CampbellReith
consulting engineers

Parsifal House, 521 Finchley Road
NW3 7BT

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 13398-44
Revision: F1

November 2020

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Project Number	13398-44
Project Name	Parsifal House, 521 Finchley Road
Planning Reference	2019/5709/P

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Appendix

1.0 NON-TECHNICAL SUMMARY

1.1. CampbellReith was instructed by London Borough of Camden (LBC), to carry out an audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Parsifal House, 521 Finchley Road (planning reference 2019/5709/P). The basement is considered to fall within Category B as defined by the Terms of Reference.

1.2. The Audit reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.

1.3. CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.

1.4. The BIA has been prepared by firms of engineering consultants using individuals who possess suitable qualifications.

1.5. A desk study, a site walkover, a ground investigation and utilities search have been undertaken to inform the BIA.

1.6. The BIA has confirmed that the proposed basement will be founded within stiff London Clay.

1.7. The BIA advises that groundwater should be anticipated during basement excavation, likely as perched water in the Made Ground, and mitigation is discussed for dealing with it during construction.

1.8. The BIA discusses and allows for the presence of neighbouring basements.

1.9. A Construction Method Statement (CMS) report including structural calculations for the proposed basement walls have been provided. Queries about the structural calculations have been raised and clarifications have been provided and are attached in Appendix 3 of this audit.

1.10. A ground movement assessment has been provided and the anticipated damage category is expected to be '0 Negligible'.

1.11. The need for a robust ground movement monitoring strategy is discussed in the BIA and clarified in the correspondence attached in Appendix 3.

1.12. It is accepted that the development will not impact on the slope stability of the area.

1.13. It is accepted that the development will not impact on the wider hydrogeology and hydrology of the area.

1.14. It can be confirmed that the BIA complies with the requirements of CPG: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 18/08/2020 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Parsifal House, 521 Finchley Road, NW3 7BT (planning reference 2019/5709/P).

2.2. The audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.

2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance: Basements. March 2018
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

2.4. The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment;

c) avoid cumulative impacts upon structural stability or the water environment in the local area;

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's Audit Instruction described the planning proposal as *'Erection of two storey plus basement building, to provide 2 x 3 bed residential units (Class C3). Excavation for basement extension with front light well and rear sunken garden. Provision of 5 x off-street parking spaces to rear of new dwellings. Demolition of 12 x garages.'*

2.6. The Audit Instruction confirmed Parsifal House, 521 Finchley Road did not involve, or was a neighbour to, listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 14th September 2020 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment, Chelmer Global Ltd, Ref: BIA/11384, August 2020;
- Method Statement for Construction of Retaining Wall as well as attached calculations, Mitchinson Macken Ltd, Ref: 19313, 16/07/2019 with updated foundation layout drawing dated June 2020;
- Factual Report, Chelmer Global Ltd, Ref: FACT/11384, May 2020;
- Design and Access Statement, Granit Architecture + Interiors, May 2020;
- Construction Management Statement & Construction Logistics Plan, Granit Architecture + Interiors, October 2019;
- Planning Application Drawings by Granit Architecture consisting of

  Location Plan

  Existing Plans

  Proposed Plans

- Planning Consultation Responses.

2.8. Additional clarifications have been requested and are included in Appendix 3 of this report.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Forward to the BIA
Is data required by Cl.233 of the GSD presented?	Yes	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	BIA
Are suitable plan/maps included?	Yes	Granit Architecture + Interiors current and proposed drawings.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Section 2 BIA & Granit Architecture + Interiors Design & Access Statement
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 7.3 BIA
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 7.2 BIA
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 7.4 BIA
Is a conceptual model presented?	Yes	Section 10.1 BIA
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 8.2 BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	N/A	No issues found during the screening stage.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 8.3 BIA.
Is factual ground investigation data provided?	Yes	Chelmer Global LTD Factual Report.
Is monitoring data presented?	Yes	Section 9.6 BIA.
Is the ground investigation informed by a desk study?	Yes	Sections 2 – 6 BIA. Appendices A – E BIA.
Has a site walkover been undertaken?	Yes	Section 9 BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	No	Section 10.2.4, 10.2.6, 10.6.4 & 10.6.5 BIA. Nearby basements have been assumed at this stage and shall be confirmed during detailed design.
Is a geotechnical interpretation presented?	Yes	Section 10.4 BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 10.4 BIA. Section 10.5.6 BIA.
Are reports on other investigations required by screening and scoping presented?	N/A	
Are the baseline conditions described, based on the GSD?	Yes	Section 10 BIA.
Do the base line conditions consider adjacent or nearby basements?	Yes	Section 10.2.4 BIA.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Section 10.5 BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 10.5 BIA - GMA provided. Clarification has been provided on the predicted damage Category as per the comments of Section 4 of this audit.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	Section 10.5, 10.6 & 10.8 BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 10.9 BIA.
Has the need for monitoring during construction been considered?	Yes	Section 10.7 BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Section 10.9 BIA.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Section 10.5 and 10.6 BIA. Structural calculations have been updated to align with the BIA. Clarifications provided by email and included in Appendix 3 of this BIA audit.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Section 10.6 BIA. Additional clarification included in Appendix 3 of this BIA audit.
Are non-technical summaries provided?	Yes	Section 11 BIA.

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by engineering consultants Chelmer Global Ltd and the individuals concerned in its production have suitable qualifications.

4.2. The Method Statement for Construction of Retaining Wall (CMS) and the structural calculations have been carried out by Mitchinson Macken Ltd. The author is a chartered structural engineer.

4.3. The LBC Instruction to proceed with the audit identified that the basement proposal does not involve a listed building, nor it is adjacent to any listed buildings.

4.4. The site comprises Parsifal House, a detached four storey residential building with no existing below ground structure and a garden to the rear of the property, which will not be subject to development. Beyond the garden lie three rows of single storey garages, two of which are adjoined back-to-back and some hard standing, where the proposed buildings will be constructed. The site slopes gently to the south away from Hampstead Heath.

4.5. The existing garages will be demolished and a new two storey, residential building comprising two semi-detached houses with a single storey basement will be constructed in their place. Both houses will have front gardens at ground floor level with green roofs. An additional single storey building comprising 5 car garages is proposed to the north of the new development adjacent to the southern end of the existing back garden to Parsifal House as shown in the Granit existing and proposed drawings.

4.6. The basement will be formed by lowering the existing ground level by up to 4.0m as part of a 'bottom up' construction sequence. Multilevel propping and traditional underpinning in panels no greater than 1m of cantilevered 'L' shaped reinforced concrete retaining walls are proposed for the perimeter basement walls. The stages of construction are indicated in the Mitchinson Macken CMS and discussed in the BIA, which confirms will be subject to agreement under party wall agreements.

4.7. A desk study, utilities search and site walkover have been undertaken as part of the BIA.

4.8. During the site walkover, a single storey basement was identified beneath No. 523 and No. 1g Parsifal Road. The BIA has also identified this basement application via a search of the Camden planning portal. Section 10.2.6 of the BIA describes that No. 1e has a basement as indicated on the planning portal, but it has not been confirmed as present. It has been assumed to be present as part of the BIA and Section 10.6.4 of the BIA notes that the presence of this basement should be confirmed during detailed design and this is accepted.

4.9. The BIA has identified that the basement will be founding in a stiff London Clay which was identified across the site below Made Ground. The BIA generally identified up to 1.2m of Made

Ground across the site and this should be anticipated during basement excavation. Deeper Made Ground was found in TP1 and is thought to be associated with the adjacent basement construction of the neighbouring property as discussed in Section 10.1.1 of the BIA.

4.10. Design undrained shear strength and bearing resistance estimates are provided for the London Clay, soil parameters for the Made Ground and London Clay are provided as part of the Ground Movement Assessment (GMA) and these are accepted.

4.11. Groundwater was not encountered during the ground investigation. Standpipes were installed in two boreholes, one to the north of Parsifal house (BH1), and the other to the south (BH2), located proximally to the proposed basement. Groundwater monitoring was undertaken for two weeks. BH1 did not record any water during monitoring and BH2 recorded water between 6.0-6.5m bgl.

4.12. The BIA identified during screening that the basement will extend below the phreatic level and so potentially could impact groundwater flows. Though groundwater was not encountered or monitored within the proposed basement formation level, the BIA does note that there may be seasonal fluctuations in groundwater and that as a worst case scenario groundwater could be encountered as high as ground level, and this assumption should be adopted for the design. The BIA identifies that there are basements that are, or are likely to be, present in neighbouring properties and notes that this basement could obstruct any potential drainage pathways.

