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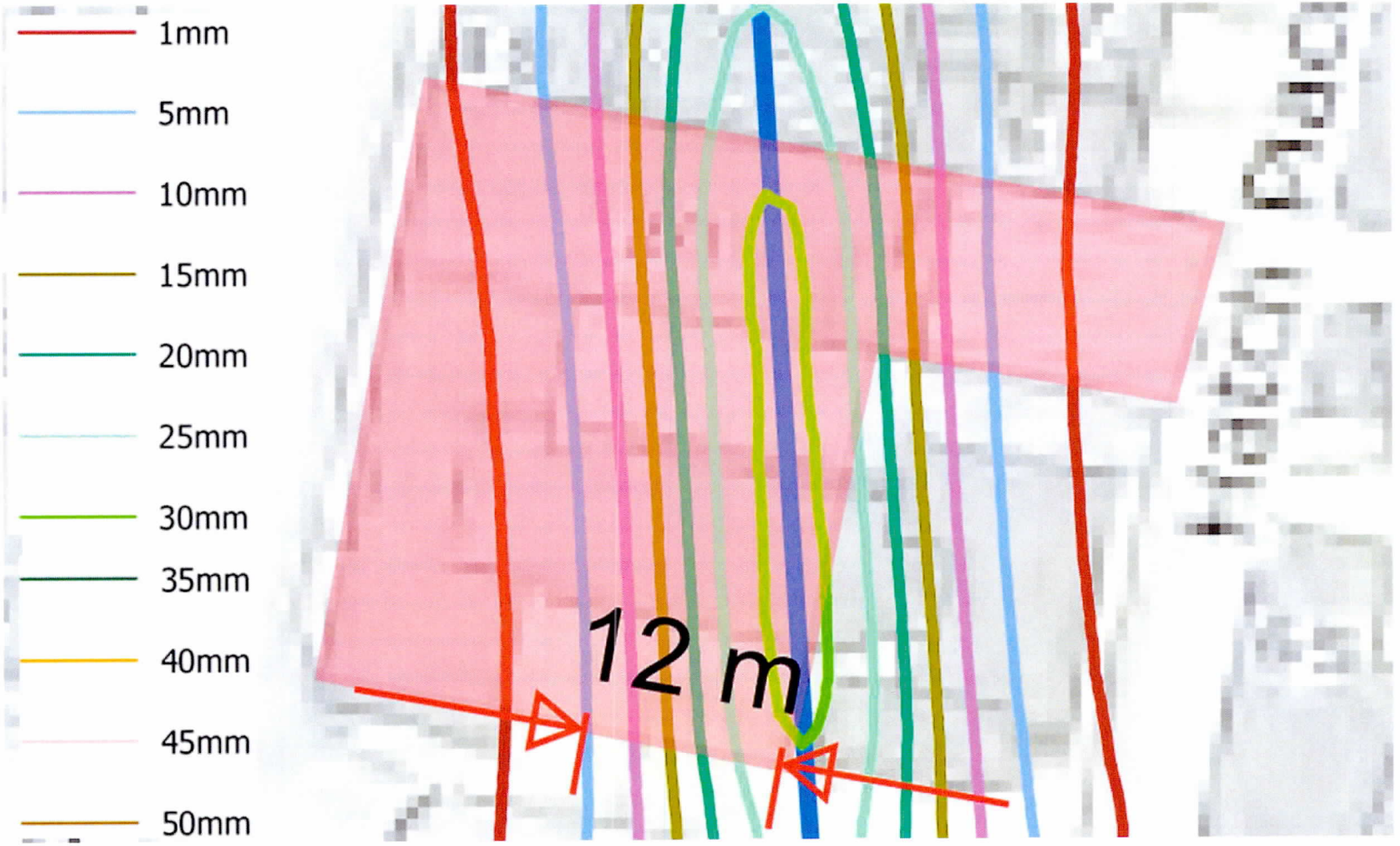
Ground Settlement.

ML1-JAI- EIA-ROUT-XX-DR-Y-21146 rev P02



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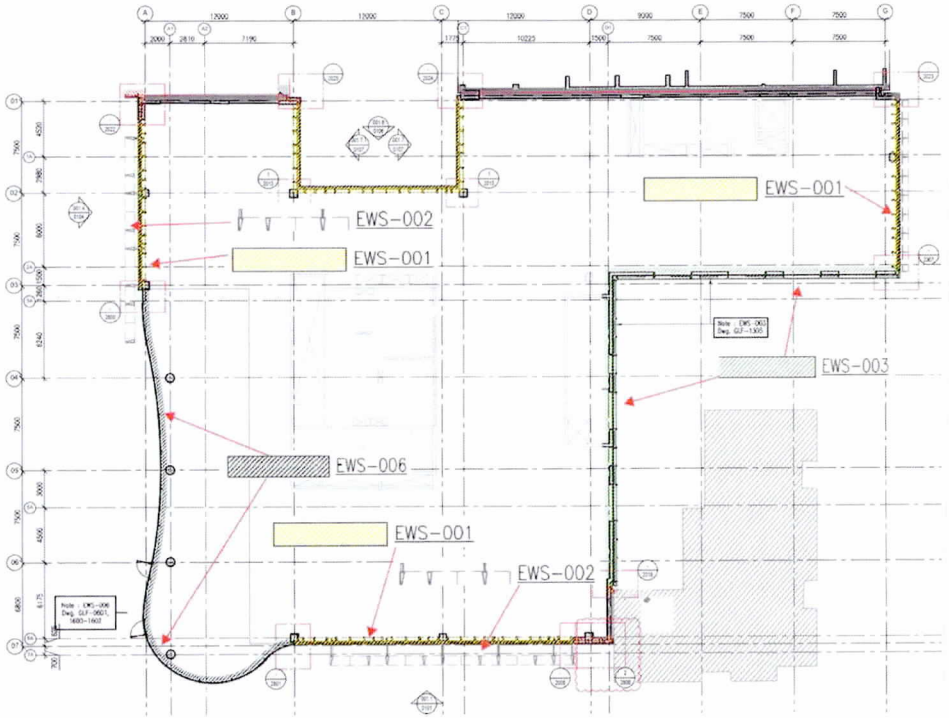
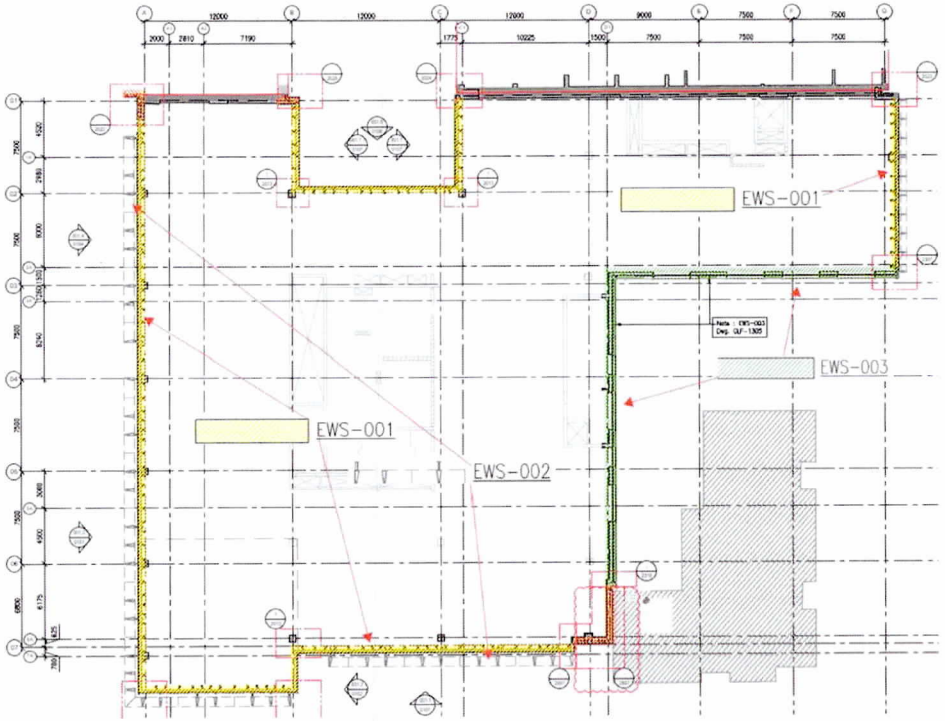
Ground Settlement.

