



elliottwood

Braemar Avenue Baptist Church, Wood Green

Structural engineering report and subterranean construction
method statement

engineering a better society

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Our practice

Elliott Wood work with likeminded people to engineer a better society

Our portfolio is extraordinarily diverse, and we particularly enjoy those projects which provide the opportunity to engineer for the common good – from making dramatic improvements to the life of a town or city, through to nurturing a new generation of exceptional engineers in our own in-house academy.

Despite more than twenty years in practice, we continue to be curious and find ways to pass on the benefit of our collective experience. We foster enquiring minds and share ideas because we know that this knowledge can make a real difference to our clients.

Engineering is often about the unseen: much of what we do is hidden when a building is complete. But engineering is not a necessary evil – it's much cleverer than that. Our role is to demystify the invisible workings of a structure, to reveal unexpected opportunities and to make the existing engineering work harder.

We value both technical and creative thinking, and are activists for a new kind of engineering profession in which our craft is pivotal to the design process. We are no ordinary engineers.

We are no ordinary engineers

Elliott Wood people are activists for a new kind of engineering profession, in which our craft is re-evaluated by clients and collaborators as being pivotal to the design process. We are ambitious for ourselves, our practice and our discipline, and recognise that this paradigm shift will require a combination of both technical and creative thinking.

We help others to see the unseen

Engineering is often about the unseen: much of what we do is hidden, so part of our role as engineers is to explain and demystify this, uncovering the invisible workings of any structure. In so doing, it is also possible to reveal the hidden opportunities in a project, making the engineering work harder for our clients, materialising previously unidentified assets to make a positive impact.

Engineering is anything but routine

We aim to extend our existing reputation for reliability by demonstrating that engineering is not a necessary evil. Getting the nuts and bolts to work is a given, but our engineering is cleverer than that. Clients can't afford not to have our input, and should involve us as early as possible in the design process. By asking the right questions (of ourselves and others), we can shift conventional thinking about the engineer's place in a design team, and surprise and stimulate our clients with ideas they wouldn't necessarily have thought of.

We're still learning, after nearly twenty-five years

With decades of experience, we have considerable expertise over a huge range of building types. We remain relevant, however, because we continue to be curious. We learn something from every single project and invest time in sharing new ideas and thinking across the practice. We foster enquiring minds because we know that our collective, continually-developing knowledge can make a real difference to our clients

Reveal / Materialise / Impact

Engineers make a difference.

We like to be involved at the start of our clients' creative and commissioning journey, because we are concerned that not enough people are realising the full potential of their buildings. They are only working with what they can see.

Our process challenges usual perceptions of the engineer's role, because we help clients to see the unseen and achieve results beyond the aspirations of the brief – and which have a positive legacy for their wider communities.

Reveal

We ask questions. With innovative thinking, we reveal the unexpected opportunities in an already ambitious brief.

Materialise

We give ideas life. Using expertise and imagination, we materialise new assets for our clients.

Impact

We make a difference. Our work not only benefits our clients, it has a positive impact on society as a whole.

One

Non-technical summary

1.1

Elliott Wood has worked on a number of projects in the area and is aware of both the underlying soil and groundwater; the basement has been designed with this in mind. The site-specific site investigation and flood risk assessment conclude that the basement will have no adverse effect on the local hydrogeology.

1.2

If the works noted above are properly undertaken by suitably qualified contractors, these works will pose no significant threat to the structural stability of the building or the adjoining properties. A damage risk assessment will be completed by a competent geotechnical engineer in accordance with CIRIA C580 and is pending site specific soil investigations. However, based on the predicted ground movements, the properties surrounding the site are not expected to suffer any damage greater than CIRIA C580 Damage Category 1 or 2.

A demolition and construction traffic management plan will be completed by a contractor. This will give advice on the likely programme, vehicular access and site set-up.

1.3

The construction of a new basement on the site will not have any adverse effect on the property, neighbouring properties, groundwater, surface water or slope stability.

1.4

This report is for the sole use of the [clients] for whom the report is undertaken and cannot be relied

upon by third parties for any use whatsoever without the express authority of Elliott Wood.

Two

Introduction

2.1

Elliott Wood is a firm of consulting structural engineers approximately 150 strong operating from their head office in Southwest London. Residential developments of all scales have been central to the workload of the practice with many in the Greater London area. In particular, Elliott Wood has been producing designs for basements to both existing and new buildings. To date, this numbers approximately 500 sites, our general understanding of the development of London, its geology and unique features together with direct experience on many sites puts us in a strong position to advise clients on works to their buildings and in particular the design and construction of their basement.

2.2

Elliott Wood was appointed by SpaceLab to advise on the structural implications of creating a single storey basement under the footprint of the demolished outbuildings. The following report has been prepared to help ensure that the neighbouring properties are safeguarded during the works. The report provides information in accordance with the requirements of the London Borough of Haringey basement construction guidance.

The documents referred to are the 'Policy DM18: Residential Basement Development and Light Wells' and 'Haringey Council Planning Regeneration & Economy – Draft Basement Development Guidance Note'. However, we also understand that Haringey council have also adopted the London Borough of Camden Basement Impact Assessment guidance as best practice and as such, the relevant document from Camden Council are also referred to inform design of the basement structure.

It includes information on the site, the proposed alterations and their impact on the site, the building and adjoining buildings and provides information on how the works will be constructed.

Elliott Wood has extensive experience of projects of this type and has previously produced planning reports for other properties in the area. We also have a comprehensive understanding of the underlying ground conditions in the area gained from the numerous basement projects we have completed in throughout Greater London.

This statement focuses on the proposed subterranean works as opposed to the superstructure works and should be read in conjunction with all relevant Architects and Specialists supporting documents.

2.3

The site-specific site investigation will be completed in due course; however British Geological Survey maps were consulted to gain an understanding of the local site conditions. The BGS borehole records indicate that the nearest boreholes to site are located approximately 500mm away. These have been reviewed to gain approximate soil information.

2.4

A preliminary desk study has been completed to establish the general ground conditions and history of the building (See Section 3.4 for the summary of the desk study).

Three

Description of existing building and site conditions

3.1 Site location

The site is located in Wood Green, London. It is bounded by the A109 Bounds Green Road to the north, Braemar Avenue to the west and New River Path/Nightingale Gardens to the east. A residential property bounds the site to the south. Refer to Figure 1 for the site location.

The site approximately centred at OS grid reference 530479 E, 190772 N.



Figure 1: Map view of site location



Figure 2: Aerial photo of site

3.2 Site access

The site can be accessed by vehicles from Braemar Avenue and A109 at the entrance of the property.

3.3 Site History

The site has been occupied by the church since the 1900s. The properties in the area are on a gently sloping site. The site layout shortly after construction is indicated on Figure 3.

Previous to the construction of the church building the site was unoccupied and undeveloped. The green field and minor footpath is indicated on Figure 5.



Figure 3: Historic map shortly after construction of church (1912)

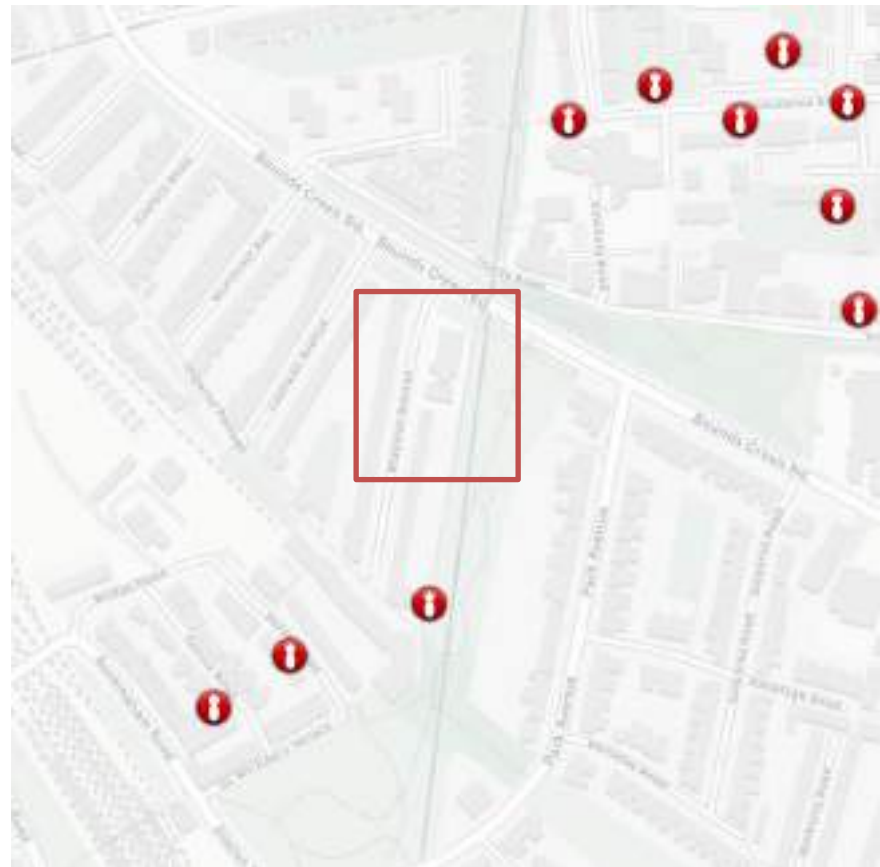


Figure 4: WWII Bomb Damage Map (1945)



Figure 5: OS Map (1894) with the site indicated in red.

3.4 Existing Building

The existing building appears to be of traditional construction consisting of loadbearing masonry walls, timber suspended floors and roofs. The existing foundations are assumed to be of modest depth either built as stepped brick foundations or trench concrete footings. The front wall of the building is in reasonable condition and is proposed to remain.

The existing church building contains an elaborate roof arrangement. However, no structural works to these areas are proposed by the architect. It is assumed that the existing roof structure is of traditional carpentry comprising a combination of valley and hip rafters supporting pitched timber rafters and purlins where necessary.

The exact layout existing structure is currently unknown. The relevant areas will be inspected to understand the existing arrangements and where necessary further opening up works and measured surveys will be requested.

The existing building at Braemar Avenue is a mixed storey church building and a two-storey high Tabernacle church building on the eastern side of Braemar Avenue.

The existing Braemar Avenue Baptist Chapel building dates from 1907 and is Grade II listed.

3.5 Stability

The overall stability is assumed to be provided by external load bearing masonry walls and diaphragm action of the timber floors at each level.

3.6 Desk Study

A site-specific investigation will be completed in due course. For the purpose of Pre-planning application, we have undertaken a desk top study of the existing online data.

Geological records of the site and our understanding of ground conditions in the area indicate that the ground conditions are likely to consist of London Clay formation with no superficial deposits. A nearby BGS borehole TQ39SW265 indicates the following ground conditions: Made ground to a depth of 5m, London Clay to a depth of 27.5m and Thanet Sand to a depth of 52m depth. The borehole also indicates rest water level is at 12.0m below ground level.

London Clay is well documented as being a firm to very stiff, over consolidated clay which is typically of high or very high plasticity and high-volume change potential. As a result, it is susceptible to considerable volume changes in response to variations in its natural moisture content. In response to normal climatic variations these volumetric changes can occur seasonally to a depth of up to 1.5m. However, in the presence of tree they can occur to much greater depths. This interaction will be reviewed in detail upon receipt of an arboricultural report as detailed in Section 3.7 below.

The clay swells when unloaded by excavations such as those required for the construction of basements.

No likely sources of gaseous contamination have been identified at the site, however this will be confirmed upon the completion of the site specific geo-environmental site investigation report.

3.7 Arboriculture Report

An arboriculture specialist has not been appointed yet. This will be required to ensure that the works do not have an adverse impact on the retained trees.

Once appointed and an arboricultural report is produced, Elliott Wood will carry out a review to understand the implication on the foundation designs. The proposed groundworks would also be co-ordinated with the potential root protection areas.

The site is heavily planted, particularly around the existing building footprint. Majority of trees will be retained, but trees are to be removed on the east side of the site. It is important to gain an understanding of the depth and extent of roots and susceptibility of the soil/rock matrix to shrinkage and swelling to ascertain the potential impact of trees on proposed structures.

Damage to tree roots during investigative works to be limited as much as possible.

3.8 Flood Risk Assessment

In accordance with the Environment Agency's flood risk map for planning, the site is shown to lie entirely within Flood Zone 1. The site lies in a Critical Drainage Area.

The Flood Risk Assessment concludes that the site is at low risk of flooding from tidal and fluvial sources and artificial waterbodies. Risk of flooding from surface water and overland flows is low with the inclusion of a new surface water drainage system.

Site investigations in the form of groundwater monitoring should be undertaken to confirm groundwater levels across the site, and subsequently the level of mitigation required to protect against potential groundwater flooding.

