Kings Cross Central,
Gasholder No. 8, Acknowledging its Historical Form

Malcolm Tucker, 5 March 2013, for GLIAS

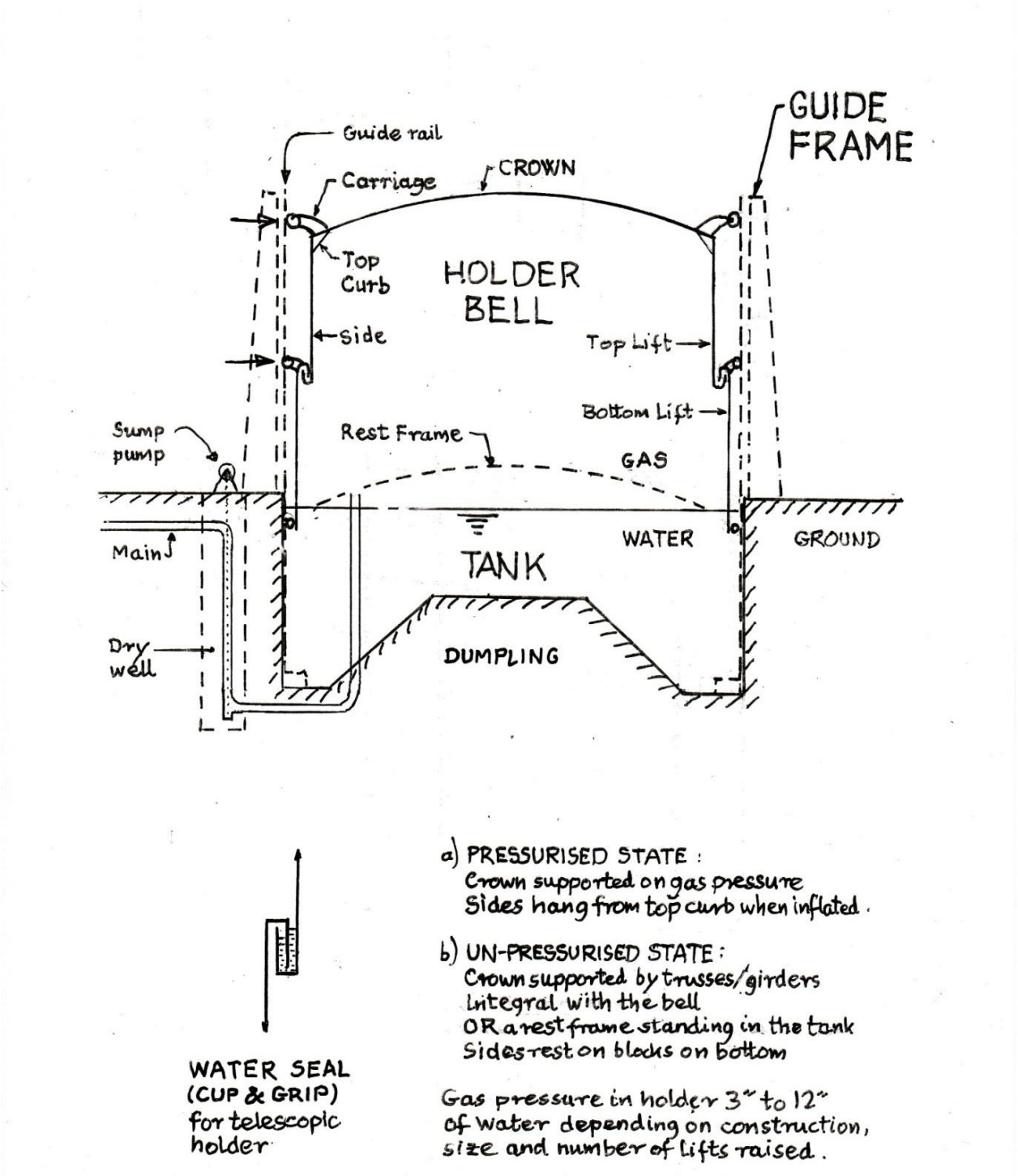

Fig 1. Diagrammatic section through a two-lift telescopic gasholder (Malcolm T Tucker).

