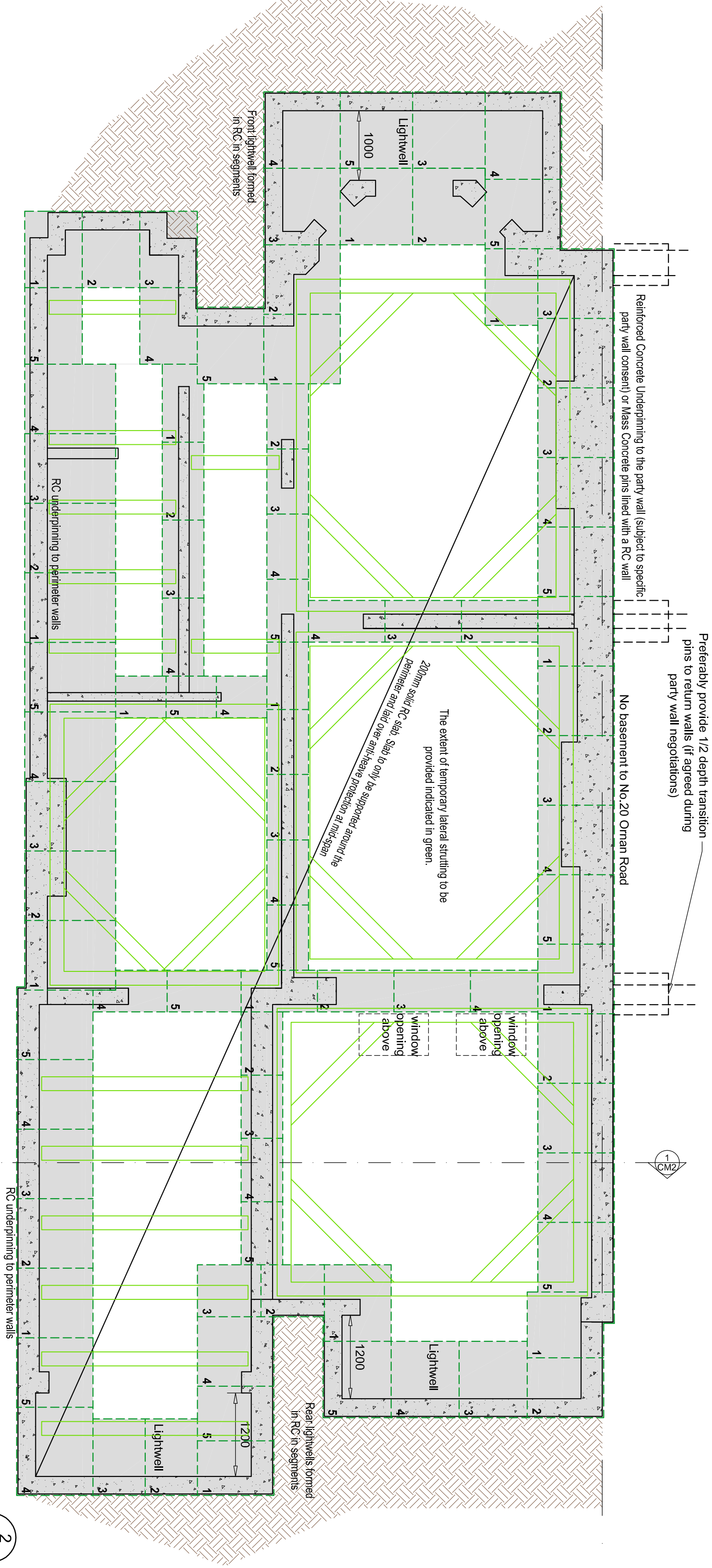


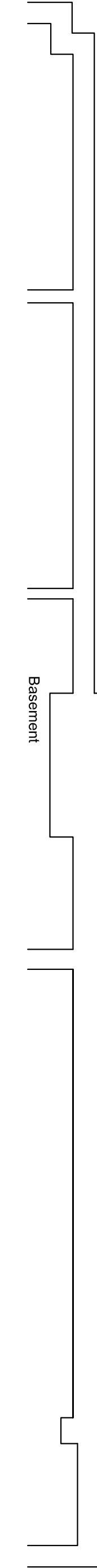
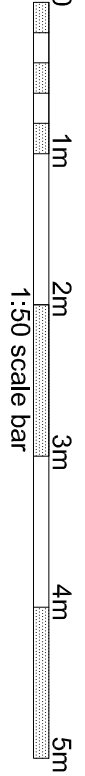
1 Proposed Ground Floor Plan
003 SCALE 1:50 @ A1

