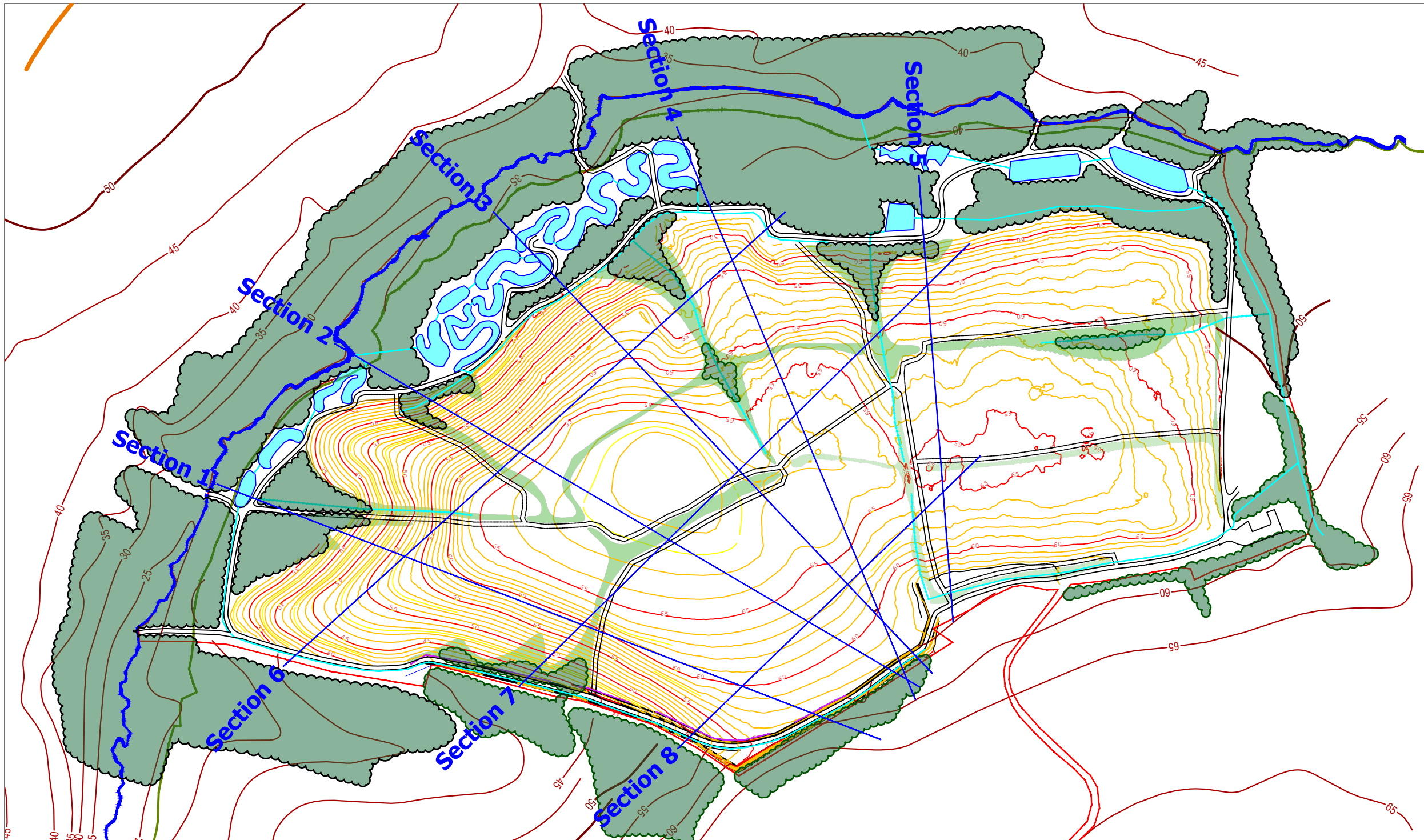
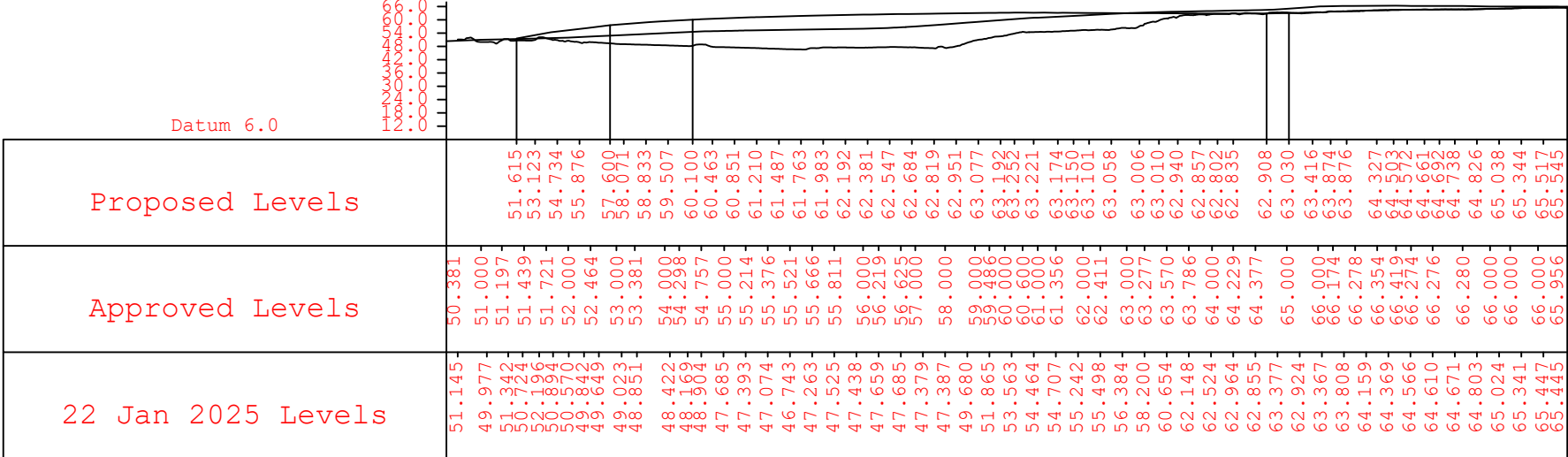
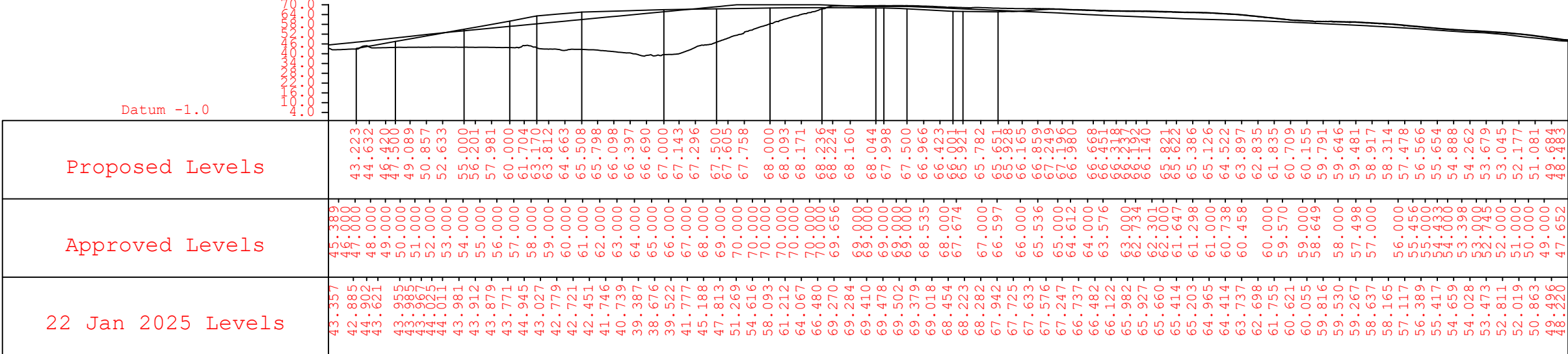
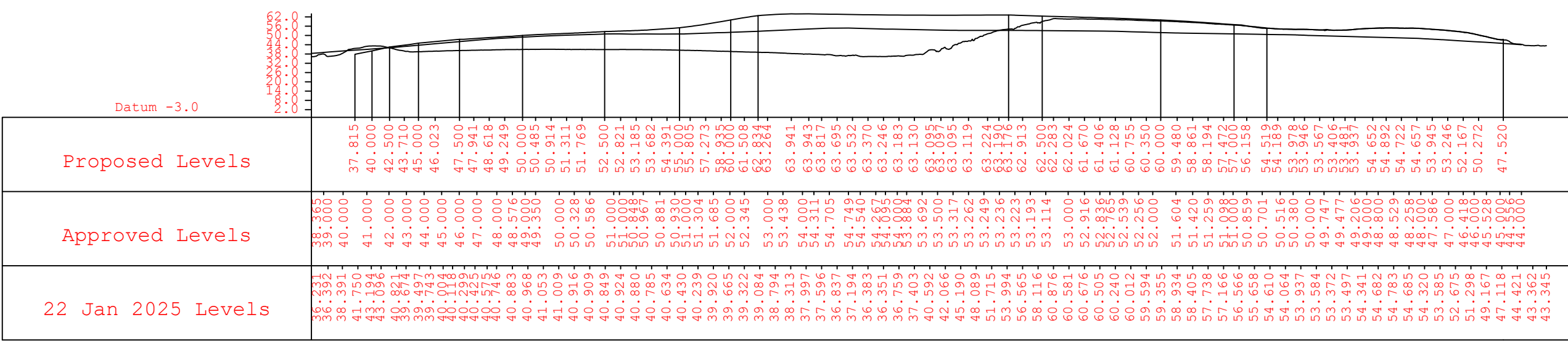