1) How the gasholder worked

The gas in a conventional, water-sealed gasholder was contained in a circular 'bell', constructed of sheet metal with some light framing. The individual telescopic sections of the bell are called 'lifts', and in No. 8 Gasholder there were three lifts.

So that the amount of gas held within the gasholder could vary, the bell was free to move up and down above a water-filled 'tank'. The pressure of gas in the bell was a few inches of water, and its bottom edge was sealed by the water within the tank. (Fig. 1)

The bell was guided by rollers ('guide wheels'), mounted on brackets ('carriages') fixed to the top of each lift (and by further, concealed guide wheels fixed at the bottoms). The guide wheels were in contact with guide rails, which were fixed to the columns of the guide frame. (Fig.. 2a). The top carriage was mounted on the sloping surface of the 'crown' (Fig. 2b).

As the gasholder emptied, the lifts descended to rest on the bottom of the tank, with their tops all roughly level with the top of the tank and the carriages 'nested' one above the other (Fig. 3a). That is the state in which the carriages are to be displayed in No. 8 Gasholder. In No. 8 Gasholder we have the columns, guide rails, guide wheels and carriages, but no bell, so the carriages will have to be supported by the ground where the bell once 'was' (Fig. 3b).

Most tanks of the 'in-ground' sort, such as No. 8, were built of brick and their top was flush with the ground surface (Fig. 4a). Occasionally the top might stand a little above the ground, if the gasholder had been enlarged – or during construction (Fig 5). The top of the tank was built level all round, with the water a few inches below the top. The tank was sealed on the outside with puddled clay.

The guide-frame columns stood on top of the tank, where it was reinforced with piers behind. The guide rails were positioned just forward of the face of the tank (Fig. 4b).

Figs. 2a and 2b. Guide rollers and carriages at St Pancras.

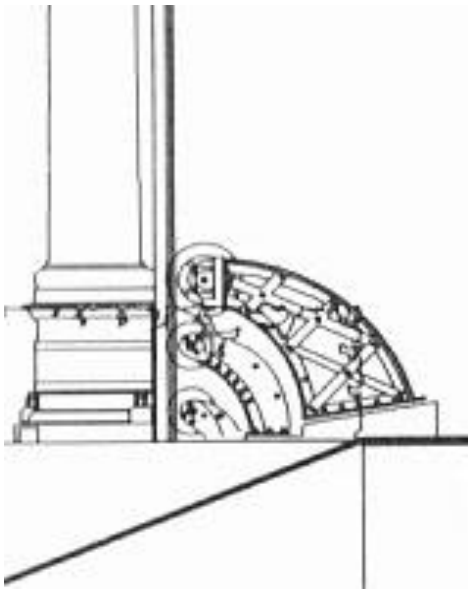

Fig 3b. GH No.8, indicative proposals (Argent).

Fig 3a (above). Carriages and guide wheels at Stepney No. 2 (MTT).
In this photo at Stepney, the top of the outer lift should have been visible above the water in the tank. But the gasholder was disused and the overflows were choked, so that rain had raised the water level confusingly to perhaps 0.2m above the operational level, hiding the outer lift. (The concrete upstand around the tank was a modern addition).

Figs. 4a and 4b. Bethnal Green No. 2, cast-iron column base at edge of the tank (MTT).