The risk of flooding from public sewers can be mitigated by introducing a non-return valve to the new pumped drainage systems. Emergency storage will need to be provided for the pumped drainage systems.

A CCTV survey is to be undertaken to confirm the levels, routes and condition of the existing private drainage on the site, including any existing connections to the public sewer network.

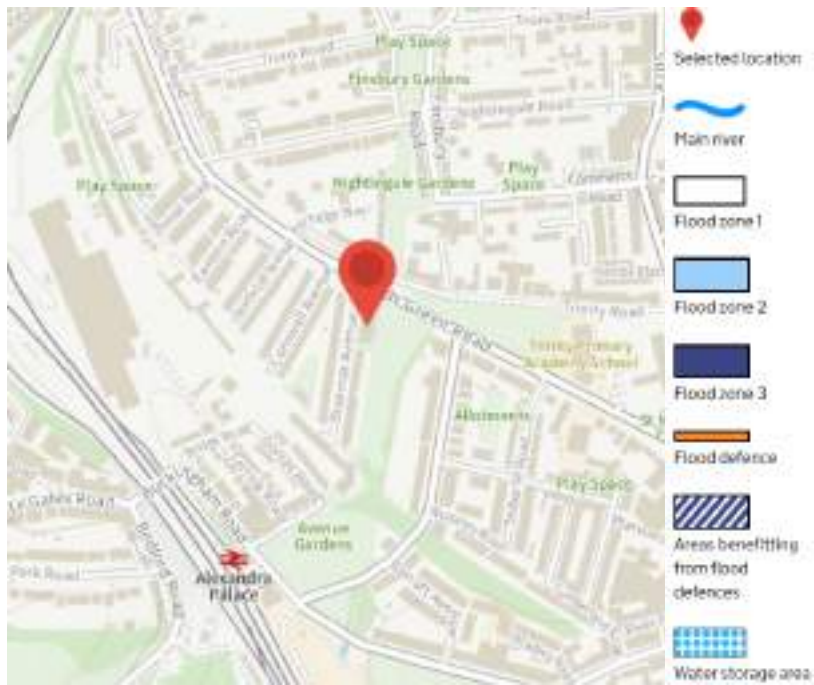


Figure 9: Environmental Agency Flood Risk Map

3.9 Network Rail assets

The LU asset map suggests that the site is sufficiently far from any rail infrastructure, with the closest line being a Network Rail mainline, approximately 350m away from the rear boundary to the south-west. Therefore, no consultation with Network Rail is considered to be necessary.



Figure 10: Rail assets map

Four Observations

4.1

Generally, the front façade of the building appears to be in good condition for its age and type. There are no obvious visible signs of significant movement or settlement to either this property or the directly adjoining buildings. A detailed visual site inspection of the property will be carried out in the early stages of the project to understand fully the current conditions of the existing buildings



Figure 11: Front Elevation

Five

Proposed alterations

5.1

The proposed development is a new residential block of flats to replace parts of the church and existing outbuildings.

The proposed works consist of the demolition of the existing prayer room in Braemar Avenue Baptist Church and the 2-storey tin clad tabernacle church building and construction of a 3-storey residential building with single-storey basement to house block of flats, church lounge and hall. The proposed works also includes revised landscaping.

All excavated soil is intended to be kept on site, and landscaping works will be carried to reprofile the site accordingly. Hard landscaping for cycle parking area is also proposed. Landscaping proposals also include planting a number of trees around the development.

Proposed foundations depend on the results of site investigations. The foundations are currently assumed to be a reinforced concrete raft foundation with the basement retaining walls formed using either secant or contiguous piled walls. A number of the proposed superstructure columns are to be supported by the piled walls, so would act as foundations in some locations.

All foundation requirements are to be confirmed and agreed with the geotechnical engineer upon receipt of the site investigation results.

5.2

Basement accommodation has been designed in line with London Borough of Haringey council policies. The basement will be placed under the footprint of the original tabernacle building and will extend slightly under the demolished parts of the existing church.



Figure 13: Proposed longitudinal section showing the extent of basement

5.3

The basement walls will be constructed using secant or continuously piled wall reinforced concrete walls. The walls will be finishes with an RC liner wall internal and will be monolithically cast with the basement slab. The basement slab is currently assumed to be working as a raft foundation. This is to be confirmed by the geotechnical engineer upon receipt of the site investigation results. The raft foundations may require to be piled or the raft may be replaced with discrete piles joined by RC pile caps.

The RC walls will resist lateral loads from any soil, hydrostatic and surcharge pressures. High level horizontal props will be installed to resist the lateral pressures in the temporary state.

To resist any uplift due to heave piles can be placed under the new RC basement slab, which is to be confirmed upon receipt of the geotechnical site investigation results.

The roof to the basement, which will form the ground floor slab to the new development will also be in reinforced concrete. In the permanent state, the RC ground slab will provide propping action to the RC retaining walls.

5.4

It is assumed the new superstructure will be constructed as RC frame with flat slabs. The internal partitions are to be of lightweight and non-load bearing construction. The vertical loads from the superstructure will be transferred by the ground floor slab and capping beams to the piled walls.

Six

Proposed below ground drainage

6.1

The proposed surface water drainage strategy is to be attenuated in blue roofs / a below ground attenuation tank. Green roof overlays will be incorporated on the main residential roof and the roof over the new church access area, to improve the quality of the rainwater discharged from site. The sustainable drainage solutions on site will reduce the discharge rate to 50% of the existing 1 in 1 year brownfield rate. The new drainage system has been designed for the 1 in 100-year storm event plus an allowance for 40% climate change.

The proposed foul drainage strategy requires all foul facilities at lower ground floor level to be pumped, with appropriate 24-hour storage provided. All foul drainage serving the ground floor level and above is to drain by gravity.

Please refer to flood risk assessment and SUDS report No 2220367-EWP-ZZ-XX-RP-C-0001 and 0002 for details of below ground drainage. These reports demonstrate that the proposed development has a low probability of flooding. It is considered that the information provided within these reports satisfy the requirements of the National Planning Policy Framework, London Plan and local policy.

Seven

Basement waterproofing

7.1

The proposed basement will be designed to achieve a Grade 3 level of waterproofing protection as outlined in BS 8102:2009.

7.2

A reinforced concrete walls and basement slab will be cast using water resistant concrete to form the primary barrier with an internally drained cavity system as a secondary barrier against possible water ingress.

As part of the system any water that seeps through will be collected in a sump and be pumped up to high level where it will drain under gravity into the main drainage system.

Eight

Party wall matters

8.1

The proposed development works falls within the scope of the Party Walls Act 1996. Procedures under the Act will be dealt with in full by the Employer's Party Wall Surveyor. The Party Wall Surveyor will prepare and serve necessary Notices under the provisions of the Act and agree on Party Wall Awards in the event of disputes. The Contractor will be required to provide the Party Wall Surveyor with appropriate drawings, method statements and other relevant information covering the works that are notable under the Act. The resolution of matters under the Act and provisions of the Party Wall Awards will protect the interests of all owners.

8.2

The designs for the basement and refurbishment will be developed so as not to preclude or inhibit similar, or indeed any, works on the adjoining properties. This will be verified by the Surveyors as part of the process under the Act.

Nine

Hydrogeological statement summary

9.1

According to the British Geological Survey data, the site's underlying bedrock geology is London Clay. There are no superficial deposits recorded on the site.

There are no publicly available borehole records for the site itself nor its immediate surrounds. The nearest boreholes are along Cumberland Road, Winslow Place and Wood Common Green, and give the following information:

- Weathered London Clay is encountered as shallow as 0.55m below ground level
- Thanet Sand and Upper Chalk is encountered approx. 52m below ground level
- A water level was encountered in borehole TQ39SW651 near Winslow Place, at 7.0m below ground level.

The nearest watercourse to the site is New River, located approximately 0.33km to the south of the site and also 0.69km to the north of the site.

The Haringey SFRA maps show that New River is culverted between these two points and runs along the eastern side of the site, beneath Nightingale Gardens. The Haringey Surface Water Management Plan states that New River is classified as a canal and is owned and managed by Thames Water.

The site lies above a Source Protection Zone designated as Zone I – Inner Protection Zone.

While the London Clay Formation is classified as an 'Unproductive Stratum' it can still be water-bearing. The water pressures within the clay in the depths of current interest are likely to be hydrostatic, which means they increase linearly with depth. These can be modified by tree root activity or the influence of man-made changes such as utility trenches (which can act either as land drains or as sources of water and high groundwater pressures).

Any silt or sand partings, laminations or thicker beds are likely to contain free groundwater, and where these are laterally continuous, they can give rise to moderate water entries into excavations.

In most cases there will be only very limited or no natural flow in these silt/sand horizons.

A site-specific hydrogeological investigation will be carried out and presented for planning submission.

9.2

The impact of subterranean development on groundwater flows is negligible as groundwater flows will find an alternative route if blocked by a subterranean structure.

9.3

A Flood Risk Assessment and SUDS Report will be produced by Elliott Wood to demonstrate that the proposed works should not increase the risk of flooding in the area.

Ten

Monitoring during excavation and construction

10.1

The Contractor shall provide monitoring to all structures and infrastructure adjacent to the basement excavation at the time of excavation and construction.

10.2

Monitoring shall be completed as follows:

- 1) One month prior to any works being started to provide a base reading.
- 2) On a weekly basis during the excavation and until the basement slab and lining wall has been cast.
- 3) On a monthly basis thereafter for a 6-month period following completion of the notifiable works.

10.3

Cumulative movement of survey points must not exceed:

- a. Settlement
Code amber trigger values: +/-4mm
Code red trigger values: +/-8mm
- b. Lateral displacement
Code amber trigger values: +/-4mm
Code red trigger values: +/-8mm

10.4 Movement approaching critical values:

10.4.1 Code amber trigger value:

All interested parties, including the Adjoining Owner’s Surveyor and his Engineer, should be informed and further actions immediately agreed between two of the three Surveyors and implemented by the Building Owner. Notwithstanding the Party Wall requirements, the Contractor is to appoint a suitably qualified Structural Engineer who will be responsible for the reviewing of the movement monitoring results at the start and end of each day and provide immediate advice, remedial works and design as necessary in the event of movement being noted.

The Contractor is to ensure that he has 24 hour / 7 days a week access to emergency support provision including but not limited to additional temporary props, needles, waling beams and concrete supply at the start of the excavation and prior to any likelihood of this trigger value being reached. If this value is reached the Contractor, and his Engineer, provide all interested parties with his plan to implement any emergency remedial and supporting works deemed necessary. The Contractor must be ready to carry out these works without delay if the movement continues and approaches the trigger value below.

10.4.2 Code red trigger value:

All interested parties including Adjoining Owner’s Surveyor and Engineer will be informed immediately. Works will stop and be made safe using methods and equipment agreed at the above stage. The Contractor is to ensure that the movement has stopped as a result of the implemented remedial works designed and installed at this stage. The requirements of the Party Wall Act will also ensure that two of the three Surveyors and their advising Engineers shall then enter into an addendum Award, setting out whether or not the Building Owner’s works can re-commence and when, and if so agree on additional precautions or modifications to the proposals prior to recommencement.

Eleven

Ground movement assessment

11.1

A ground movement assessment will be completed by a specialist to take into account both the long and short-term effects of the proposed basement.

11.2

For a development of this size, we would expect that the analysis would conclude that the proposed basement excavations should not have an unacceptable impact on this property and the adjacent properties – the listed Braemar Avenue Baptist Church building and adjacent residential building. The neighbouring buildings are predicted to have Category 2 damage at worst.

The above damages are within the acceptable damage levels set out in the London Borough of Haringey subterranean development policies.

11.3

In order to mitigate the risk of Category 2 damage to the surrounding properties, the temporary works installed during the works will be designed to support the surcharge from the soil and surrounding buildings. A ground movement monitoring system will also be installed to the adjoining properties with trigger values set to allow the works to be controlled appropriately in the event of ground movement occurring.

With the implementation of these mitigation measures, any damage caused to the property and surrounding properties should be limited to Category 2 at worst.

Twelve

Conclusions

12.1

It is intended that the above measures and sequence of works are adopted for the eventual design and construction of the proposed works. If the works noted above are properly undertaken by suitably qualified contractors, these works should pose no significant threat to the structural stability of the house or the adjoining properties.

12.2

Detailed method statements and calculations for the enabling and temporary works will need to be prepared by the Contractor for comment by all relevant parties including party wall surveyors and their engineers. Elliott Wood will need to ensure that adequate supervision and monitoring are provided throughout the works particularly during the excavation and demolition stages.

12.3

A Burland Category report and Damage Risk Assessment will be prepared by site investigation company which is included in the site investigation.

