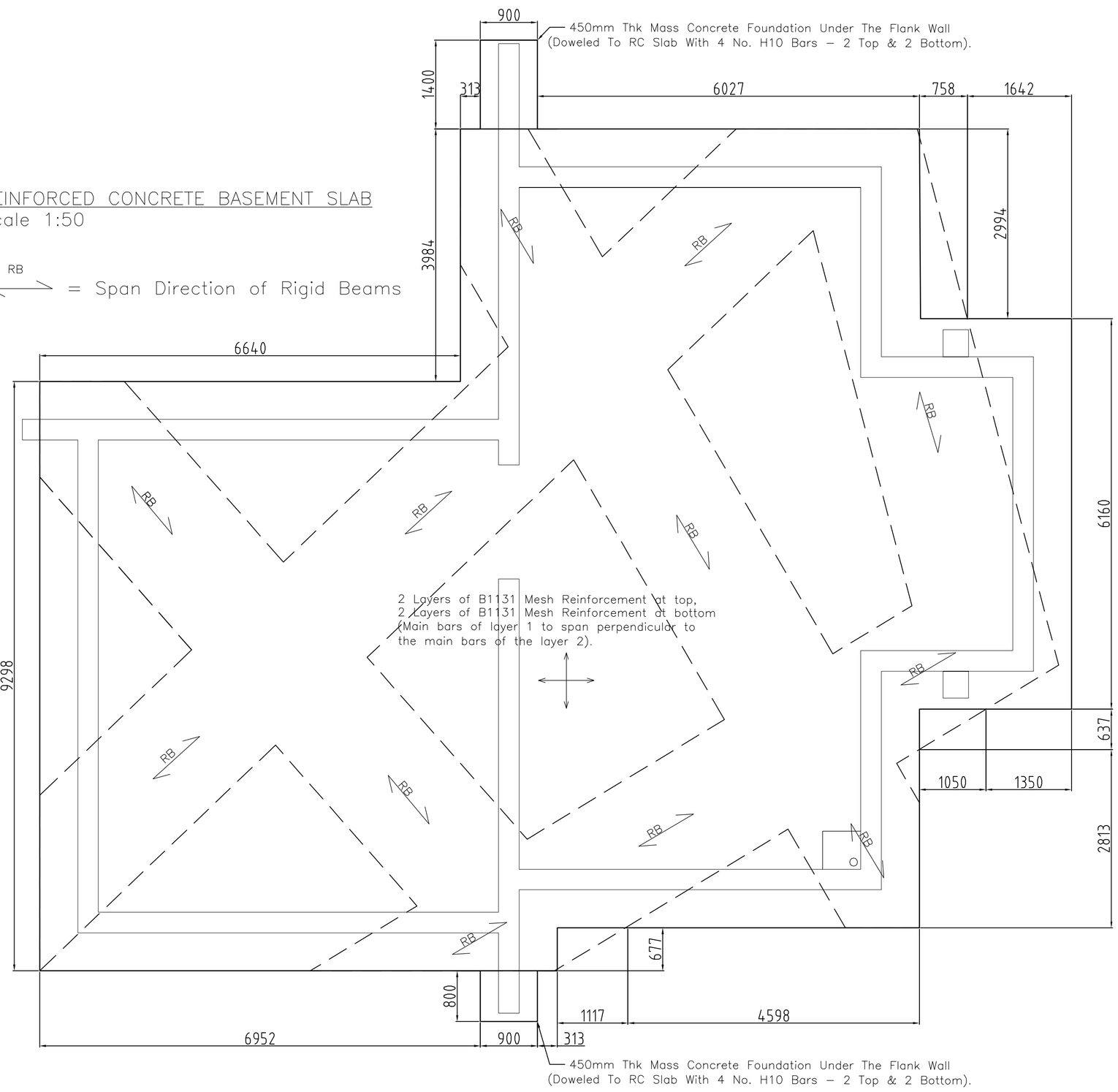
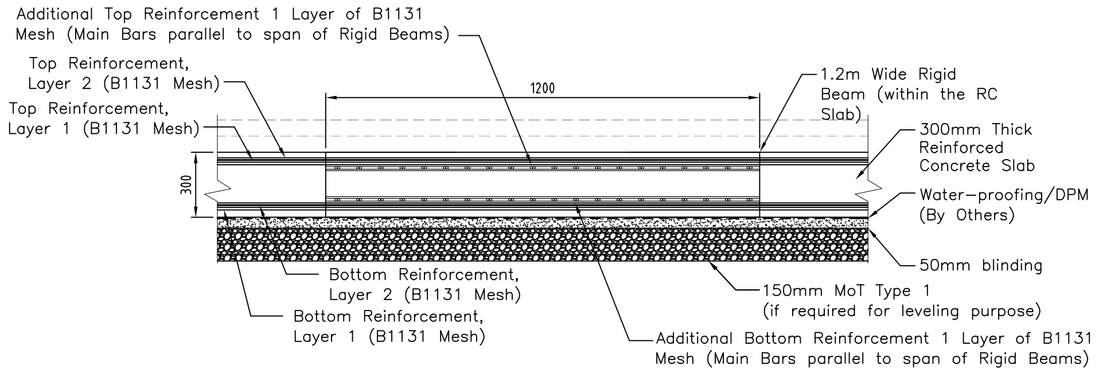