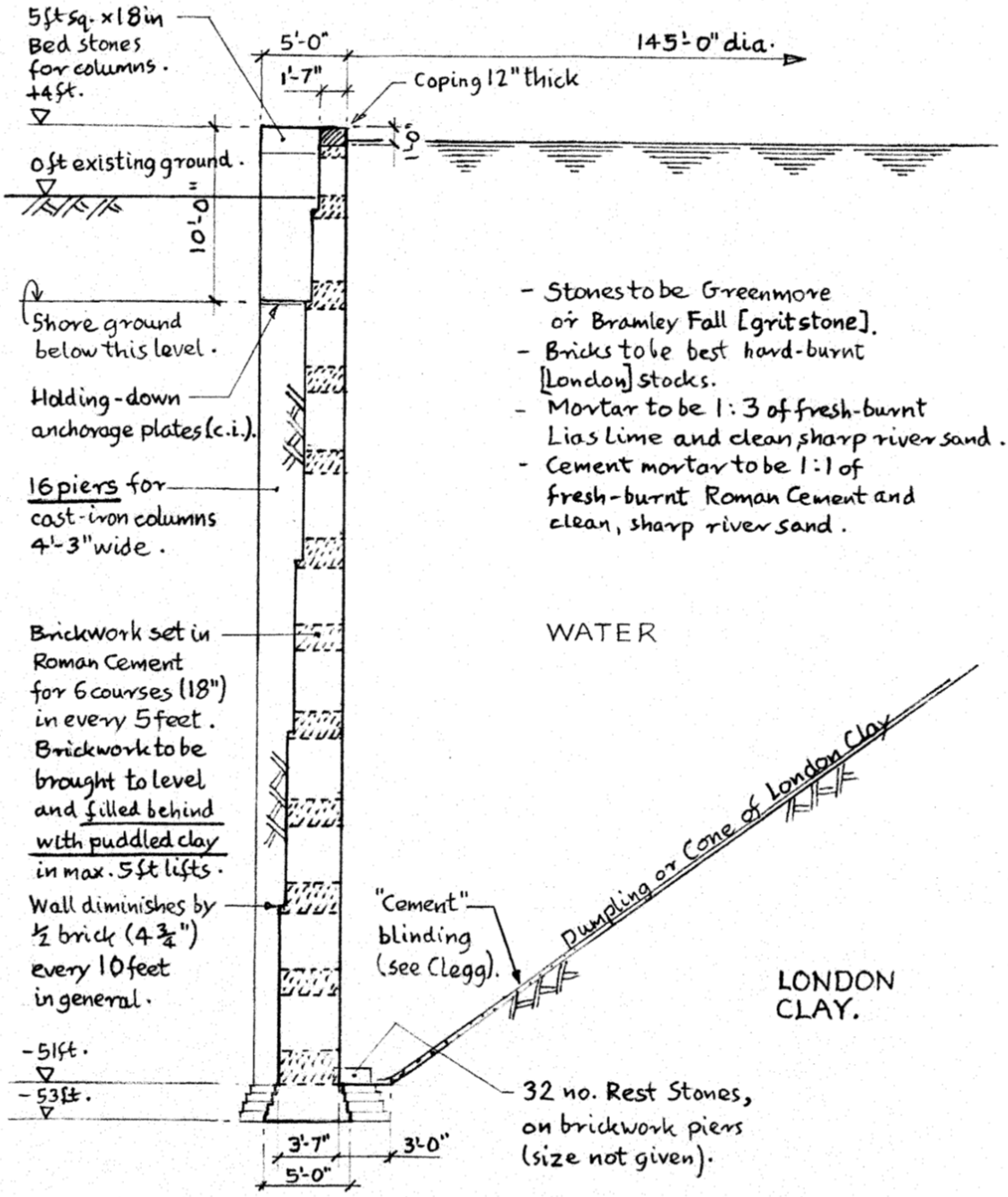

Fig. 5. St Pancras No. 11, tank construction, 1860-1 (based on Clegg, 1866).

2) How to indicate the original configuration

Fig. 6 has been drawn to indicate how the landscaping of the gasholder might be reconciled with the original form. An essential element which must be identified for visitors to No. 8 Gasholder is the curved, kerb-like line of the edge of the tank, as identified in red. The working of the gasholder should be addressed additionally on interpretative display boards, but the tank was a physical and visual thing, like the guide frame to which it gave support, and it needs to be expressed within the new fabric so to provide experience and context.

Where this feature is to be introduced, it should be continuous around the circumference from one column to the next and at a constant level, to reflect its water-retaining function. It will form the edge of a flat-paved surface towards the outside, on which the columns will stand. The annular, water-filled space in the tank, between this edge and the outermost lift of the bell, may be simulated in bas relief by a slight depression and perhaps a different colour of paving. See Fig. 6. The architect's proposals for the space once occupied by the bell, at a level similar to the top of the tank, should be unaffected.