12.4

To this end, Elliott Wood will have an on-going role during the works on site to monitor that the works are being carried out generally in accordance with our design and specification. This role will typically involve weekly site visits at the beginning of the project and fortnightly thereafter. A written site report is provided to the design team, Contractor and Party Wall Surveyor.

Thirteen

Subterranean construction method statement

13.1 Construction generally

It is assumed that the above measures and assumed sequence of works are taken into account in the eventual design and construction of the proposed works.

Detailed method statements and calculations for the enabling and temporary works will need to be prepared by the Contractor for comment by all relevant parties including Party Wall Surveyors and their Engineers. Elliott Wood will need to ensure that adequate supervision and monitoring is provided throughout the works particularly during the excavation and demolition stages.

To this end, Elliott Wood will have an on-going role during the works on site to monitor that the works are being carried out generally in accordance with our design and specification. This role will typically involve weekly site visits at the beginning of the project and fortnightly thereafter. A written site report is provided to the design team, Contractor and Party Wall Surveyor.

Access onto the site will be from Campden Hill Square and must be coordinated in a sensible manner to minimise disruption to the adjoining residents and provide a safe working environment.

Stage 1: Site set-up

- Erect a fully enclosed painted plywood site hoarding along the front boundary wall, this should not impede on the neighbouring properties.
- The services within the site should be identified and isolated as necessary. All below ground obstructions should also be removed to allow the works to progress.
- The principles for the removal of spoil shall be agreed. Given the scope of the works, it is likely that conveyors will be used to move the spoil from within the building to a holding skip located in the front garden/driveway. Grab lorries will be used to remove the material from the skip. Refer to the CTMP for detailed information on the site set-up and waste removal.
- Tree protection methods to be agreed and installed to all retained trees.
- Monitoring points should be installed to all neighbouring structures and infrastructure and a base reading should be taken prior to any construction works starting on the site.

Stage 2: Internal soft strip & demolition

- The complete soft strip of internal finishes within the building.
- Carefully demolish the existing buildings down to ground floor level in a staged sequence (TBC by the Contractor).

Stage 3: Install piles

- Install secant or contiguously piled retaining walls along the perimeter of the basement excavation as per the architectural and structural drawings.
- The type of piled wall to be installed will be confirmed upon receipt of the geotechnical site investigation report and will be agreed with the geotechnical engineer in charge.

Stage 4: Bulk excavation

- Reduce level dig down to approx. 1m below ground level.
- Install steel waling beams around the perimeter of the excavation.
- Install horizontal props spanning across the width of the basement between the waling beams.
- Continue excavating down to formation level in stages, the level at which propping is required is to be determined by the temporary works engineer. The propping levels will take into account the permanent works design such that the RC slabs can be cast above/below the props whilst the props remain in place.
- Install RC liner walls and base slab over blinding once formation level is reached.

Stage 5: Cast RC base slab

- At formation level cast blinding layer at central section and install the below ground drainage as required.
- Install compressible void former under areas of suspended slab if required – TBC by geotechnical engineer.
- Install and tie reinforcement for RC liner wall base slabs. Central section of basement slab will be connected to the basement wall bases with steel dowels.
- Cast the RC basement slab.
- Once the base slab has cured it will provide a permanent low-level prop to the basement retaining walls/piles and hence, the lowest level of horizontal propping and waling beams can be removed if installed – TBC by temporary works engineer.

Stage 6: Cast RC top slab (at ground floor level)

- The remainder of the internal basement walls and columns can be constructed up to ground floor level. The temporary props should be retained and re-propped off the new walls.
- Once the walls and columns have cured cast the ground floor slab. Once the ground floor slab has cured it will provide a permanent high-level prop to the basement retaining walls and hence, the remaining horizontal propping and waling beams can be removed.

Stage 7: Construct superstructure

- Once the ground floor slab has cured, the superstructure works can commence.

Fourteen

Dust, noise and vibration

14.1

The design team and the contractor is to ensure that any construction impacts such as noise, vibration and dust are kept to acceptable levels for the duration of the works.

Those most likely to be affected by noise dust and vibration will be the immediate neighbours. There may be some impact on other residents on the street due to the related construction traffic, but this should be minimal.

Below we have described the mitigation measures that are proposed to keep noise, dust and vibration to acceptable levels.

14.2 Mitigation measures for demolition of existing building

The breaking out of existing structures shall be carried out by diamond saw cutting and hydraulic bursting where possible to minimise noise and vibration to the adjacent properties. All demolition and excavation work will be undertaken in a carefully controlled sequence, taking into account the requirement to minimise vibration and noise. The contractor will need to utilise non-percussive breaking techniques where practicable.

Dust suppression equipment should be used during the demolition process to ensure that any airborne dust is kept to a minimum. Where practical, concrete should also be wetted down prior to and during breakout to further inhibit airborne dust.

14.3 Mitigation measures for bulk excavation

Due to the size of the basement, it is likely that some mechanical plant will be required to complete the bulk excavation. The contractor should ensure that any mechanical plant is switched off when not in use and is subject to regular maintenance checks and servicing. An electrically powered conveyor will be used as detailed above.

14.4 Mitigation measures for the construction of the concrete basement shell

The contractor should ensure that any concrete pours are completed within the permitted hours for noise generating works. The contractor should allow for a contingency period to ensure that concrete pours can be completed within these hours regardless of unforeseen circumstances such as batching plant delays and traffic congestion.

The fabrication and cutting of steelwork for the reinforced concrete elements shall take place off site. If any rebar needs to be trimmed on site this should be completed using hydraulic or pneumatic tools instead of angle grinders.

14.5 Mitigation measures for piling

The piles will be formed using a continuous flight auger rig – this is a non-percussive technique and therefore produces significantly less noise and vibration than the alternative driven piles. Some of the temporary piles will require breaking down to slab level once the basement works are complete. The contractor should ensure that they use non-percussive pile reduction techniques which are much quieter than traditional breakers.

14.6 Dust control

In order to reduce the amount of dust generated from the site, the contractor should ensure that any cutting, grinding and sawing should be completed off site where practicable. If cutting, grinding and sawing is being carried out on site, surfaces are to be wetted down prior to and during these types of work whenever possible. Any equipment used on site should be fitted with dust suppression or a dust collection facility.

The contractor will be responsible for ensuring good practice with regards to dust and should adopt regular sweeping, cleaning and washing down of the hoardings and scaffolding to ensure that the site is kept within good order. The Contractor selected will be a member of the Considerate Contractors Scheme. Contact details of the contractor who will be responsible for containing dust and emissions within the site will be displayed on the site boundary so that the local residents can contact the contractor to raise any concerns regarding noise and dust.

The building will be enclosed within suitable scaffold sheeting and any stockpiles of sand or dust-generating materials will be covered. Cement, fine aggregates, sand and other fine powders should be sealed after use.



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Appendices

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A Proposed structural layouts

KEY

C1

- 250x350mm RC columns

W

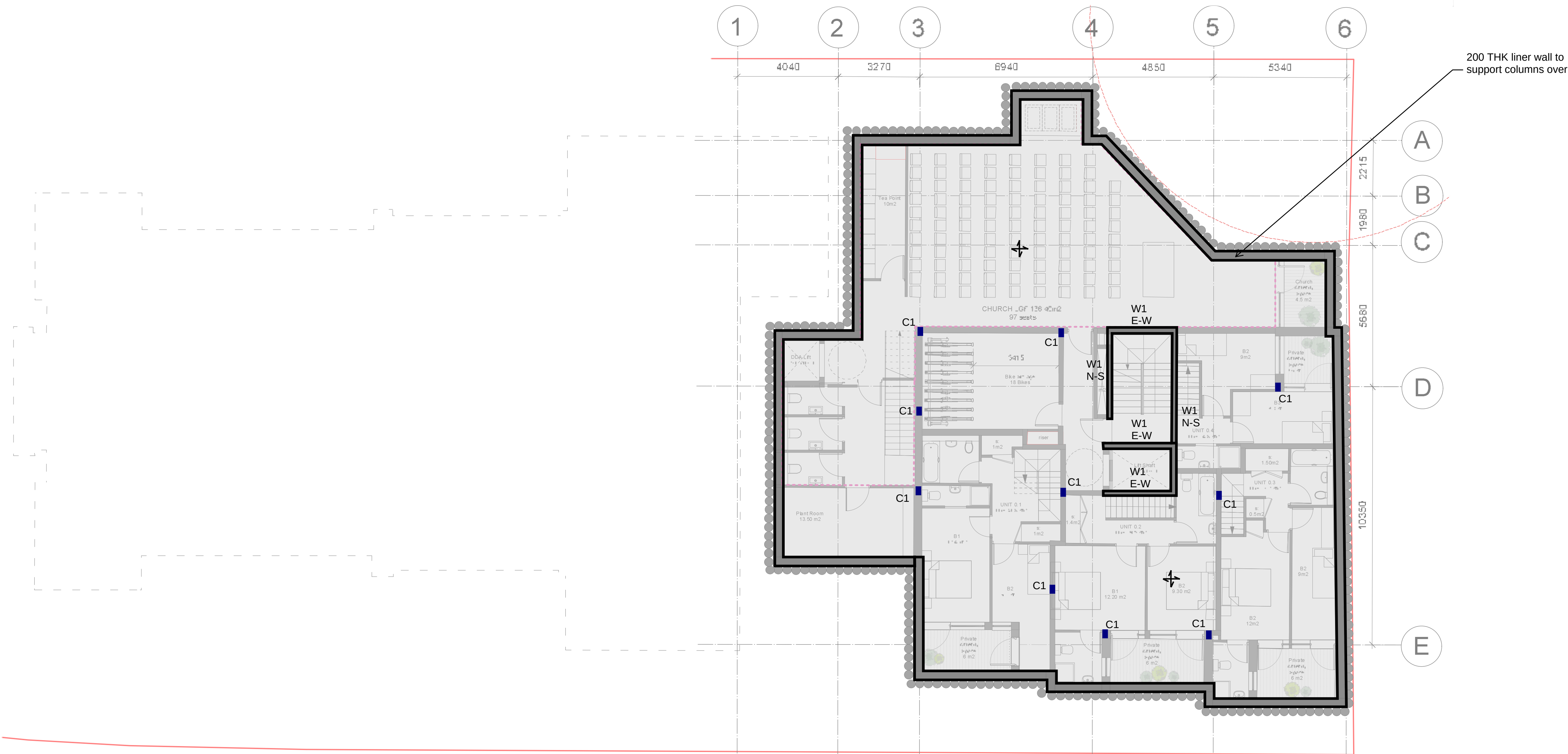
1

- 200mm thick RC walls

+

1

- 400mm dp RC raft slab



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme

P1	18/11/22	TU	JCa	Preliminary loads
rev	date	by	chk	description

scale (s) NTS date November 2022 drawn TU

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Project
Braemar Avenue, Wood Green

Drawing status	Status Revision
Preliminary	S2 P1

Project no.	Originator	Zone	Level	Type	Role	drg no.
2220367-EWP	ZZ	B1	SK	S	-S-0001	