ML1-JAI- EIA-ROUT-XX-DR-Y-21146 rev P02



Ground Level.



Typical Upper Level.

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Ground Settlement.
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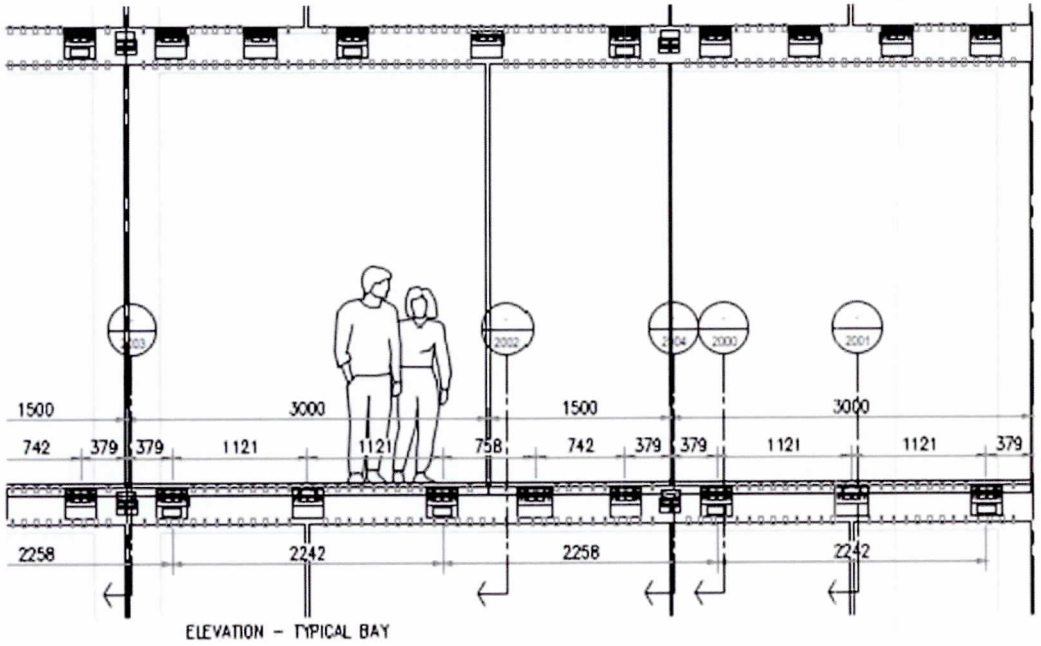

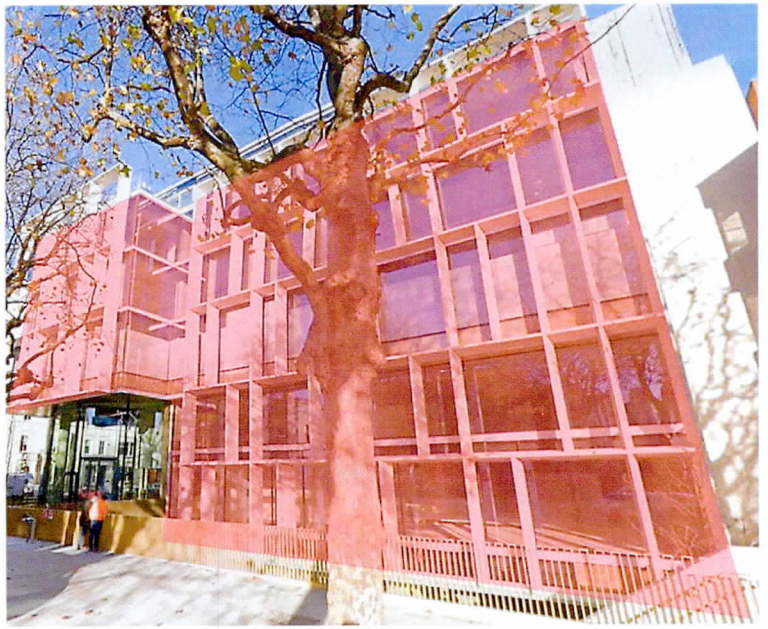

EWS-001 Window Wall.
It consists of large double glazed units free-spanning from floor to floor. Each pane of glass is only restrained by hidden toggles at the top and bottom edges of the double glazed units. The panels are all 3.5m tall. Panel widths range between 1.2m and and 3m.

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Ground Settlement.

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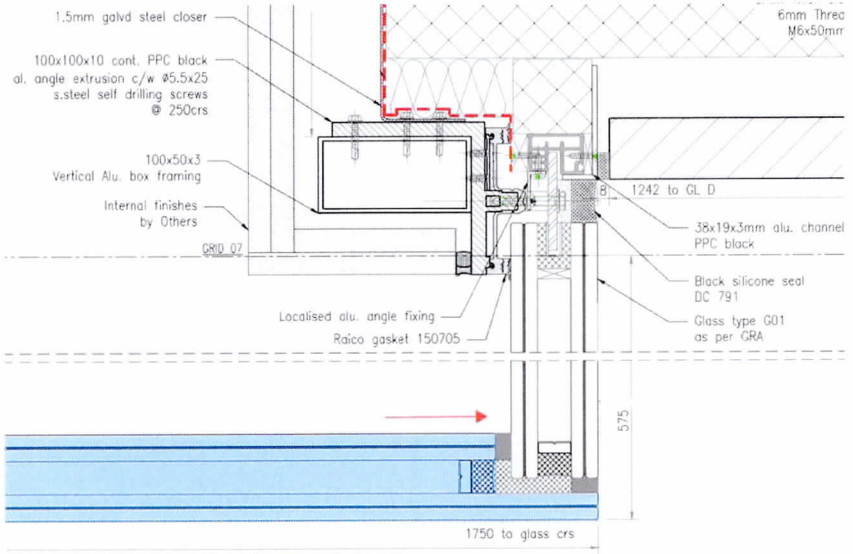