REINFORCED CONCRETE BASEMENT SLAB
Scale 1:50

RB = Span Direction of Rigid Beams



TYPICAL RIGID BEAM SECTION
Scale 1:20

Health and Safety Notes – General 1 of 2	
These Health & Safety notes identify hazards that were impractical or uneconomical to mitigate at the design stage. The list is not exhaustive and should not be relied upon. The contractor is to carry out risk assessments and prepare method statements in line with current Health & Safety legislation.	
Hazard	Suggested Solution/Precaution/ Sequence
Propping off unsuitable construction	Ensure all props ultimately have a sound foundation.
Propping off finishes rather than structural members	Structural members to be exposed prior to installation of props.
Buckling of long props	Props should be adequately braced.
Lateral instability of the building whilst props/ temporary works are in place	No more than 30% of any floor should be supported on props/temporary works at one time.
Inadequate information available prior to commencement of works	structure around area of work should be exposed prior to work commencing, and the Engineer advised of any information discrepancies or poor quality structures.
Handling of materials	Adequate means for moving and positioning of elements to be available.
Demolition (though all demolition works are outside scope of work by CISTEC)	Carry out in accordance with prepared demolition plan and method statement.
Deliveries	Restrict access and designate safe area for deliveries.
Support and stability of existing structure during demolition and installation of new framing	Contractor to provided all necessary adequate temporary propping and support systems prior to demolition and during construction. Ensure all props ultimately have a sound foundation. Locate temporary propping to avoid obstructing new works or through routs. Props should not be removed until new structural framing is fully installed, with adequate curing time as necessary. Propos to be adequately braced.
Any Scaffolding	Scaffolds to be erected and used in accordance with BS5973. Scaffolds/propping must be inspected and approved before use and at least once a week to ensure they remain fit for use.
Clear away rubbish from height/falling debris/dust	All waste materials from height to be deposited via chutes or baskets to ground level skips. Provide building enclosure with adequate tarpaulin/dust sheets.
Personnel working at height	Works to be properly supervised and personnel provided with safe working platforms.
Delivery of steelwork, precast units or roof trusses	Designate safe area for deliveries. Elements to be either delivered and off-loaded by mechanical means/crane to a place of storage, or immediately placed in position (all prep. works to be finalised before placement).