4.13. The BIA also identifies that given the low permeability of the London Clay encountered, which is supported by the ground investigation observations, any seepages are likely to be small. The existing garages and associated hardstanding on site would already impede any ground water flow through the Made Ground and so the basement is unlikely to make this worse. The BIA advises that groundwater should be anticipated during basement construction, likely as perched water in the Made Ground and this should be accommodated during construction. It is accepted that there will be no impact to the hydrogeology of the area.

4.14. The BIA describes that both houses will be constructed with ‘landscape amenity gardens’ and green roofs, which will offset any minor encroachment into the existing soft landscaping by the new car garage. Finchley Road was identified as flooding in 2002 and this is discussed further in Section 10.8 of the BIA.

4.15. The area of new basement will increase the extent of impermeable surfacing, however, this will be mitigated by the inclusion of green roofs and additional gardens in the proposed scheme. Therefore, the development is not anticipated to impact the current rainwater discharges to the below ground surface water drainage system. The development is not in an area prone to flooding and additional mitigation is provided as part of the basement construction in case flooding is encountered. It is accepted there will be no impact to the hydrology of the area.

4.16. The BIA identifies that a recently felled 20m high willow tree is located upslope from the proposed garages and a 'substantial' recently fallen Copper Beech tree is located approximately 6m from the proposed basement, adjacent to the shared driveway. The BIA proposes that the basement retaining walls shall be designed to allow for lateral pressures due to these trees and confirms that there will be no impact in regard to the basement proposal and this is accepted.

4.17. The BIA screening and scoping has identified the basement is located near a public highway, the access way from Parsifal Road. Temporary and permanent support by underpinning is proposed as detailed in the GMA and this is accepted.

4.18. Structural calculations are provided in the CMS. The retaining wall analysis has been undertaken based on BS8002:1994 which is now superseded by BS8002:2015. However Granit Architects have confirmed through Tekla Tedds, part of Trimble Solutions (UK) Ltd that the calculations are still valid in accordance with the latest standard. The calculations have been resubmitted and are included in Appendix 3 to confirm a design groundwater level at ground level as determined by the geotechnical assessment presented in the BIA. The geotechnical parameters assumed in the calculations (angle of friction, unit weight and allowable bearing pressure) have also been updated to match those proposed by the geotechnical assessment (refer to Sections 10.4.11 and 10.4.13 of the BIA report) thus closing out previous queries.

4.19. A ground movement assessment (GMA) has been undertaken and presented in the BIA report using proprietary software (PDisp) and CIRIA C760 methodology. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the predicted ground movements are within the range typically anticipated for underpinning techniques carried out with good control of workmanship.

4.20. Vertical ground movements have been calculated during excavation and construction of perimeter walls (Stage 1), excavation of central area of basement and construction of basement slab (Stage 2), Construction of internal basement walls/columns/piers and all superstructure (Stage 3), and for the long term (Stage 4) total ground movements. Horizontal movements are described during excavation and underpinning, based on best practice as described in Section 10.4 of the BIA, with typical movements provided in Section 10.6.1.

4.21. The assessment has determined that ground movements will not affect the structural integrity of neighbouring buildings with a Burland damage scale category of not more than 1 (very slight) identified in Section 10.6.10. Figure no.11 indicates that the anticipated damage category will be 'negligible' (category 0).

4.22. The CMS report (refer to attached in the CMS letter dated 16/7/19) indicates that Category 1 damage is expected making reference to BRE Digest 251, without providing any ground

movement estimates. Granit Architects have clarified that an expected damage level of Category 0 should be reasonably expected, and their correspondence is included in Appendix 3.

4.23. Monitoring of ground movements is suggested by the GMA and is included as part of the Construction Method Statement, which is suggested will be agreed under the Party Wall Agreements.

4.24. The BIA has shown that the development will not impact the wider hydrogeology of the area, or any watercourses, springs or the Hampstead Heath Pond chain catchment area.

4.25. It is accepted that there will be no slope stability concerns regarding the proposed development.

5.0 CONCLUSIONS

5.1. The BIA and CMS have been carried out by engineering consultants' firms using individuals who possess suitable qualifications.

5.2. The BIA has confirmed the proposed basement will be founded within the London Clay and up to 1.20m of Made Ground could be encountered during excavation.

5.3. Though it is unlikely that the ground water table will be encountered during basement foundation excavation, the BIA has assumed a ground water level at ground level should be adopted for design. Suitable mitigation methods are proposed and they are accepted.

5.4. The BIA discusses lowering the ground level by up to 4m as part of a 'bottom up' construction sequence. Underpinning with suitable temporary propping arrangements are proposed.

5.5. A single storey basement has been identified in the neighbouring property No. 523 and No. 1g Parsifal road. No. 1e has a basement described on the planning portal and the BIA assumes it is present for this proposal, but its presence has not been confirmed. The BIA advises this should be confirmed prior to detailed design and this is accepted.

5.6. Structural calculations are provided with clarifications included in Appendix 3 of this BIA audit, and these are accepted.

5.7. A ground movement assessment (GMA) has been undertaken as part of the BIA report using proprietary software (PDisp) and CIRIA C760 methodology. The CMS report dated 16/07/19 indicates that Category 1 damage is expected, making reference to BRE Digest 251, without providing movement estimates. Clarifications were requested on the Burland category determinations and these are included in Appendix 3. They have confirmed a Burland damage scale category of not more than 'negligible' (category 0) should be expected.

5.8. The need for a movement monitoring strategy during construction is discussed in the BIA and will be agreed under the Party Wall Agreements.

5.9. It is accepted that the development will not impact on the slope stability of the area.

5.10. It is accepted that the development will not impact on the wider hydrogeology and hydrology of the area.

5.11. It can be confirmed that the BIA complies with the requirements of CPG: Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Wong and Lo	1g Parsifal Road	19/12/19 20/12/19	Impacts of Basement and Construction Phase. Impact on water table, structure etc.	Section 7.2, 7.3 & 7.4 of BIA. Section 10 BIA.
			Demand further information via geotechnical report and detailed BIA.	Chelmer Global LTD Factual Report, ref FACT/11384. Basement Impact Assessment, ref BIA/11384.

Appendix 2: Audit Query Tracker

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Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	The retaining wall analysis is undertaken in accordance with BS8002:1994 which is superseded by BS8002:2015. Confirmation calculations are still valid, or amend as needed.	Closed	11/11/2020
2	Stability	Groundwater considered in the structural calculations is taken at 0.6m bgl, BIA recommends a groundwater level at ground level. Clarification or amendment is required.	Closed	26/10/2020
3	Stability	The Geotechnical parameters used (angle of friction, unit weight, allowable bearing pressure etc.) in the structural calculations are different to those proposed by the geotechnical assessment of the BIA. Justification or amendment is required.	Closed	26/10/2020
4	Stability	BIA GMA has determined a Burland damage scale category of not more than 1 (very slight). Figure no.11 indicates a category of 'negligible' (category 0). Clarification is requested.	Closed	09/11/2020
5	Stability	The CMS report indicates that Category 1 damage is expected with reference to BRE Digest 251 without providing any ground movement estimates. Clarification is requested and the Burland Methodology should be consistently adopted throughout all the documents.	Closed	09/11/2020

Appendix 3: Supplementary Supporting Documents

MITCHINSON MACKEN

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Granit Chartered Architects
16 Porteus Pl,
Clapham,
London
SW4 0AS

23/10/20

Re:- Parsifal House, 521 Finchley Road, London – Job - 19313

Dear Mr Gaigalas

Regarding the proposed basement construction at the above property; please note this has been designed to comply with Subterranean Development SPD – Clause 6.1.2

We are happy that the strata can support the given loads and sequence of works.
The proposed works will have no effect on existing surrounding utilities and infrastructure.
Slope instability will not apply.
We do not expect ground water to be encountered within the build. A pump shall be present on site to deal with any ground water as a failsafe.

Our design has considered all geological, hydrological and structural concerns. Our sequence, method statement and retaining wall design have considered all these factors.

Please see plans 19313 for these sequenced works.

Please note that if all works are carried out to this Method Statement, Calculations and sequence, we are happy to state that no detrimental effect will occur to the adjoining properties.

Movement monitoring is be as proposed and to be agreed under the Award. Envisaged ground movement and associated affects to the neighbours properties are coved in the BIA documents considered under the Burland Methodology.