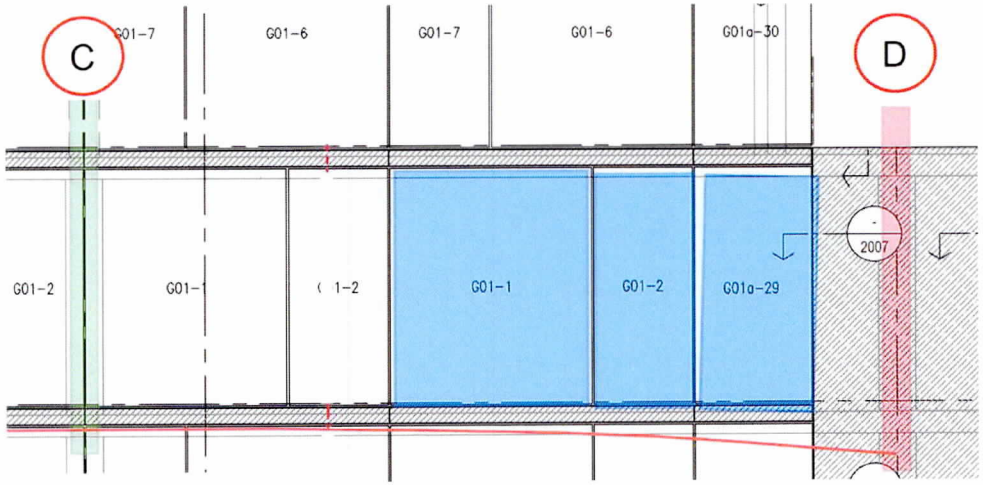

EWS-001 Window Wall. South Elevation. Worst Case.

Due to the aspect ratio of the panels closest to gridline D on the South elevation, the TII predicted differential settlement of **25mm from Gridline C to D** would result in **1.75m** wide panels rotating in plane not less than **3.6mm** at their base. As each panel is **3.5m tall this translates into 7mm rotation** at the top corner of the panel. Such rotation would exceed the design parameters of the structural sealant at the glass to glass joint crushing and tearing the sealant and inducing stress in the glass. It may not cause breakage but will apply long-term stress into the structural sealant joint which may cause failure of the structural connection.

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Ground Settlement.

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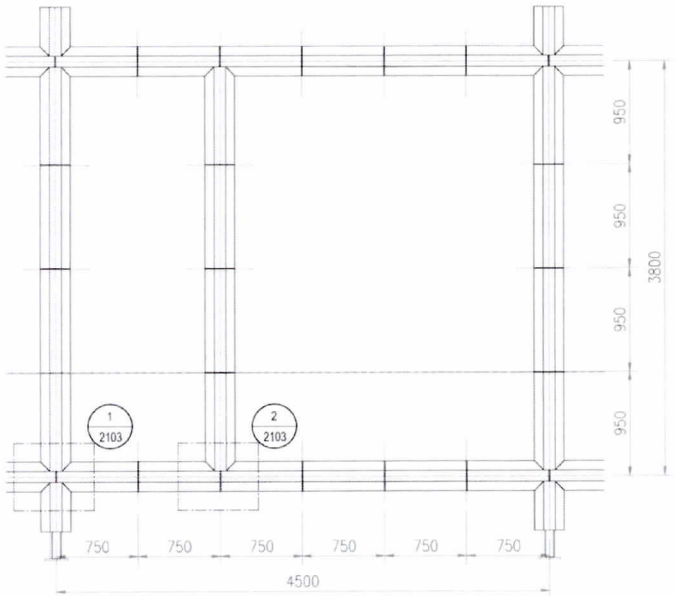
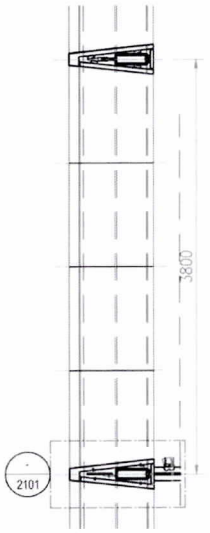


FRONT ELEVATION - TYPICAL BAY



VERTICAL SECTION - TYPICAL BAY

EWS-002 Suspended Stone Veil.

The stone veil is supported from the terrace slab at fifth floor level. The veil consists of individual pieces of hand-set limestone with undercut anchors and aluminium support rails fixed back to a bespoke stainless steel and galvanised steel suspension structure. Differential movement (racking) of the primary structural floors causes the veil suspension structure to deform out of square.

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Ground Settlement.

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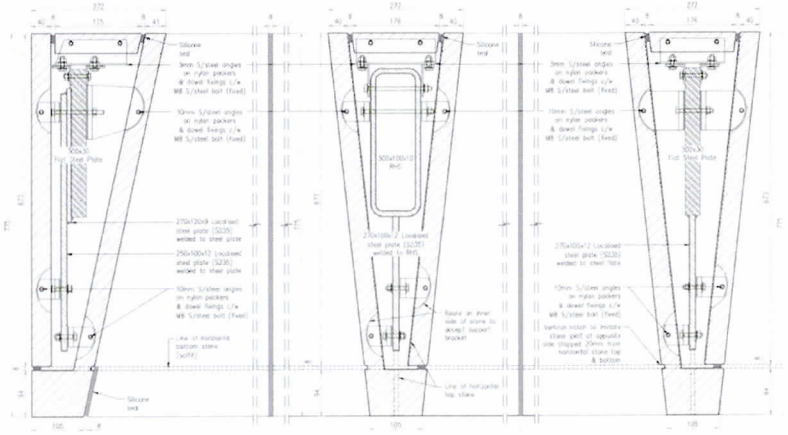