This is in direct contrast to the draft landscaping scheme (at February 2013), which effaces the tank's location with planting boxes and imposes a contradictory, radial alignment on the hard surfacing where the columns stand. This is alien to a gasholder. GLIAS is asking that, around parts at least of the circumference, the historic and functional layout should be respected by having hard surfacing modelled to express the tank in the manner described. That would also break up the monotony of the planters in the present scheme.

The original configuration of the back of the wall at the top of the tank is marked on Fig. 6 with a dashed line. The wall might have had a coping of bricks laid on edge radially or robust stone copings, while on the piers under the columns there would have been massive sandstone bed-stones at the same level (see Fig. 5). In recent years, these would have been covered with gravel or concrete, paving slabs or a tarred surface. Since the bed-stones probably cannot be simulated (unless in concrete), brick-on-edge paving may serve well throughout, but parts beyond the back of the coping (which might originally have been surfaced with gravel or ashes) should be differentiated in a contrasting pattern or colour.

The perimeter line of the paving surrounding the column bases that was shown indicatively in the foundations planning application 2012/5608/P, and at the Design and Access Committee meeting on 13 February 2013, has been copied onto Fig. 6. It is not dissimilar to the shape of the piers on which the columns once stood, though a little wider, and can be retained as the basis of the paving and walling there in the modified scheme. With the omission of the planting boxes of the indicative scheme, a railing will be needed to guard the change of level, and this can be modelled upon the horizontal railings that were used around the tops of the gasholder bells, as seen in Fig. 2b. At some sites, there were railings between the columns, indicated on Fig. 6.

As regards how to treat the change of level with the falling of the ground, the face of the new perimeter wall might simulate the line of the original buried brickwork, set back between the piers as shown in Fig. 6, or less interestingly it could follow the outer circular line of the architect's draft . But the wall facings should be of London Stock brickwork and not porphyry, granite or other alien stone, and the piers should use the same material as the intervening walls. The top of the wall should likewise avoid distracting, exotic materials.