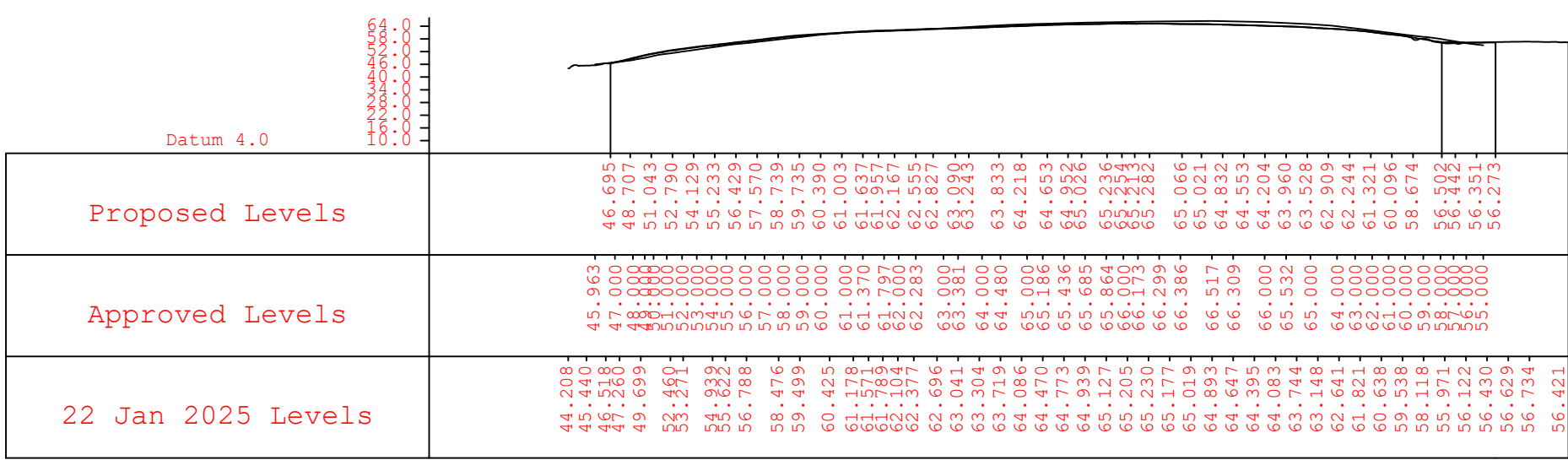
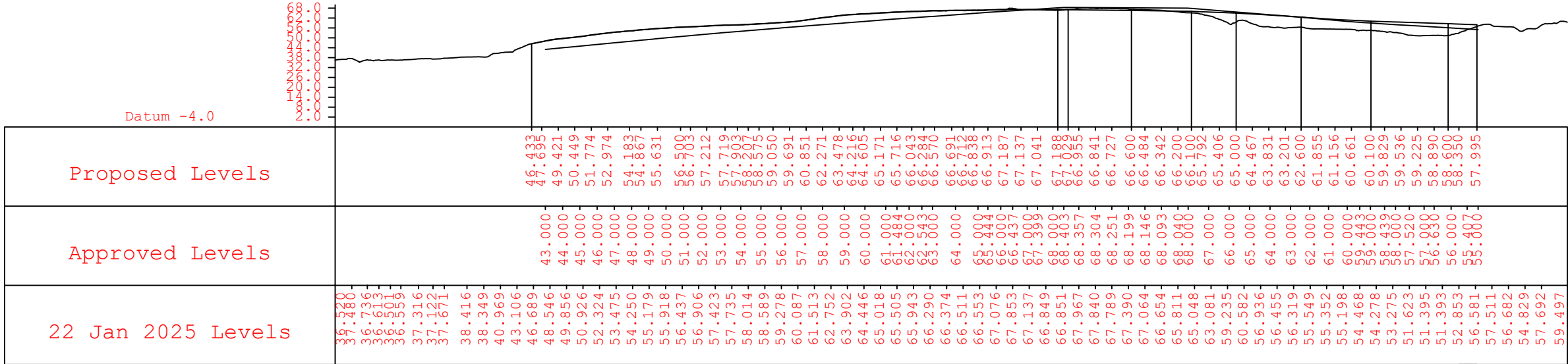
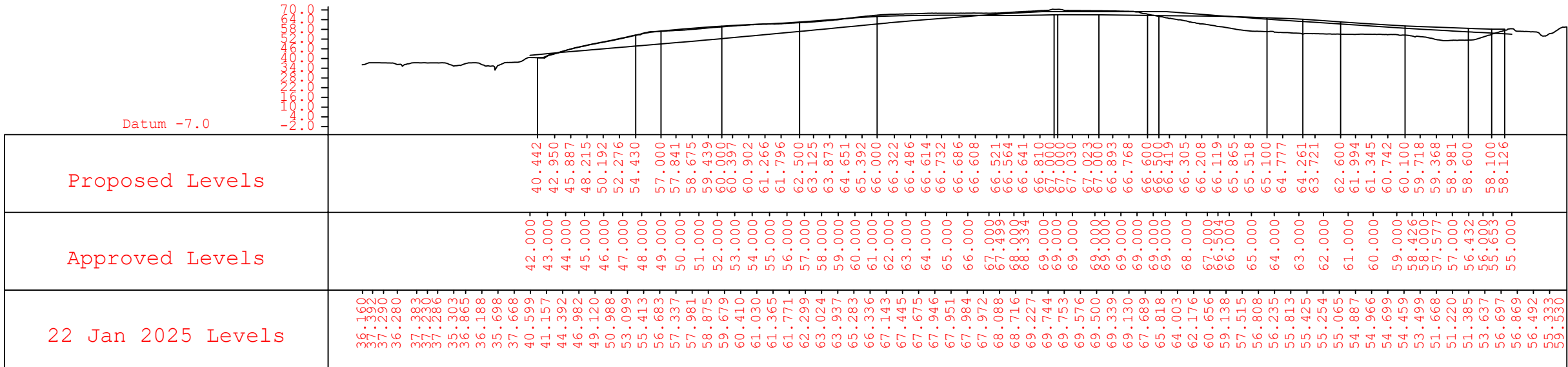
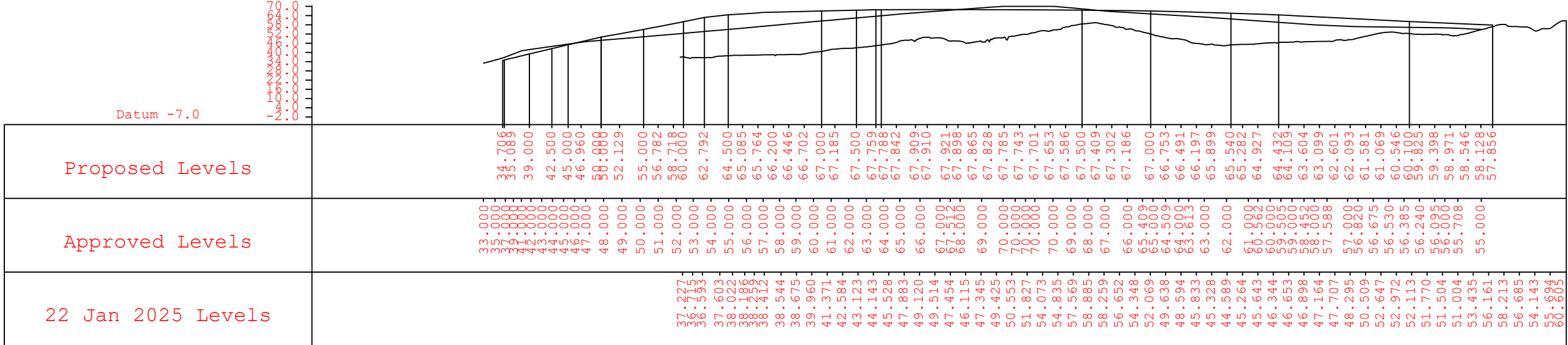