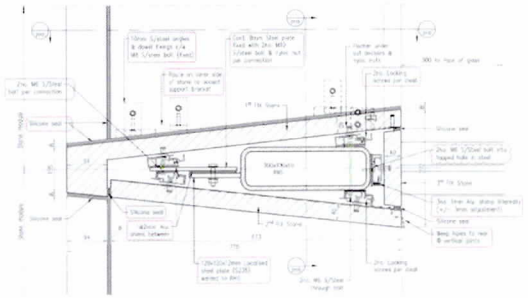

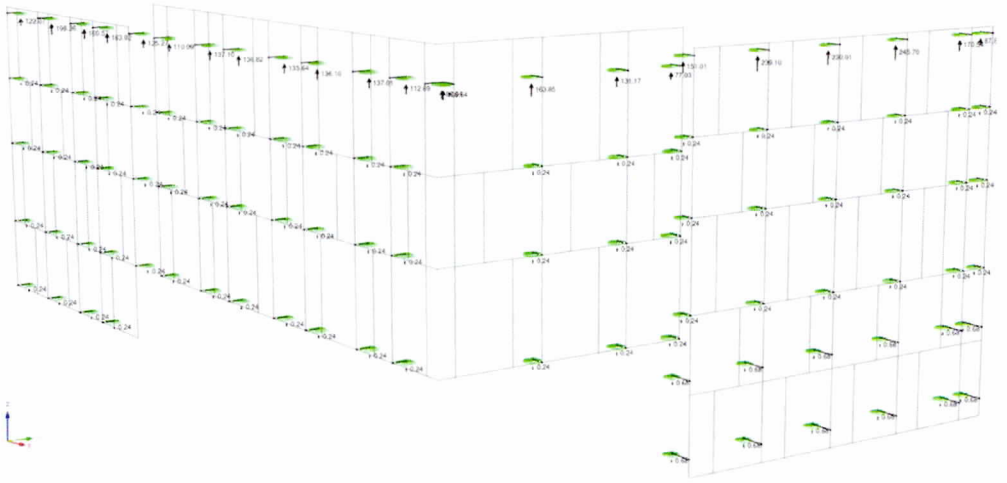

EWS-002 Suspended Stone Veil. South Elevation. Worst Case.

The stone veil is supported from the terrace slab at fifth floor level. The veil consists of individual pieces of hand-set limestone with undercut anchors and aluminium support rails fixed back to a bespoke stainless steel and galvanised steel suspension structure. Differential movement (racking) of the primary structural floors causes the veil suspension structure to deform out of square.

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Ground Settlement.
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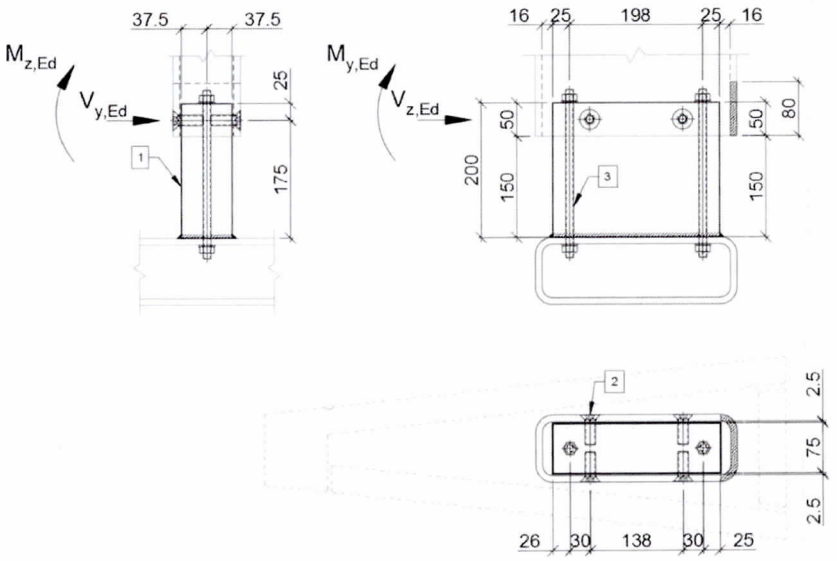

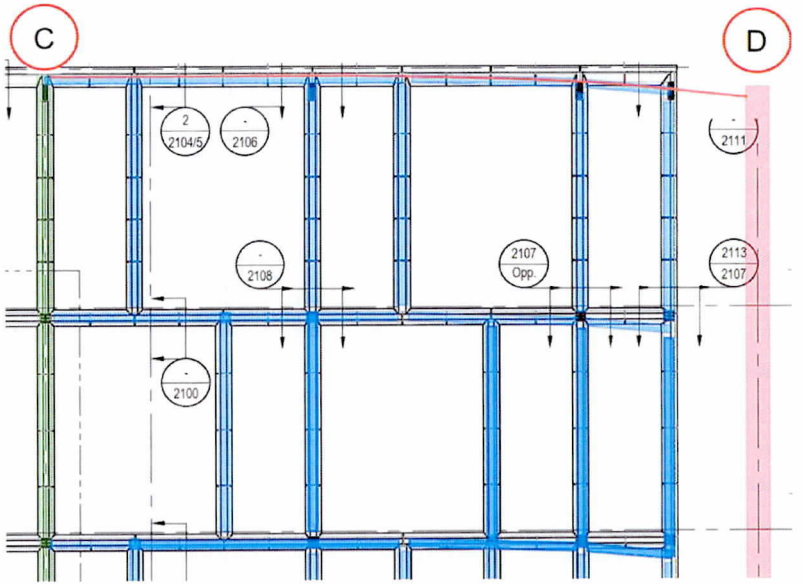

EWS-002 Suspended Stone Veil. South Elevation. Worst Case.

The differential settlement of a column **25mm from Gridline C to D** causes rotation of the connection between horizontal and vertical veil elements. These connections are typically formed with countersunk fixings tapped into a block of stainless steel. These connections were not designed to accommodate significant rotation. Detailed analysis would be required to determine how these connections react and whether the horizontal beams of the veil would rotate at these connections or be forced to go into bending **('S' shaped bend on elevation).** If over-stressed the connections could fail.

If the horizontal beams or vertical mullions go into bending due to differential settlement, this could cause **over-stressing of the fixings in the stone exceeding permissible safety factors and/or causing cracking of the stone**.

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Ground Settlement.

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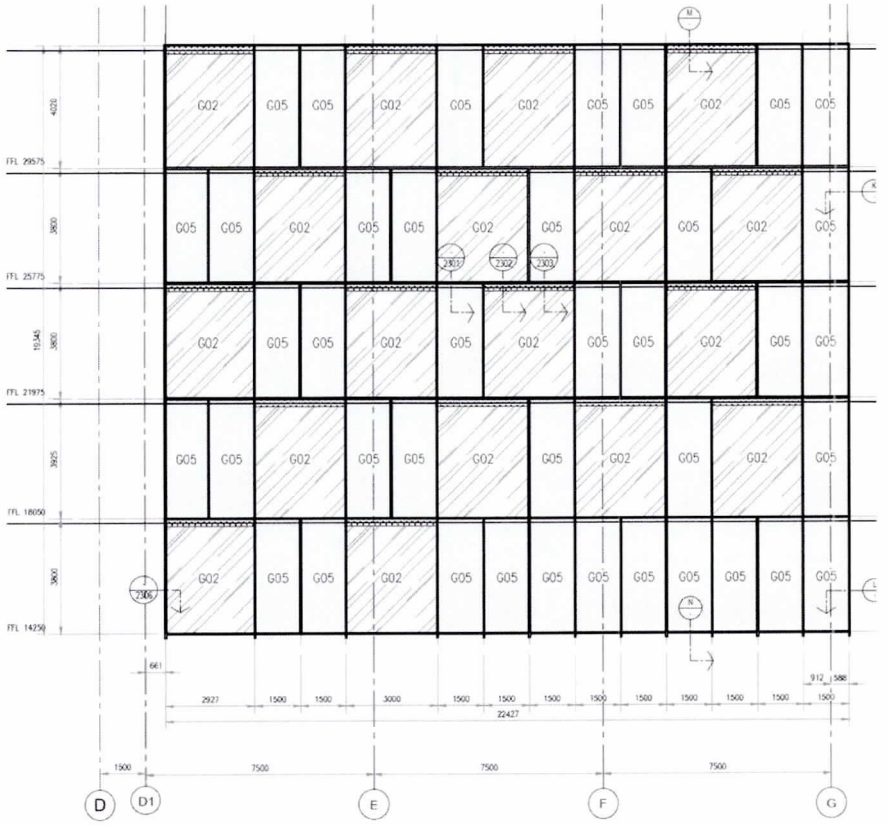

EWS-003 Stick System Curtain Wall.