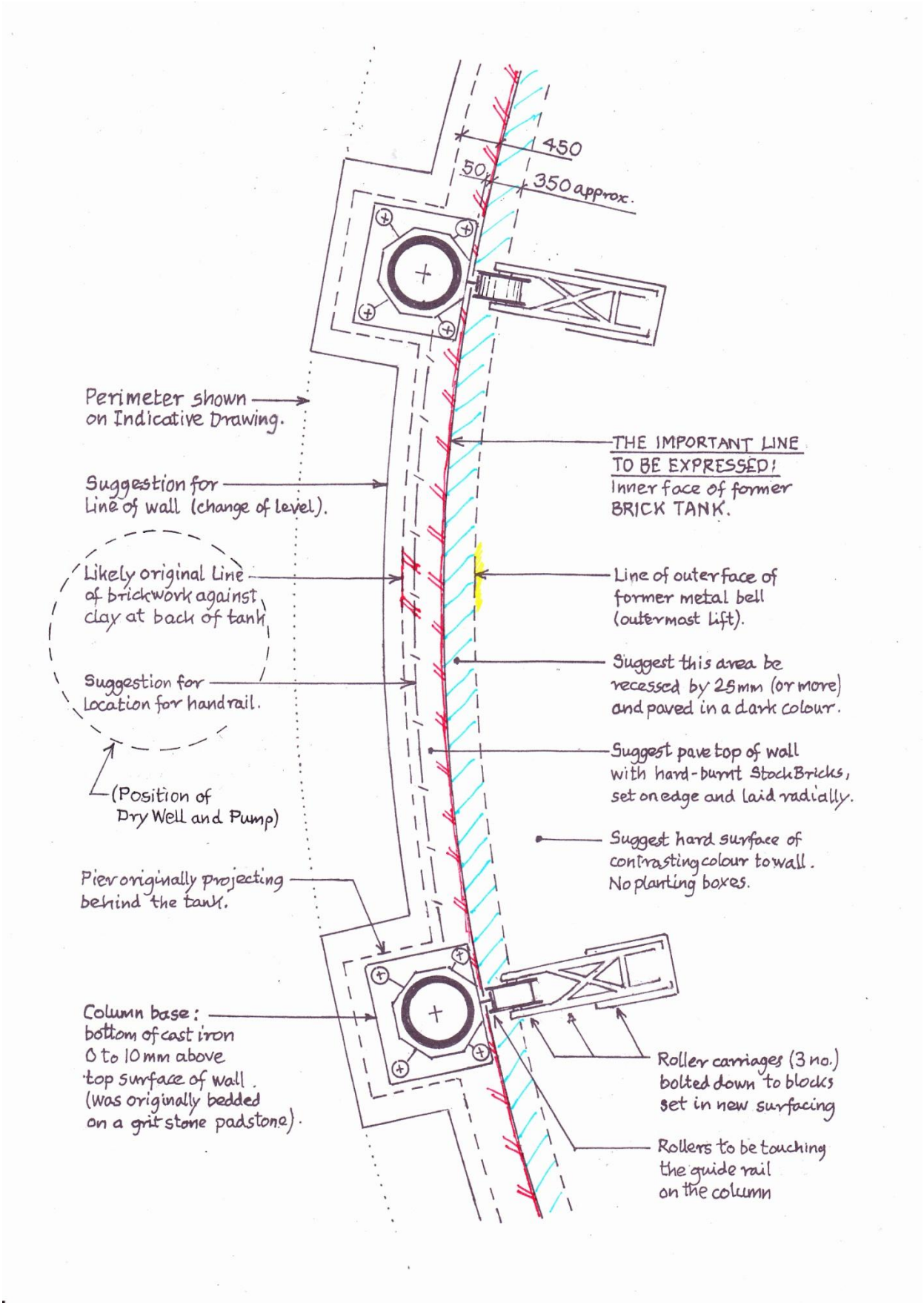

Fig. 6. Plan suggesting how to express the Tank in parts of the gasholder's perimeter (MTT).

3) Support for the guide-wheel carriages and fixing of the columns.

As previously noted, the guide carriages will have to be independently supported from the new paved surface where the bell used to be. The rollers will be just in contact with the guide rails (or perhaps separated by a 10mm gap to assist future re-painting), but can gain no support from them. Their weight cannot be supported from the columns, as some of the preliminary drawings seem to suggest, without introducing intrusive and damaging new steelwork.

The indicative proposals draw the carriages in elevation (Fig. 3b), with a block under the topmost carriage, as will be needed since it was bolted to the curved crown of the bell. The bottommost carriage has been drawn too low, so that it will be partly below the paving level and this must be rectified, both for display purposes and future maintenance. Therefore all three carriages must be raised by a few centimetres. The details will need working out with the relevant consultants.

The levelling in and fixing down of the columns themselves, and architectural integration with the paved surface they will appear top be resting on, must also be worked out with the consultants. They may specify stainless steel holding-down bolts, in which case the means of painting the stainless steel to match the other paintwork must be thought through.

One at least of the cover plates on the column bases carries the date of the gasholder's reconstruction, and the best location for this should be selected, in an area where a scheme similar to Fig. 6 is implemented.

4) The Dry Well and Pump

To enter the gasholder, the gas main had to descend within a shaft to below the bottom of the tank, so as to pass beneath the wall (Fig. 1). The shaft, used also for inspection, was called the Dry Well and was located alongside each gasholder. Condensation that would drain to the lowest point of the main was removed by a pump, typically fitted with a hand crank and flywheel. Fig. 6 shows the top of the dry well at No. 8 Gasholder, surrounded by a brick kerb and covered with timber planking or a metal grille. The pump was placed slightly off centre within it. Fig. 7 shows the positions of all the dry wells at St Pancras next to their respective gasholders, with No. 8 highlighted. Several such pumps have been salvaged from St Pancras and they are lying in a compound on the northern KXC site awaiting opportunities for re-display (Fig. 8).