Health and Safety Notes – General 2 of 2	
These Health & Safety notes identify hazards that were impractical or uneconomical to mitigate at the design stage. The list is not exhaustive and should not be relied upon. The contractor is to carry out risk assessments and prepare method statements in line with current Health & Safety legislation.	
Hazard	Suggested Solution/Precaution/ Sequence
Erection of steelwork, pc units or roof trusses	Carry out with extreme care by mechanical means. All elements to be provided with lifting eyes/holes, to the Designer's requirements.
Protection of workforce	Personal protective equipment to be worn at all times. No member of workforce to be working under or within the area of crane erection/crane swing path.
Damage to steelwork, p.c. units or roof trusses	Any damage to steelwork, pc units or roof trusses during transportation or erection are to be reported to the appropriate specialist manufacturer and the Engineer.
Block/brick handling and construction	Handling and construction to be carried out in accordance with current health and safety legislation and British Standards. The Contractor is also to inform workforce regarding block weights and handing requirements.
Fixing of steelwork	Site welding and/or site cutting of holes in members is not be carried our without the Engineers permission. The Contractor also to ensure that the correct bolt specification is used.
Excavations	Adequate shoring to excavations is to be provided.
Fumes form chemical/paint application	Adequate ventilation and protection to be provided with all site applications. New steelwork members to be pre–coated prior to delivery.
Asbestos (or unidentified material suspected of being hazardous)	Following the discovery of suspect material, the Contractor is to stop work immediately and report to the Engineer, and await instructions to proceed.

Health and Safety Notes – Foundations	
These Health & Safety notes identify hazards that were impractical or uneconomical to mitigate at the design stage. The list is not exhaustive and should not be relied upon. The contractor is to carry out risk assessments and prepare method statements in line with current Health & Safety legislation.	
Hazard	Suggested Solution/Precaution/ Sequence
Excavations	Adequate shoring to excavations is to be provided.
Undermining of foundations to existing structures	Avoid excavation of trenches parallel to existing foundations unless specifically instructed by the Engineer.
Contaminated ground/Weil's Disease	Contractor to provide adequate protective clothing and equipment, and ensure proper working practices are employed to deal with any contaminated material encountered during works.
Existing services/plant	Contractor to investigate and adequately mark the location and status of any existing overhead/underground services/plant on or in close proximity to the site.
Unattended excavations	Contractor to ensure unattended excavations are adequately protected using warning signs and barriers accordingly.
Unstable ground	Suitable support should be provided for any large plant, eg. compacting plant, etc.

RC BASEMENT & GROUND FLOOR SLABS AND RETAINING WALLS:

1. THE SETTING OUT OF THE REINFORCED CONCRETE SLAB IN RELATION TO THE RETAINING WALLS IS AS SHOWN ON THE PLAN AND SECTION. THE ENGINEER SHALL BE INFORMED OF ANY VARIATIONS REQUIRED ON SITE TO ALLOW FOR POSSIBLE REVISION OF THE FOUNDATION SETTING OUT DETAILS.
2. THE DEPTHS TO BOTTOM OF THE LOWER GROUND FLOOR SLAB SHALL CONFORM TO WHICHEVER OF THE FOLLOWING CRITERIA GENERATES THE GREATER DEPTH:-
   2.1. TO THE MINIMUM DEPTHS AS SHOWN ON THE ENGINEER'S DRAWINGS, BELOW EXISTING OR PROPOSED GROUND LEVELS, WHICHEVER IS THE LOWER.
   2.2. TO A MINIMUM 500mm BELOW ANY TREE ROOTS EXPOSED DURING EXCAVATIONS, WHERE FOUNDED IN SHRINKABLE MATERIAL.
   2.3. A MINIMUM OF 300mm INTO UNDISTURBED NATURAL GROUND.
3. FOUNDATIONS ARE TO BEAR A MINIMUM OF 300mm INTO A SUITABLE FORMATION TO ACHIEVE A MINIMUM BEARING CAPACITY OF 110 kN/m2.
4. ANY EXISTING FOUNDATIONS ENCOUNTERED ARE TO BE GRUBBED OUT LOCALLY AT THE POSITION OF NEW SLAB, TO 300mm BELOW THE DEPTH OF THE EXISTING FORMATION LEVEL, AND THE NEW SLAB FORMATION LEVEL IS TO BE AT THIS DEPTH OR BELOW.
5. ALL EXCAVATIONS SHALL BE KEPT FREE FROM WATER, LOOSE MATERIAL AND RUBBISH ETC. THE FORMATION LEVEL SHALL NOT BE EXPOSED UNTIL THE DAY OF THE CONCRETE POUR.
6. ALL MADE GROUND, TOPSOIL AND ORGANIC MATTER, TOGETHER WITH ANY SOFT, DISTURBED OR DESICCATED MATERIAL SHOULD BE REMOVED FROM BENEATH THE AREA OF GROUND BEARING SLAB.
7. PRIOR TO PLACING GRANULAR FILL, THE FORMATION SHOULD BE PROOF ROLLED TO INDICATE ANY FURTHER SOFT SPOTS. WHERE ENCOUNTERED THESE SHOULD BE EXCAVATED AND REPLACED WITH ADDITIONAL GRANULAR FILL.
8. AFTER EXCAVATION TO FORMATION LEVEL, AND REMOVAL OF ALL POCKETS OF SOFT OR DISTURBED MATERIAL, THE BEARING STRATUM IS TO BE INSPECTED BY THE APPROPRIATE BUILDING CONTROL OFFICER. ONCE APPROVAL OF THE FORMATION HAS BEEN GIVEN, THE CONCRETE SHOULD IDEALLY BE PLACED IMMEDIATELY, HOWEVER, IF THE INTENDED CONCRETE POUR IS TO BE DELAYED BY MORE THAN 4 HOURS FROM WHEN THE EXCAVATION WAS FIRST OPENED, THEN THE FORMATION SHOULD BE PROTECTED FROM DETERIORATION BY PLACING A MIN. 50mm THICK LAYER OF CONCRETE BLINDING.
9. THE ENGINEER SHOULD BE AFFORDED THE OPPORTUNITY OF INSPECTING THE FORMATION LEVEL UNDER THE SLAB AND REINFORCEMENTS PRIOR TO THE PLACING OF THE CONCRETE. ALLOW A MINIMUM 24 HOURS NOTICE FOR INSPECTION.
10. SUB BASE TO BE SAND OR CONCRETE BLINDED TO RECEIVE D.P.M. AND/OR WATER-PROOFING.
11. SUB BASE FORMATION COULD HAVE A MIN. of 150mm MOT TYPE 1, WELL GRADED CLEAN INERT GRANULAR MATERIAL, LAID AND COMPACTED IN MAX. 150mm LAYERS, IN ACCORDANCE WITH TABLE 8/1 OF THE SPECIFICATION FOR HIGHWAY WORKS, FOR LEVELING PURPOSE.
12. THE CONCRETE USED FOR GROUND BEARING SLABS CAN BE SEPARATED FROM THE UNDERLYING FILL MATERIAL BY A DAMP PROOF MEMBRANE (REFER TO ARCHITECTS DRAWINGS FOR SPEC).
13. ALL CONCRETE ARE SPECIFIED IN ACCORDANCE WITH BS8500-1 AND BRE SPECIAL DIGEST No1 ALL CONCRETE IS TO CONFORM TO BS EN 206-1 AND BS 8500-2.
14. REINFORCED CONCRETE
    1) ALL CONCRETE WORK IS TO COMPLY WITH THE PROVISIONS OF BS8110 PART 1 THE STRUCTURAL USE OF CONCRETE.
    2) ALL STEEL IS TO BE CLEAN AND FREE FROM DELETERIOUS SUBSTANCES, LOOSE RUST OR SCALE, OR ANY COATING THAT WOULD IMPAIR THE BOND.