It is a bespoke solution dead-loaded at each slab. It consists of large double glazed units, some opacified with insulated panels behind, toggle-glazed into aluminium profiles on four sides. Each pane of glass is restrained by hidden toggles around the perimeter of each double glazed unit. The panels are all 3.5m tall. Panel widths range between 1.5m and and 3m.

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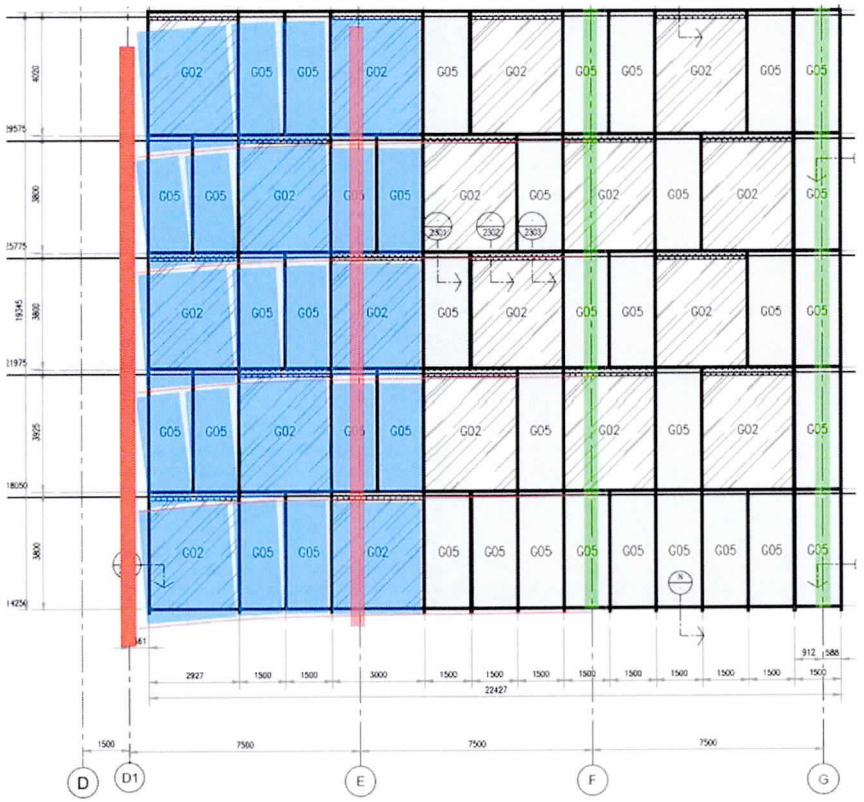
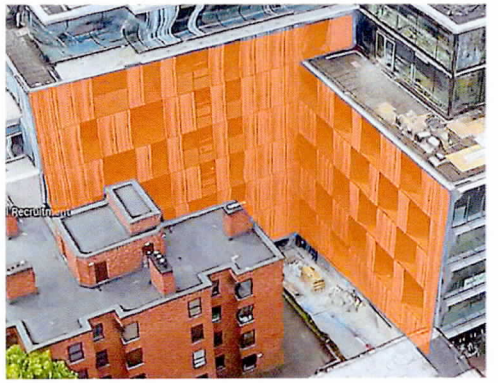
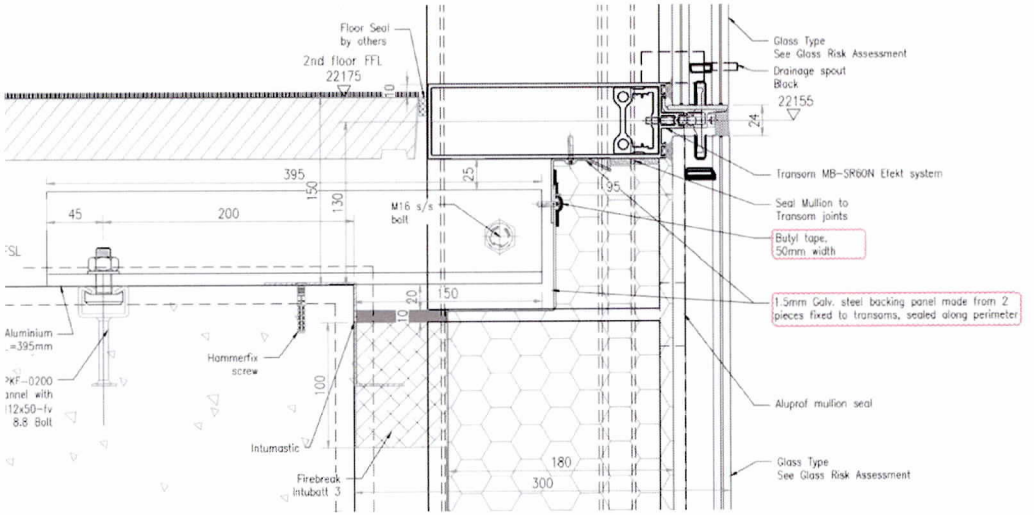
Ground Settlement.

ML1-JAI- EIA-ROUT-XX-DR-Y-21146 rev P02







EWS-003 Stick System Curtain Wall. Worst Case Recessed South Elevation

When the structure moves differentially, the mullions remain vertical and the transoms rotate in plane. As each glass unit sits on a transom, the glass rotates with the transom. Based on the TII diagram there is approximately **30mm of differential settlement across quite a small width of approximately 10m**. Due to the aspect ratio of the panels closest to gridline D1 on the South elevation, the TII predicted differential settlement of **30mm in this area** would result in **1.5m wide panels** rotating in plane not less than **4.5mm at their base**. As each panel is **3.8m tall this translates into 11mm rotation** at the top corner of the panel. The toggle glazed system does not have capacity for this degree of movement.