KEY

c1

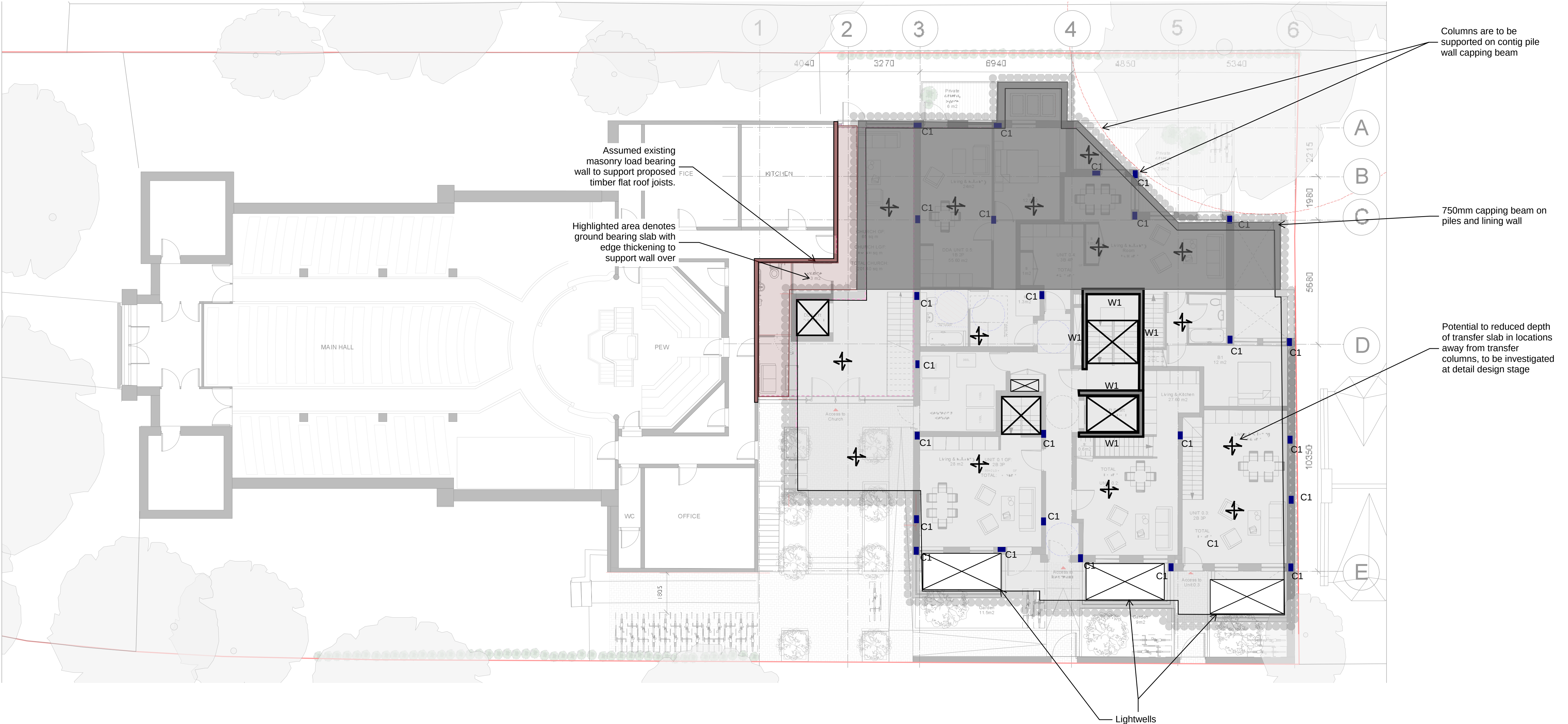
- 250x350mm RC columns

w1

- 200mm thick RC walls

- 450mm dp transfer RC slab

- 225mm dp RC slab



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.
 - Pile Diameters TBC
 - Foundation solution in abeyance, pending ground investigation results

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title
Proposed GF layout - Option 1

scale (s)	date	drawn
NTS	November 2022	TU

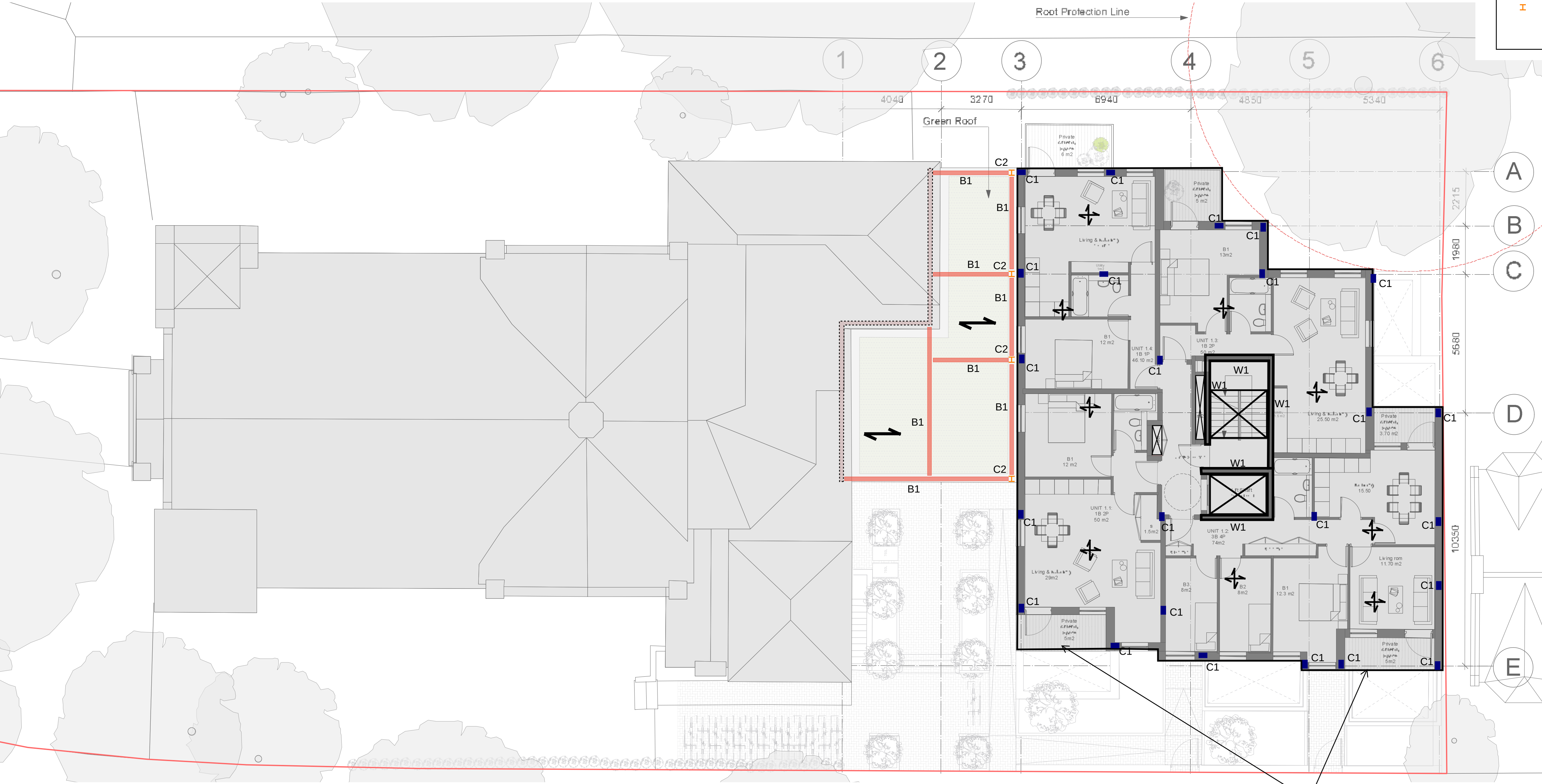
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Drawing status	Status Revision
Preliminary	S2 P1
Project no.	Originator Zone Level Type Role dng no.
2220367-EWP-ZZ-00-SK	-S-0002



KEY

C1

- 250x350mm RC columns

W1

- 200mm thick RC walls

- 225mm dp RC slab

B1

- 254UB steel roof beam

- 50x250 deep C24 timber joists @ 200mm c/c supporting 2 layers of 12mm ply glued and screwed to joists

- 203UC steel posts to support 1 storey building

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Do not scale from this drawing.

- Notes**
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P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title

Proposed first floor layout - Option 1

scale (s)	date	drawn
NTS	November 2022	TU

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Drawing status	Status	Revision
Preliminary	S2	P1

Project no.	Originator	Zone	Level	Type	Role	Role	drw no.
2220367-EWP-ZZ-01-SK	S						-S-0003

KEY

c1

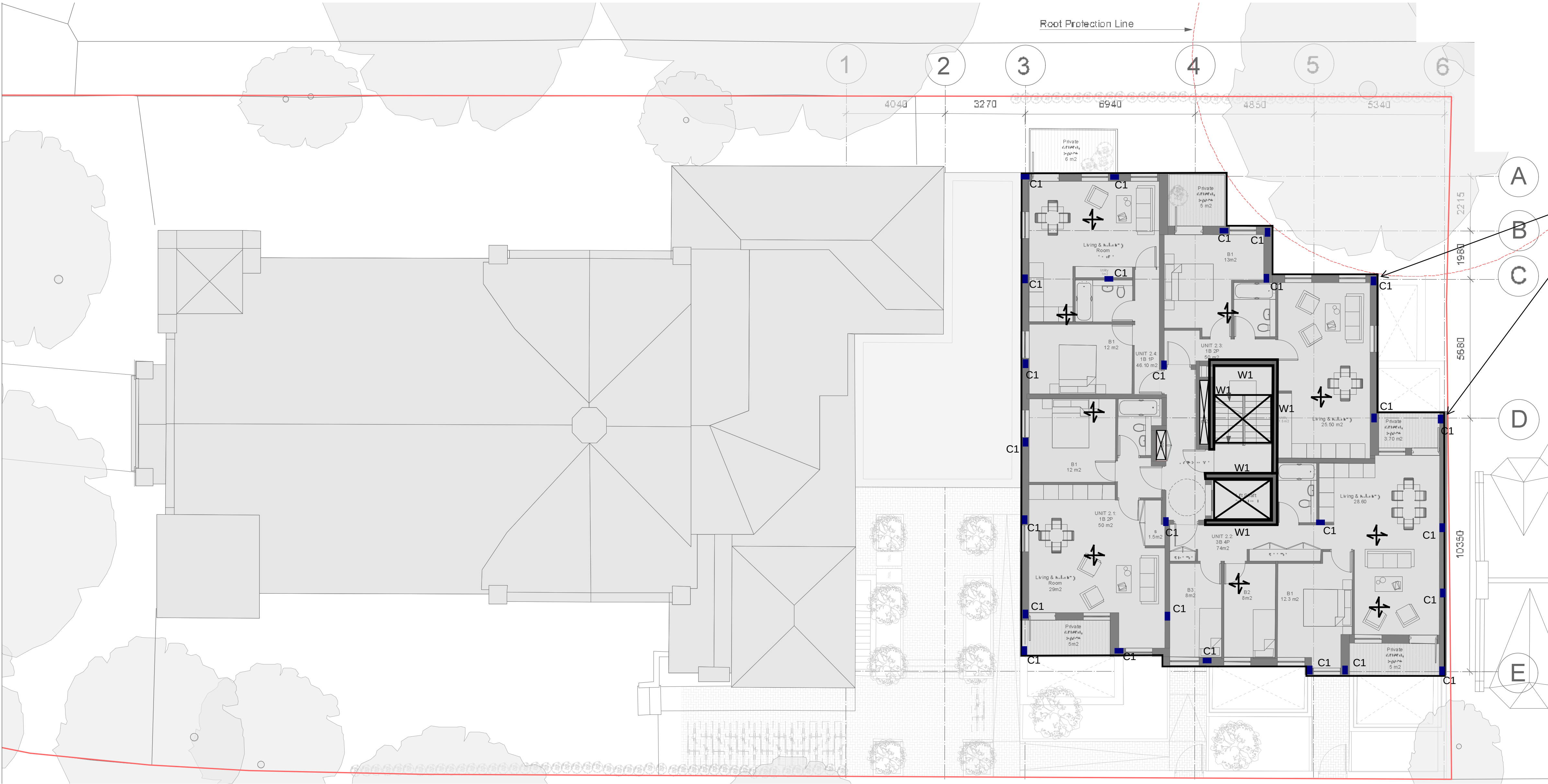
- 250x350mm RC columns

w1

- 200mm thick RC walls

+

- 225mm dp RC slab



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title

Proposed second floor layout - Option 1

scale (s)	date	drawn
NTS	November 2022	TU

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Drawing status	Status	Revision
Preliminary	S2	P1

Project no.	Originator Zone	Level	Type	Role	drg no.
2220367-EWP-ZZ-02-SK	-	-	-	-	S-0004

