

01<sup>st</sup> December 2020

Nadina Reusmann  
Labtech Heritage Director  
Camden Lock Market,  
Chalk Farm Rd,  
Camden Town, London  
NW1 8AB

Dear Nadina,

**Re: Terrace west of the Horse Hospital. Structural Engineering Statement****1.0 Introduction**

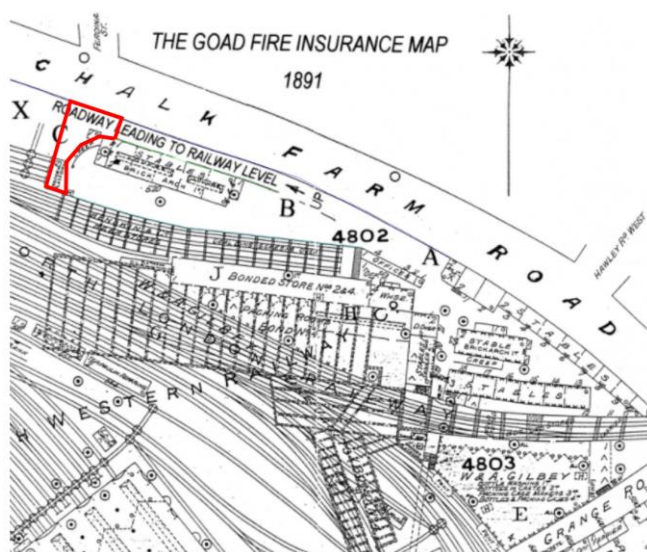
Meinhardt (UK) Ltd have been commissioned as Consulting Structural Engineers for the development of a new canopy structure west of the Horse Hospital in Camden Market. The proposal is to replace the existing buildings with a bespoke steel structure designed for Labtech in collaboration with vPPR Architects.

**2.0 Purpose of the Letter**

This letter has been prepared to support the planning and Listed Building Consent applications. The letter describes the engineering principles used to design the structure and its relationship with the existing listed buildings.

**3.0 Existing Structures**

The proposed design is within the Regent's Canal Conservation Area, close to the grade II\* Listed Horse Hospital building. Most of structures surrounding the Terrace were built as part of Camden Goods Yard at the end of the 19<sup>th</sup> century as shown in the 1891 Goad Fire Insurance Map.

**Figure 1: The Goad Fire Insurance Map (site in red)**

These structures were built as gravity retaining walls to create a marshalling yard at the same level as the North-London railway. These structures were designed to resist train surcharge loads and this is confirmed by the Chalk Farm road wall section which shows a 2m thick wall at the Terrace location.

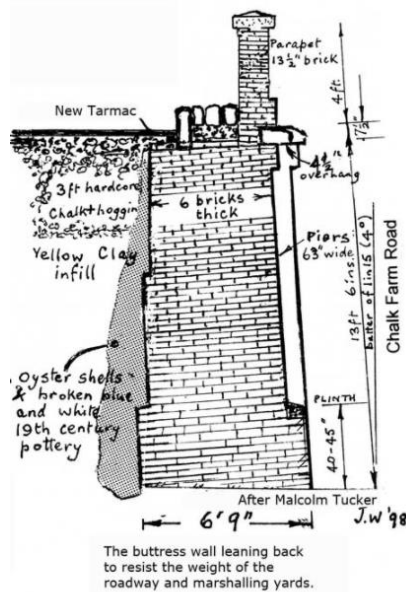
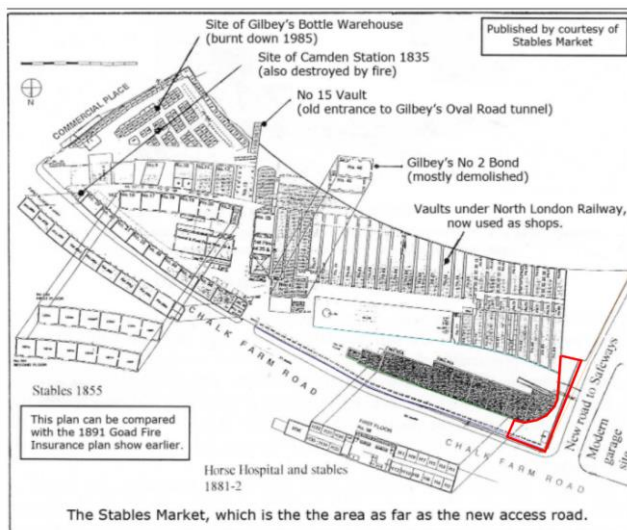


Fig. 3

**Figure 2: Chalk Farm road wall section**

The site did not essentially change until 1990 when part of Chalk Farm road wall was partially demolished to develop the petrol station and the new road to the north of the site turning the existing wall at right angle with a massive concrete wall faced with yellow brick.



