



Accumulator Tower - Interior view of weight case

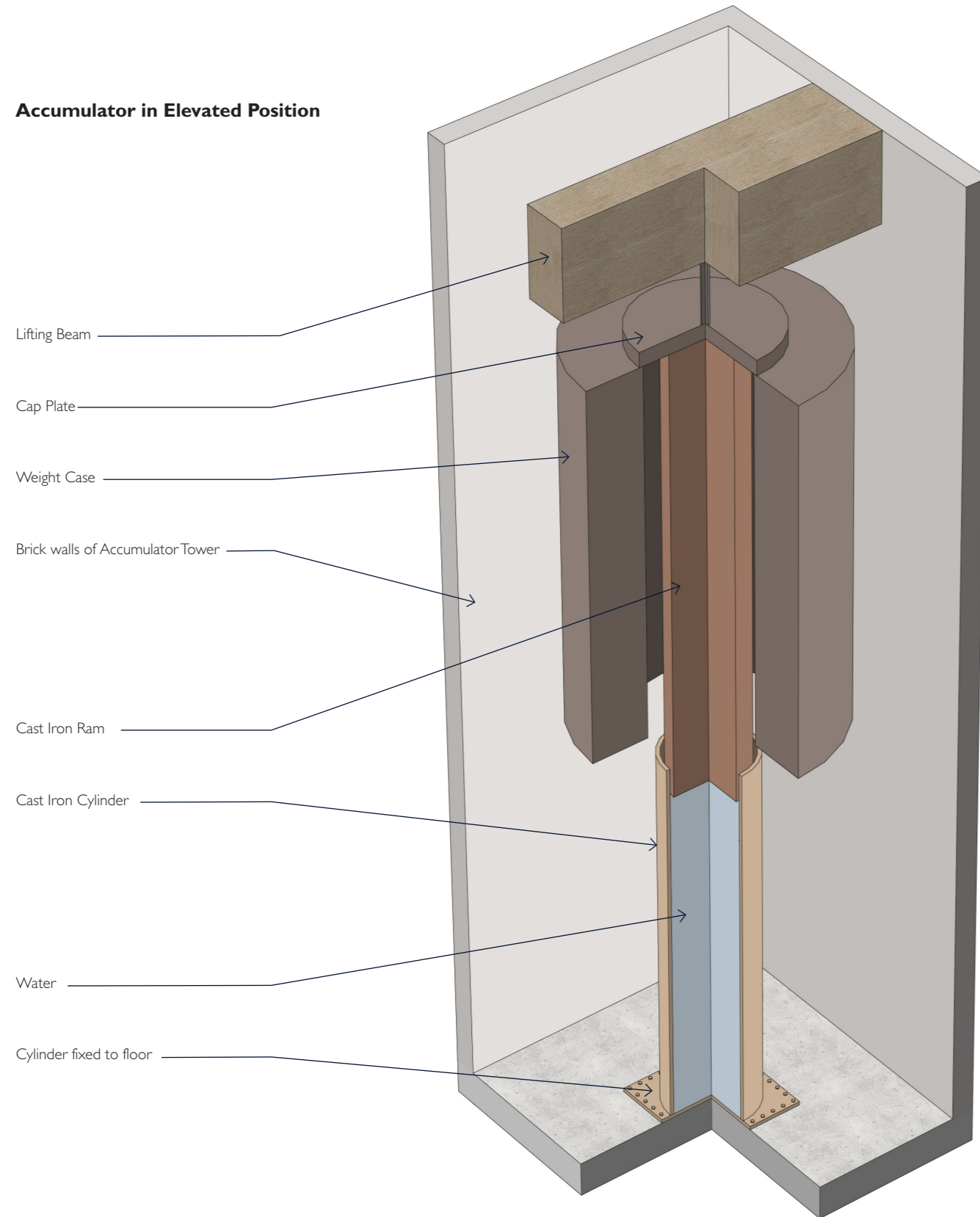


Accumulator Tower - Exterior View

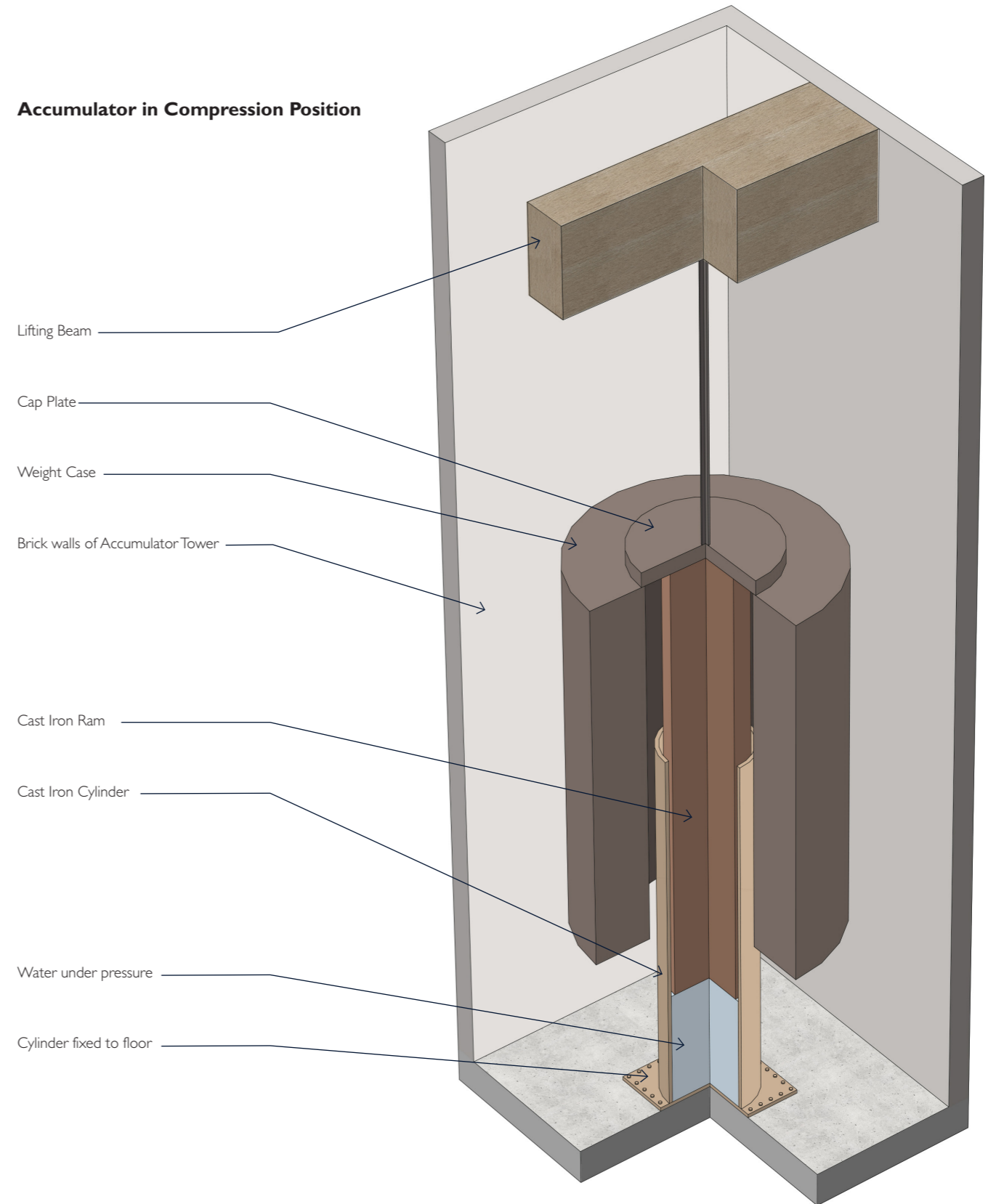
Condition 2o: Details of the proposals relating to the hydraulic accumulator tower and accumulator equipment including method of repair and reinstatement.