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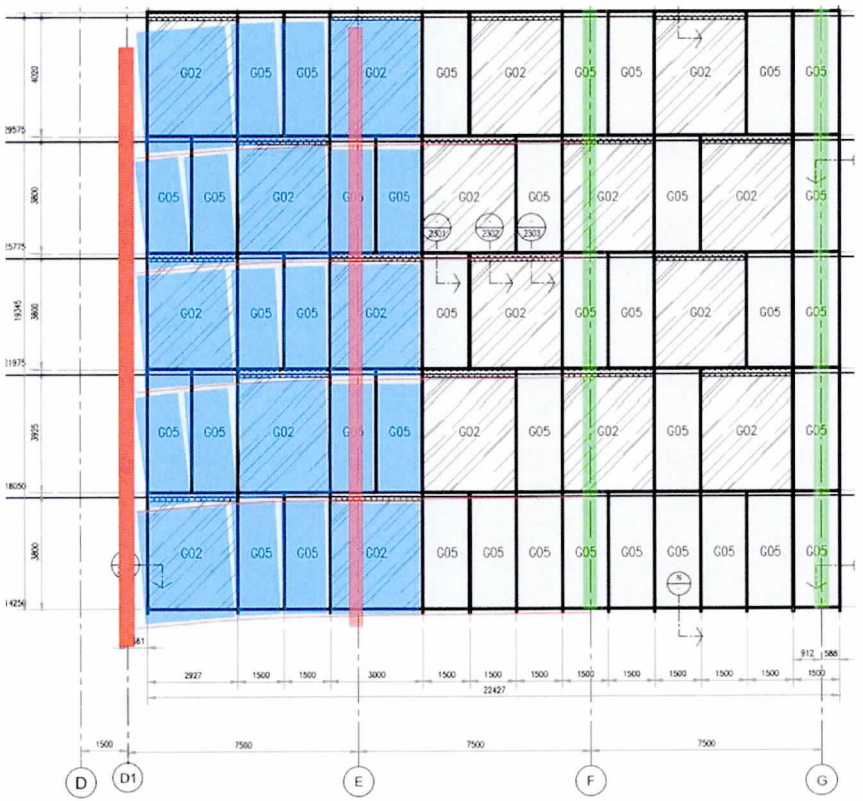
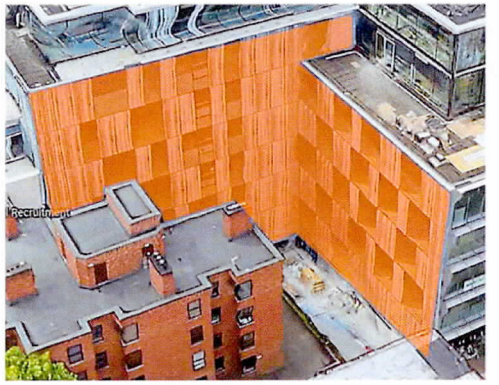
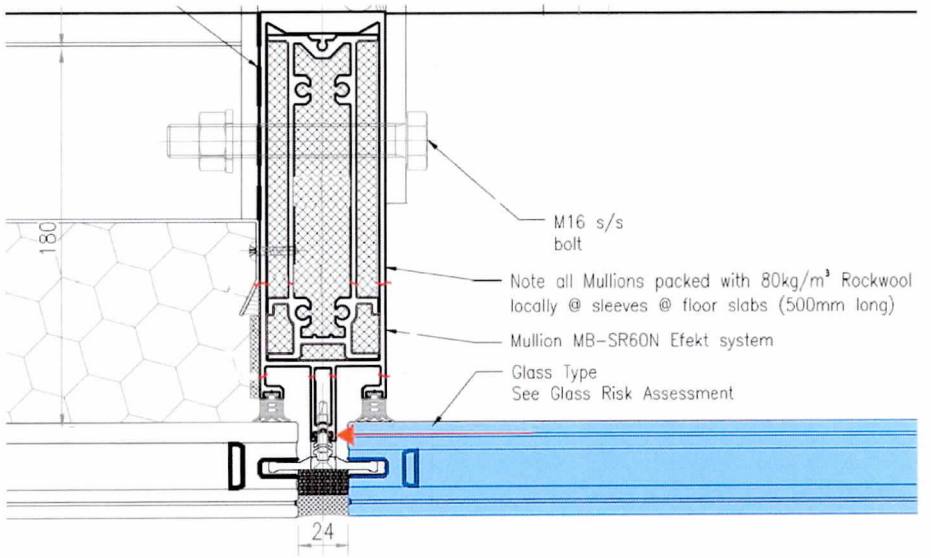
Ground Settlement.

ML1-JAI- EIA-ROUT-XX-DR-Y-21146 rev P02







EWS-003 Stick System Curtain Wall. Worst Case Recessed South Elevation

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Ground Settlement.

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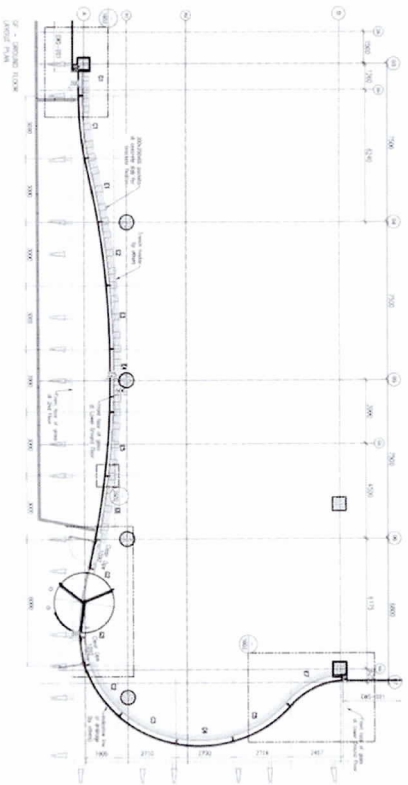

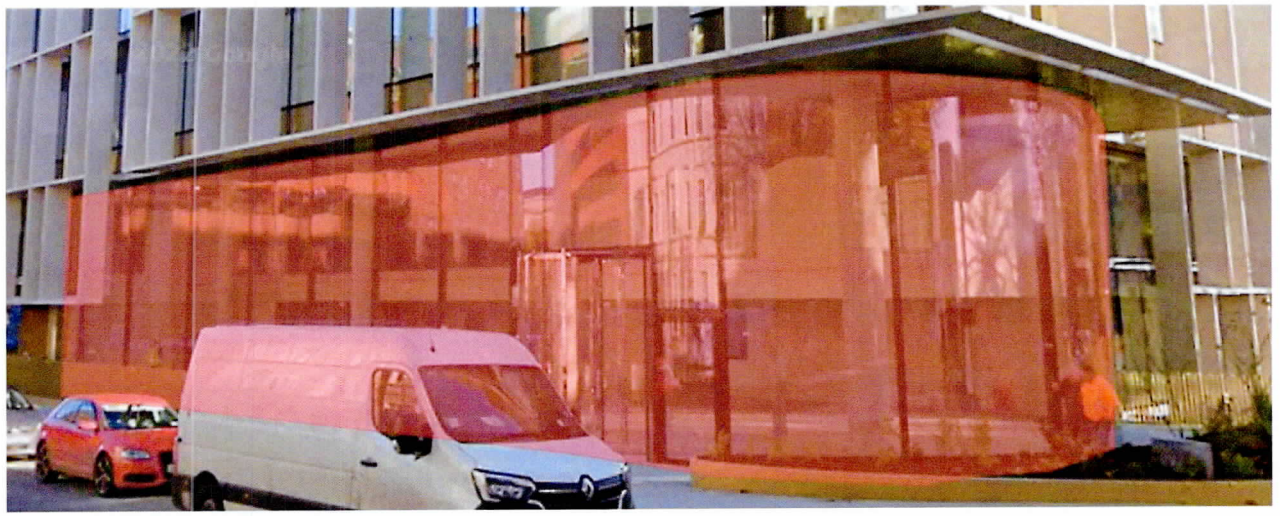

EWS-006 Entrance Glazing.