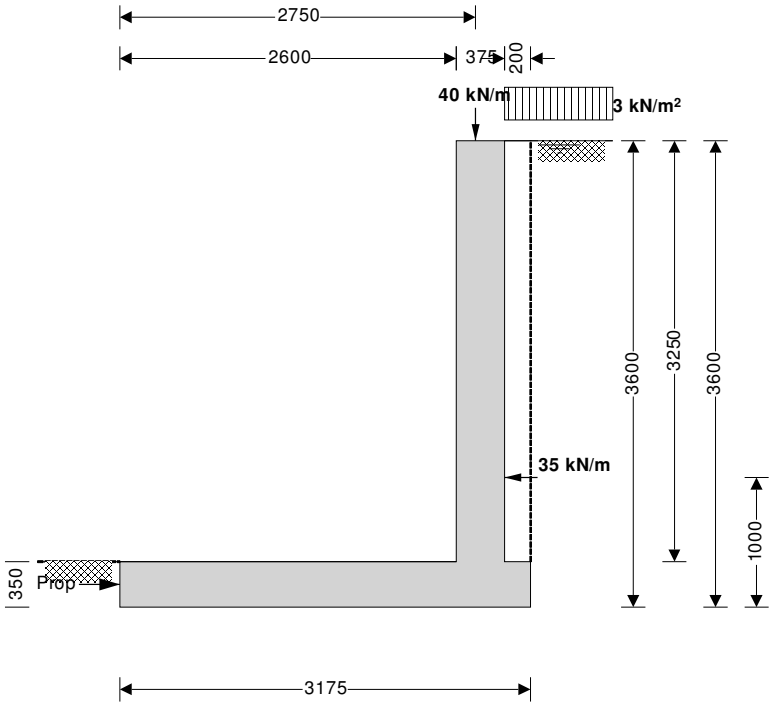
Please note that heave protection will not be required within our design.

Regards

Andrew Mitchinson BEng(Hons), CEng, MIStructE

RETAINING WALL ANALYSIS (BS 8002:1994)

TEDDS calculation version 1.2.01.06



Wall details

Retaining wall type	**Cantilever propped at base**
Height of retaining wall stem	h_{stem} = **3250** mm
Thickness of wall stem	t_{wall} = **375** mm
Length of toe	l_{toe} = **2600** mm
Length of heel	l_{heel} = **200** mm
Overall length of base	$l_{base} = l_{toe} + l_{heel} + t_{wall}$ = **3175** mm
Thickness of base	t_{base} = **350** mm
Depth of downstand	d_{ds} = **0** mm
Position of downstand	l_{ds} = **1500** mm
Thickness of downstand	t_{ds} = **350** mm
Height of retaining wall	$h_{wall} = h_{stem} + t_{base} + d_{ds}$ = **3600** mm
Depth of cover in front of wall	d_{cover} = **0** mm
Depth of unplanned excavation	d_{exc} = **0** mm
Height of ground water behind wall	h_{water} = **3600** mm
Height of saturated fill above base	$h_{sat} = \max(h_{water} - t_{base} - d_{ds}, 0\ mm)$ = **3250** mm
Density of wall construction	γ_{wall} = **23.6** kN/m³
Density of base construction	γ_{base} = **23.6** kN/m³
Angle of rear face of wall	α = **90.0** deg
Angle of soil surface behind wall	β = **0.0** deg
Effective height at virtual back of wall	$h_{eff} = h_{wall} + l_{heel} \times \tan(\beta)$ = **3600** mm

Retained material details

Mobilisation factor	M = **1.2**
Moist density of retained material	γ_m = **18.0** kN/m³

Saturated density of retained material γ_s = **20.0** kN/m^3

Design shear strength ϕ' = **24.2** deg

Angle of wall friction δ = **0.0** deg

Base material details

Stiff clay

Moist density γ_{mb} = **20.0** kN/m^3

Design shear strength ϕ'_b = **22.0** deg

Design base friction δ_b = **22.0** deg

Allowable bearing pressure $P_{bearing}$ = **170** kN/m^2

Using Coulomb theory

Active pressure coefficient for retained material

$$K_a = \sin(\alpha + \phi')^2 / (\sin(\alpha)^2 \times \sin(\alpha - \delta) \times [1 + \sqrt{(\sin(\phi' + \delta) \times \sin(\phi' - \beta) / (\sin(\alpha - \delta) \times \sin(\alpha + \beta)))}]^2) = \mathbf{0.419}$$

Passive pressure coefficient for base material

$$K_p = \sin(90 - \phi'_b)^2 / (\sin(90 - \delta_b) \times [1 - \sqrt{(\sin(\phi'_b + \delta_b) \times \sin(\phi'_b) / (\sin(90 + \delta_b)))}]^2) = \mathbf{4.193}$$

At-rest pressure

At-rest pressure for retained material $K_0 = 1 - \sin(\phi') = \mathbf{0.590}$

Loading details

Surcharge load on plan Surcharge = **2.5** kN/m^2

Applied vertical dead load on wall W_{dead} = **20.0** kN/m

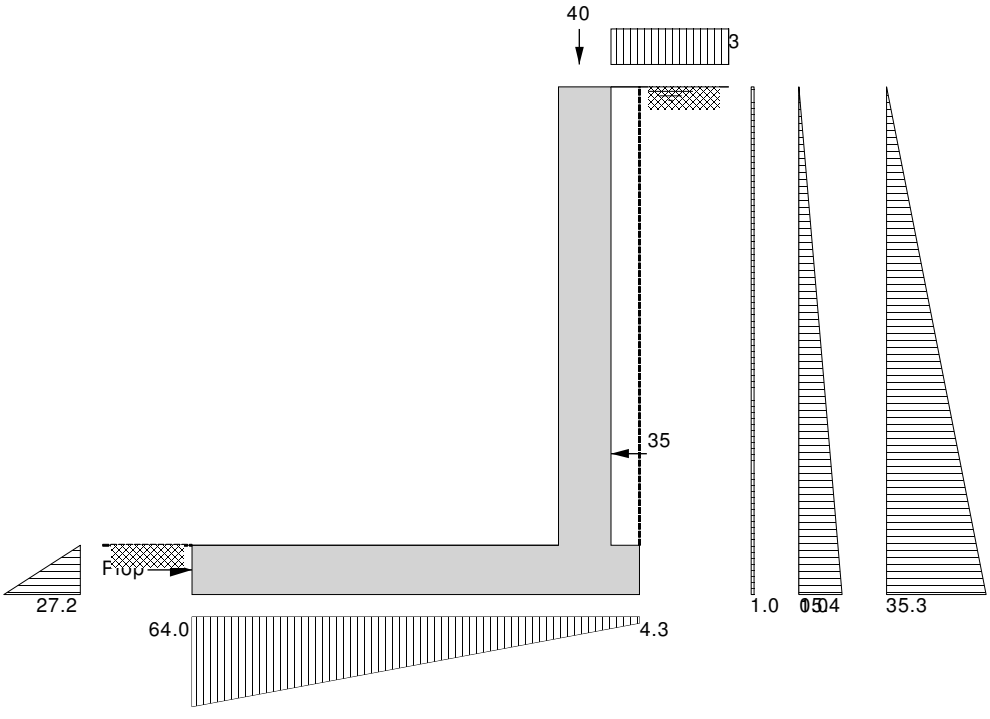
Applied vertical live load on wall W_{live} = **20.0** kN/m

Position of applied vertical load on wall l_{load} = **2750** mm

Applied horizontal dead load on wall F_{dead} = **35.0** kN/m

Applied horizontal live load on wall F_{live} = **0.0** kN/m

Height of applied horizontal load on wall h_{load} = **1000** mm



Loads shown in kN/m, pressures shown in kN/m^2

Mitchinson Macken Ltd Unit 1 100 North Road BN1 1YE	Project PARSIFAL HOUSE - 521 FINCHLEY ROAD LONDON				Job no. 19313
	Calcs for Retaining Wall A-A				Start page no./Revision 3 A
	Calcs by SM	Calcs date 25/09/2020	Checked by MM	Checked date	Approved by	Approved date

Vertical forces on wall

Wall stem	$w_{wall} = h_{stem} \times t_{wall} \times \gamma_{wall}$ = **28.8** kN/m
Wall base	$w_{base} = l_{base} \times t_{base} \times \gamma_{base}$ = **26.2** kN/m
Surcharge	$w_{sur} = Surcharge \times l_{heel}$ = **0.5** kN/m
Saturated backfill	$w_s = l_{heel} \times h_{sat} \times \gamma_s$ = **13** kN/m
Applied vertical load	$W_v = W_{dead} + W_{live}$ = **40** kN/m
Total vertical load	$W_{total} = w_{wall} + w_{base} + w_{sur} + w_s + W_v$ = **108.5** kN/m