Underpinning sequence					
	0	1	2	3	4
1		EP/C			
2		PU			
3		EP/C			
4		PU			
5		EP/C			
6		PU			
7		EP/C			
8		PU			
9		EP/C			
10		PU			

E - Excavate, P - Prop, C - Concrete, PU - Pump



2 Proposed Basement Structural Arrangement
003 SCALE 1:50 @ A1



Drawn	DS	Date	Feb'16	Scale	1:50
Checked	MM	Date	Feb'16		
Approved	SS	Date	Feb'16	Size	A1
Drawing No.	1206-667-CM1				Rev.

Title
Proposed Basement and Ground Floor Plans
Structural General Arrangement

Project
18 Ornan Road
London NW3 4PX

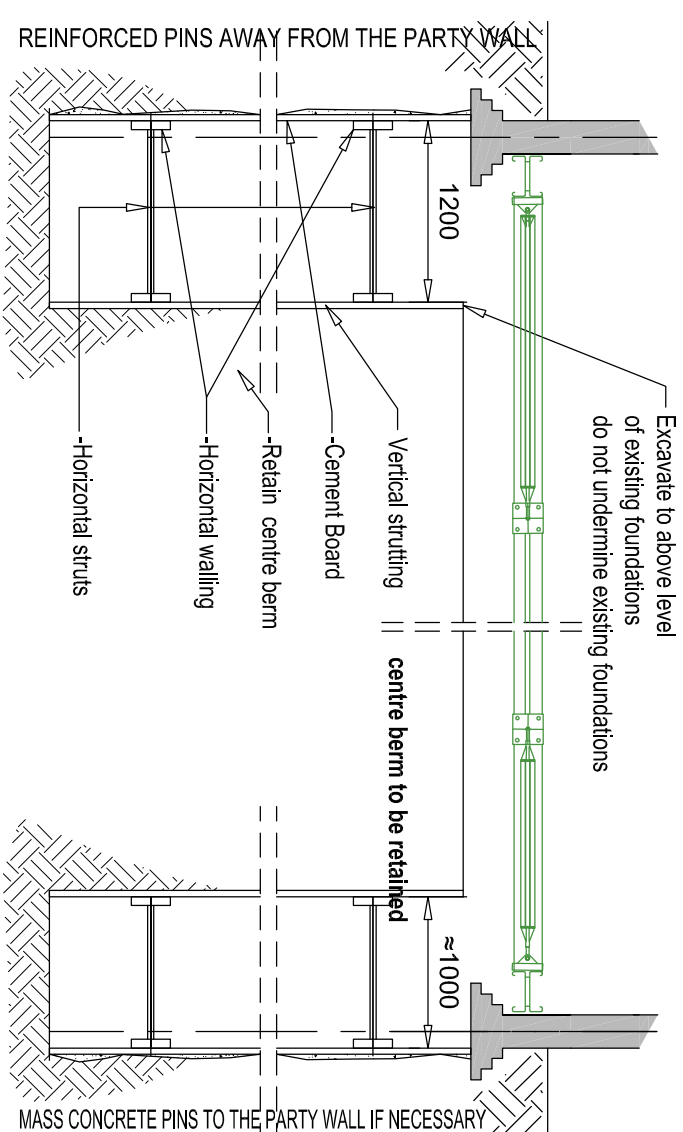
S T S Structural Engineering Ltd
S8 Crossway, Woburn Garden City, Hertfordshire, AL8 7TE
Tel: 01707 695466 Fax: 01707 692006
Web: www.sts-ec.co.uk Email: sales@sts-ec.co.uk

Client
Southfields Property Company Ltd

Rev.	Amendments	Date	Chkd.

Stage 1)
-Install temporary site boarding to the perimeter.
-Set up site office and site welfare facilities within a suitable location within the main house.