KEY

c1

- 250x350mm RC columns

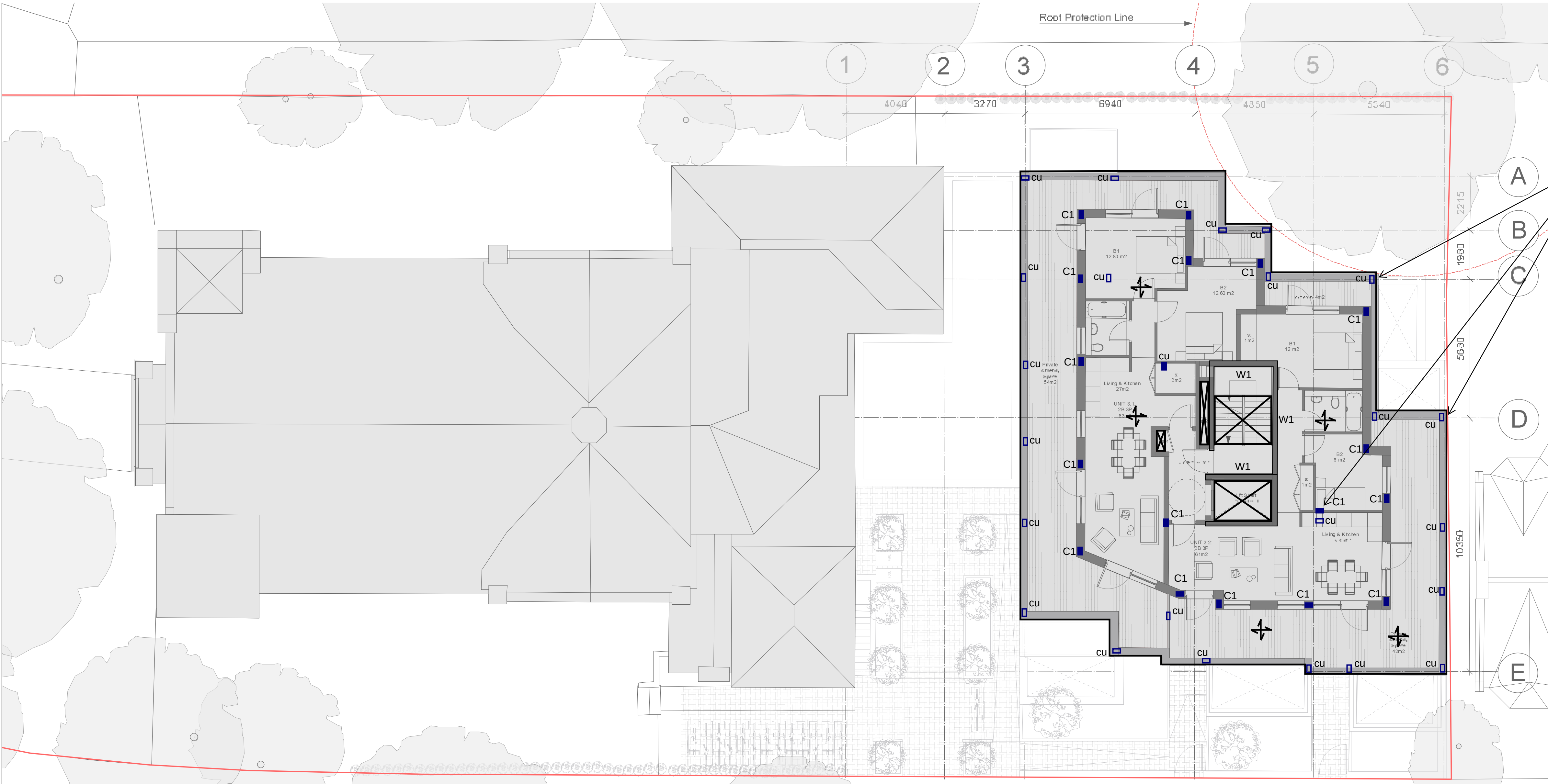
cu

- Column Under

w1

- 200mm thick RC walls

- 300mm dp RC transfer slab



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Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title

Proposed third floor layout - Option 1

scale (s)	date	drawn
NTS	November 2022	TU

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Drawing status	Status Revision
Preliminary	S2 P1

Project no.	Originator	Zone	Level	Type	Role	drg no.
2220367-EWP-ZZ-03-SK	-	-	-	-	-	-S-0005

KEY

c1

- 250x350mm RC columns

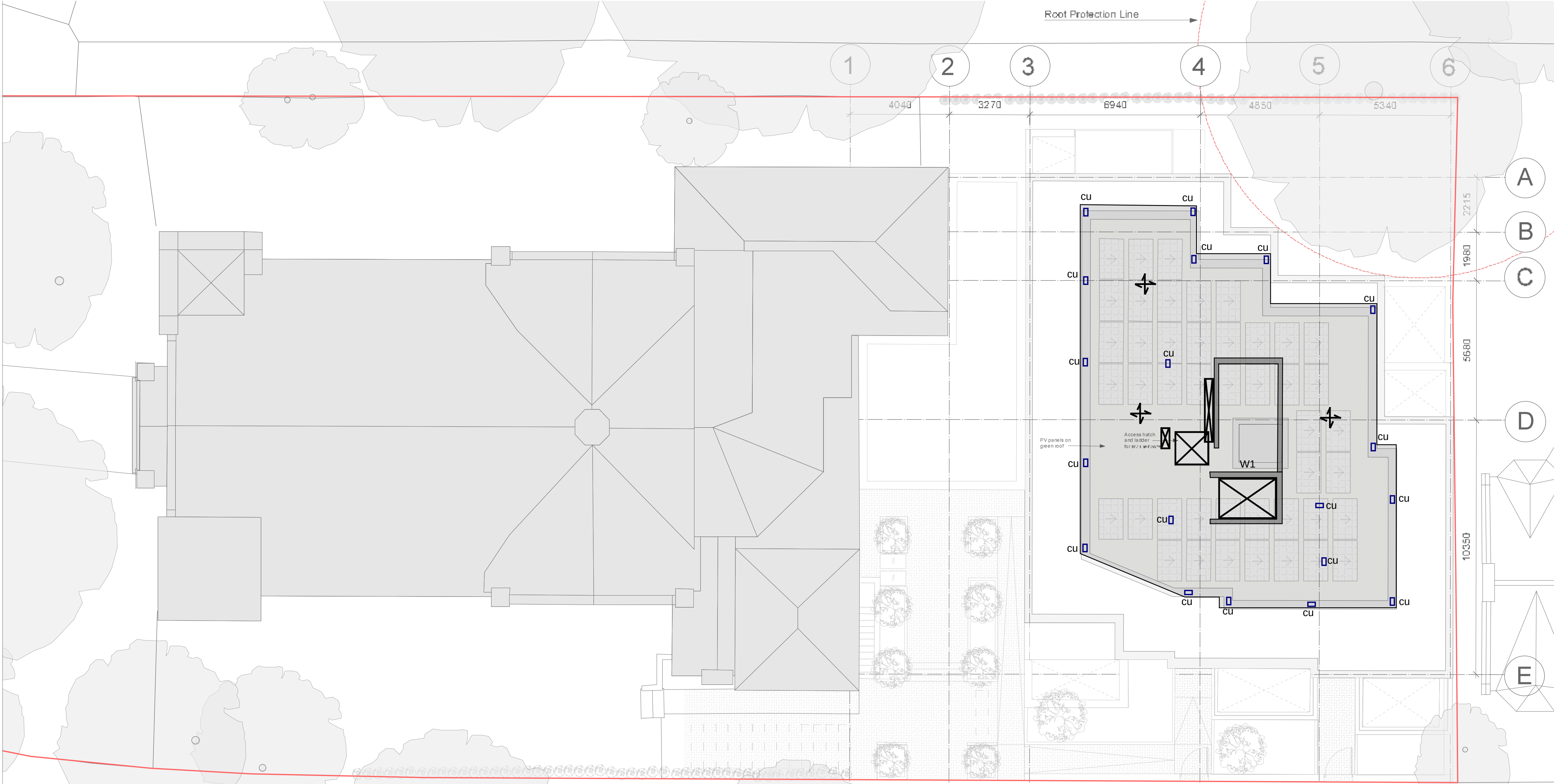
cu

- Column Under

w1

- 200mm thick RC walls

- 150mm dp RC roof slab



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- Notes**
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 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title

Proposed roof layout - Option 1

scale (s)	date	drawn
NTS	November 2022	TU

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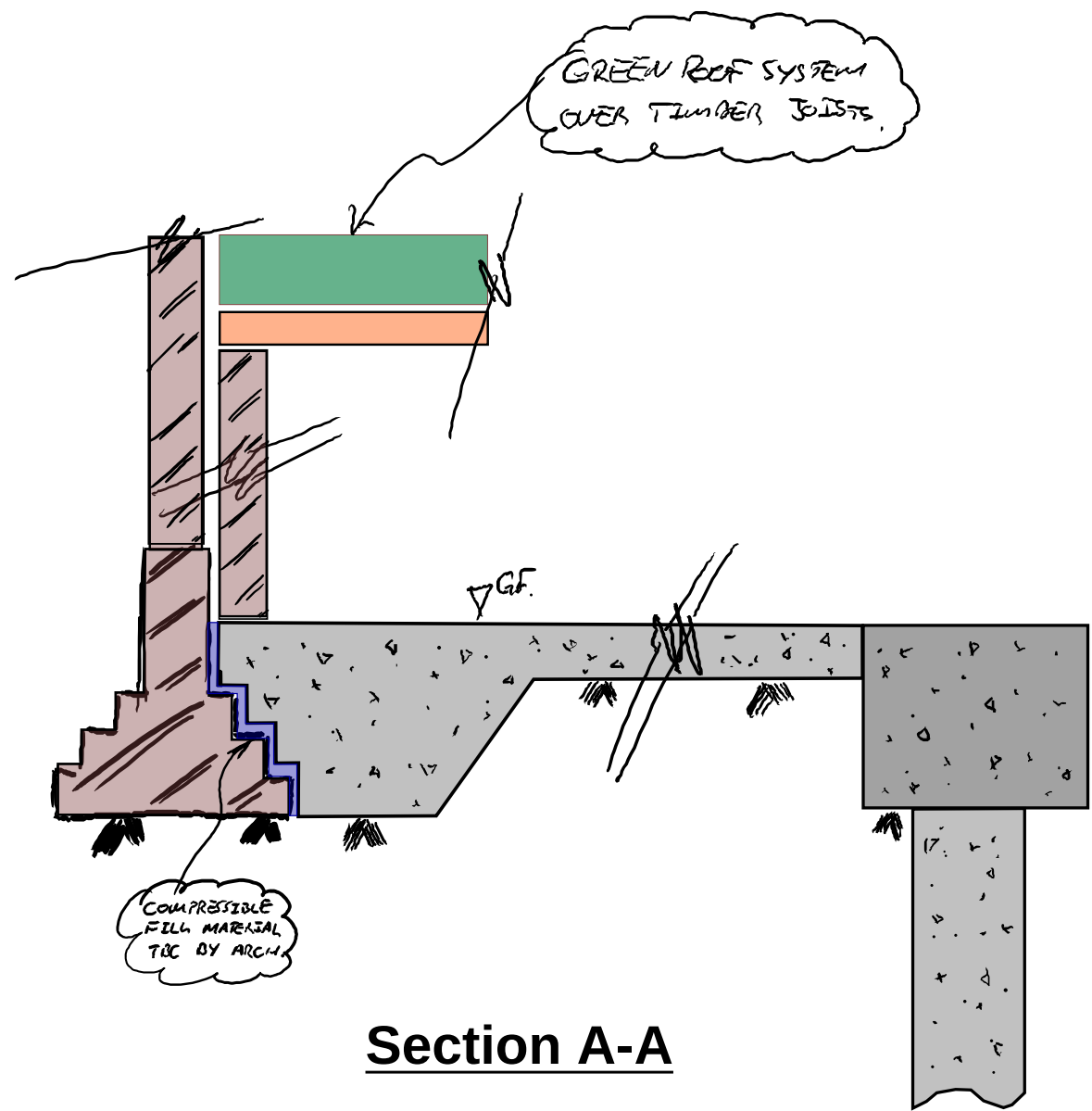
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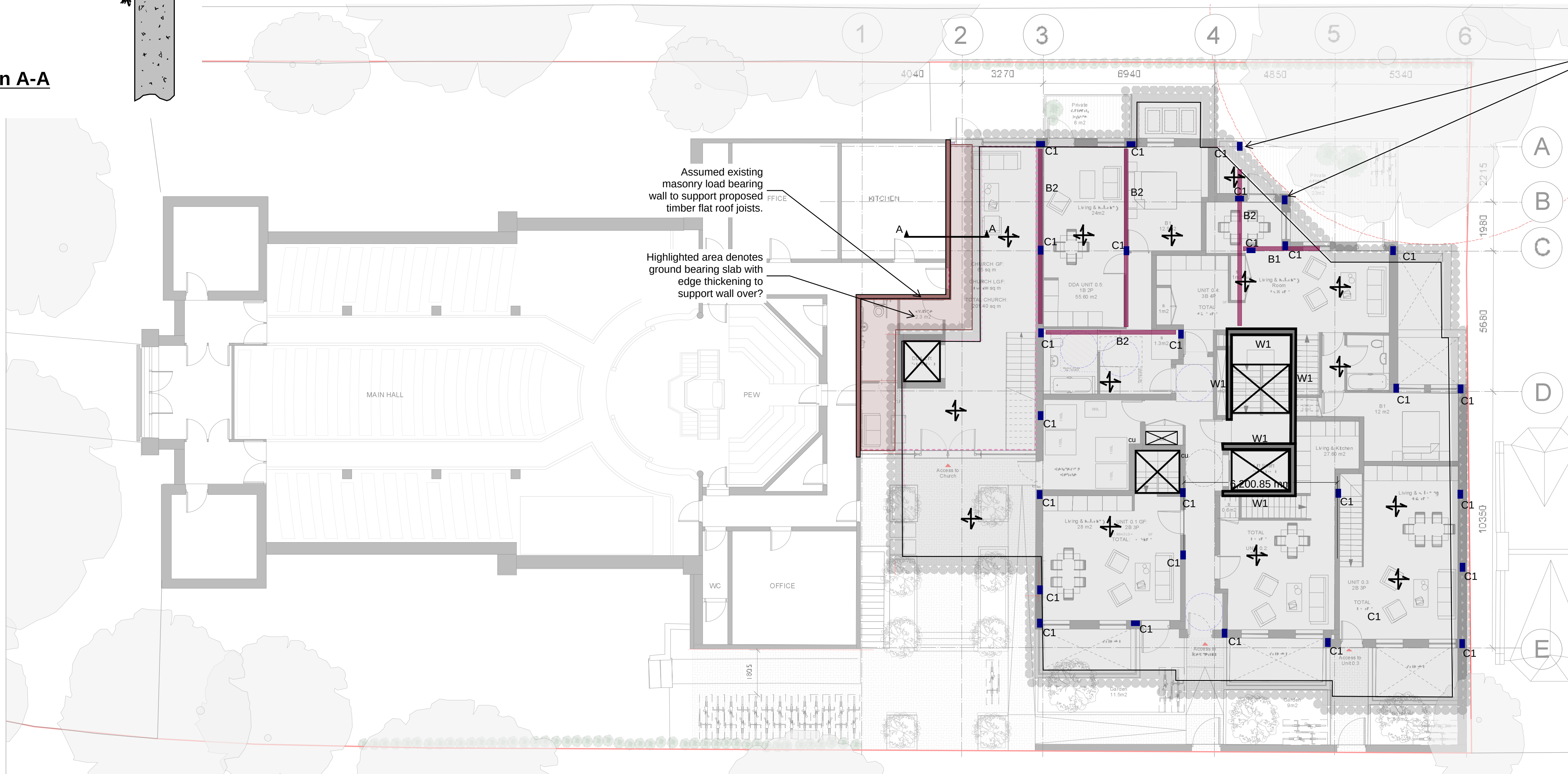
Drawing status	Status	Revision
Preliminary	S2	P1