Horizontal forces on wall

Surcharge	$F_{sur} = K_a \times Surcharge \times h_{eff}$ = **3.8** kN/m
Saturated backfill	$F_s = 0.5 \times K_a \times (\gamma_s - \gamma_{water}) \times h_{water}^2$ = **27.6** kN/m
Water	$F_{water} = 0.5 \times h_{water}^2 \times \gamma_{water}$ = **63.6** kN/m
Applied horizontal load	$F_h = F_{dead} + F_{live}$ = **35** kN/m
Total horizontal load	$F_{total} = F_{sur} + F_s + F_{water} + F_h$ = **130** kN/m

Calculate propping force

Passive resistance of soil in front of wall	$F_p = 0.5 \times K_p \times \cos(\delta_b) \times (d_{cover} + t_{base} + d_{ds} - d_{exc})^2 \times \gamma_{mb}$ = **4.8** kN/m
Propping force	$F_{prop} = \max(F_{total} - F_p - (W_{total} - w_{sur} - W_{live}) \times \tan(\delta_b), 0\ kN/m)$
	F_{prop} = **89.7** kN/m

Overturning moments

Surcharge	$M_{sur} = F_{sur} \times (h_{eff} - 2 \times d_{ds}) / 2$ = **6.8** kNm/m
Saturated backfill	$M_s = F_s \times (h_{water} - 3 \times d_{ds}) / 3$ = **33.2** kNm/m
Water	$M_{water} = F_{water} \times (h_{water} - 3 \times d_{ds}) / 3$ = **76.3** kNm/m
Applied horizontal load	$M_{hor} = F_h \times h_{load}$ = **35** kNm/m
Total overturning moment	$M_{ot} = M_{sur} + M_s + M_{water} + M_{hor}$ = **151.2** kNm/m

Restoring moments

Wall stem	$M_{wall} = w_{wall} \times (l_{toe} + t_{wall} / 2)$ = **80.2** kNm/m
Wall base	$M_{base} = w_{base} \times l_{base} / 2$ = **41.6** kNm/m
Saturated backfill	$M_{s\_r} = w_s \times (l_{base} - l_{heel} / 2)$ = **40** kNm/m
Design vertical dead load	$M_{dead} = W_{dead} \times l_{load}$ = **55** kNm/m
Total restoring moment	$M_{rest} = M_{wall} + M_{base} + M_{s\_r} + M_{dead}$ = **216.8** kNm/m

Check bearing pressure

Surcharge	$M_{sur\_r} = w_{sur} \times (l_{base} - l_{heel} / 2)$ = **1.5** kNm/m
Design vertical live load	$M_{live} = W_{live} \times l_{load}$ = **55** kNm/m
Total moment for bearing	$M_{total} = M_{rest} - M_{ot} + M_{sur\_r} + M_{live}$ = **122.1** kNm/m
Total vertical reaction	$R = W_{total}$ = **108.5** kN/m
Distance to reaction	$x_{bar} = M_{total} / R$ = **1125** mm
Eccentricity of reaction	$e = abs((l_{base} / 2) - x_{bar})$ = **462** mm
	Reaction acts within middle third of base
Bearing pressure at toe	$p_{toe} = (R / l_{base}) + (6 \times R \times e / l_{base}^2)$ = **64** kN/m²
Bearing pressure at heel	$p_{heel} = (R / l_{base}) - (6 \times R \times e / l_{base}^2)$ = **4.3** kN/m²

PASS - Maximum bearing pressure is less than allowable bearing pressure

RETAINING WALL DESIGN (BS 8002:1994)

TEDDS calculation version 1.2.01.06

Ultimate limit state load factors

Dead load factor	γ_{f_d} = **1.4**
Live load factor	γ_{f_l} = **1.6**
Earth and water pressure factor	γ_{f_e} = **1.4**

Factored vertical forces on wall

Wall stem	$w_{wall\_f} = \gamma_{f\_d} \times h_{stem} \times t_{wall} \times \gamma_{wall}$ = **40.3** kN/m
Wall base	$w_{base\_f} = \gamma_{f\_d} \times l_{base} \times t_{base} \times \gamma_{base}$ = **36.7** kN/m
Surcharge	$w_{sur\_f} = \gamma_{f\_l} \times \text{Surcharge} \times l_{heel}$ = **0.8** kN/m
Saturated backfill	$w_{s\_f} = \gamma_{f\_d} \times l_{heel} \times h_{sat} \times \gamma_s$ = **18.2** kN/m
Applied vertical load	$W_{v\_f} = \gamma_{f\_d} \times W_{dead} + \gamma_{f\_l} \times W_{live}$ = **60** kN/m
Total vertical load	$W_{total\_f} = w_{wall\_f} + w_{base\_f} + w_{sur\_f} + w_{s\_f} + W_{v\_f}$ = **156** kN/m

Factored horizontal at-rest forces on wall

Surcharge	$F_{sur\_f} = \gamma_{f\_l} \times K_0 \times \text{Surcharge} \times h_{eff}$ = **8.5** kN/m
Saturated backfill	$F_{s\_f} = \gamma_{f\_e} \times 0.5 \times K_0 \times (\gamma_s - \gamma_{water}) \times h_{water}^2$ = **54.5** kN/m
Water	$F_{water\_f} = \gamma_{f\_e} \times 0.5 \times h_{water}^2 \times \gamma_{water}$ = **89** kN/m
Applied horizontal load	$F_{h\_f} = \gamma_{f\_e} \times F_{dead} + \gamma_{f\_l} \times F_{live}$ = **49** kN/m
Total horizontal load	$F_{total\_f} = F_{sur\_f} + F_{s\_f} + F_{water\_f} + F_{h\_f}$ = **201** kN/m

Calculate propping force

Passive resistance of soil in front of wall kN/m	$F_{p\_f} = \gamma_{f\_e} \times 0.5 \times K_p \times \cos(\delta_b) \times (d_{cover} + t_{base} + d_{ds} - d_{exc})^2 \times \gamma_{mb}$ = **6.7**
Propping force	$F_{prop\_f} = \max(F_{total\_f} - F_{p\_f} - (W_{total\_f} - w_{sur\_f} - \gamma_{f\_l} \times W_{live}) \times \tan(\delta_b), 0 \text{ kN/m})$ F_{prop_f} = **144.6** kN/m

Factored overturning moments

Surcharge	$M_{sur\_f} = F_{sur\_f} \times (h_{eff} - 2 \times d_{ds}) / 2$ = **15.3** kNm/m
Saturated backfill	$M_{s\_f} = F_{s\_f} \times (h_{water} - 3 \times d_{ds}) / 3$ = **65.5** kNm/m
Water	$M_{water\_f} = F_{water\_f} \times (h_{water} - 3 \times d_{ds}) / 3$ = **106.8** kNm/m
Applied horizontal load	$M_{hor\_f} = F_{h\_f} \times h_{load}$ = **49** kNm/m
Total overturning moment	$M_{ot\_f} = M_{sur\_f} + M_{s\_f} + M_{water\_f} + M_{hor\_f}$ = **236.5** kNm/m

Restoring moments

Wall stem	$M_{wall\_f} = w_{wall\_f} \times (l_{toe} + t_{wall} / 2)$ = **112.2** kNm/m
Wall base	$M_{base\_f} = w_{base\_f} \times l_{base} / 2$ = **58.3** kNm/m
Surcharge	$M_{sur\_r\_f} = w_{sur\_f} \times (l_{base} - l_{heel} / 2)$ = **2.5** kNm/m
Saturated backfill	$M_{s\_r\_f} = w_{s\_f} \times (l_{base} - l_{heel} / 2)$ = **56** kNm/m
Design vertical load	$M_{v\_f} = W_{v\_f} \times l_{load}$ = **165** kNm/m
Total restoring moment	$M_{rest\_f} = M_{wall\_f} + M_{base\_f} + M_{sur\_r\_f} + M_{s\_r\_f} + M_{v\_f}$ = **394** kNm/m

Factored bearing pressure

Total moment for bearing	$M_{total\_f} = M_{rest\_f} - M_{ot\_f}$ = **157.4** kNm/m
Total vertical reaction	$R_f = W_{total\_f}$ = **156.0** kN/m
Distance to reaction	$x_{bar\_f} = M_{total\_f} / R_f$ = **1009** mm
Eccentricity of reaction	$e_f = \text{abs}((l_{base} / 2) - x_{bar\_f})$ = **578** mm
	Reaction acts outside middle third of base
Bearing pressure at toe	$p_{toe\_f} = R_f / (1.5 \times x_{bar\_f})$ = **103** kN/m^2