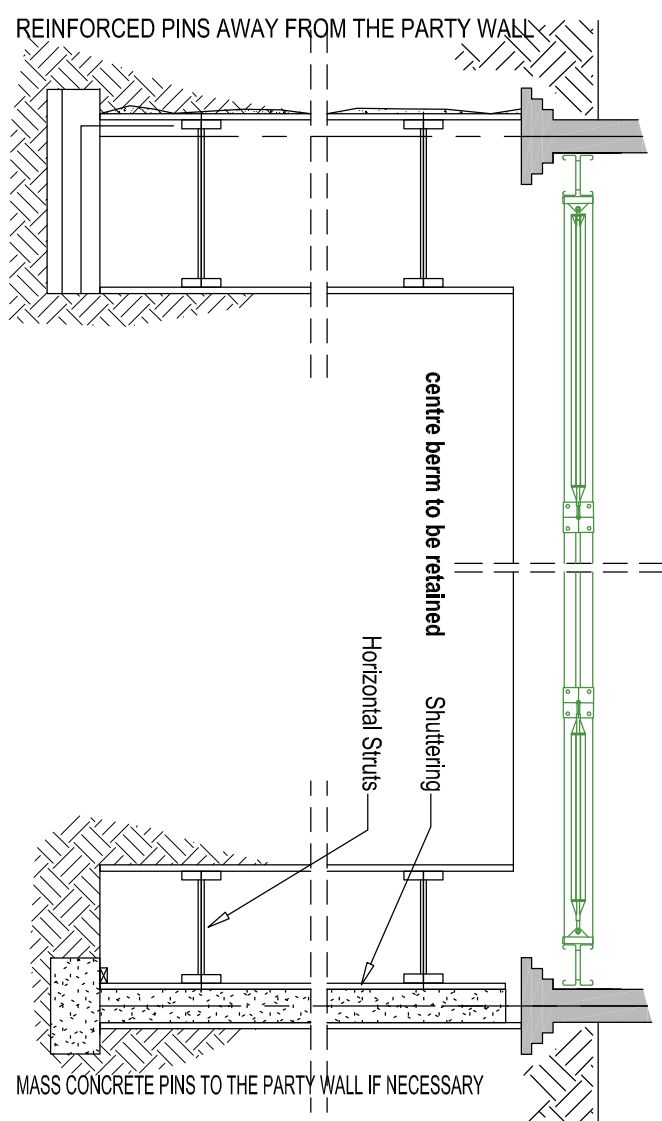
Stage 2)
-Remove the existing suspended timber ground floor structure (if req'd).
-Install a temporary lateral support grillage at ground floor level to provide a lateral restraint to the perimeter walls.



Stage 3(1)
From individual pins not exceeding 1m in length in sequence as indicated in the G.A. drawings. Note that whenever possible, the pins should be cast in reinforced concrete. However, reinforced concrete pins are considered a form of special foundations, and thus necessitate explicit party wall consent. Should party wall consent not be granted for any of the party walls, these walls must be underpinned in mass concrete then lined with a secondary reinforced concrete wall to resist lateral soil and groundwater surcharge loads.

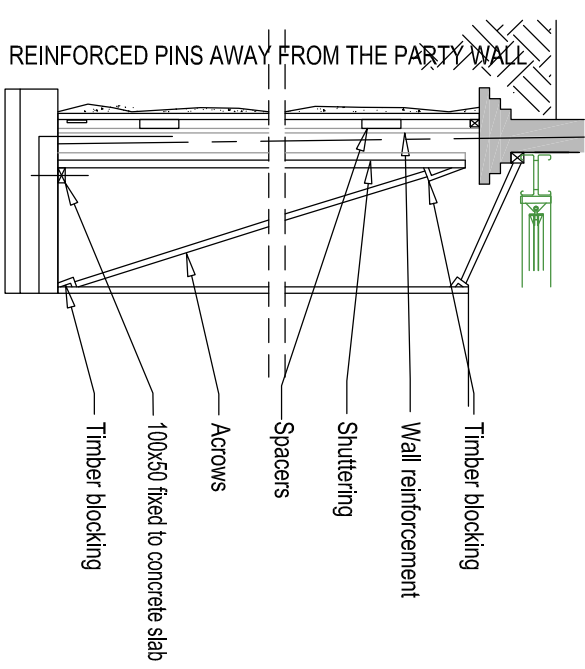
Shuttering to be installed to all four sides of the pins to create and cross-braced adequately. Shuttering facing the next-door property to be installed in 1m vertical segments, and any over-excavation behind the shuttering to be carefully filled in with high workability C20 structural concrete and compacted adequately.

