Raveley Street

Basement Impact Assessment

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Site Plan Showing Proposed Soft Landscaping
Proposed Lower Ground Floor Plan
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References:

Ove Arup & Partners Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development. For London Borough of Camden November 2010

London Borough of Camden Planning Guidance CPG4 Basements and lightwells

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Job Number: 25766

Date	Version	Notes/Amendments/Issue Purpose
January 2017	1	Initial Issue
June 2017	2	Incorporating Review Comments and Updated Proposals

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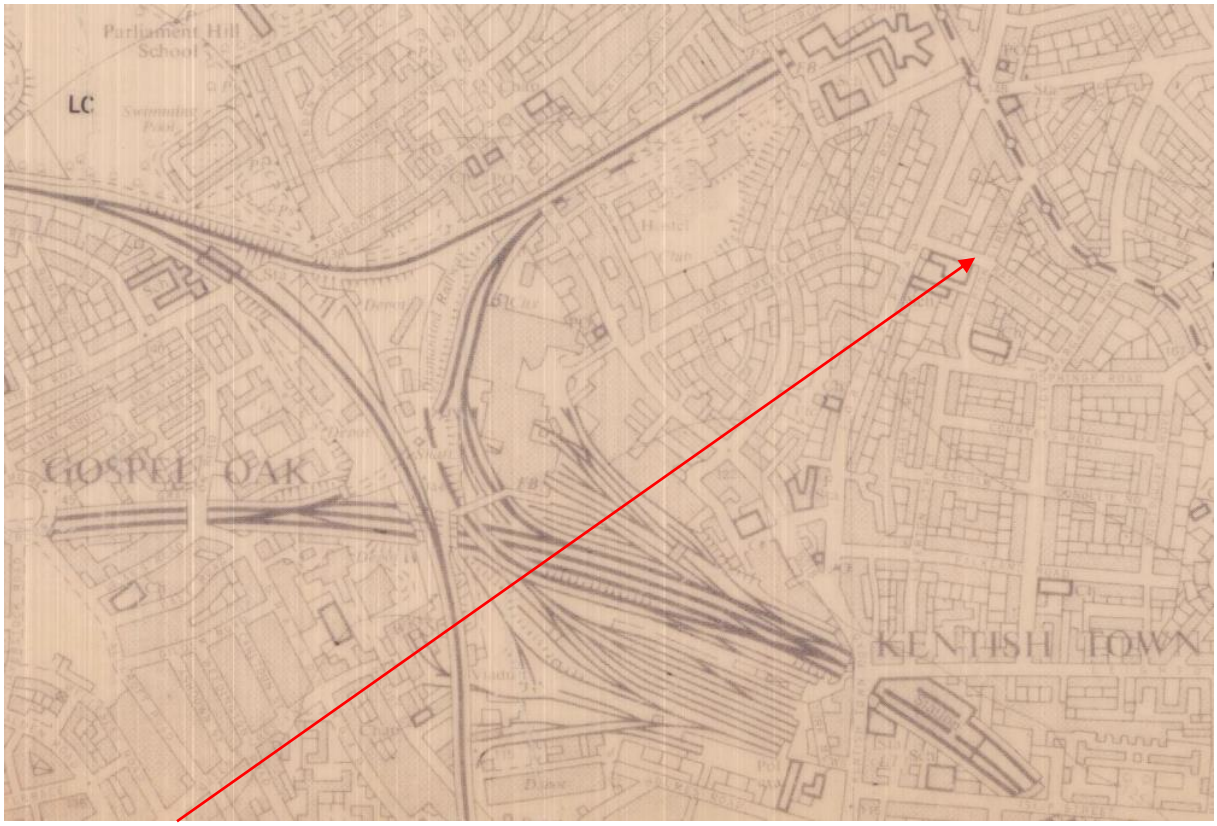
Introduction

The proposed alterations to this four storey Victorian house include forming a small lightwell in front of the bay window to give light to the existing lower ground floor that extends under the full extent of the house. The space to be excavated is very small about 1.9 m by 0.9 m on plan and 1.9 m deep.