Bearing pressure at heel	p_{heel_f} = 0 kN/m² = **0** kN/m²
Rate of change of base reaction	rate = p_{toe_f} / (3 × x_{bar_f}) = **34.04** kN/m²/m
Bearing pressure at stem / toe	$p_{stem\_toe\_f}$ = max(p_{toe_f} - (rate × l_{toe}), 0 kN/m²) = **14.5** kN/m²
Bearing pressure at mid stem	$p_{stem\_mid\_f}$ = max(p_{toe_f} - (rate × (l_{toe} + t_{wall} / 2)), 0 kN/m²) = **8.2** kN/m²
Bearing pressure at stem / heel	$p_{stem\_heel\_f}$ = max(p_{toe_f} - (rate × (l_{toe} + t_{wall})), 0 kN/m²) = **1.8** kN/m²

Design of reinforced concrete retaining wall toe (BS 8002:1994)

Material properties

Characteristic strength of concrete	f_{cu} = **35** N/mm²
Characteristic strength of reinforcement	f_y = **500** N/mm²

Base details

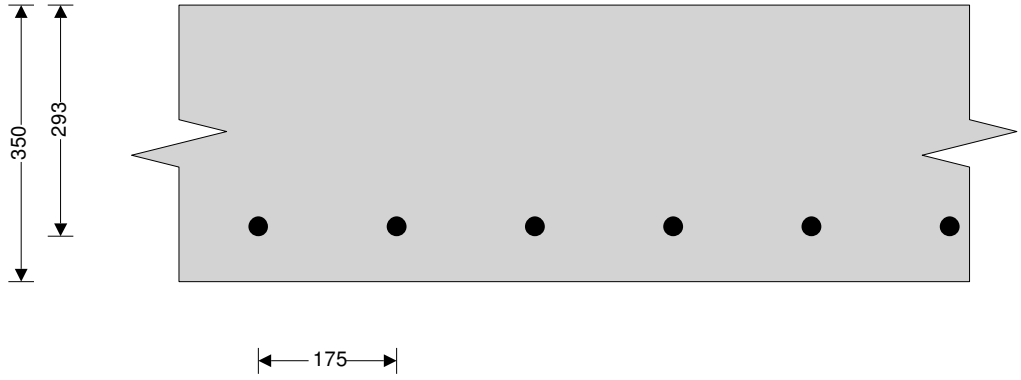
Minimum area of reinforcement	k = **0.13** %
Cover to reinforcement in toe	c_{toe} = **45** mm

Calculate shear for toe design

Shear from bearing pressure	V_{toe_bear} = (p_{toe_f} + $p_{stem\_toe\_f}$) × l_{toe} / 2 = **152.9** kN/m
Shear from weight of base	$V_{toe\_wt\_base}$ = γ_{f_d} × γ_{base} × l_{toe} × t_{base} = **30.1** kN/m
Total shear for toe design	V_{toe} = V_{toe_bear} - $V_{toe\_wt\_base}$ = **122.8** kN/m

Calculate moment for toe design

Moment from bearing pressure	M_{toe_bear} = (2 × p_{toe_f} + $p_{stem\_mid\_f}$) × (l_{toe} + t_{wall} / 2)² / 6 = **277.5** kNm/m
Moment from weight of base	$M_{toe\_wt\_base}$ = (γ_{f_d} × γ_{base} × t_{base} × (l_{toe} + t_{wall} / 2)² / 2) = **44.9** kNm/m
Total moment for toe design	M_{toe} = M_{toe_bear} - $M_{toe\_wt\_base}$ = **232.5** kNm/m



Check toe in bending

Width of toe	b = **1000** mm/m
Depth of reinforcement	d_{toe} = t_{base} – c_{toe} – (ϕ_{toe} / 2) = **292.5** mm
Constant	K_{toe} = M_{toe} / (b × d_{toe}^2 × f_{cu}) = **0.078**
	Compression reinforcement is not required
Lever arm	z_{toe} = min(0.5 + √(0.25 - (min(K_{toe}, 0.225) / 0.9)),0.95) × d_{toe}
	z_{toe} = **265** mm
Area of tension reinforcement required	$A_{s\_toe\_des}$ = M_{toe} / (0.87 × f_y × z_{toe}) = **2020** mm²/m
Minimum area of tension reinforcement	$A_{s\_toe\_min}$ = k × b × t_{base} = **455** mm²/m
Area of tension reinforcement required	$A_{s\_toe\_req}$ = Max($A_{s\_toe\_des}$, $A_{s\_toe\_min}$) = **2020** mm²/m
Reinforcement provided	**25 mm dia.bars @ 175 mm centres**
Area of reinforcement provided	$A_{s\_toe\_prov}$ = **2805** mm²/m
	PASS - Reinforcement provided at the retaining wall toe is adequate

Check shear resistance at toe

Design shear stress $v_{toe} = V_{toe} / (b \times d_{toe}) = \mathbf{0.420}$ N/mm²

Allowable shear stress $v_{adm} = \min(0.8 \times \sqrt{(f_{cu} / 1\ N/mm^2)}, 5) \times 1\ N/mm^2 = \mathbf{4.733}$ N/mm²

PASS - Design shear stress is less than maximum shear stress

From BS8110:Part 1:1997 – Table 3.8

Design concrete shear stress $v_{c\_toe} = \mathbf{0.754}$ N/mm²

$v_{toe} < v_{c\_toe}$ - No shear reinforcement required

Design of reinforced concrete retaining wall heel (BS 8002:1994)

Material properties

Characteristic strength of concrete $f_{cu} = \mathbf{35}$ N/mm²

Characteristic strength of reinforcement $f_y = \mathbf{500}$ N/mm²

Base details

Minimum area of reinforcement $k = \mathbf{0.13}$ %

Cover to reinforcement in heel $c_{heel} = \mathbf{40}$ mm

Calculate shear for heel design

Shear from bearing pressure $V_{heel\_bear} = p_{stem\_heel\_f} \times ((3 \times x_{bar\_f}) - l_{toe} - t_{wall}) / 2 = \mathbf{0}$ kN/m

Shear from weight of base $V_{heel\_wt\_base} = \gamma_{f\_d} \times \gamma_{base} \times l_{heel} \times t_{base} = \mathbf{2.3}$ kN/m

Shear from weight of saturated backfill $V_{heel\_wt\_s} = w_{s\_f} = \mathbf{18.2}$ kN/m

Shear from surcharge $V_{heel\_sur} = w_{sur\_f} = \mathbf{0.8}$ kN/m

Total shear for heel design $V_{heel} = -V_{heel\_bear} + V_{heel\_wt\_base} + V_{heel\_wt\_s} + V_{heel\_sur} = \mathbf{21.3}$ kN/m

Calculate moment for heel design

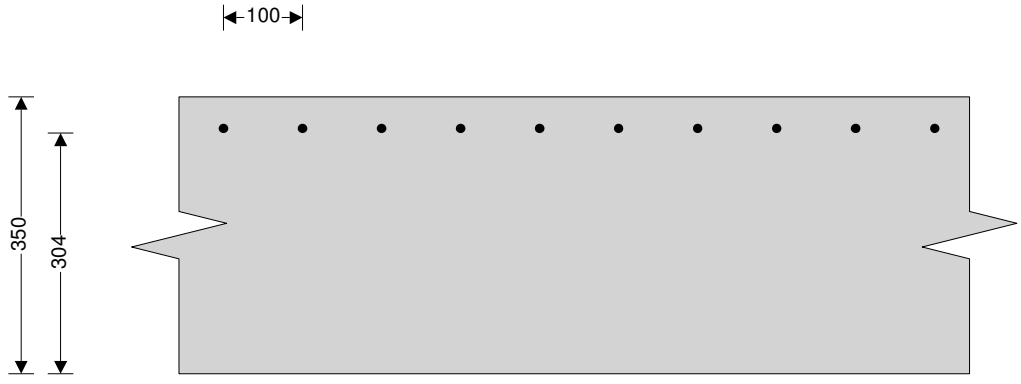
Moment from bearing pressure $M_{heel\_bear} = p_{stem\_mid\_f} \times ((3 \times x_{bar\_f}) - l_{toe} - t_{wall} / 2)^2 / 6 = \mathbf{0.1}$ kNm/m