Project no.	Originator	Zone	Level	Type	Role	drg no.
2220367	EW	ZZ	RF	SK	S	0006



Section A-A

KEY	
	- 250x350mm RC columns
	- 200mm thick RC walls
	- 225mm dp RC slab
	- 250x500mm dp RC beam
	- 300x650mm dp RC beam



Columns are to be supported on contig pile wall capping beam

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Notes
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P1 23/11/22 TU JCa Preliminary
rev date by chk description

Drawing title
Proposed GF layout - Option 2

scale (s) date drawn
NTS November 2022 TU

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Drawing status	Status	Revision
Preliminary	S2	P1
Project no.	Originator	Zone
2220367-EWP-ZZ-00-SK		
Level	Type	Role
drp no.		
S-0102		

KEY

c1

- 250x350mm RC columns

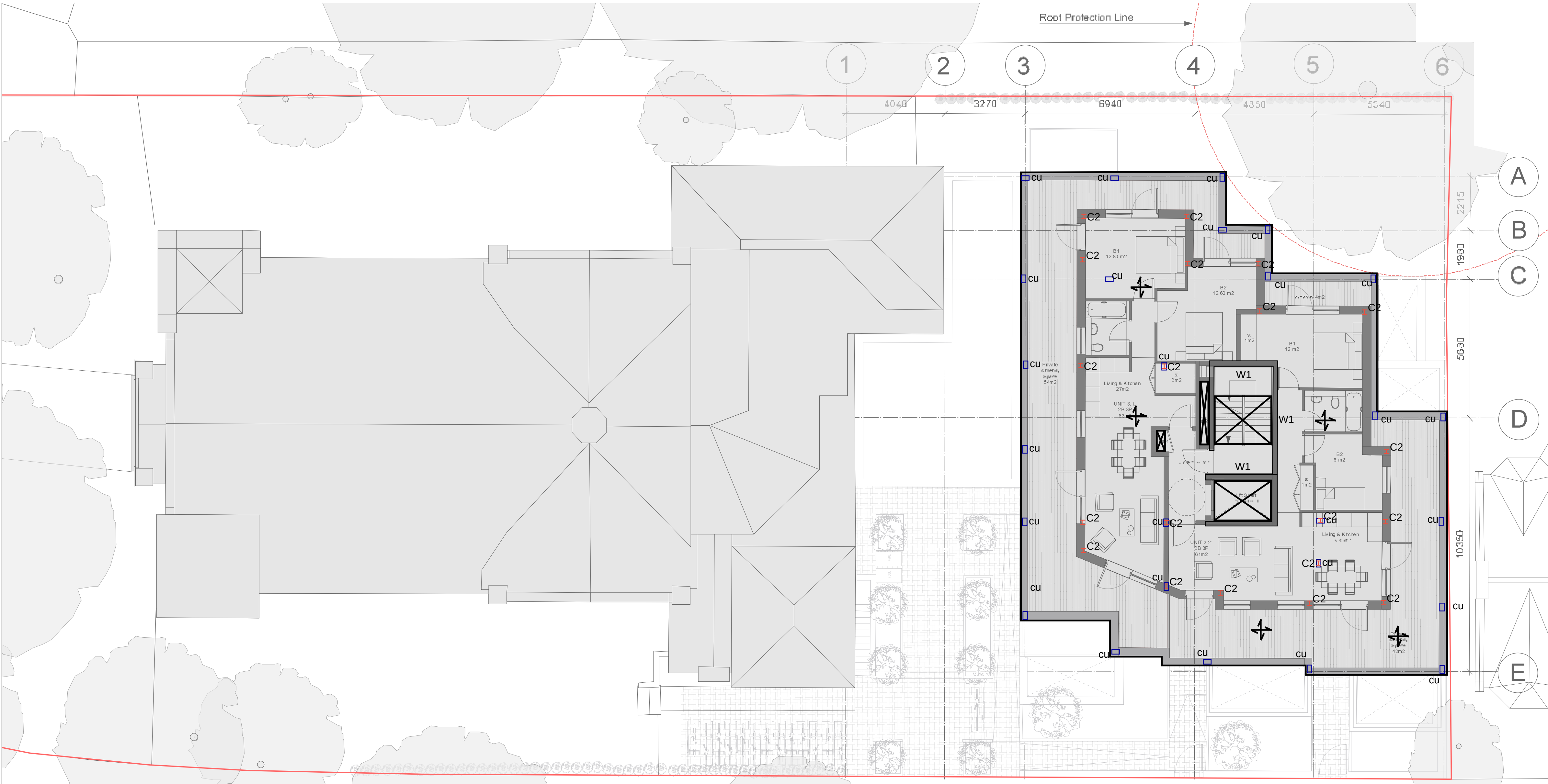
w1

- 200mm thick RC walls

- 275mm dp RC transfer slab

c2

- 152UC steel column



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title

Proposed third floor layout - Option 2

scale (s)	date	drawn
NTS	November 2022	TU

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Project

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Drawing status

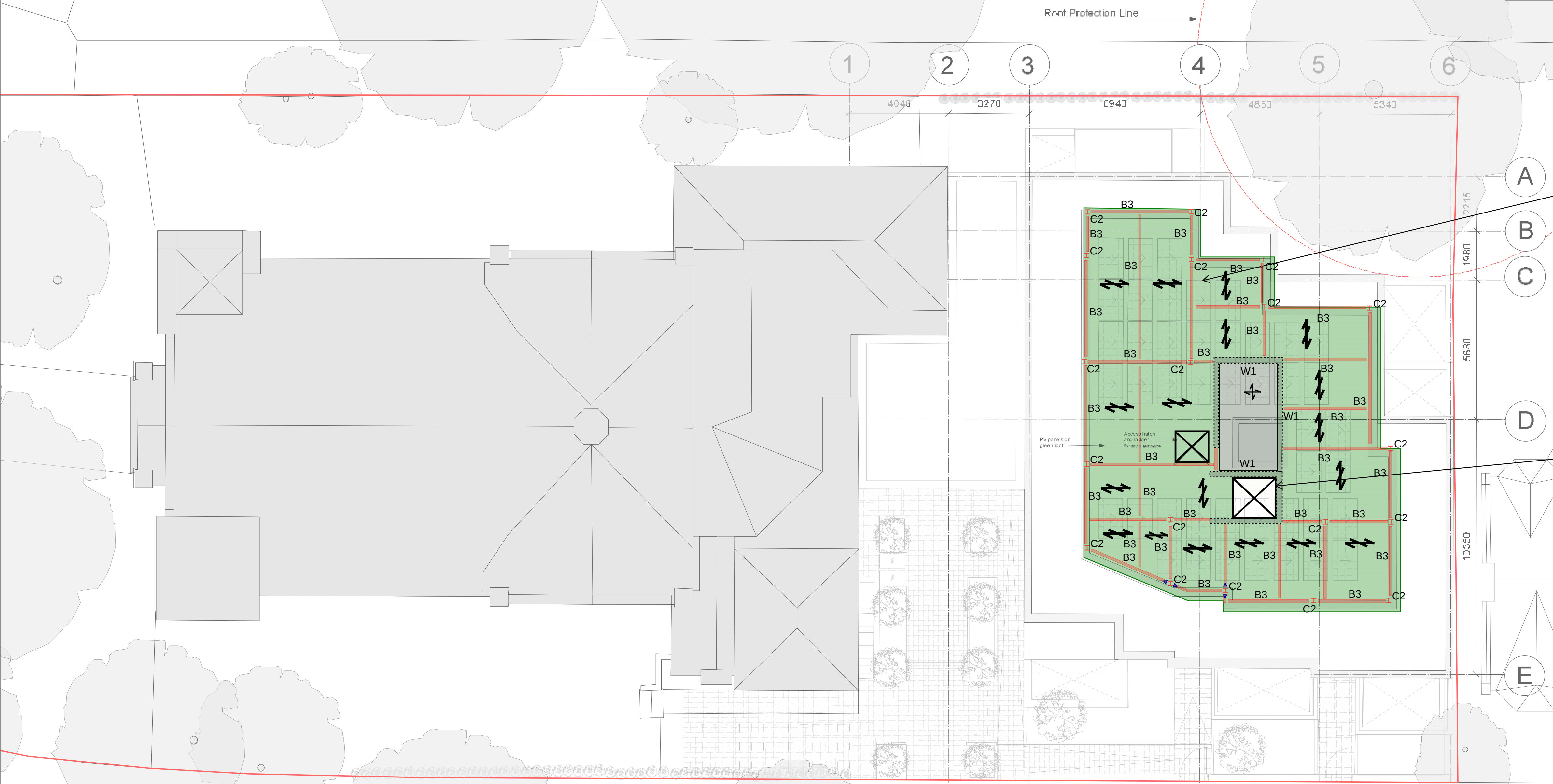
Preliminary

Status Revision

S2 P1

Project no. Originator Zone Level Type Role drg no.

2220367-EWP-ZZ-03-SK-S-0105



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Do not scale from this drawing.

- Notes**
- Indicative sketches for preliminary advice only.
 - Any changes to the architectural scheme will necessitate rechecking the structural scheme.