Ground Conditions & Foundations



Approximate Site Location

The British Geological Survey map – sheet TQ 28 NE shows that the site is underlain by London Clay. The London Clay is classified by the Environment Agency as unproductive strata, which refers to deposits that have low permeability and negligible significance for water supply or river base flow.

It is expected that the house will have traditional shallow brick corbel foundations. An existing brick and concrete manhole chamber serving the house is currently in the front garden just outside the position of the proposed lightwell extension and extends to a depth of 3.2 m. The drains running from the rear of the house are at a level below the proposed new lower ground floor.

The environment agency website shows the site is not in an area vulnerable to flooding from rivers and the sea; it is in flood zone 1 and that it is not in a groundwater source protection zone.

Screening

Due to the very small scale of this project, no larger than other lightwells built in front of houses on the street, this assessment has been prepared with the intent that it is commensurate with the scale, location and complexity of the scheme as required by Camden's Policy DP27 Basements and Lightwells

The screening follows the requirements set on in the Camden Planning Guidance document: CPG4 - Basements and Lightwells; as detailed in the table below:

Subterranean, ground water, flow	Response
Is the site located directly above an aquifer?	No. The site is underlain by London Clay which is designated as Unproductive Strata
Will the proposed basement extend beneath the water table surface?	No
Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No, based on topographical map evidence
Is the site within the catchment of the pond Chains on Hampstead Heath?	No. Based on topographical maps and Figures 12 and 14 of the Arup report
Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	No, part of a soft area will become hard covered, but new soft landscaping will be introduced in a currently paved area. See attached proposed drawing in appendix.
As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No, see comment above
Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just ponds chains on Hampstead Heath) or spring line.	No
Land Stability	**Response**
Does the existing site include slopes, natural or manmade, greater than 7°? (approximately 1 in 8)	No. The site level changes from the front of the house to the back; the lower ground floor is at the level of the back garden

Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7°? (approximately 1 in 8)	No, existing level change is kept
Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°? (approximately 1 in 8)	No, according to Figure 16 of the Arup report
Is the site within a wider hillside setting in which the general slope is greater than 7° ? (approximately 1 in 8)	The general area slopes down from south to north but the Arup report indicates that these slopes are not greater than 7°
Is the London Clay the shallowest strata at the site?	Yes
Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree zones where trees are to be retained?	No
Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	Yes, the area is prone to these effects as a result of the presence of shrinkable clay soils but there is no known history of subsidence of the house
Is the site within 100m of a watercourse or potential spring line?	No
Is the site within an area of previously worked ground?	Yes, according to Figure 16 of the Arup report
Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No. The site is underlain by Unproductive Strata
Is the site within 50m of the Hampstead Heath ponds?	No
Is the site within 5m of a highway or pedestrian right of way?	Yes, the front garden of the house is the back edge of the footpath; this is about 2.5m away from the proposed lightwell
Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No
Is the site over (or with the exclusion zone of) any tunnels e.g. railway lines?	No

Surface flow and flooding	Response
Is the site within the catchment of the pond Chains on Hampstead Heath	No
As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No
Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	No, the proportion of hard and soft areas will essentially remain unchanged as part of a soft area will become hard covered, but new soft landscaping will be introduced in a currently paved area.
Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No, see above
Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No
Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk of flooding, for example because the proposed basement is below the static water level or nearby surface water feature?	The findings of this BIA together with the Camden Flood Risk Management Strategy dated 2013 and Figures 3ii, 3vii, 5a and 5b of the SFRA dated 2014, in addition to the Environment Agency online flood maps, show that the site has a very low risk from surface water flooding. There is a low flood risk from sewers, reservoirs, and other artificial sources, groundwater and fluvial/tidal watercourses. There is low susceptibility to elevated groundwater based on Figure 4e. The site is located within the Critical Drainage Area Group3_003 but not in a Local Flood Risk Zone, as identified in the Camden SWMP and Updated SFRA Figure 6/Rev 2.

Scoping

Land Stability

London Clay is the shallowest stratum at the site and there is a history of seasonal shrink-swell subsidence in the area; caused by moisture changes in the soil - this can result in foundation movements. However the new foundations for the lightwell are expected to be well tied into the existing foundations, which are about 2.5m below street level, and so expected to be below the zone of shrink-swell movement. Thus the risk of differential foundation movement is considered to be negligible.

