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Technical Note

Project:	Dublin MetroLink		
Doc No:	ML1-JAI-GEO-ROUT_XX-RP-Y-00034		
Subject:	Impact on the Preliminary Design Building Damage Assessment Results due to Imposition of Limits of Deviation		
Revision No.	P01		
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1. Background and Purpose

The building damage assessment work carried out and reported in ML1-JAI-GEO-ROUT_XX-RP-Y-00034 P03 [Ref. 1] is based on the draft Railway Order (RO). The Draft RO includes for Limits of Deviation (LOD) for proposed MetroLink infrastructure that can be availed of, if practicable. This Technical Note assesses the potential impact on the Preliminary Design building damage assessment work should the LOD set out by the Draft RO (Article 6) be availed of.

2. Basis of Assessment

The impact of settlement has been assessed assuming that the LOD set out by the Draft RO Article 6 might be availed of, except for the tunnel vertical alignment, which it is assumed will only be moved upwards by 1m from that shown by the RO application.

3. Assessment Approach and Findings

A review of buildings within Damage Category 1 or below and those buildings not currently impacted by the RO design alignment has been undertaken to ascertain sensitivity to change due to alignment alterations within the horizontal LOD set out by the Draft RO. Based on the analysis of selected worst-case buildings, it has been concluded that any buildings assessed as falling into Damage Category-1 (DC-1) or below based on the Draft RO are unlikely to fall to above DC-2 level due to the imposition of the horizontal LOD or vertical LOD limited to 1m.

Further, the damage category of buildings in the vicinity of the proposed station boxes is unlikely to be affected due to the restriction in the LOD for station boxes; i.e. maximum of 2m. It is also concluded that the buildings currently outside the 10mm green-field contour line based on the RO design alignment are unlikely to be impacted above DC-2 level due to the imposition of the LOD, hence there are no significant impacts predicted.

For the buildings away from the proposed station boxes and showing DC-2 level based on the RO application tunnel alignment, quantitative assessments have been carried out with the tunnel horizontal alignment at the extremity of the LOD together with a vertical upwards LOD of 1m; this exercise showed that there will be no increase in the damage category level.

Further, for the buildings currently falling into DC-3 level, it has been confirmed by inspection that they are already at their worst possible position in relation to the RO application tunnel alignment and therefore the imposition of horizontal LOD with an upwards vertical LOD limited to 1m is unlikely to have any adverse impact.

In all cases, lowering of the vertical alignment could only improves on the damage potential.

4. Conclusions

The building damage assessment carried out and reported in ML1-JAI-GEO-ROUT_XX-RP-Y-00034 P03 [Ref. 1] is based on the RO application tunnel alignment.

The analysis carried out in this TN has concluded that there will be no additional buildings that would qualify for Phase-3 Assessment to that reported by the EIAR should the LOD set out by the Draft RO be availed, including the vertical upwards tunnel LOD limited to 1m.

Potentially different and/or additional impacts (below "Slight") associated with possible deviations to the route within the LOD have been identified. Based on this analysis, it is concluded that there would be no change to the required mitigation measures or residual impacts arising from the application of the mitigation measures set out in the EIAR and no additional significant impacts.

5. References

[1] Jacobs Engineering Ireland Limited (2022), Damage Assessment Report of Buildings and Other Assets ML1-JAI-GEO-ROUT_XX-RP-Y-00034 P03 (Dated 22/06/2022)