P1	23/11/22	TU	JCa	Preliminary
rev	date	by	chk	description

Drawing title
Proposed roof layout - Option 2

scale (s)	date	drawn
NTS	November 2022	TU

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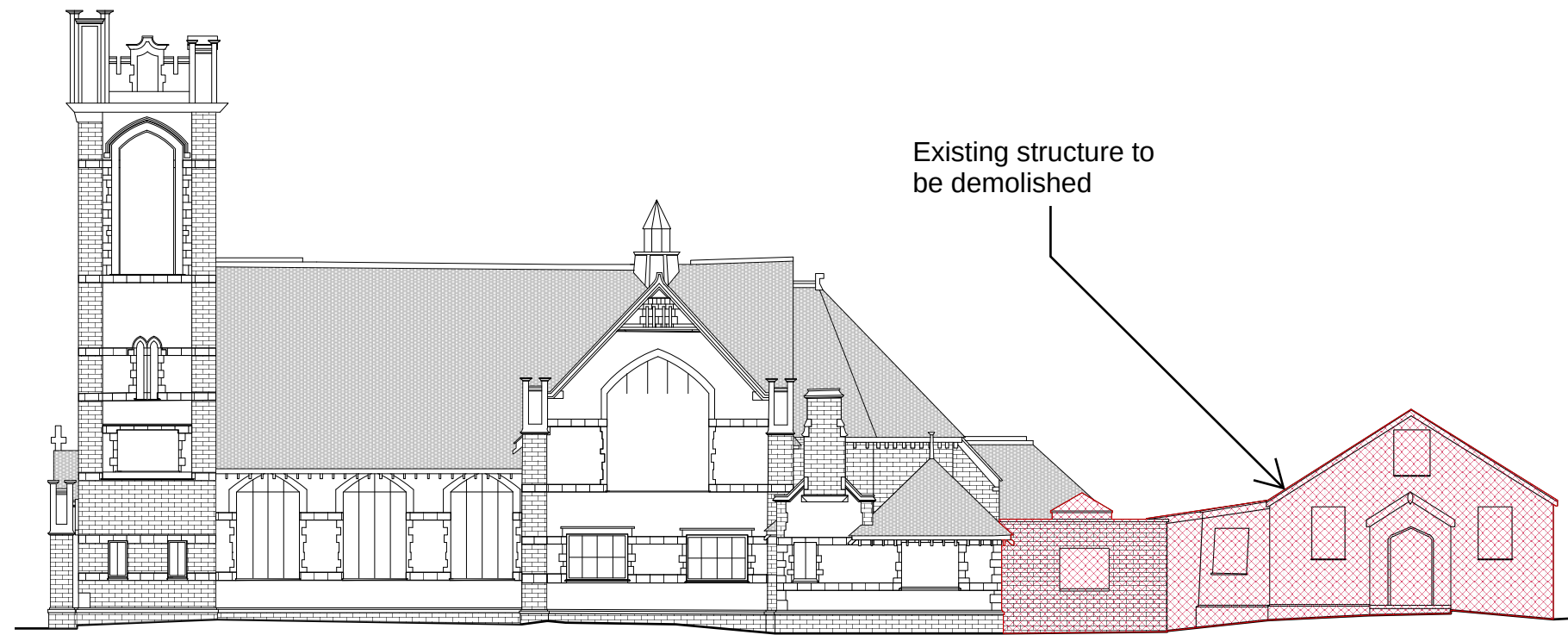
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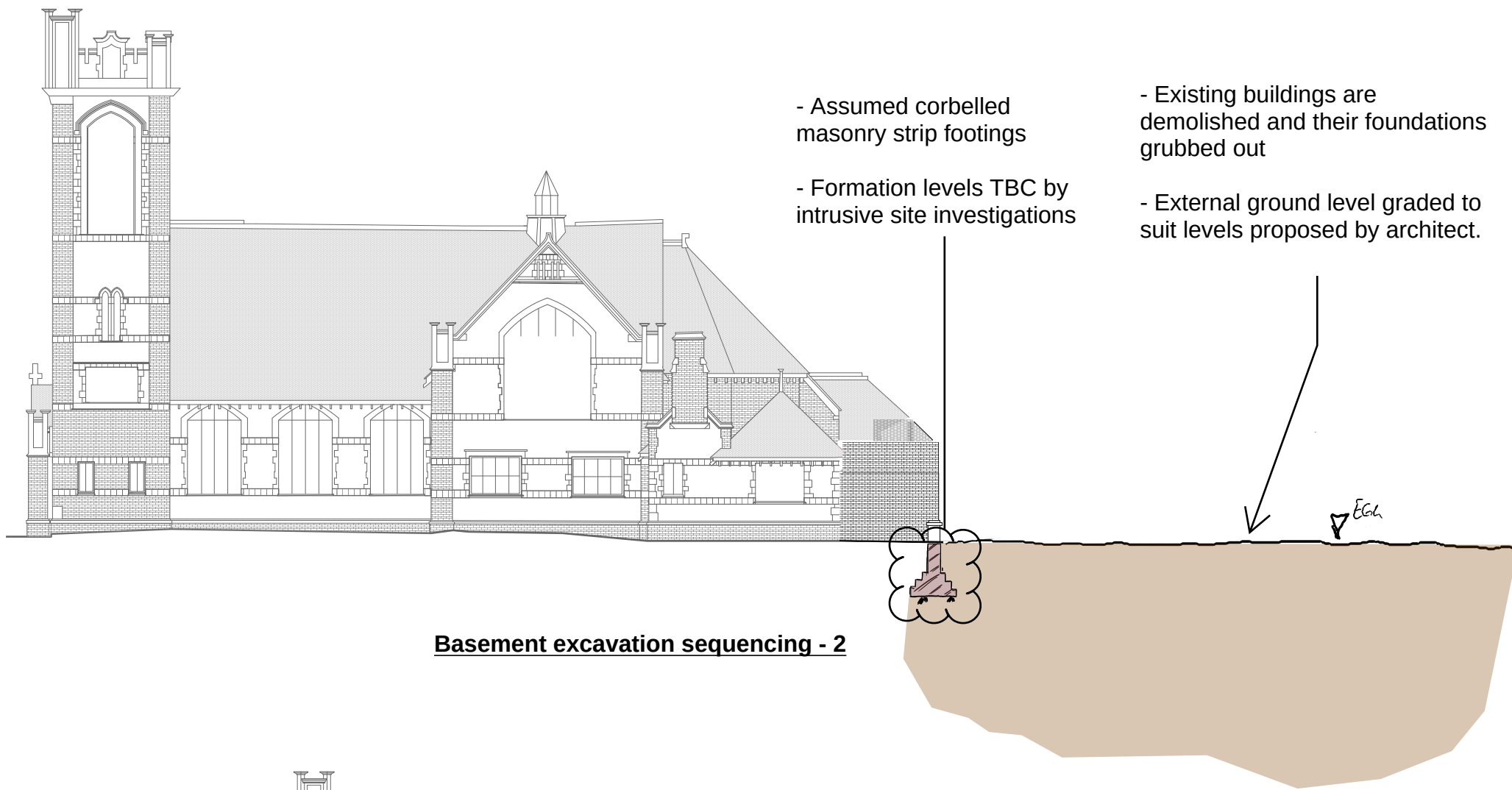
Drawing status	Status	Revision
Preliminary	S2	P1

Project no.	Originator	Zone	Level	Type	Role	drg no.
2220367-EWP-ZZ-RF-SK						S-0106

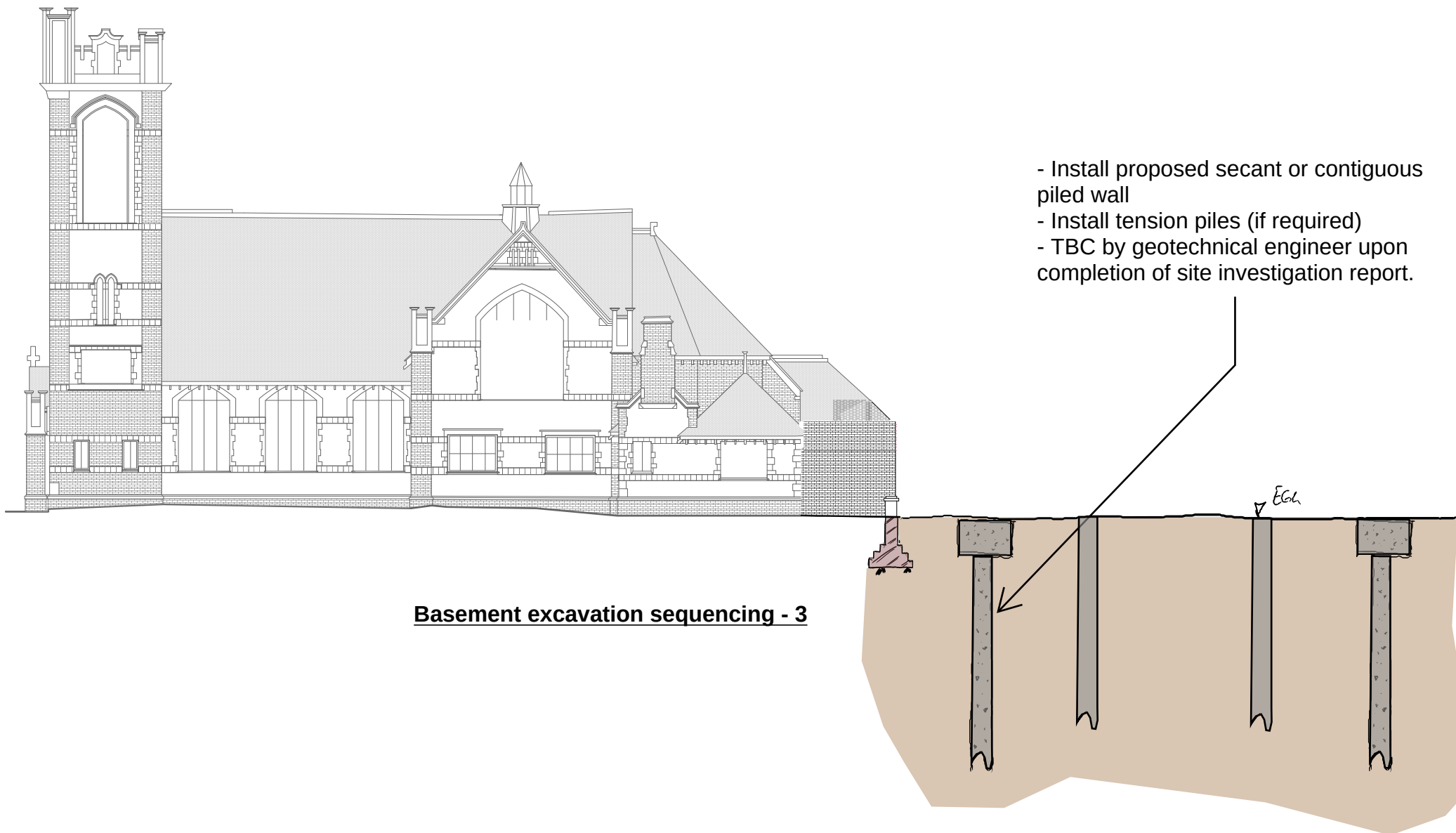
B Proposed Basement Construction Sequence