Original Function of Accumulator

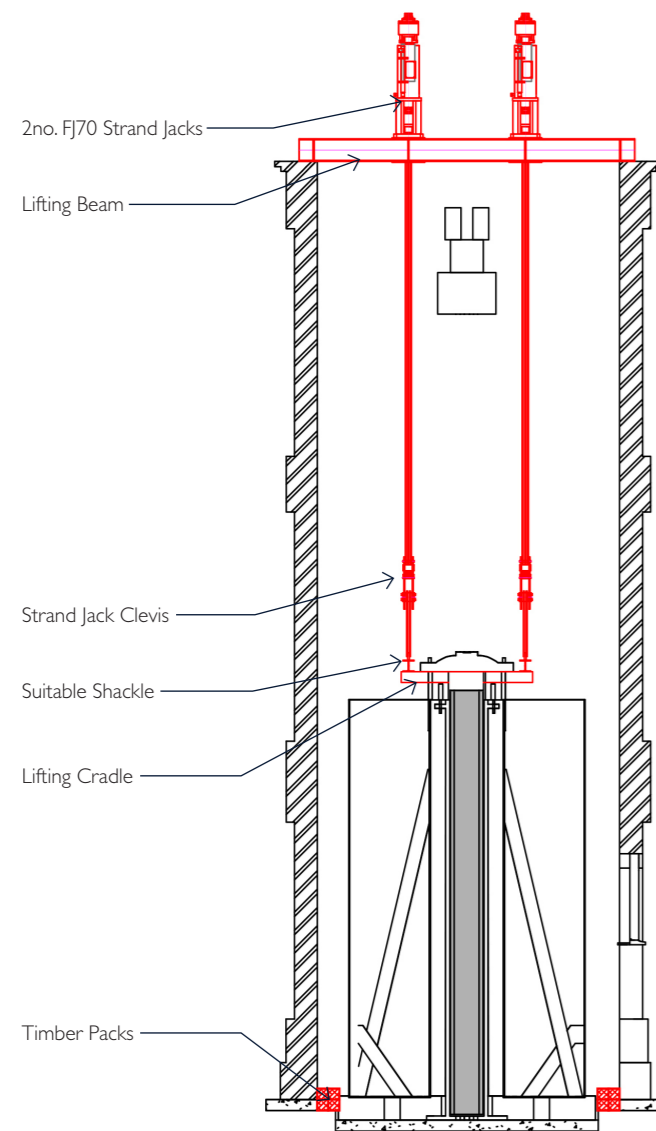
Accumulator in Elevated Position



Accumulator in Compression Position



Accumulator Lifting Sequence



Notes

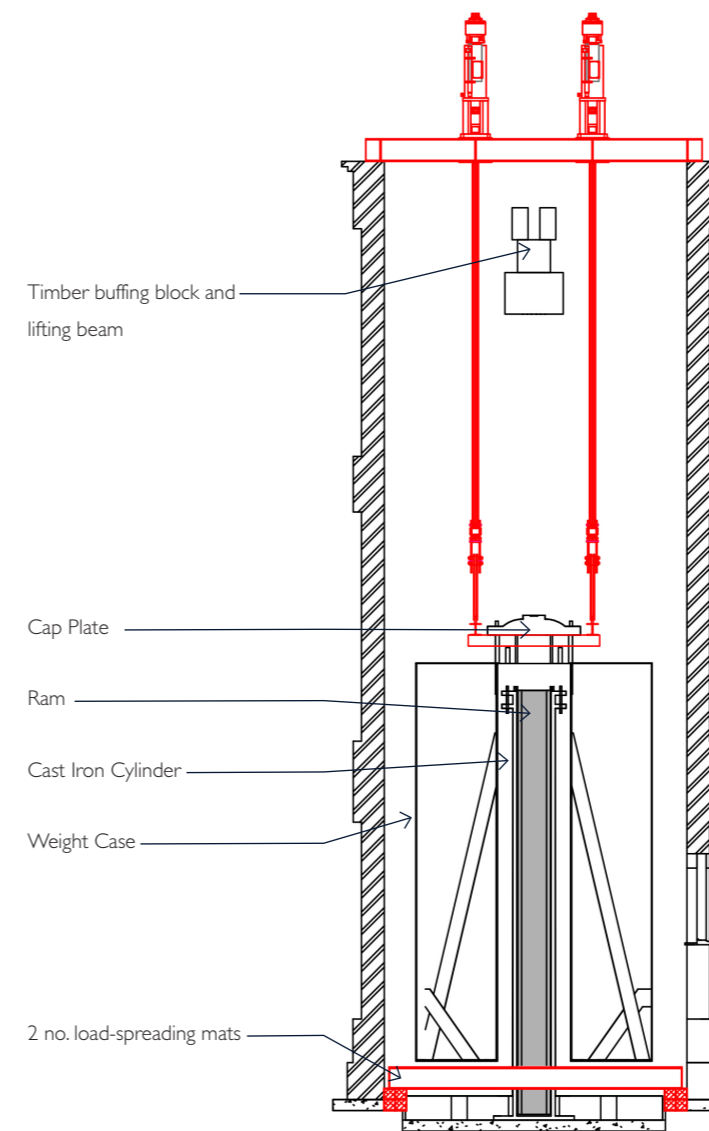
Temporary works shown in red
 Guide rails not shown in diagrams for clarity of illustration. They will be cleaned, refurbished and left in place as part of the final building

Preliminary stage:

Structural repairs to brickwork walls of the accumulator tower will be carried out, along with a thorough clean of the shaft and the accumulator itself. Following this, there will be a weight recalculation and structural inspection of the equipment to be lifted, to verify it is sound and safe to lift.

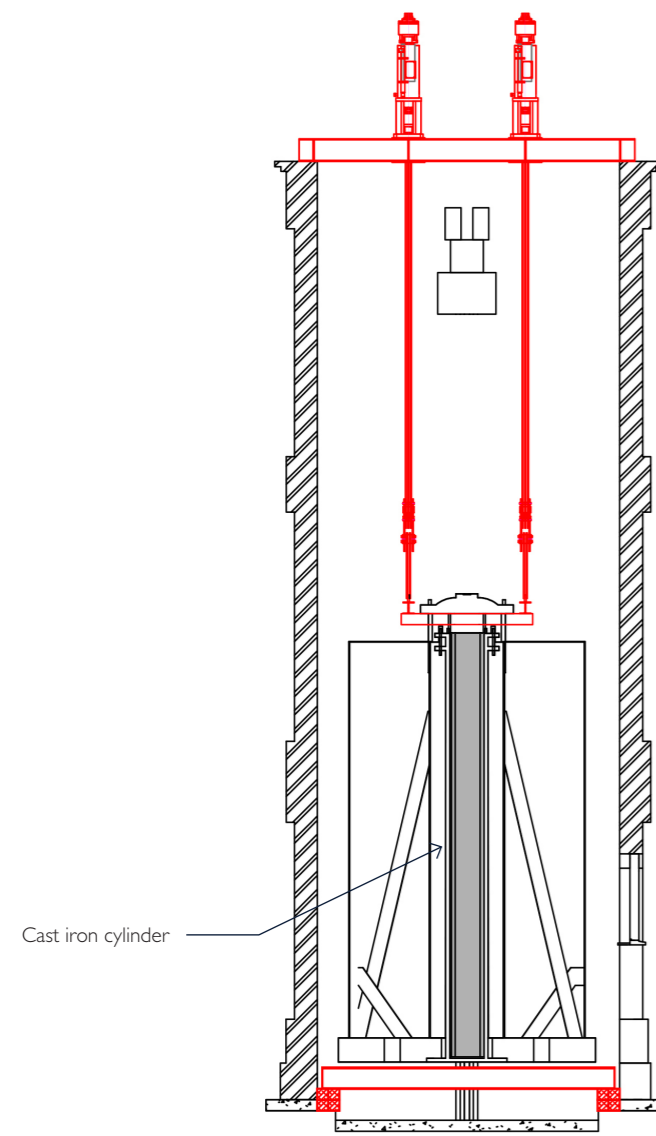
Stage 1:

Temporary lifting gear to be installed including Strand Jacks, lifting beams, a lifting cradle and timber packs.