Moment from weight of base $M_{heel\_wt\_base} = (\gamma_{f\_d} \times \gamma_{base} \times t_{base} \times (l_{heel} + t_{wall} / 2)^2 / 2) = \mathbf{0.9}$ kNm/m

Moment from weight of saturated backfill $M_{heel\_wt\_s} = w_{s\_f} \times (l_{heel} + t_{wall}) / 2 = \mathbf{5.2}$ kNm/m

Moment from surcharge $M_{heel\_sur} = w_{sur\_f} \times (l_{heel} + t_{wall}) / 2 = \mathbf{0.2}$ kNm/m

Total moment for heel design $M_{heel} = -M_{heel\_bear} + M_{heel\_wt\_base} + M_{heel\_wt\_s} + M_{heel\_sur} = \mathbf{6.3}$ kNm/m



Check heel in bending

Width of heel $b = \mathbf{1000}$ mm/m

Depth of reinforcement $d_{heel} = t_{base} - c_{heel} - (\phi_{heel} / 2) = \mathbf{304.0}$ mm

Constant $K_{heel} = M_{heel} / (b \times d_{heel}^2 \times f_{cu}) = \mathbf{0.002}$

Compression reinforcement is not required

Lever arm $z_{heel} = \min(0.5 + \sqrt{(0.25 - (\min(K_{heel}, 0.225) / 0.9))}, 0.95) \times d_{heel}$

$z_{heel} = \mathbf{289}$ mm

Area of tension reinforcement required $A_{s\_heel\_des} = M_{heel} / (0.87 \times f_y \times z_{heel}) = \mathbf{50}$ mm²/m

Minimum area of tension reinforcement	$A_{s\_heel\_min} = k \times b \times t_{base} =$ **455** mm²/m
Area of tension reinforcement required	$A_{s\_heel\_req} = Max(A_{s\_heel\_des}, A_{s\_heel\_min}) =$ **455** mm²/m
Reinforcement provided	**12 mm dia.bars @ 100 mm centres**
Area of reinforcement provided	$A_{s\_heel\_prov} =$ **1131** mm²/m

PASS - Reinforcement provided at the retaining wall heel is adequate

Check shear resistance at heel

Design shear stress	$v_{heel} = V_{heel} / (b \times d_{heel}) =$ **0.070** N/mm²
Allowable shear stress	$v_{adm} = \min(0.8 \times \sqrt{(f_{cu} / 1\ N/mm^2)}, 5) \times 1\ N/mm^2 =$ **4.733** N/mm²

PASS - Design shear stress is less than maximum shear stress

From BS8110:Part 1:1997 – Table 3.8

Design concrete shear stress	$v_{c\_heel} =$ **0.545** N/mm²

$v_{heel} < v_{c\_heel}$ - No shear reinforcement required

Design of reinforced concrete retaining wall stem (BS 8002:1994)

Material properties

Characteristic strength of concrete	$f_{cu} =$ **35** N/mm²
Characteristic strength of reinforcement	$f_y =$ **500** N/mm²

Wall details

Minimum area of reinforcement	k = **0.13** %
Cover to reinforcement in stem	$c_{stem} =$ **45** mm
Cover to reinforcement in wall	$c_{wall} =$ **45** mm

Factored horizontal at-rest forces on stem

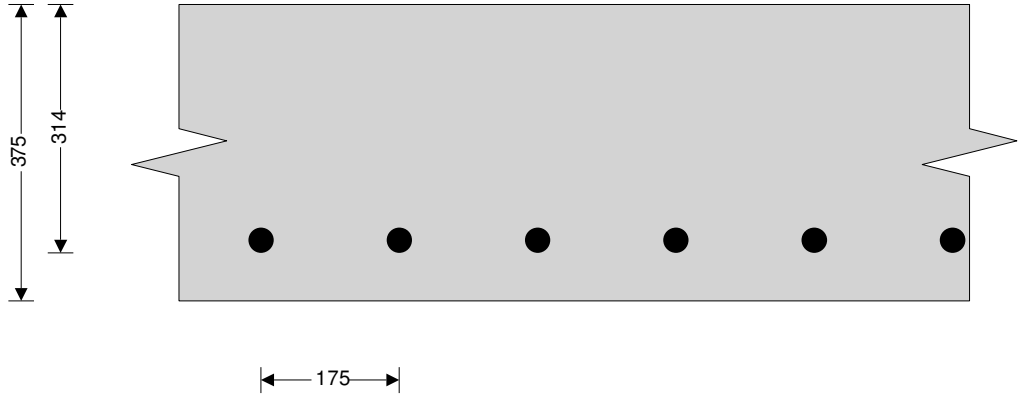
Surcharge	$F_{s\_sur\_f} = \gamma_{f\_l} \times K_0 \times$ Surcharge $\times (h_{eff} - t_{base} - d_{ds}) =$ **7.7** kN/m
Saturated backfill	$F_{s\_s\_f} = 0.5 \times \gamma_{f\_e} \times K_0 \times (\gamma_s - \gamma_{water}) \times h_{sat}^2 =$ **44.5** kN/m
Water	$F_{s\_water\_f} = 0.5 \times \gamma_{f\_e} \times \gamma_{water} \times h_{sat}^2 =$ **72.5** kN/m
Applied horizontal load	$F_{s\_h\_f} = \gamma_{f\_d} \times F_{dead} + \gamma_{f\_l} \times F_{live} =$ **49** kN/m

Calculate shear for stem design

Shear at base of stem	$V_{stem} = F_{s\_sur\_f} + F_{s\_s\_f} + F_{s\_water\_f} + F_{s\_h\_f} - F_{prop\_f} =$ **29.1** kN/m

Calculate moment for stem design

Surcharge	$M_{s\_sur} = F_{s\_sur\_f} \times (h_{stem} + t_{base}) / 2 =$ **13.8** kNm/m
Saturated backfill	$M_{s\_s} = F_{s\_s\_f} \times h_{sat} / 3 =$ **48.2** kNm/m
Water	$M_{s\_water} = F_{s\_water\_f} \times h_{sat} / 3 =$ **78.6** kNm/m
Applied horizontal load	$M_{s\_hor} = F_{s\_h\_f} \times (h_{load} - t_{base} / 2) =$ **40.4** kNm/m
Total moment for stem design	$M_{stem} = M_{s\_sur} + M_{s\_s} + M_{s\_water} + M_{s\_hor} =$ **181** kNm/m



Check wall stem in bending

Width of wall stem	b = **1000** mm/m
Depth of reinforcement	$d_{stem} = t_{wall} - c_{stem} - (\phi_{stem} / 2)$ = **314.0** mm
Constant	$K_{stem} = M_{stem} / (b \times d_{stem}^2 \times f_{cu})$ = **0.052**
	Compression reinforcement is not required
Lever arm	$z_{stem} = \min(0.5 + \sqrt{}(0.25 - (\min(K_{stem}, 0.225) / 0.9)),0.95) \times d_{stem}$
	z_{stem} = **294** mm
Area of tension reinforcement required	$A_{s\_stem\_des} = M_{stem} / (0.87 \times f_y \times z_{stem})$ = **1413** mm²/m
Minimum area of tension reinforcement	$A_{s\_stem\_min} = k \times b \times t_{wall}$ = **488** mm²/m
Area of tension reinforcement required	$A_{s\_stem\_req} = \max(A_{s\_stem\_des}, A_{s\_stem\_min})$ = **1413** mm²/m
Reinforcement provided	**32 mm dia.bars @ 175 mm centres**
Area of reinforcement provided	$A_{s\_stem\_prov}$ = **4596** mm²/m
	PASS - Reinforcement provided at the retaining wall stem is adequate

Check shear resistance at wall stem

Design shear stress	$v_{stem} = V_{stem} / (b \times d_{stem})$ = **0.093** N/mm²
Allowable shear stress	$v_{adm} = \min(0.8 \times \sqrt{}(f_{cu} / 1\ N/mm^2), 5) \times 1\ N/mm^2$ = **4.733** N/mm²
	PASS - Design shear stress is less than maximum shear stress

From BS8110:Part 1:1997 – Table 3.8

Design concrete shear stress	v_{c_stem} = **0.853** N/mm²
	$v_{stem} < v_{c\_stem}$ - No shear reinforcement required