Every gasholder had a pump, and the one at the No. 8 site was a feature of the curtilage of the listed structure. Here of all places is a rightful place for its redisplay . No. 8 dry well was about 2.5 metres in diameter and about 1.5 metres outside the pitch circle of the columns. For authentic simulation, the top of the dry well ought to be level with the top of the tank, therefore upstanding as a plinth if the ground is sloping. Some possible locations where there appears to be enough space are marked on Fig. 9. Wherever it is placed, a simulated section of tank should be adjacent to it.

Fig. 6. Dry well and pump at No. 8 Gasholder, view from west (MTT).
(The photo also shows a 20th-century wall that had been built around the gasholder tank).

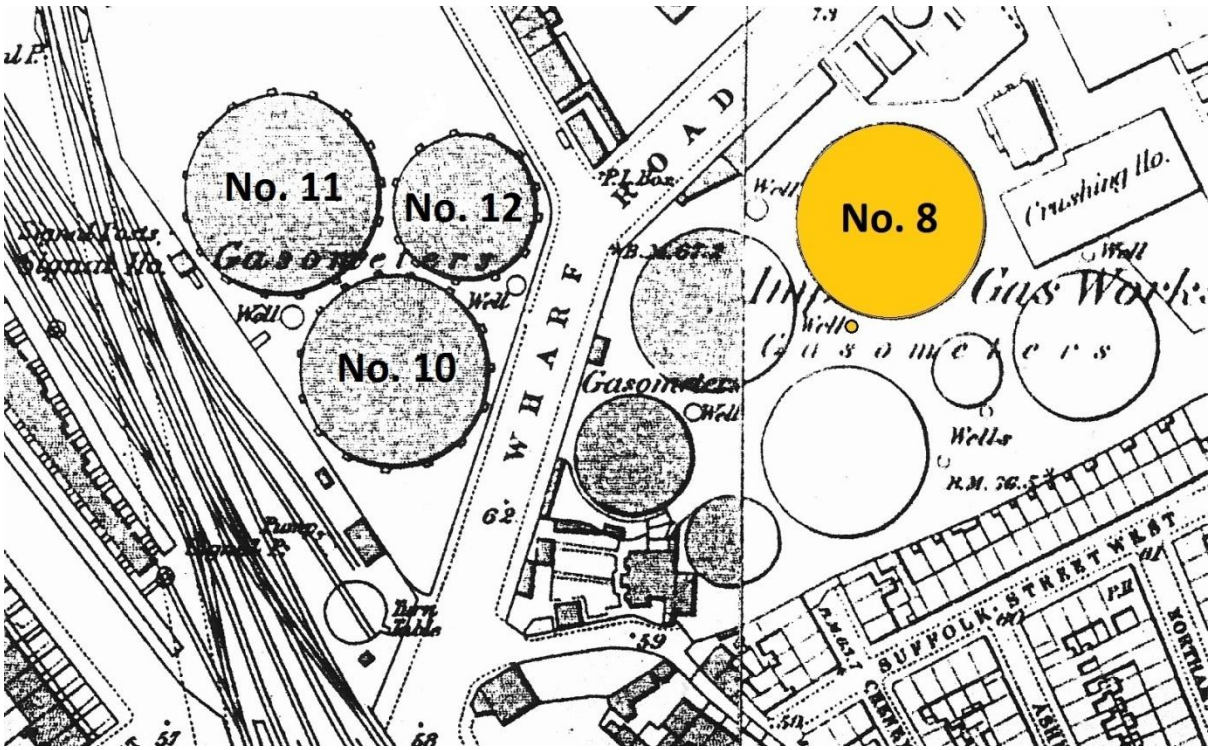

Fig. 7. O.S. plan of the gasholders at St Pancras in 1871, marking the dry wells.
(The superstructures were rebuilt in the 1880s but kept the existing tanks and wells).

Fig. 8. Sump pumps from the St Pancras gasholders in a salvage compound at KXC (Museum of London Archaeology, Inventory Number 2 of salvaged materials stored at Kings Cross Central, August 2012, ID No. 202).