The public footpath is located about 2.5 m from the proposed lightwell, so excavation for the lightwell will be planned to minimise the risk of causing damage to the road, pathway or any underground services buried in trenches beneath the road or pathway. The new retaining walls will be designed to maintain the stability of the adjacent road and adjoining buildings.

Hydrogeology

The site is in an area of previously worked ground, so there may be an increased thickness of made ground at the site which may mean that the shallow soils or more permeable than the surrounding clay. However, any inflows of perched water from the worked ground would be minor and expected to be controllable by sump pumping during the excavation. Consideration will be given to the potential increased instability of worked ground and excavations will be suitably supported as required.

SUDs

New soft landscaping will be introduced in a currently paved area so there is no increase in the site hardstanding area, thus on a local scale the direction of surface water run-off may be altered slightly, but the volume of run-off is unlikely to change and may even be reduced.

The sewer records show that there is an existing 381 oval brick sewer in Raveley Street flowing in a south-easterly direction from manhole reference 1602 to manhole reference 2503. The existing drainage from the house appears to connect into this sewer from the manhole in the front garden.

The use of Sustainable Drainage Systems (SuDS), which can reduce the impact of urbanisation on watercourse flows, ensure the protection and enhancement of water quality and encourage the recharge of groundwater in a manner that mimics nature have been considered, but not progressed for this project as there are practical limitations with their use on such a small site.

To manage surface water as close to its source as possible the following drainage hierarchy has been considered:

- Store rainwater for later use; using a green roof. This has not been considered as CIRIA Report C697 notes that their hydraulic performance during extreme events tends to be fairly similar to standard roofs.
- Store rainwater for later use; use of a water butt would usually be recommended but is not practical in this case given the layout of the existing drainage
- The use infiltration methods, such as porous surfaces in non-clay areas; is not possible as the ground is London Clay.
- To attenuate rainwater in ponds or open water features for gradual release; is not possible as the site is too small.

- To attenuate rainwater by storing in tanks or sealed water features for gradual release; is not possible as this requires a flow control device to limit the flow out of the storage system. The peak flow from the site under 5l/sec and no practical flow control device can reduce this rate.
- Discharge rainwater direct to a watercourse; is not possible as there are no watercourses.
- Discharge rainwater to a surface water sewer/drain; is not possible as there are no local surface water sewers.
- Thus only the final option of discharge to the combined sewer is practical.

The proposals do not increase the occupancy of the house and there is no change in the impermeable area of roof and hardstanding drained; therefore the existing drainage connection will continue to be used as the total flow can be expected to be unchanged.

Conclusions

The screening and scoping process has not identified any issues with regard to groundwater, surface water or land stability which will require further consideration. Digging out this very modest volume will clearly have no significant impact on the local hydrology or land stability. It is likely that most of the excavation will be of backfill around the existing drain.

The level of the foundations is not expected to change and the excavation can be propped during construction and will be designed to minimise any movement of number 16 and thus also the adjoining properties. Damage to the building is expected to be no more than category 1 “very slight” when measured on the Burland Scale.

At this stage no further investigation is therefore proposed but a trial pit investigation to confirm the ground conditions and details of the foundations will be carried out before any building work starts should the project receive Planning Approval.