    3) ALL REINFORCEMENT IS BE FABRICATED AS DETAILED ON THE BENDING SCHEDULES, CUT AND BENT IN ACCORDANCE WITH BS 4466 AND PROPERLY FIXED IN POSITION WITH ADEQUATE CHAIRS, SPACERS, TYING WIRE ETC TO MAINTAIN THE CONCRETE COVER SPECIFIED.
    4) CONCRETE COVER TO REINFORCEMENT TO BE A MINIMUM OF
    I) 35MM FOR BASEMENT SLAB,
    II) 35MM FOR RETAINING WALLS,
    iii) 25MM FOR GROUND FLOOR SLAB & DOWN-STANDING BEAMS.
    5) MIN. LAP LENGTHS OF MESH & LOOSE BARS REINFORCEMENT:
    T10- 400MM,
    T12 - 500MM,
    T16 - 640MM,
    T20 - 800MM,
    T25 - 1000MM,
    T32 - 1280MM.
15. CONCRETE STRENGTH/DURABLITIY REQUIREMENTS ARE AS FOLLOWS:
    13.1 ALL CONCRETE TO BE GRADE C40 (COMPRESSIVE STRENGTH 40 N/mm2).
    13.2 DESIGN SULPHATE CLASS DS-2 AND APPROPRIATE ACEC CLASS AND DESIGN CHEMICAL CLASS TO B.R.E SPECIAL DIGEST 1 .
    13.3 CONCRETE SAMPLING AND TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH BS 1881.
16. THE LAYOUT OF ANY EXISTING DRAINPIPES OR SERVICES IS TO BE CONFIRMED UPON EXCAVATION, AND SPLIT SLEEVE DUCTING IS TO BE USED WHERE THOSE TO REMAIN, AND ANY NEW DRAINPIPES OR SERVICES, PASS THROUGH NEW CONCRETE SLAB AND WALLS. THE DUCTING SHOULD BE SUITABLY SIZED TO PROVIDE A MINIMUM 50mm CLEAR VOID AROUND THE PIPE OR SERVICE. THE VOID MAY BE USING EXPANDED POLYSTYRENE OR SIMILAR MATERIAL.
17. THE BASEMENT SLAB SHOULD BE 300MM THICK IN-SITU CONCRETE, REINFORCED THROUGHOUT. IT SHOULD CONSIST OF 2 LAYERS OF B1131 MESH WITH MAIN BARS OF LAYER 1 SPANNING PERPENDICULAR TO MAIN BARS OF LAYER 2, AT TOP & BOTTOM. LAPS IN MESH TO BE 500mm MINIMUM.
18. RETAINING WALLS SHOULD BE 250MM THICK IN-SITU CONCRETE AND REINFORCEMENT SHOULD CONSIST OF B1131 MESH IN EACH FACE WITH MAIN BARS VERTICALLY. FOR FURTHER DETAILS, REFER TO THE GA, SECTIONS AND/OR ELEVATIONS AND BAR BENDING SCHEDULES.
19. THE GROUND FLOOR SLAB TO BE 225MM THICK IN-SITU CONCRETE, REINFORCED THROUGHOUT. IT SHOULD CONSIST OF 1 LAYER OF B1131 MESH (WITH MAIN AS SHOWN ON THE PLAN) AT BOTTOM (MINIMUM OF 500MM LAP) AND 1 LAYER OF A393 MESH AT TOP (MINIMUM OF 400MM LAP).
20. MESH REINFORCEMENT TO BE GRADE 485 TO BS 4483.
21. ALL LOOSE BARS TO BE GRADE 500 H TYPE 2 HOT ROLLED STEEL IN ACCORDANCE TO BS 4449, 1997.
22. ALL REINFORCEMENT TO BE FIRMLY HELD IN PLACE.
23. CHAIRS AND SUPPORTS ARE NOT SHOWN. CONTRACTOR TO PROVIDE SUFFICIENT REINFORCEMENT SUPPORTS AND MAINTAIN COVER TO REINFORCEMENT DURING FIXING AND POURING.
24. ALL CONCRETE TO BE FULLY MECHANICALLY VIBRATED.
25. CONCRETE CAST AGAINST BLINDING OR FORMWORK OR SHUTTERS TO HAVE 30mm THICK COVER TO REINFORCEMENT.
26. CONCRETE CAST DIRECTLY AGAINST EARTH TO HAVE 75mm THICK COVER TO REINFORCEMENT.
27. ALL CONCRETE WORK IS TO COMPLY WITH THE ALL CONCRETE MIX CERTIFICATES SHALL BE APPROVED BY THE ENGINEER PRIOR COMMENCEMENT OF WORK ON SITE.
28. STANDARD CUBES SHALL BE TAKEN FOR COMPRESSIVE STRENGTH TESTING. ONE SET OF 3 CUBES SHALL BE TAKEN FOR EACH 20m ^{3} OF CONCRETE PLACED, OR LESS PER DAY. ONE CUBE IS TO BE TESTED AT 7 DAYS AND THE REMAINING TWO AT 28 DAYS.18.
29. FINISHES TO FLOOR SLABS, DPM/DPC, INSULATION ETC TO ARCHITECTS DETAILS.