Check retaining wall deflection

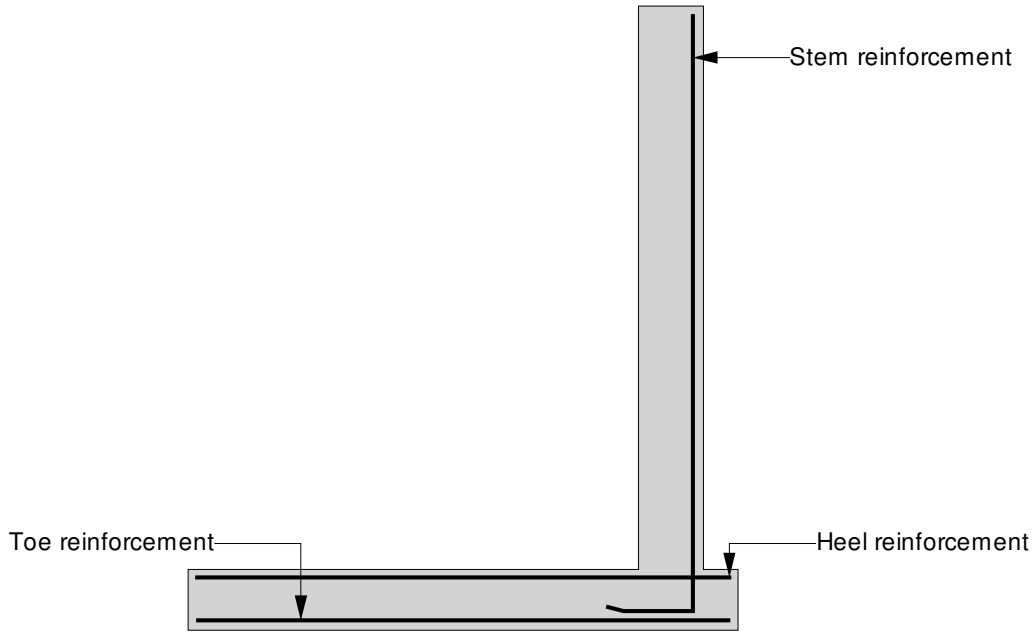
Basic span/effective depth ratio	$ratio_{bas}$ = **7**
Design service stress	$f_s = 2 \times f_y \times A_{s\_stem\_req} / (3 \times A_{s\_stem\_prov})$ = **102.5** N/mm²
Modification factor	$factor_{tens} = \min(0.55 + (477\ N/mm^2 - f_s)/(120 \times (0.9\ N/mm^2 + (M_{stem}/(b \times d_{stem}^2)))),2)$ = **1.69**
Maximum span/effective depth ratio	$ratio_{max} = ratio_{bas} \times factor_{tens}$ = **11.84**
Actual span/effective depth ratio	$ratio_{act} = h_{stem} / d_{stem}$ = **10.35**
	PASS - Span to depth ratio is acceptable

Mitchinson Macken Ltd
Unit 1
100 North Road
BN1 1YE

Project	Job no.
PARSIFAL HOUSE - 521 FINCHLEY ROAD LONDON	19313
Calcs for: Retaining Wall A-A	Start page no./Revision: 9 A

Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
SM	25/09/2020	MM			

Indicative retaining wall reinforcement diagram



Toe bars - 25 mm dia.@ 175 mm centres - (2805 mm^2/m)
Heel bars - 12 mm dia.@ 100 mm centres - (1131 mm^2/m)
Stem bars - 32 mm dia.@ 175 mm centres - (4596 mm^2/m)

FW: Parsifal House 521 Finchley Road 2019/5709/P - BIA

Lawlor, Josh to: JaimeBrown@campbellreith.com 26/10/2020 09:42
Cc: "camdenaudit@campbellreith.com"

History: This message has been replied to.

Hi Jamie

See attached and below email, your email is also attached

Thanks

Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

The majority of Council staff are now working at home through remote, secure access to our systems.
Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 26 October 2020 09:36
Cc: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>; Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

scams so extra vigilance is required.

Good morning Josh,

Following on from last weeks email, please find attached an updated package to suit the latest comments.

The engineer has also provided email confirmation that, *'our retaining wall analysis and supporting calculations (Software is up to date, costs a lot of money and supplied by Tedds) are valid and Structurally satisfactory.'*

I trust this meets the requirements.

Let me know if you have any further queries. I would appreciate an idea on timings so I can update the client.

Kind regards,

Mantas

Please note: I am no longer working on Fridays.

Mantas Gaigalas
BA (Hons). MArch. ARB
Architect
mantas@granit.co.uk
Granit Architects
+44 (0)20 7924 4555
https://granit.co.uk/

On 21 Oct 2020, at 13:01, Mantas Gaigalas <mantas@granit.co.uk> wrote:

Hi Josh,

Just to let you know, I forwarded these queries to the engineer on Monday and await a reply.

I will keep you updated once I hear.

Kind regards,

Mantas

Please note: I am no longer working on Fridays.

Mantas Gaigalas
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On 19 Oct 2020, at 09:41, Lawlor, Josh < Josh.Lawlor@camden.gov.uk> wrote:

Hi Mantas

Please resolve the following final queries (queries No 1 and 5 of our D1 report - still pending):

- Outline structural calculations are provided in the Construction Method Statement. The retaining wall analysis has been undertaken based on BS8002:1994 which is now superseded by BS8002:2015. Though a letter has been provided confirming Mitchinson Macken's are happy their design is robust, can they confirm that the calculations are still valid (or amended as needed) in accordance with the updated standard. (Query No 1 of our D1 audit report - still pending)
- The CMS report (refer to attached in the CMS letter dated 16/7/19) indicates that Category 1 damage is expected making reference to BRE Digest 251, without providing any ground movement estimates. A clarification is requested with the note that Burland methodology should be consistently adopted in the BIA documents, as per the requirements of CPG Basements. (Query No 5 of our D1 audit report - still pending)
- Finally, the comment that no movement monitoring has been allowed 'as the quality of finishes within the adjacent properties will make any movement obvious' made in the recent submitted letter by Mitchinson Macken, dated 25/09/20, shall be clarified as it is contradictory to the BIA monitoring recommendations presented in Section 10.7. BIA's recommendation for monitoring during construction has been previously accepted in our D1 audit report as it is in accordance with CPG Basements guidance and best practice for basement developments.

A satisfactory response by way of an email by the appointed engineers on the above remaining queries would close out all pending matters and will enable the final audit report to be issued.

Regards

Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

<image006.png> <image007.png> <image008.png> <image009.jpg> <image010.jpg>

The majority of Council staff are now working at home through remote, secure access to our systems.
Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 05 October 2020 18:05
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

Telephone: 020 7974 2337

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Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From:JaimeBrown@campbellreith.com <JaimeBrown@campbellreith.com>
Sent: 18 September 2020 17:19
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: londonsecretaries@campbellreith.com; camdenaudit@campbellreith.com
Subject: Reissue of BIA - 13398 Parsifal House

[EXTERNAL EMAIL] Beware – This email originated outside Camden Council and may be malicious Please take extra care with any links, attachments, requests to take action or for you to verify your password etc. Please note there have been reports of emails purporting to be about Covid 19 being used as cover for scams so extra vigilance is required.

Hi Josh,

My apologies but the previously sent BIA audit's file name was incorrect. Please disregard the previous issue and use the following in it's place.

Many Thanks,

Jaime Brown
Senior Geotechnical Engineer

15 Bermondsey Square
London
SE1 3UN

Tel +44 (0)20 7340 1700

www.campbellreith.com

FW: Parsifal House 521 Finchley Road 2019/5709/P - BIA
Lawlor, Josh to: JaimeBrown@campbellreith.com 09/11/2020 10:53
History:
This message has been replied to.

4 Attachments

image002.png image004.png image006.png image008.jpg image009.jpg 19313 Load Take Down.pdf Cantilever RC 3250 Rev A.pdf 19313-102 A Basement.pdf
19313-102 A Basement.pdf

Hi Jamie...

The agent has provided the attached and responded below

Josh

--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

The majority of Council staff are now working at home through remote, secure access to our systems.
Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 09 November 2020 10:47
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

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Good morning Josh,

Please see below a revised package as well as a copy of the SE's response that I trust answers all outstanding queries;

Good morning Mantas

Please find attached our revised package to suit latest comments.

Movement monitoring is to carried out and agreed by the PW surveyors as set out in clause 10.7 in the BIA report. Burland Methodology is to be used; expected level of damage is to be Level 0 Negligible; this would be in the form of Hairline cracks of less than about 0.1 mm.

Please also accept this email as confirmation that our retaining wall analysis and supporting calculations (Software licence is up to date and supplied by Tedds) are valid and Structurally satisfactory.

Please do not hesitate to get in touch if you require any further information.