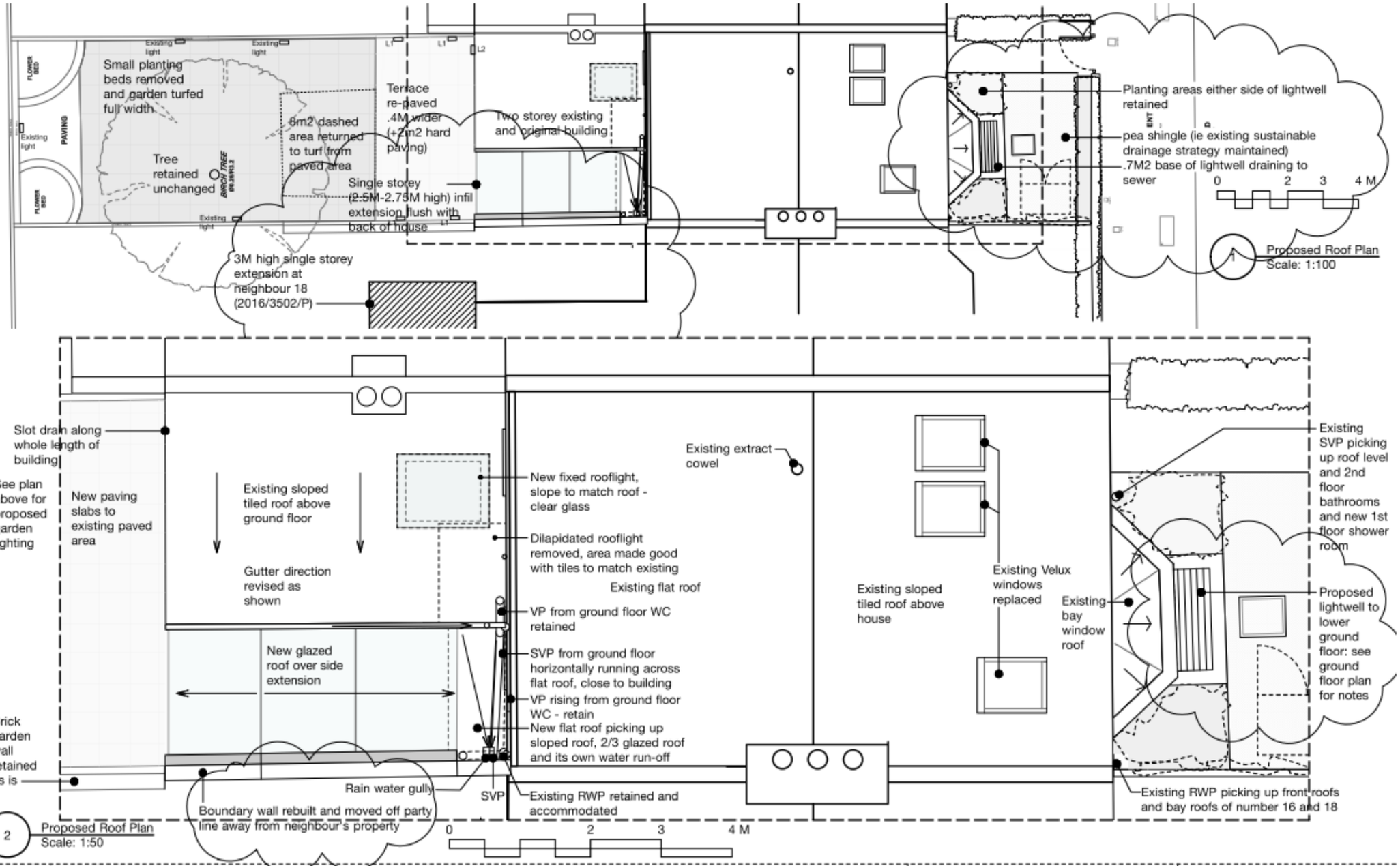
Appendix

Drawings

Site Plan Showing Proposed Soft Landscaping

Proposed Lower Ground Floor Plan

Proposed Long Section



Do not scale

REV A / 13 03 17 / Revised Planning Issue

REV B / 06 06 17 / Revised Planning Issue - lightwell design revised, notes added relating to side infil