The initial geological assessment indicates that the soils are likely to be deep deposits of London clay. The clay is likely to be of a type that is not suitable for excavation and construction of a new wall. The concrete has been placed and cured. All temporary bracing must be adequately braced to prevent collapse. Should it prove impossible to excavate and construct the pins in a single vertical segment due to the presence of non-cohesive soils, the pins should be constructed in two vertical parts. Firstly, the top half is excavated and concreted, and then dry-packing is to be rammed in-between the concrete and existing masonry over. In the second instance, the remainder of the pin is excavated and concreted, whilst leaving a 30mm gap between the new and old concrete to be dry-packed. Sufficient time (48h) must be allowed for between each operation to allow for the new concrete and cement packing to set. Pins to be staggered horizontally, so pin columns are not formed.

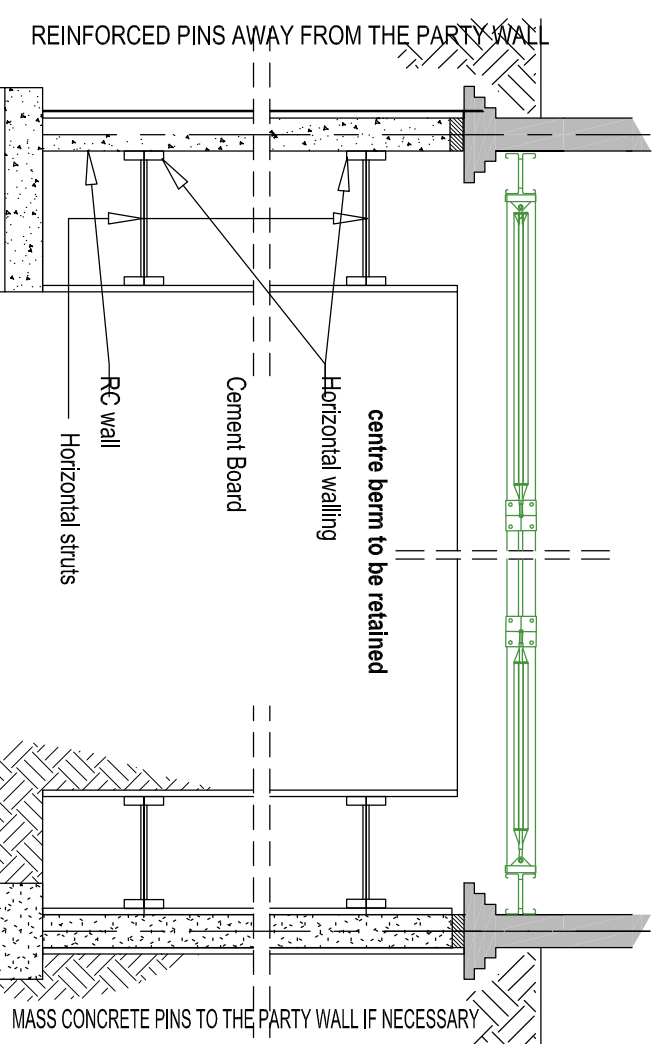


Stage 3(2) Excavation to be inspected and approved by building inspector, surveyor or engineer. For the reinforced concrete pins away from the party wall, firstly excavate for base, cast binding fix reinforcement and cast with wall starters. Leave projecting bars each side for adjoining bases. The mass concrete pins below the party wall are to be cast in one (or two) vertical segments subject to ground conditions.