The entrance glazing is a bespoke glazing system formed from curved double-glazed units up to 6.7m tall restrained by stainless steel flat plates at glass to glass joints. Due to their size and shape, the double glazed units are formed from laminated annealed glass rather than heat treated or toughened glass. This makes the glass particularly susceptible to breakage due to localised stresses.

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Ground Settlement.

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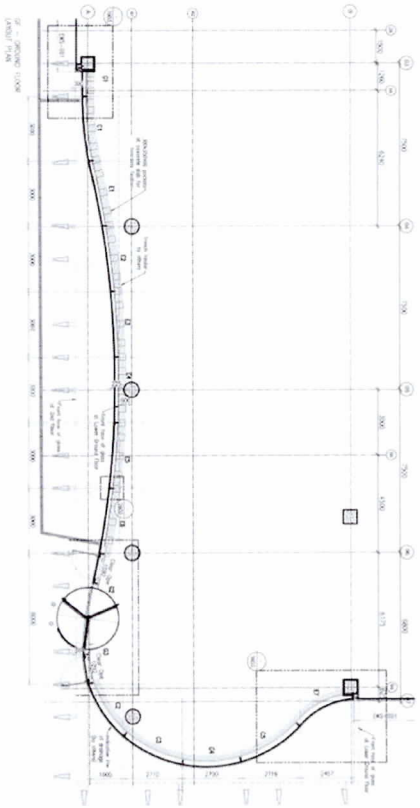

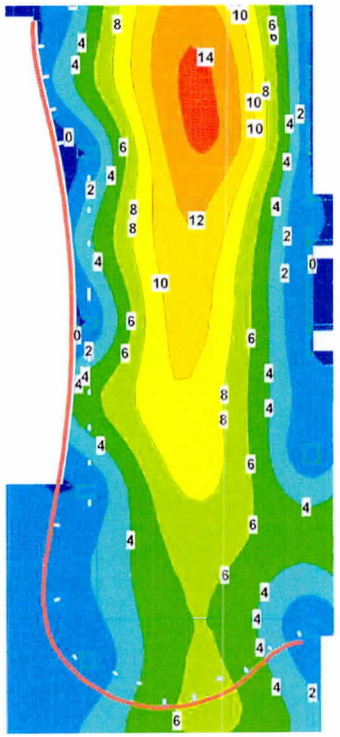

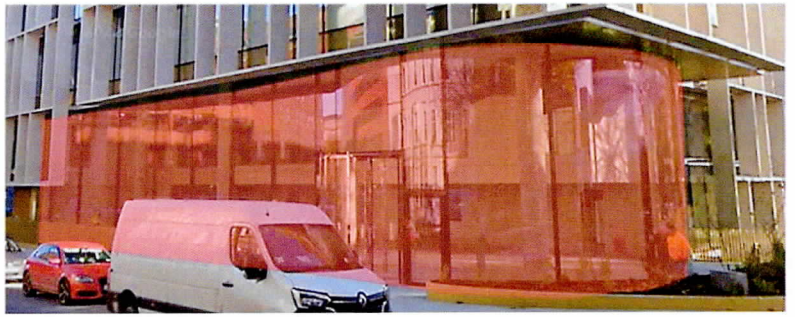

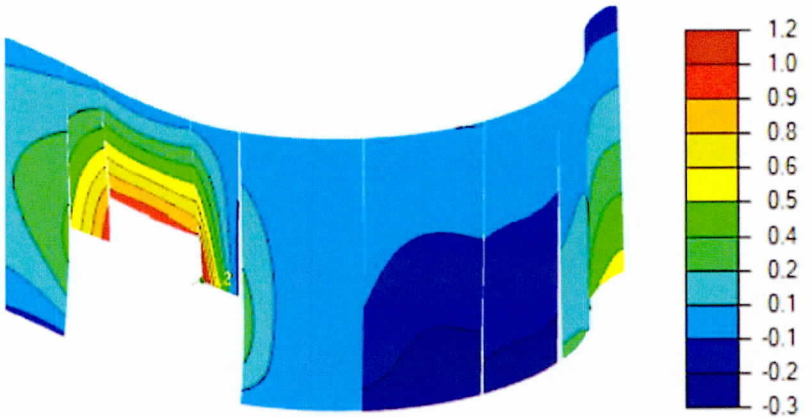

EWS-006 Entrance Glazing.

The entrance glazing is a bespoke glazing system formed from curved double-glazed units up to 6.7m tall restrained by stainless steel flat plates at glass to glass joints. Due to their size and shape, the double glazed units are formed from laminated annealed glass rather than heat treated or toughened glass. This makes the glass particularly susceptible to breakage due to localised stresses. **Maximum vertical deflections in 'mm' of the installed screen are shown on the right in the image above.**

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Ground Settlement.

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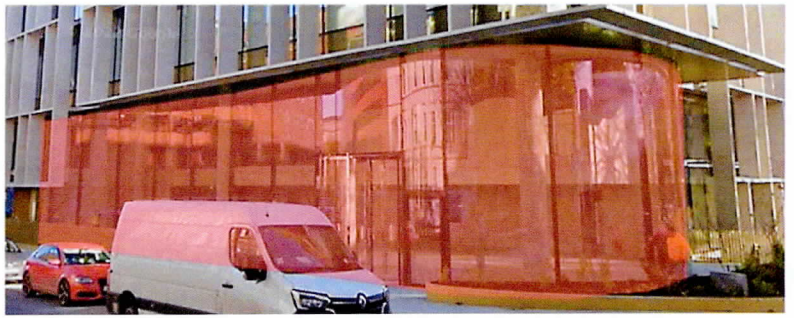