L1 - Wall hung downlighters providing amenity lighting to terrace

L2 -Existing motion sensor security light with manual override relocated

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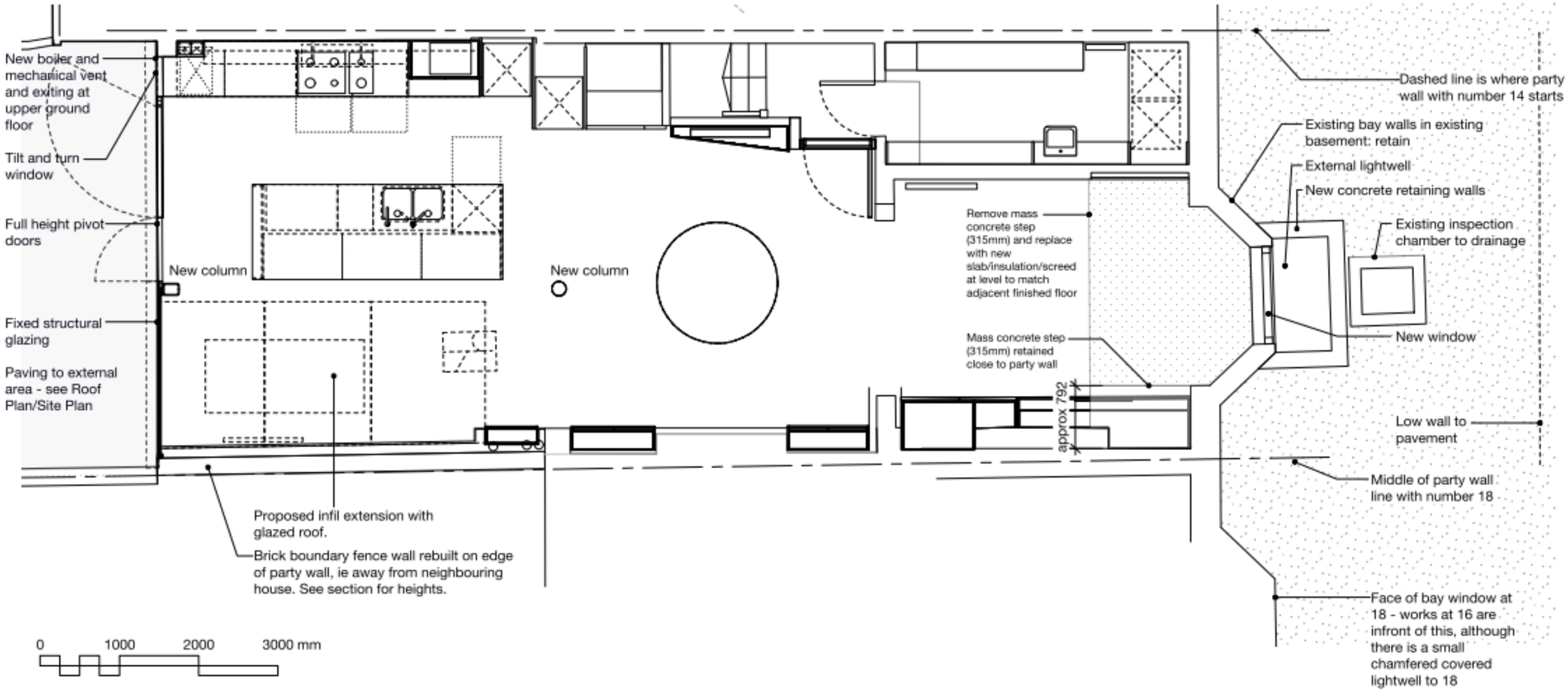
16 Raveley Street NW5 2HU
Proposed Roof Plan / Site Plan
1:100 and 1:50 at A3
January, 2017

03_2004 Rev B
REVISED PLANNING ISSUE



REV E/ 24 05 17 / Lightwell revision for planning
REV D/ 13 03 17 / Revised Planning Issue
REV C/ 12 01 17 / Planning Issue
REV B / 08 01 17 / Stage 3
REV A / 16 12 16 / Interim Stage 3 planning sign-off