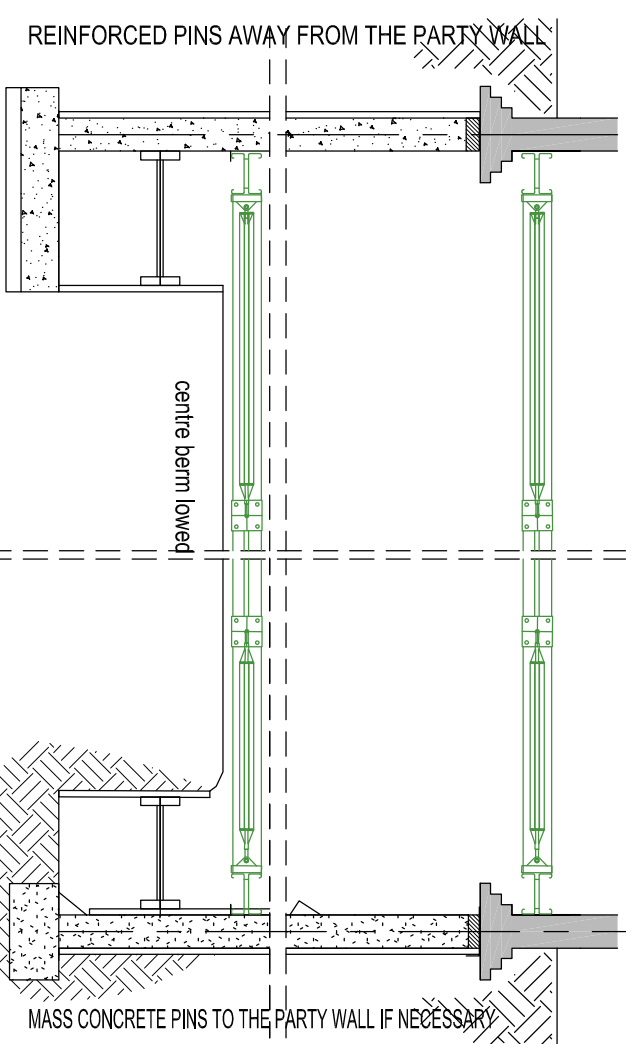
Base for the unreinforced pins to be cast first before fixing the formwork for the wall. Use higher workability concrete mix to achieve sufficient compaction. Should it be difficult to achieve adequate compaction cast the pins in two segments, but firstly concreting the lower segment, and then casting the upper section formwork to cast the upper half of the pins.



Stage 3(3)
Pop the trench reinforcement of the walls. Temporary trench cross bracing removed. wall reinforcement fixed with projecting bars each side for adjoining underpinning.
Fix concrete spacers to brace cement board against reinforcement.
Fix shuttering to wall and cast wall section. Concrete can be poured through top of wall and vibrated in the area to be dry packed.

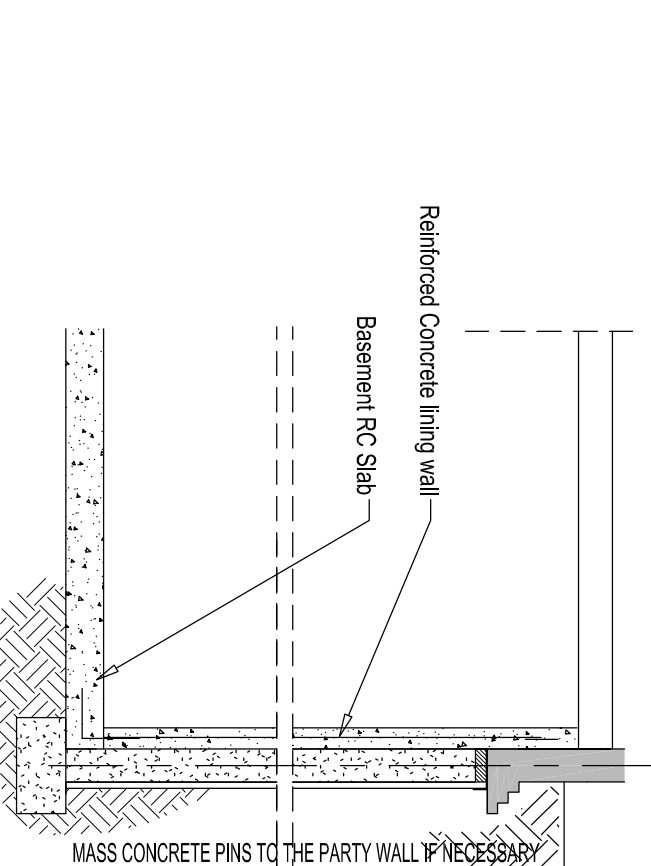


Stage 3(4)
-24 hours after casting wall sections dry pack between top of the wall and underside of the existing foundations.
-When concrete to wall has cured strike wall shuttering and back prop across excavation as shown.
-The temporary props are to be retained for the duration of the works until all the pins have been constructed and the central beam is removed.



Stage 3(5)
Once all the underpinning is complete, excavate and reduce height of the central beam.