GENERAL NOTES

A1

THIS DRAWING SHOULD BE READ IN CONJUNTION WITH ALL OTHER DRAWINGS BY CISTEC AND DRAWINGS BY ARCHITECT'S.

ALL WORKING DIMENSIONS TO BE CHECKED ON SITE.

DO NOT SCALE.

ANY DISCREPANCIES BETWEEN DRAWINGS OF DIFFERENT SCALES AND BETWEEN DRAWINGS AND SPECIFICATION WHERE APPROPRIATE TO BE NOTIFIED TO THE ENGINEER FOR DECISION.

PRIOR TO ANY WORK BEING COMMENCED ON SITE, THE ENGINEER SHOULD BE CONTACTED REGARDING THE CURRENT STATUS OR REGULATORY TECHNICAL APPROVAL OF THIS DRAWING.

1. **BASEMENT FLOOR**
   FLOOR CONSTRUCTION TO BE DESIGNED FOR THE FOLLOWING LOADS:
   DEAD (EXCLUDING SELF WEIGHT OF FLOOR UNITS):
   CHIPBOARD AND INSULATION = 0.15KN/M2
   75MM SAND:CEMENT SCREED = 1.80KN/M2
   100M LIGHTWEIGHT BLOCKWORK = 3.00KN/M RUN
   75MM LIGHTWEIGHT STUDWORK =1.00KN/M RUN
   IMPOSED LOAD (TO BS6399): 1.50 KN/M2.

UPPER FLOORS:

1. ALL UPPER FLOORS DESIGNED AND SUPPLIED BY OTHERS.
2. FOR SPAN LENGTHS, POSITIONS AND TYPES OF PARTITION WALLS SUPPORTED BY THE FLOORS, REFER TO SPECIALIST PC SUPPLIER AND ARCHITECTS DRAWINGS.

Rev	Amendment	By	Date
P1	First issue.	JGM	10.07.12
P2	RC Retaining Walls Added.	CST	23.09.13
P2	Typical section of rigid beam revised.	CST	01.10.13
A	Construction Issue & Notes Amended To Suit In-situ Concrete Slab For Ground Floor.	CST	26.11.13

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Mr Martin Jenkins

Drawing

REINFORCED CONCRETE BASEMENT SLAB LAYOUT & DETAILS

Project

136 GOLDINGTON ROAD, BEDFORD

Scale	Date	Approved
1:50 @ A1	10.07.2012	AA

Drawing no.

1177 - 301 A

STATUS: PRELIMINARY & FOR COMMENTS ONLY