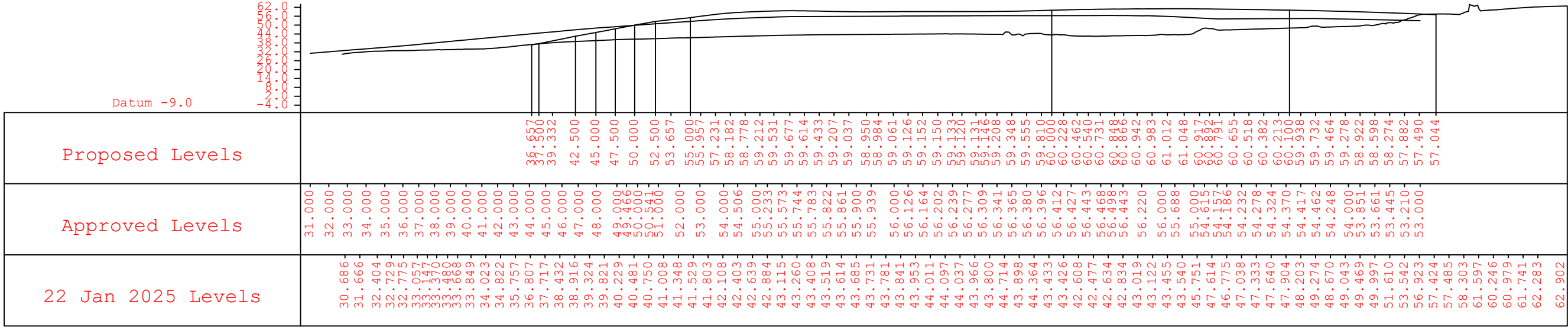
The increase of final waste volume (to 320,307m³) will generate more leachate. Can you confirm how critical excessive leachate levels and hence additional loading will be considered as the overtip areas have been shown to only just be within the loading limits of acceptability.