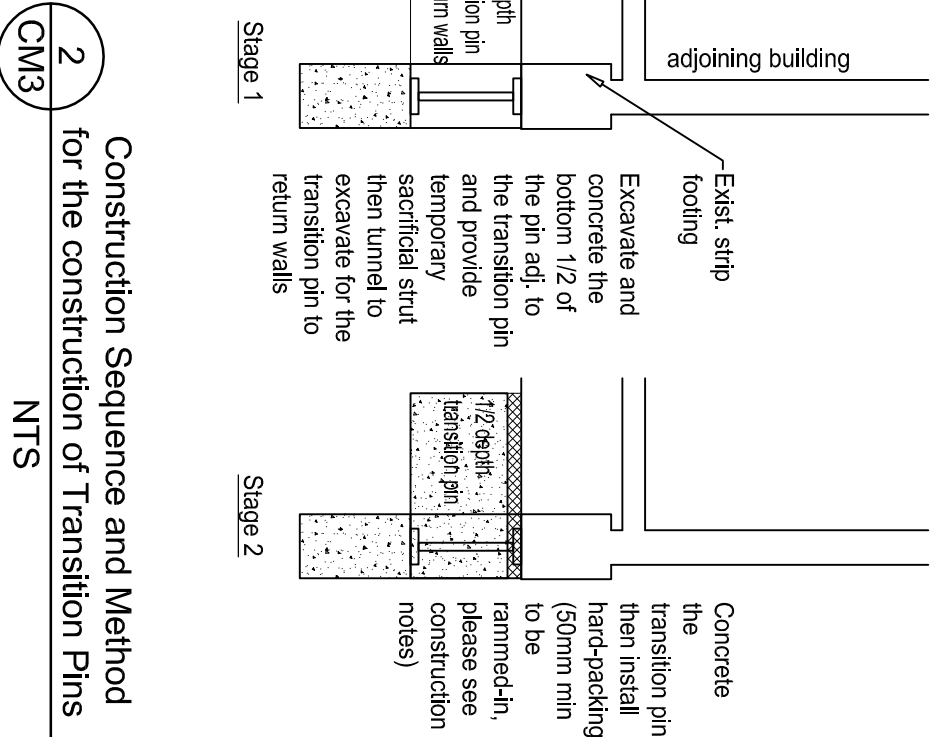
Once the central beam has been removed to approximately 1/2 total height, install a second steel grillage at a lower level to prevent sliding and rotation of the toe of the pins. The lower grillage should be retained until the base slab has been cast and the lower section of the liner wall to unreinforced pins has been cast.



Stage 3(6)
Excavate down to the formation level. Make allowance for the installation of a new drainage sumps, pumps, as well as other services as required. The sump should be set away minimum 300mm from the face of any wall.
A conveyor should be installed to allow for quicker removal of material, and to minimize road obstruction during loading and unloading. A small mechanical excavator can be utilized, but adequate ventilation must be provided at all times, and existing steels must be carefully protected.