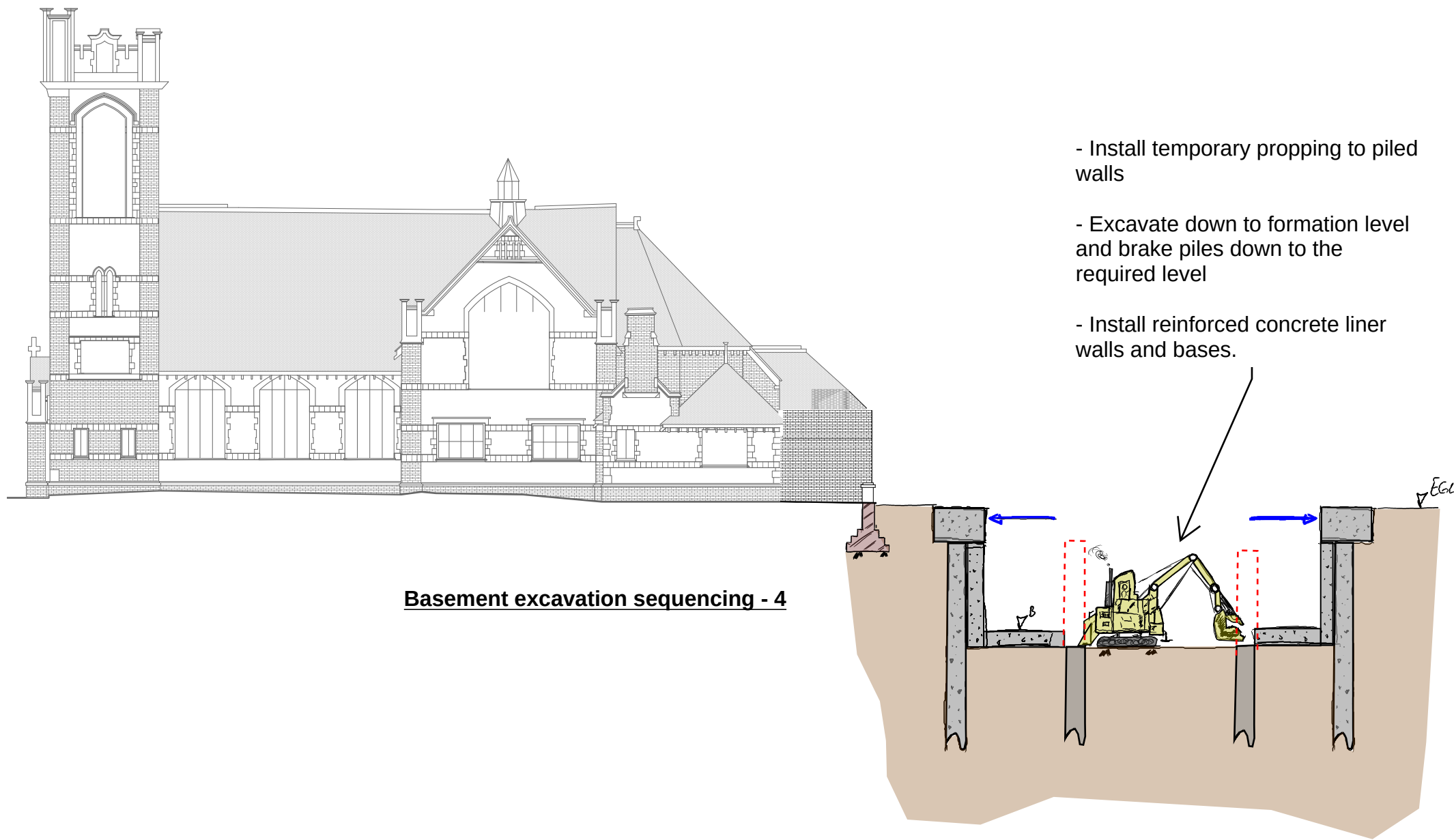
Basement excavation sequencing - 1



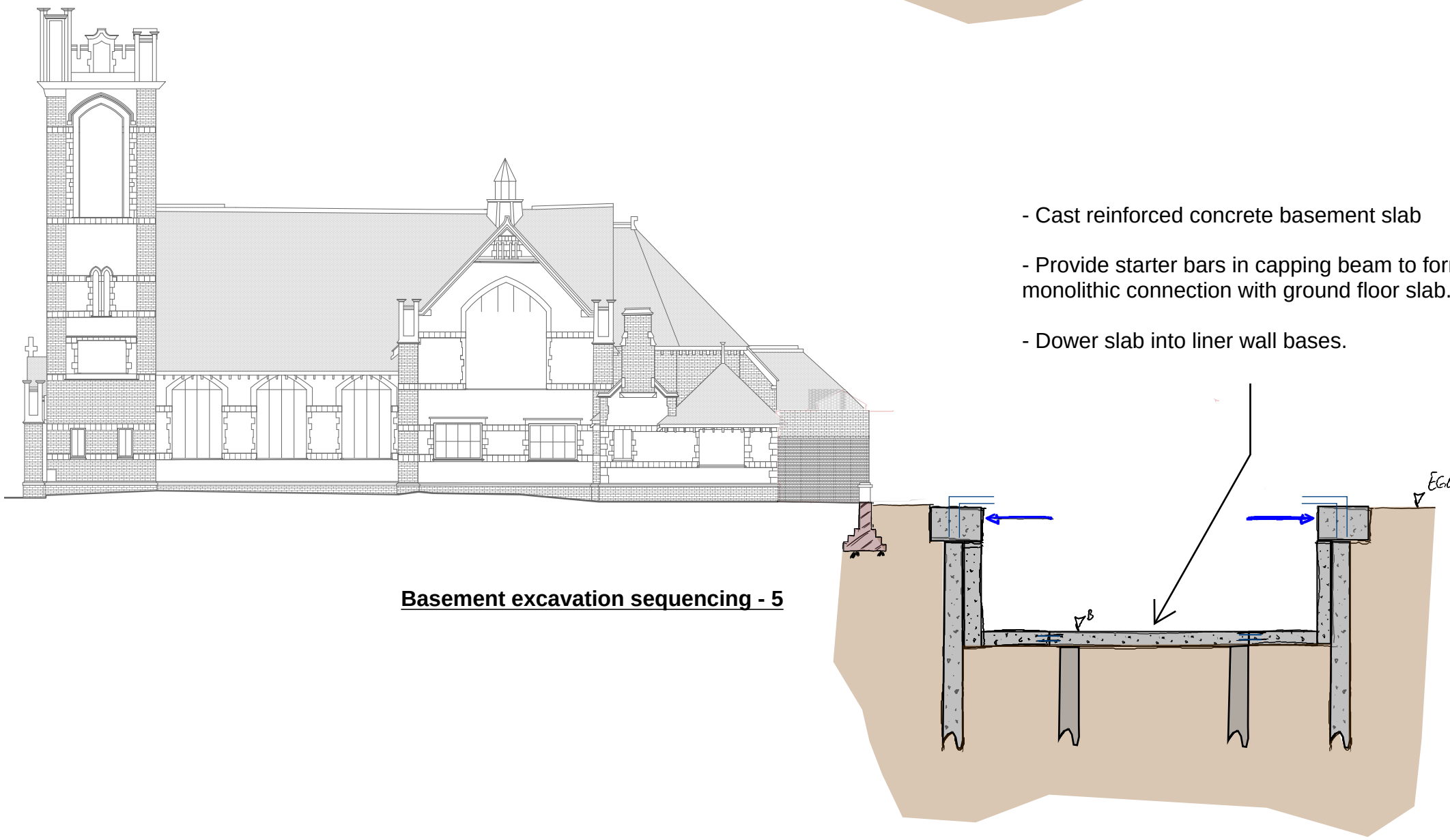
Basement excavation sequencing - 2



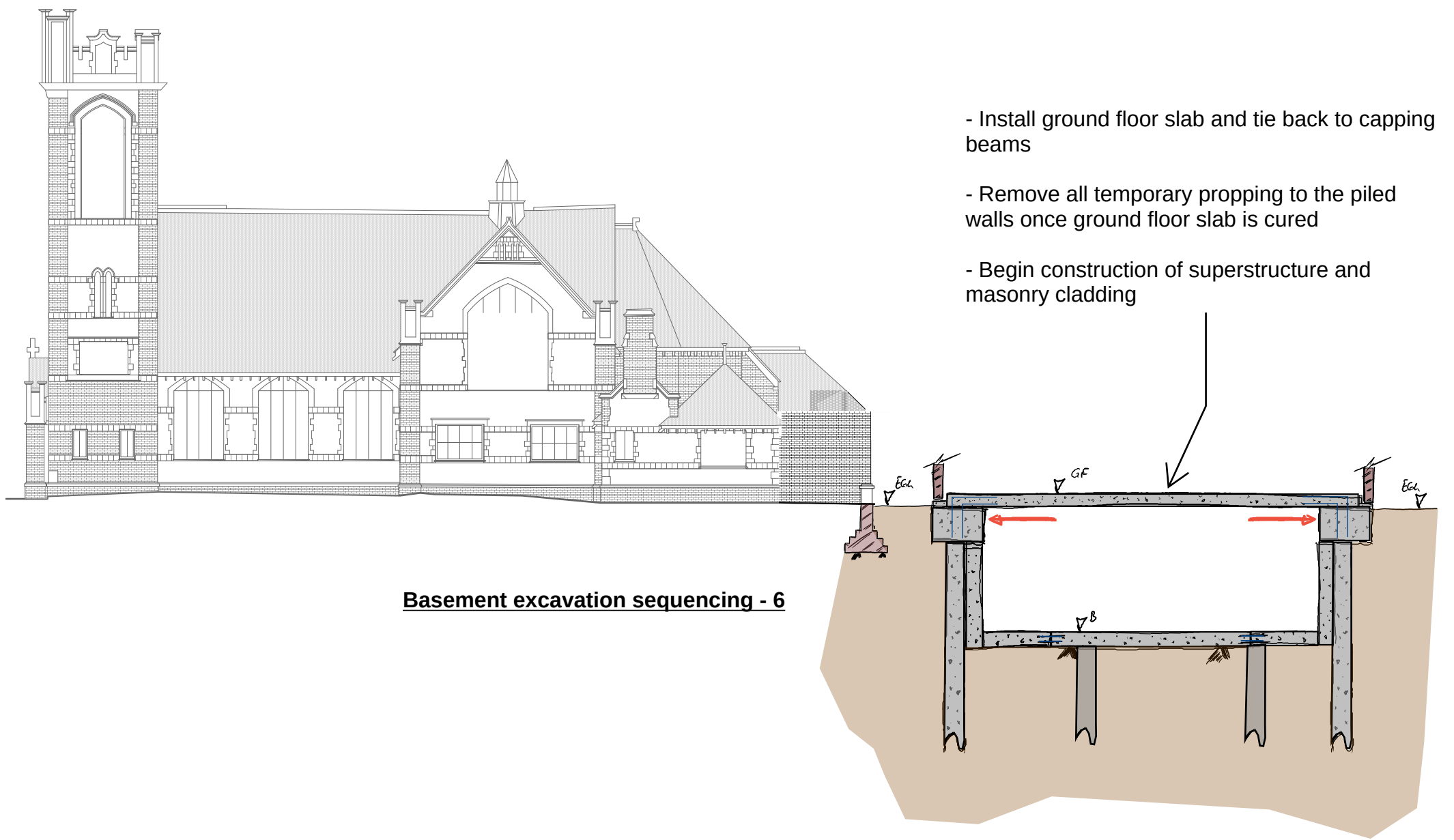
Basement excavation sequencing - 3



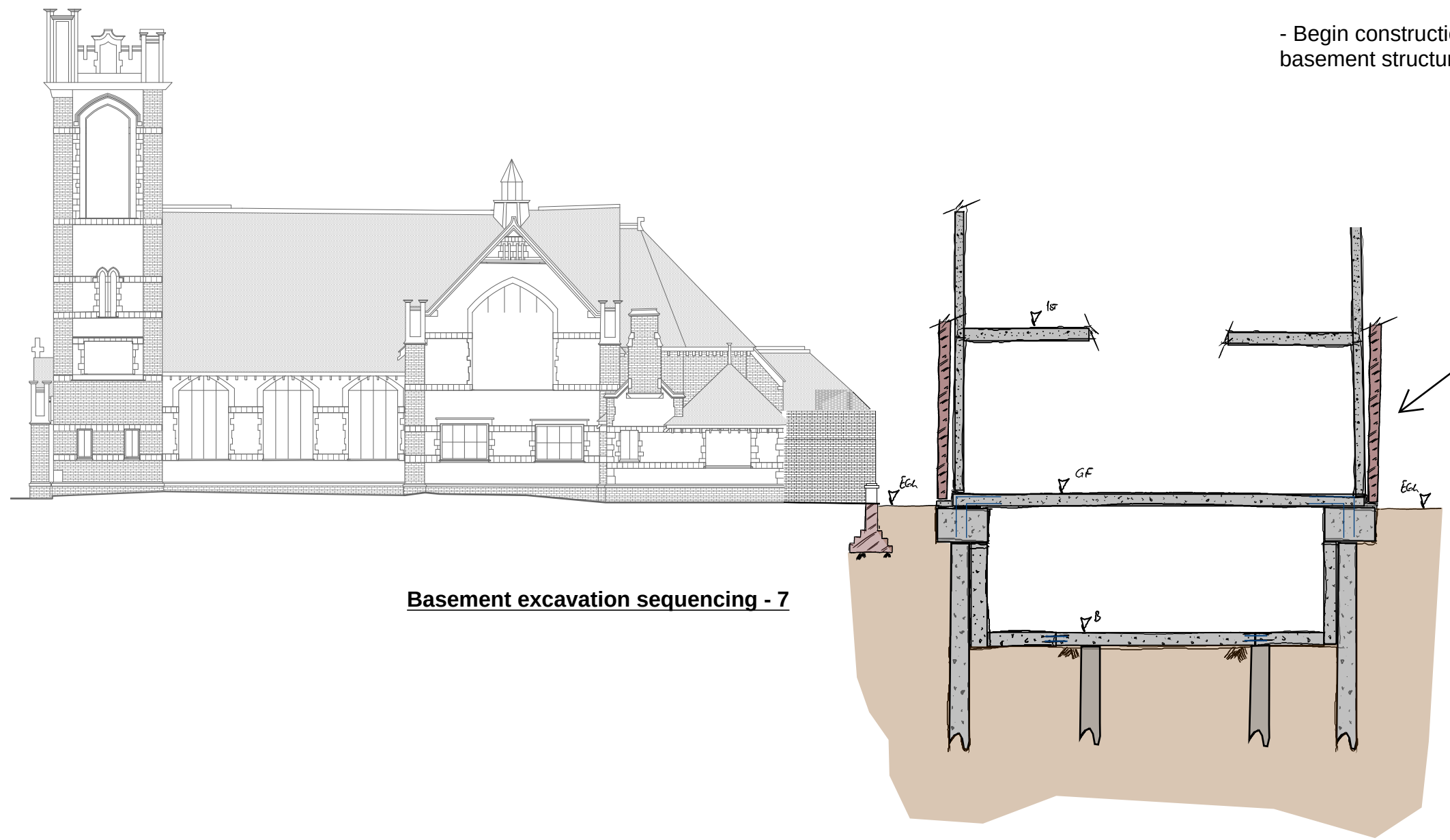
Basement excavation sequencing - 4



Basement excavation sequencing - 5



Basement excavation sequencing - 6



Basement excavation sequencing - 7

This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

NOTES

- This sketch is to be read in conjunction with EWP report no. 2220367-EWP-ZZ-XX-RP-S-0001_P01 - Structural Engineering Report & Subterranean Construction Method Statement

- This sketch is indicative only and not for tender or construction.

- Foundation type and details TBC upon receipt of geotechnical site investigation report.

P1	22/11/22	TU	JC	Preliminary sequencing
rev	date	by	chk	description

Drawing title
Preliminary and indicative
basement excavation sequence

scale (s)	date	drawn
NTS	November 2022	TU

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Project
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Drawing status
Preliminary

Status Revision
S2 P1

Project no. 2220367-EWP-ZZ-XX-SK-S-0008



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