**Figure 3: Camden Market Plan after 1990 works (site in red)**

This along with the original construction has resulted in level changes across the terrace, and a level of uncertainty for the canopy foundations which is taken into account in the canopy design.

Generally, the existing structures condition seems reasonable for the years of service. No immediate danger of collapse was observed within the site, however as part of the site redevelopment, it is recommend that any damage on the existing structures will be repaired to ensure their structural integrity.

#### 4.0 Structural Approach

The proposed canopy is designed as a standalone structure independent from the surrounding existing structures. The proposal is to transfer loads only onto the existing fill which was built to resist railway surcharge and therefore able to take a smaller load coming from the canopy and its imposed loads. The fill is likely to be clay with a 1m chalk hardcore on top, according to historical drawings.

A similar approach has been used to assess the lateral stability of the existing walls. These walls were designed to resist the train surcharge load which is heavier than the surcharge created by the new canopy and therefore no stability issue is anticipated.

The steel canopy is a steel frame composed of a braced roof and steel columns recalling the Horse Hospital's stables (see Architect's Design and Access Statement).

The roof is made of standard steel profiles supporting flat and curved finishes. Its framing is made of hollow sections which provide the best balance between visual appearance and appropriate stiffness. In addition, some areas of the roof are braced by solid steel infill plates to ensure, together with rigid frames, the overall stability of the system.

The roof is supported by standard and bespoke columns which transfer vertical and lateral loads to the foundations. Bespoke columns are composed of a top curved plate sitting on a standard square hollow vertical stem. All columns were analysed within the 3d global model and bespoke ones also in isolation to ensure the structural integrity of the proposal against buckling.

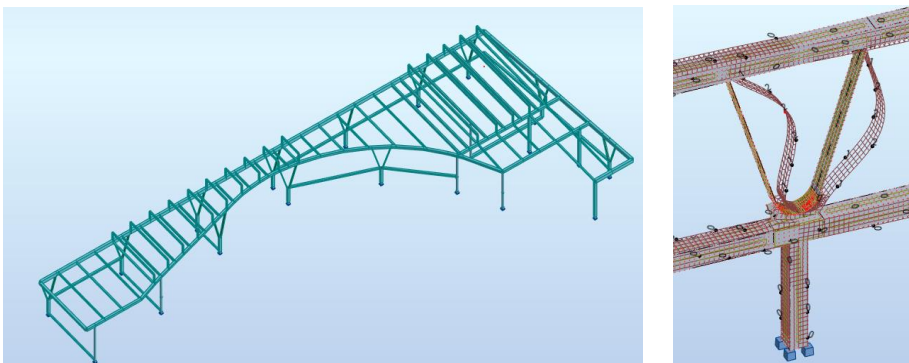


Figure 4: FE model (global on the left, local on the right)

Some of the columns are tied together with horizontal elements to create rigid frames which ensure the lateral stability of the structure against lateral loads (i.e. wind).

All structural steel elements are exposed and therefore will be protected against atmospheric corrosion with a durable three layers paint system.

## **5.0 Investigation**

After the demolition phase, an additional detailed visual investigation of the existing masonry structures will be developed to identify and assess defects and damages. Repairs to the masonry structures are likely to be localised

In addition, trial pits and plate bearing tests will be done at different locations to understand the existing soil condition and validate the design assumptions.

## **6.0 Sustainability**

The proposed construction methodology makes use of DFMA concepts. The canopy will be manufactured offsite as a kit of parts and then assembled on site. In this way, the proposal ensures higher safety and a minimum impact to the surroundings during site operations and the most sustainable approach to construction.

I trust that the above fully describes the engineering approach and the structural principles used to design the canopy structure.

Should you have any queries regarding this, please do not hesitate to get in contact with me.

Yours sincerely,



**Dario Feliciangeli**

Associate

Enc. Scope of Services Document