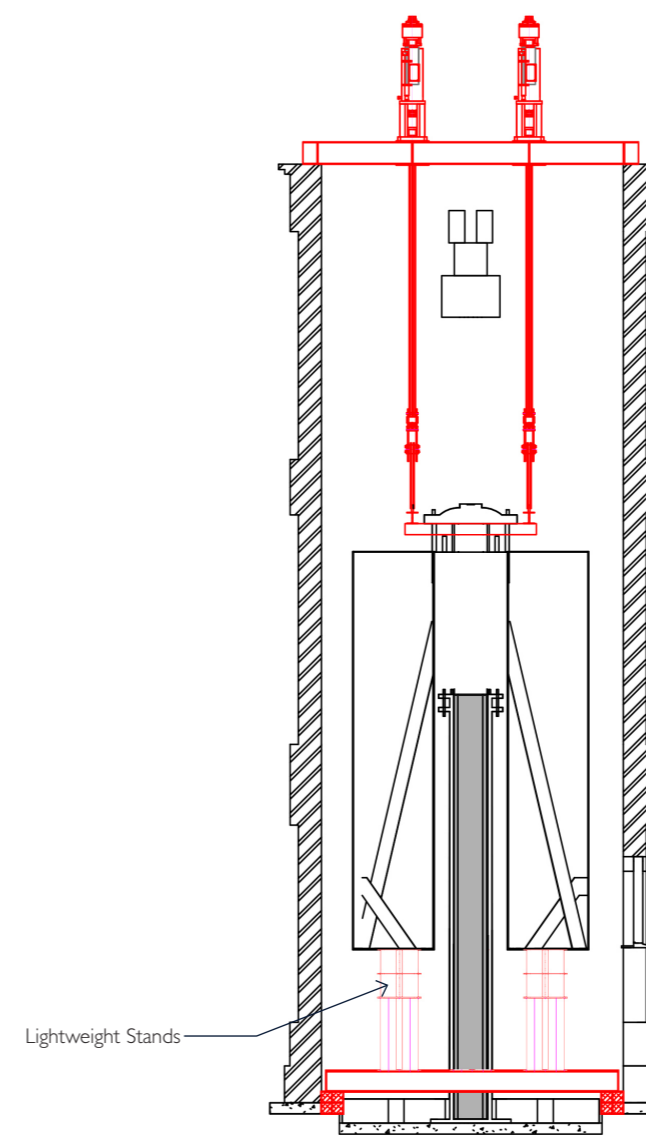
Stage 2:

The accumulator will initially be lifted approximately 500mm using the Strand Jacks to allow initial inspection. It will be checked whether the cast iron cylinder and central ram have lifted with the weight case. Load-spreading mats will then be placed underneath the weight case, on top of the timber packs.



Stage 3

If the cast iron cylinder and ram lift with the weight case, attempts will be made to release them so they return to the floor. Failing this, they will be secured to the lifting cradle using straps/chains.



Stage 4:

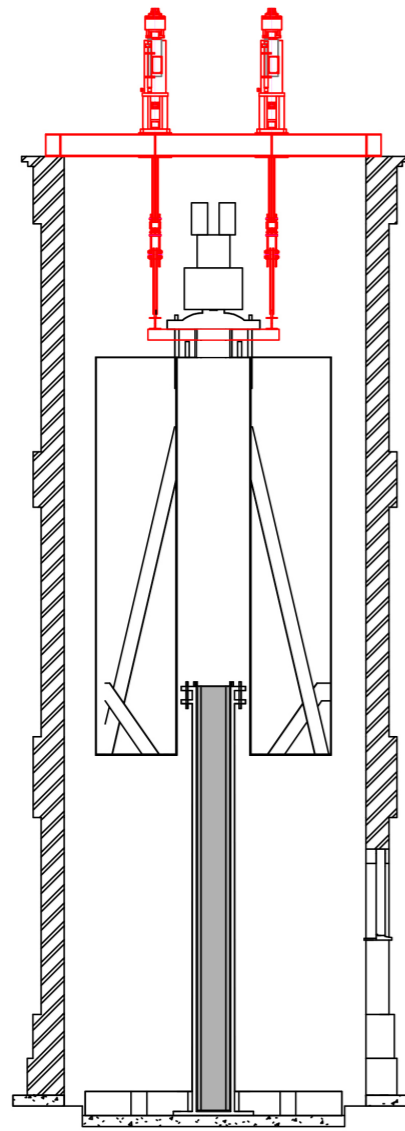
The weight case will be lifted to approximately 2250mm using Strand Jacks. Following this, stands will be placed on top of the load-spreading mats to provide temporary support.

Stage 5:

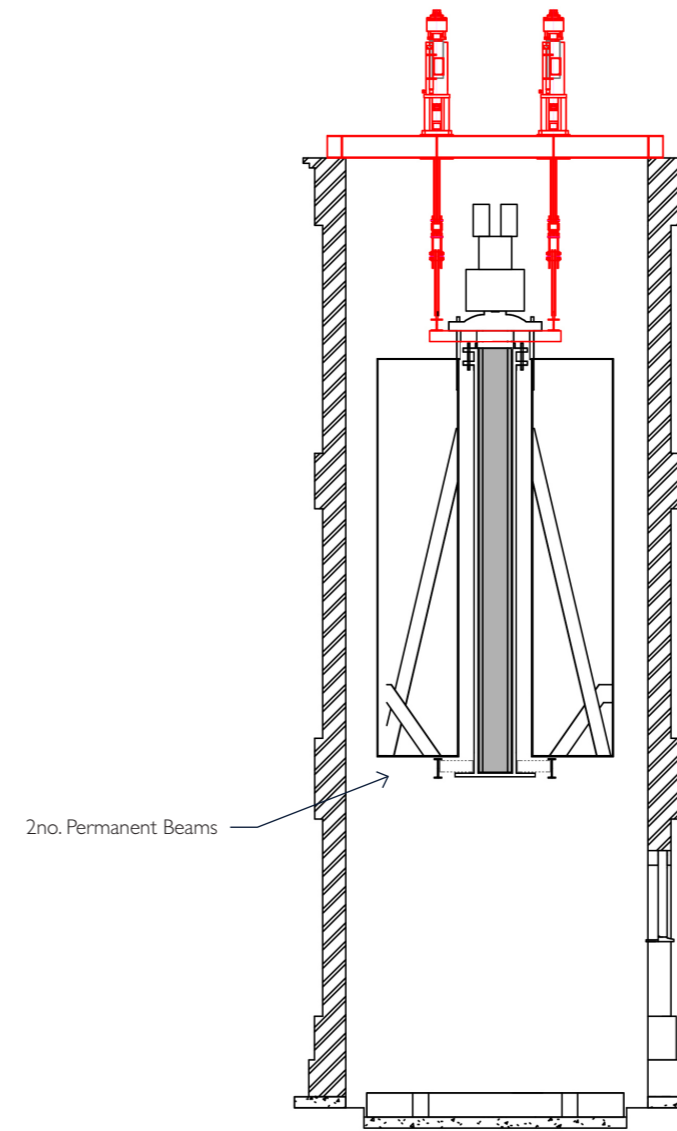
The weight case will be lowered onto the supporting stands, allowing the underside of the tank to be inspected and maintained.

Stage 6:

The weight case will be raised off the stands temporarily and the stands to be repositioned to allow previously covered areas of the weight case base to be inspected and maintained.



Stage 7:
The weight case will be lifted until the underside of the cap plate is in contact with the timber buffer stop at high level, approximately 4.5m. Stands and mats will be removed from beneath.