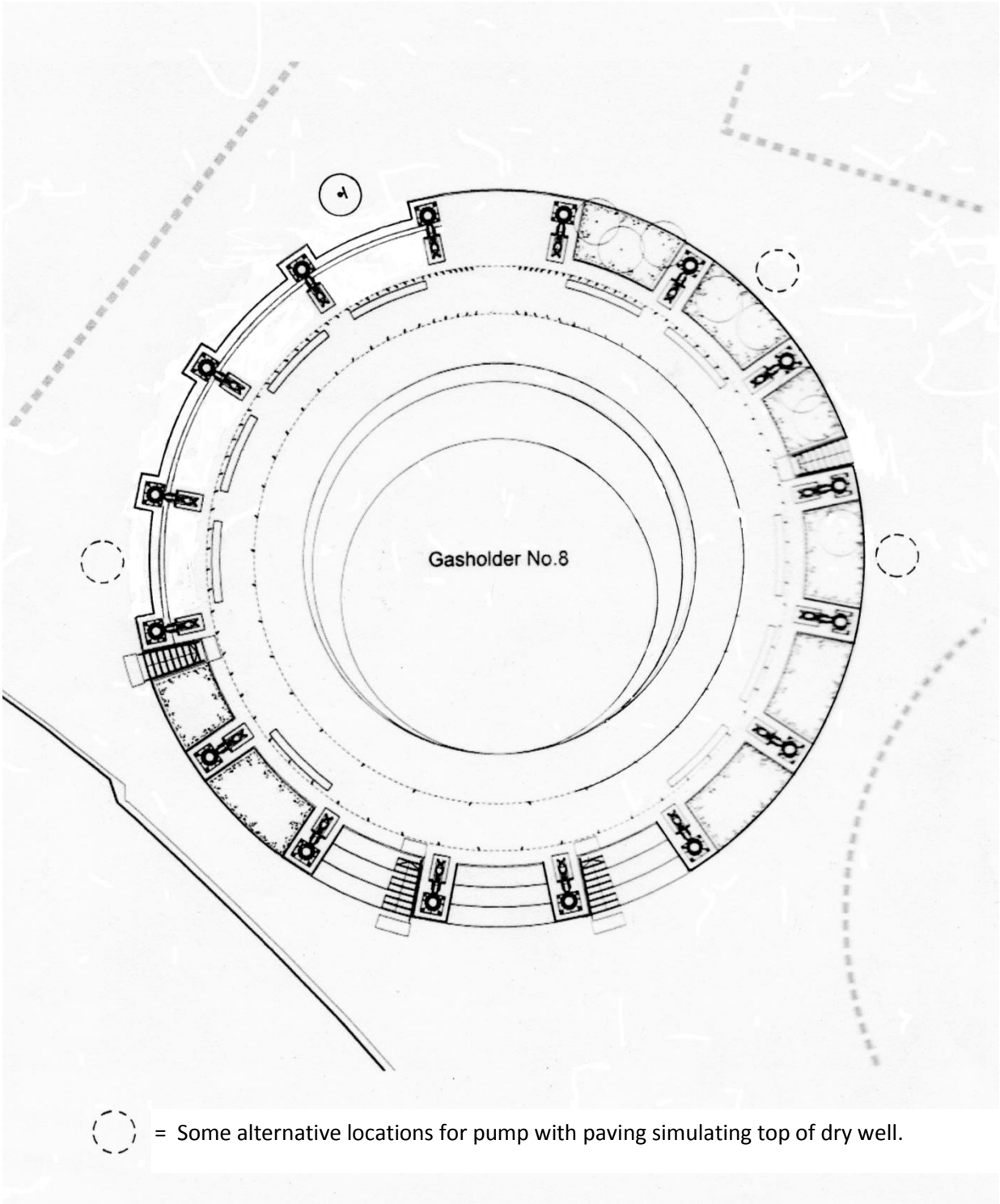

Fig. 9. Plan showing the arrangement of Fig. 6 carried through a quarter of a circle. Pump and dry well also shown.