A review of the current approved footprint of the landfill and the proposed footprint shows a reduction in footprint of 25181m² at the northern end of Phase3. Accordingly, the volume of leachate generated from infiltration through the cap will be expected to reduce overall. The Variation does not seek to increase the compliance limits on the depth of leachate in the cell bases, which remains at 1.0m. Accordingly, the saturated waste thickness should be no greater if the Variation is approved, and the volume of leachate that is extracted will be slightly less than the current predictions.

The Variation also seeks to remove the un-necessary leachate recirculation system from the Permit. It was believed that introducing leachate through a complex system of pipes beneath the landfill cap would improve gas yields (making the site gas more quickly). It also offered an opportunity to manage leachate by increasing the waste moisture content (and hence density). This system proved utterly ineffective and fell into disuse some time ago. There is no appetite to introduce such a system again so the sub-cap recirculation system will be removed from the Permit if the Variation is successful.

The consequences of the removal of the recirculation system is that the waste moisture content will not be increased by any process other than infiltration through the cap. The cap is a fully welded fml, which now has a geocomposite drainage layer placed over the capping membrane. As a result, infiltration and therefore leachate production and waste moisture content should be reduced, lowering the unit weight of waste (or at worst not increasing it by adding additional moisture).

Though the volume of waste has increased (due to a thicker waste pile), the plan area covered has reduced. This may increase the concentration of leachate if compared to the concentration of substances from a thinner waste layer, but the change should not increase the quantity of leachate or the density of the wastes, and accordingly this should not have an unfavourable influence on the basal stress increase seen due to the additional thicknesses placed.



Drawing Number 2365/17

Legend

Note

Rev	Date	Status/Ammendments

CLIENT

RML UK Ltd

PROJECT

Withyhedge Landfill Permit Variation

TITLE

Restoration Sections

DRAWING NUMBER

2365/17

REVISION

0

SCALE AT AT

DATE

DRAWN

CHECKED

As Shown

03.25

KJT

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