Stage 8:
Cylinder and ram will be disconnected at the base and lifted into position. 2 permanent beams will be installed beneath, and the equipment will then be lowered down approximately 100mm to rest on the permanent beams. The raised cylinder and ram will be supported with a clamped ring beam.

Design Approach

The external surface of the weight case will be shot blasted to remove surface rust and detritus, and sealed with Cromadex 800 clear acrylic top coat, which will be roller applied.

Internally, any loose fill or ballast materials will be removed from the weight case. It will otherwise be left in its current condition.

New structural steel elements will be painted dark grey in accordance with other new steelwork throughout the building.

An existing access ladder will be retained in the space, and relocated to the side of the accumulator tank.



Brick Finish

Internally, brick walls will be cleaned and left exposed, as per the interior of the Midland Goods Shed, above.

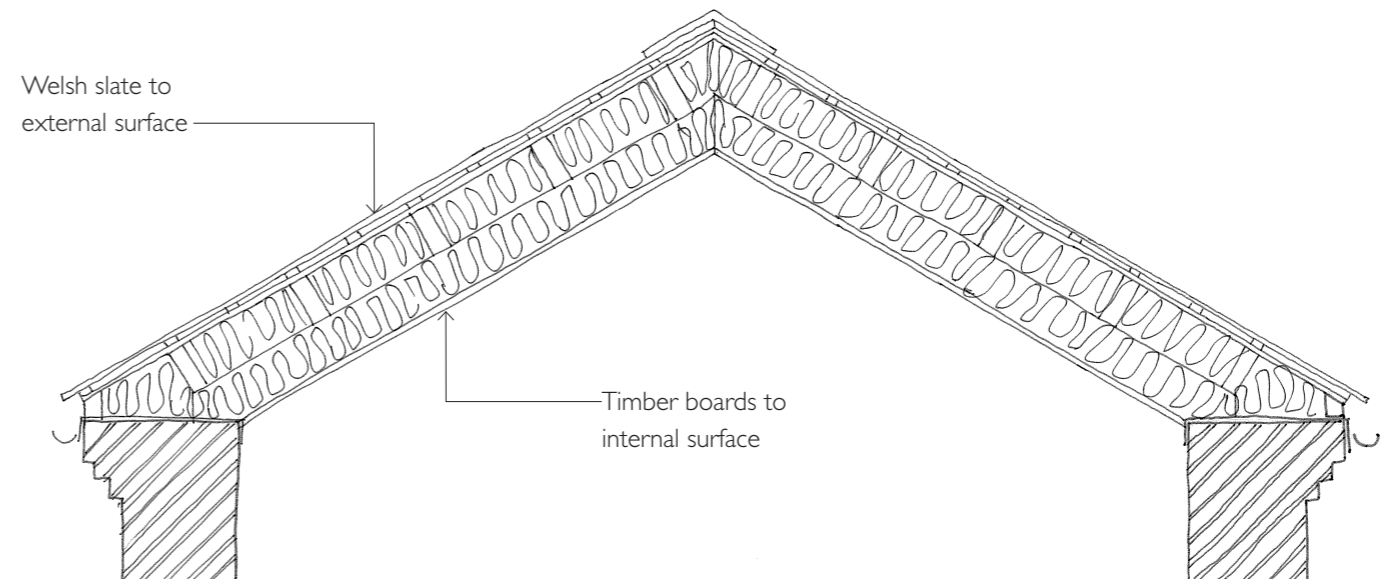


Replacement of Accumulator Tower Roof

The existing roof is damaged and structural elements are rotten. It will be removed and replaced with a new roof construction including improved insulation and weatherproofing. The roof will be supported by a new timber structure and maintain a welsh slate finish externally, as per the main roof to the Midland Goods Shed. Internally the finish will be timber boards, although from the ground floor the underside of the roof is largely obscured by the tank.



Condition of existing accumulator tower roof



Indicative sketch of proposed new roof covering