CGL response to Campbell Reith Queries (endorsed by Pamarbrook Urban):

1. *Queries 2 and 3: since no correspondence with TfL has been provided, the audit will note that TfL should be consulted as a Statutory Consultee during the Planning process and asset protection agreements entered into as required.* **Closed**
1. *Queries 4 and 5: although some of the methods / assumptions not entirely agreed with, the minimum vertical movements at the walls are within the anticipated range. We'll close the queries and add some text to the audit report. Closed*
2. *Queries 6 and 7: Whilst the BIA text suggests they have adopted a minimum of 5mm horizontal movement at the basement walls, the figures presented in Section 10 of the BIA indicate that the actual horizontal movements at the wall adopted for assessment are reduced based on assumptions of neighbouring walls offset (in plan) and depth.* **Correct, CGL have taken reasonable assumptions on footing thicknesses, supported on strip foundations around the perimeter of the site, which are 0.5m in width and 1.0m in depth (founded at +26.00mOD), all considered reasonable for the buildings present onsite. CGL have accounted for movements due to**
    a. **underpinning (as per CR/Camden's comment last round) - Industry experience indicates minimum ground movements on the order of 5mm at ground level both horizontally and vertically should be anticipated per single lift of underpinning, decaying to 0mm over a distance equal to the depth of the excavation (3.50m). Assuming the adjacent building foundations are founded at approximately 1m depth and 0.5m laterally from the underpins, this equates to approximately 2.6mm decaying over 2.5m, which has been included in the impact assessment calculations.**
    b. **And b. lateral movements due excavation to horizontal displacements due to excavation behind the basement walls have been estimated based on data reported in CIRIA C760. Assuming a top-down basement construction with high level temporary props, the maximum horizontal surface movement is considered to be 0.15% x maximum excavation depth, dissipating to zero over a distance of 4 x maximum excavation depth.**
    c. **Cumulative movements then taken forward for the impact studies. All CAT0 to CAT1 (acceptable).**

    The damage category strain charts indicate that the assessment is very sensitive to horizontal strain, and that the assessment as it stands it is not considered 'reasonably conservative' or robust. In this case we'd expect either further sensitivity analysis with higher horizontal movements and / or further clarification of the assumptions adopted for the neighbouring foundation arrangements (e.g. with trial pits etc). It may also be necessary to provide further structural information if contingency or ***active propping arrangements*** *would be necessary to limit movements in conjunction with a* ***detailed monitoring strategy****. It's worth noting that for projects which are considered particularly sensitive or require a very close* ***control of movements*** *to ensure damage impacts to neighbours are required, a* ***BCP*** *would usually also be required.*
        A. **Correct again, CGL assume (as did Parmarbrook) 1. Demolition of the existing structure. 2. Installation of underpinning along party**

walls. 3. Installation of head-propped temporary works. 4. Excavation of basement. 5. Construction of the new structure.

B. **The basement is to be propped – as per Parmerbrooks drawings / sections / sequences, and as per CGL's calculations – allows for.**
C. **Regarding the BCP – (basement construction plan) – again Parmarbrook provided this, and is appended within CGL's revised BIA.**
D. **Detailed monitoring strategy – CGL refer to this, section 16 of CGL's BIA – this is to be developed by the Structural Engineer / contractor (who will build the scheme) as this is their remit to propose a monitoring frequence / target locations to suit their build / monitoring types etc etc. CGL just acknowledged that this would be prudent for the scheme's robustness**

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