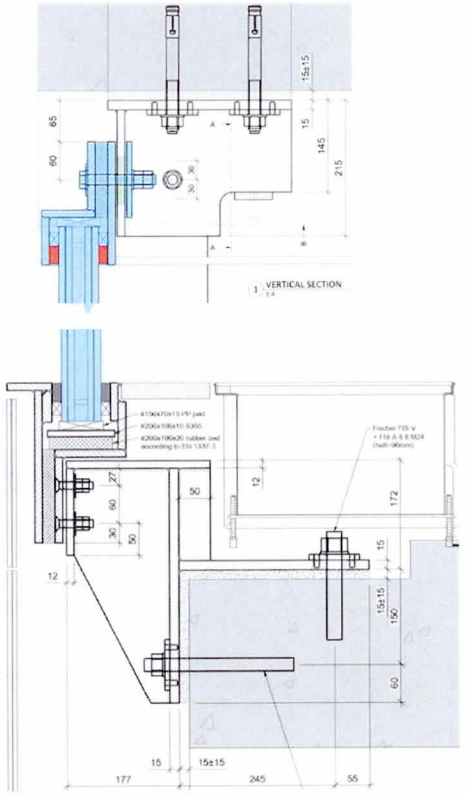

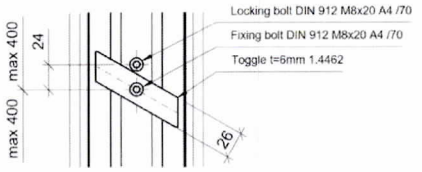

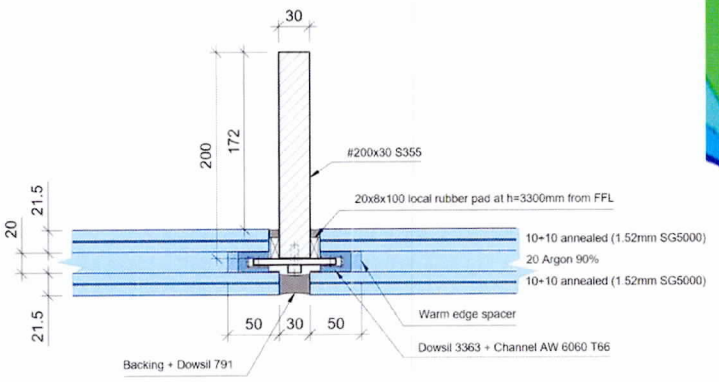

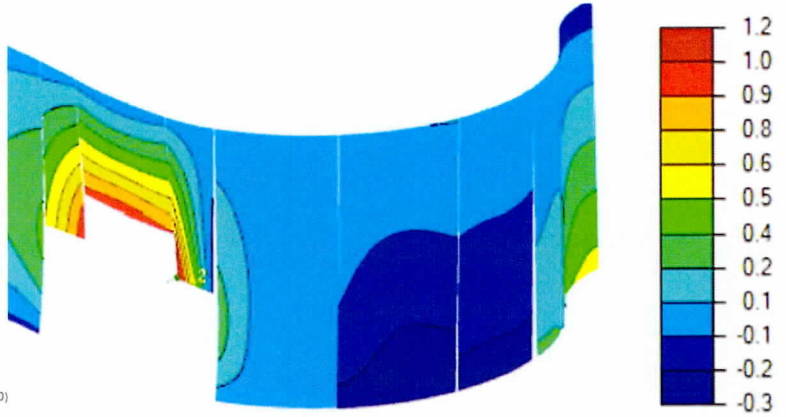

EWS-006 Entrance Glazing.

The entrance glazing is a bespoke glazing system formed from curved double-glazed units up to 6.7m tall restrained by stainless steel flat plates at glass to glass joints. Due to their size and shape, the double glazed units are formed from laminated annealed glass rather than heat treated or toughened glass. This makes the glass particularly susceptible to breakage due to localised stresses. **Maximum vertical deflections in 'mm' of the installed screen are shown on the right in the image above.**

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Ground Settlement.
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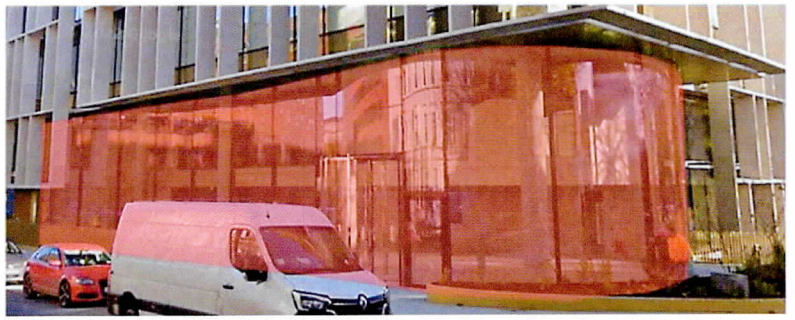

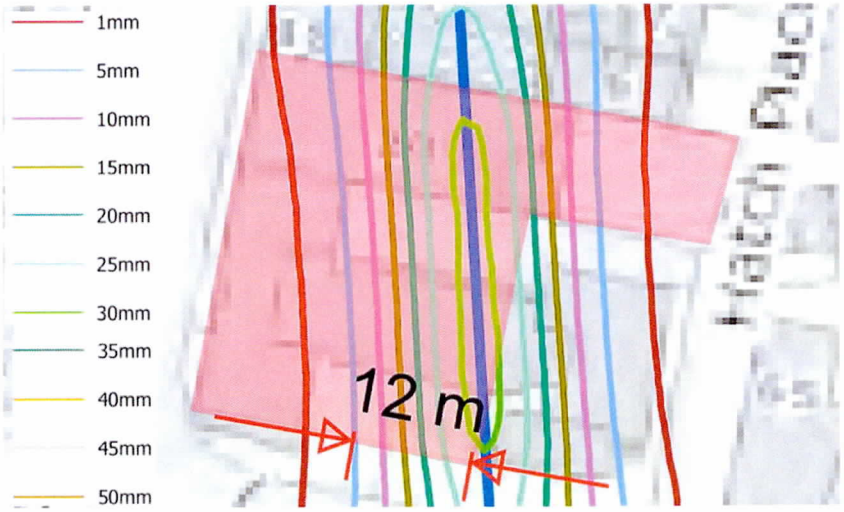

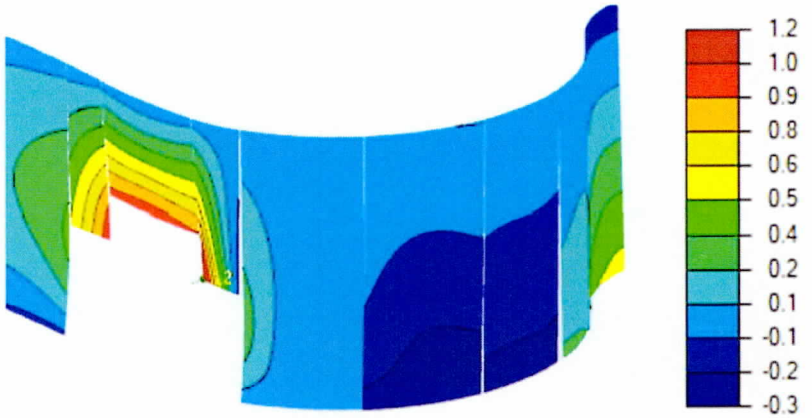

EWS-006 Entrance Glazing.
The entrance glazing is a bespoke glazing system formed from curved double-glazed units up to 6.7m tall restrained by stainless steel flat plates at glass to glass joints. Due to their size and shape, the double glazed units are formed from laminated annealed glass rather than heat treated or toughened glass. This makes the glass particularly susceptible to breakage due to localised stresses. **Maximum vertical deflections in 'mm' of the installed screen are shown on the right in the image above.**
If the tunnel is out of position to the West by 10m or 15m which we understand is within the TII's tolerances, you can see the curved glass screen will be in danger of experiencing **major differential settlement across the south** end of the screen which would cause breakage.

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