Kind regards,

Mantas

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BA (Hons). MArch. ARB
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mantas@granit.co.uk
Granit Architects
+44 (0)20 7924 4555
https://granit.co.uk/

On 6 Nov 2020, at 18:06, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

This has delayed the date I said I would try and get the decision out. I cannot provide a date for determination until these matters are closed out.

Rep ly Add Gra Fin d Gra nit Twe eter

--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

< image006.png> <image007.png> <image008.png> <image009.jpg>
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From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 06 November 2020 17:50
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

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Hi Josh,

The email attachment you have forwarded is dated 14th October 2020 which I have responded to in my email dated 26th October 2020, including updated SE docs.

Are you suggesting that the recently issued information (issued 26th Oct) still does not close out the queries raised by Jamie Brown back in October 14th?

Kind regards,

Mantas

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Rep ly Add Gra Fin d Gra nit Twe eter

On 6 Nov 2020, at 17:44, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

Hi Mantas

The additional information supplied 26/10/2020 does not close out outstanding queries as listed in the attached pdf:

Can information be supplied that addresses the outstanding queries. We also note further submission of information that will need a review will attract additional fees.

Regards

--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

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From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 26 October 2020 12:29
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

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Hi Josh,

Many thanks for the update.

I look forward to hearing from you in due course.

Kind regards,

Mantas

Please note: I am no longer working on Fridays.

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https://granit.co.uk/

Reply Add Granit Find Granit Tweeter

On 26 Oct 2020, at 09:42, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

Morning Mantas

I have sent this on to CR

The report should go forward to members briefing in around 4 weeks, 5 maximum.

Regards

--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

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From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 26 October 2020 09:36
Cc: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>; Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

Good morning Josh,

Following on from last weeks email, please find attached an updated package to suit the latest comments.

The engineer has also provided email confirmation that, '*our retaining wall analysis and supporting calculations (Software is up to date, costs a lot of money and supplied by Tedds) are valid and Structurally satisfactory.'*

I trust this meets the requirements.

Let me know if you have any further queries. I would appreciate an idea on timings so I can update the client.

Kind regards,

Mantas

Please note: I am no longer working on Fridays.

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Reply Add Granit Find Granit Tweeter

On 21 Oct 2020, at 13:01, Mantas Gaigalas <mantas@granit.co.uk> wrote:

Hi Josh,

Just to let you know, I forwarded these queries to the engineer on Monday and await a reply.

I will keep you updated once I hear.

Kind regards,

Mantas

Please note: I am no longer working on Fridays.

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Reply Add Granit Find Granit Tweeter

On 19 Oct 2020, at 09:41, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

Hi Mantas

Please resolve the following final queries (queries No 1 and 5 of our D1 report - still pending):

FW: Parsifal House 521 Finchley Road 2019/5709/P - BIA
Lawlor, Josh to: JaimeBrown@campbellreith.com 11/11/2020 07:55
History:
This message has been replied to.
0 Attachment
image007.png image008.png image009.png image010.jpg image011.jpg

Hi Jaime

The agent has responded below,

Please let me know if we need further information.

Kind regards
--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

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Where possible please now communicate with us by telephone or email. We have limited staff in our offices to deal with post, but as most staff are homeworking due to the current situation with COVID-19, electronic communications will mean we can respond quickly.

From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 10 November 2020 18:48
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

Hi Josh,

I understand is only the first point that now remains outstanding, as such, the structural engineer has had to lassie with their software design company (Tedds) for clarification - see below;

SE - *I have this response from the head of Tedds development; in summary we are satisfied that the calculation is more than equal too BS8002:2015*

Tedds development - *Our recommendation is to use the Eurocode version of the Retaining Wall calculation.*

Background
The BS 8002:2015 code update essentially means that the soils part of the calculation is based on the Eurocode and the remaining design is similar to the existing BS design. If we were to update the calculation it would be very similar in use to the Eurocode version at which point you have to ask the question "why not just use the Eurocode version?" So for that reason we have up to this time decided not to update the BS version of the calculation unless there is significant demand from the user base.

Currently only 3 other users have enquired about the same request, and we've added this request to that tally too.

I trust the background is enough justification to go with the BS8002:1997 calculation noting the soil characteristics are to classic BS and not adapted to imitate EC. You could use the EC calculation if your client is not accepting as its more current than BS8002:2015.

Best wishes,
Priney

Priney Chauhan
Regional Sales Engineer & Account Manager - Engineering Segment
Trimble Solutions (UK) Ltd | Structures Division
Trimble House | Gelderd Road | Leeds | LS27 7JP

Mobile: 07583 034097
Email: priney.chauhan@trimble.com

I trust this now satisfies all requirements?

Kind regards,

Mantas

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On 9 Nov 2020, at 13:01, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

Afternoon

comments as follows:

Outline structural calculations are provided in the Construction Method Statement. The retaining wall analysis has been undertaken based on BS8002:1994 which is now superseded by BS8002:2015. Though a letter has been provided confirming Mitchinson Macken's are happy their design is robust, can they confirm that the calculations are still valid (or amended as needed) in accordance with the updated standard. (Query No 1 of our D1 audit report - still pending).

Though we acknowledge Granit Architects' response:

'*Please also accept this email as confirmation that our retaining wall analysis and supporting calculations (Software licence is up to date and supplied by Tedds) are valid and Structurally satisfactory.*'

We are looking for an explicit reference that the calculation is valid in accordance with the latest standard BS8002:2015. This can be in the form of an email reply. If the calculation isn't valid in accordance with BS8002:2015, it should be updated.

- The CMS report (refer to attached in the CMS letter dated 16/7/19) indicates that Category 1 damage is expected making reference to BRE Digest 251, without providing any ground movement estimates. A clarification is requested with the note that Burland methodology should be consistently adopted in the BIA documents, as per the requirements of CPG Basements. (Query No 5 of our D1 audit report - still pending)
- Finally, the comment that no movement monitoring has been allowed 'as the quality of finishes within the adjacent properties will make any movement obvious' made in the recent submitted letter by Mitchinson Macken, dated 25/09/20, shall be clarified as it is contradictory to the BIA monitoring recommendations presented in Section 10.7. BIA's recommendation for monitoring during construction has been previously accepted in our D1 audit report as it is in accordance with CPG Basements guidance and best practice for basement developments.

We note the response to the above two comments on CMS report and movement monitoring:
'Movement monitoring is to carried out and agreed by the PW surveyors as set out in clause 10.7 in the BIA report. Burland Methodology is to be used; expected level of damage is to be Level 0 Negligible; this would be in the form of Hairline cracks of less than about 0.1 mm.'

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--
Josh Lawlor
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Regards

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Planning Officer

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Hi Josh,

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I look forward to hearing from you in due course.

Kind regards,

Mantas

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I will keep you updated once I hear.

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Mantas

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On 19 Oct 2020, at 09:41, Lawlor, Josh <Josh.Lawlor@camden.gov.uk> wrote:

Hi Mantas

Please resolve the following final queries (queries No 1 and 5 of our D1 report - still pending):

- Outline structural calculations are provided in the Construction Method Statement. The retaining wall analysis has been undertaken based on BS8002:1994 which is now superseded by BS8002:2015. Though a letter has been provided confirming Mitchinson Macken's are happy their design is robust, can they confirm that the calculations are still valid (or amended as needed) in accordance with the updated standard. (Query No 1 of our D1 audit report - still pending)
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- Finally, the comment that no movement monitoring has been allowed 'as the quality of finishes within the adjacent properties will make any movement obvious' made in the recent submitted letter by Mitchinson Macken, dated 25/09/20, shall be clarified as it is contradictory to the BIA monitoring recommendations presented in Section 10.7. BIA's recommendation for monitoring during construction has been previously accepted in our D1 audit report as it is in accordance with CPG Basements guidance and best practice for basement developments.

A satisfactory response by way of an email by the appointed engineers on the above remaining queries would close out all pending matters and will enable the final audit report to be issued.

Regards

--
Josh Lawlor
Planning Officer

Telephone: 020 7974 2337

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From: Mantas Gaigalas <mantas@granit.co.uk>
Sent: 05 October 2020 18:05
To: Lawlor, Josh <Josh.Lawlor@camden.gov.uk>
Cc: Robert Wilson <rmcw@granit.co.uk>
Subject: Re: Parsifal House 521 Finchley Road 2019/5709/P - BIA

Hi Josh,

Thank you for your email.

Do you have any rough ideas on how long the BIA audit may take based on past experience - can be very approximate? I assume we have provided everything they require so far?

Many thanks,

London

15 Bermondsey Square
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