Do not scale

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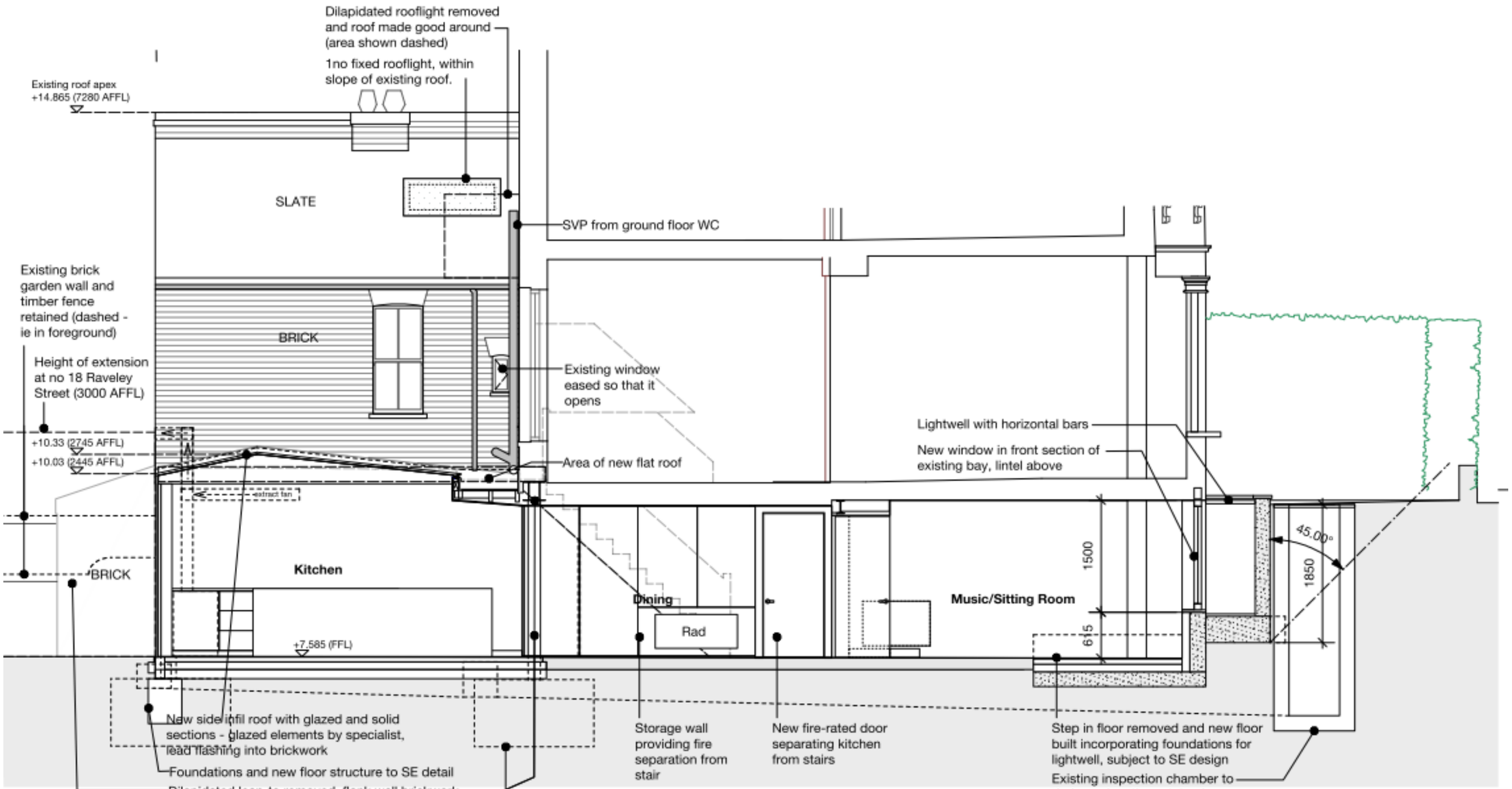
16 Raveley Street NW5 2HU
Proposed Lower Ground Floor Plan
1:50 at A3
November 8, 2016

03_2001 Rev E
REVISED PLANNING ISSUE



REV E / 25 05 17 / Revised Planning Issue
REV D / 13 03 17 / Revised Planning Issue
REV C / 12 01 17 / Planning Issue
REV B / 08 01 17 / Stage 3
REV A / 16 12 16 / Interim Stage 3 planning sign-off

Do not scale

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16 Raveley Street NW5 2HU
Proposed Long Section AA
1:50 at A3
November 8, 2016

03_5000 Rev E
REVISED PLANNING ISSUE