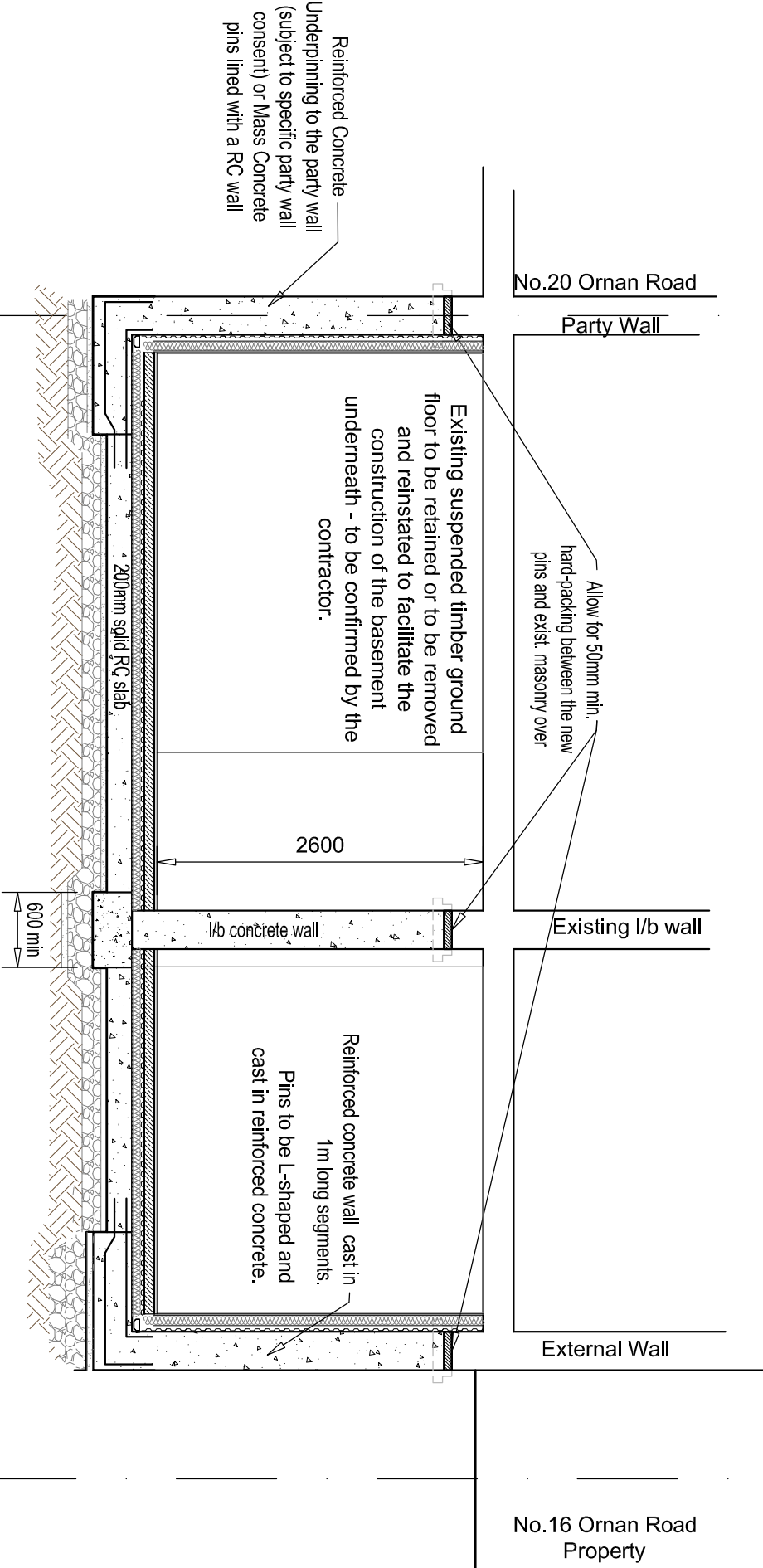
Stage 4)
Install all below-slab drainage and services. Prepare sub-base and cast the new basement slab.

Outline Basement Construction Method and Sequence of Works



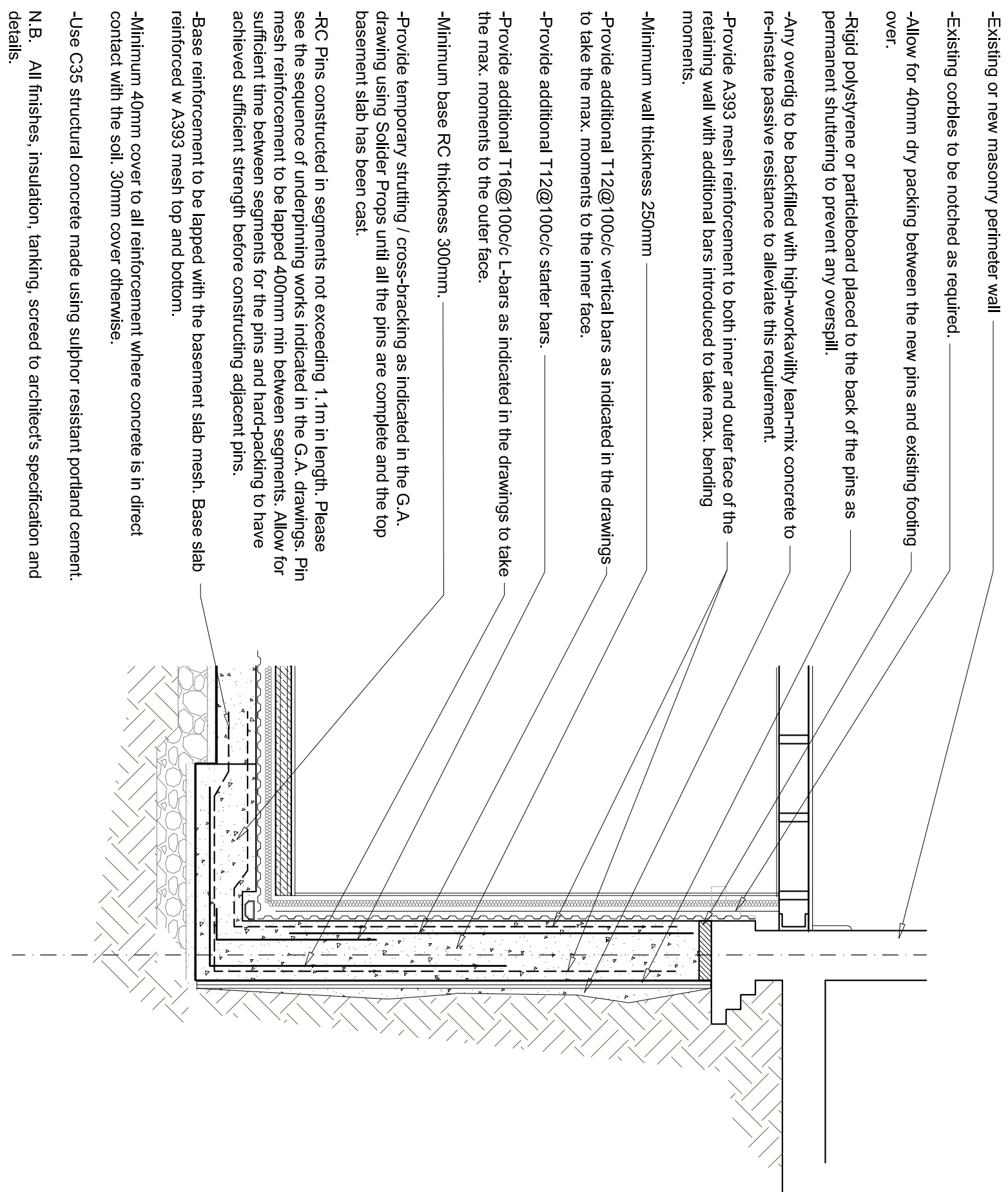
Construction Sequence and Method for the construction of Transition Pins

NTS



Cross-Section SCALE 1:50 @ A1

CM2



-Existing or new masonry perimeter wall
-Existing cordles to be notched as required.
-Allow for 40mm dry packing between the new pins and existing footing over.
-Rigid polystyrene or particleboard placed to the back of the pins as permanent shuttering to prevent any overspill.
-Any overling to be backfilled with high-workability lean-mix concrete to re-instate passive resistance to alleviate this requirement.
-Provide A393 mesh reinforcement to both inner and outer face of the retaining wall with additional bars introduced to take max. bending moments.
-Minimum wall thickness 250mm
-Provide additional T12@1000C vertical bars as indicated in the drawings to take the max. moments to the inner face.
-Provide additional T12@1000C starter bars.
-Provide additional T16@1000C L-bars as indicated in the drawings to take the max. moments to the outer face.
-Minimum base RC thickness 300mm
-Provide temporary strutting / cross-bracing as indicated in the G.A. drawing using Soldier Props until all the pins are complete and the top basement slab has been cast.
-RC Pins constructed in segments not exceeding 1.1m in length. Please see the sequence of underpinning works indicated in the G.A. drawings. Pin mesh reinforcement to be lapped 400mm min between segments. Allow for sufficient time between segments for the pins and hand-packing to have achieved sufficient strength before constructing adjacent pins.
-Base reinforcement to be lapped with the basement slab mesh. Base slab reinforced w A333 mesh top and bottom.
-Minimum 40mm cover to all reinforcement where concrete is in direct contact with the soil. 30mm cover otherwise.
-Use C35 structural concrete made using sulphor resistant portland cement.
N.B. All finishes, insulation, tanking, screed to architect's specification and details.

4 Typical Underpinning Detail SCALE 1:20 @ A2

CM2

0 1m 2m 3m 4m 5m
1:50 scale bar

Rev.	Amendments	Date	Chkd.

Client Southfields Property Company Ltd



Project
18 Orman Road
London NW3 4PX

Title
Proposed Cross-Section, Typical
Underpinning Details and Sequence of Works

Drawn	US	Date	Feb'16	Scale
Checked	MM	Date	Feb'16	As Shown
Approved	SS	Date	Feb'16	Size A1

Drawing No.
1206-667-CM2

Rev.
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