John Bender Associates
21 Penlands Rise Steyning BN44 3PJ
Telephone 01273 620411
Site: OLD ERRINGHAM HALL UPPER BEEDING
Job: PROPOSED CAR PORT SLAB

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STANDARD LOADINGS (DOMESTIC) ALL IN kN/m2

Pitched roof	Tiles	=	0.66			
	Battens + felt	=	0.10			
	Rafters	=	0.15			
			0.91	0.91	0.75	1.66
Roof Space	Joists & Insul	=	0.15			
	Soffit	=	0.10			
			0.25	0.25	0.25	0.50
	Total Roof + Space			1.16	1.00	2.16
Flat Roofs	Chippings + Felt	=	0.30			
	Boards & Joists	=	0.28			
	Soffit + insul	=	0.15			
			0.73	0.73	0.75	1.48
Timber Floors	Boards + joists	=	0.45			
	Soffit	=	0.15			
			0.60	0.60	1.50	2.10
Walls	Timber stud Internal					
	Plasterboard	=	0.30			
	Studwork	=	0.20			
			0.50	0.50		0.50
	Lathe + Plaster	=	0.50			
	Studwork	=	0.20			
			0.70	0.70		0.70
	Timber Stud External					
	Tiles + Battens	=	0.61			
	Studwork	=	0.20			
	Plasterboard	=	0.15			
			0.96	0.96		0.96
	Brick & Block					
	Brick 102mm	=	2.30			
	Block 125mm	=	1.30	Cavity		
	Plaster (one)	=	0.30			
			3.90	3.90		3.90
	Brick 102mm	=	2.30			
	Plaster	=	0.40			
			2.70	2.70		2.70

GENERAL CONSTRUCTION NOTES

Item 1 :

These calculations are to be read in conjunction with all relevant Architects and Engineers details and specification. Full building regulation approval is to obtained prior to commencement of works on site and any works carried out prior to approval is done so at the builders risk.

Item 2 :

The works are to be carried out to the approval and satisfaction of the building inspector and to accepted good building practice and in full compliance with the current British Standards and Codes of Practice. These calculations and details are for building regulation approval only and do not constitute full working drawings. It is assumed that the contractor has a working knowledge of the current building regulations and has experience in the specific works covered by these calculations.

Item 3 :

Any deviation from the assumptions made in the calculations are to be reported to the Architect/Engineer as soon as practical after being found.

Item 4 :

The existing building is assumed to be in good structural condition and any defects are to be reported to the Architect/Engineer as soon as possible. The temporary stability of the structure is the responsibility of the contractor during all stages of the building works. The client is advised to ensure that the contractor carried all relevant insurances to cover the building works.

Item 5 :

All existing load bearing walls, foundations and structural elements are to be exposed and checked for adequacy at the commencement of the works by the building inspector. All trial holes are to be excavated and inspected by the building inspector prior to commencement.

Item 6 :

The clients attention is drawn to the current Construction Design and Managementregulations which relate to any building works that involve more that 500 man hours or longer than 30 days duration. It is the clients responsibility to appoint the planning supervisor on all projects which require compliance with the CDM regulations.

Item 7 :

Under the Party Wall Act 1996 the client has a duty to ensure compliance if the building works involve :

Works on an existing wall shared with another property : or

New buildings on the boundary with a neighbouring property : or

Excavating near adjoining building.

It is the clients responsibility to employ. Where necessary, a party wall surveyor to deal with any party wall matters.

Item 8 :

All beam lengths used in the calculations are the design lengths and are not to be used or ordering. All beam/joist lengths are to be taken from site dimensions only.

Item 9 :

All walls and floors are to be strapped to walls in accordance with the current Building Regulations Approved Document A.

Item 10 :

Foundation concrete to be a minimum GEN 3 mix in accordance with the Building Regulations Approved Document A. Depth of all new foundations to be determined on site to the approval of the BCO. Any foundation depths in excess of 1500mm will require temporary propping during the construction stage.

GENERAL CONSTRUCTION NOTES 2

Item 11 :

Unless otherwise stated the existing load bearing walls are assumed to be built in at least 10 N/mm2 bricks in a class 3 mortar. This will need to be verified at the commencement of works.

Bearing stress

Basic brick stress taken as 0.7 N/mm2 Bearing stress factor 1.5

Design bearing stress (unfactored) 0.7 x 1.5 = 1.05 N/mm2 unless noted otherwise.

Item 12 :

All new steelwork is taken to be grade 43 (or equivalent) unless noted otherwise in the calculations. The normal paint finish for internal steelwork is to be thoroughly wire brushed and painted with two coats zinc phosphate primer prior to delivery and all damaged areas of paint are to be touched up after final erection.

All bolts are taken to be grade 4.6 or equivalent and all welds to be 6mm Cont fillet welds all round unless noted otherwise in the calculations or in the specification.

The use of steel plates as padstones to steel beams is to limit the damage to the walls but under no circumstances are they to bear onto timber. If this is the case the timber is to be cut out and replaced in brickwork.

Final connection details are to be designed and detailed by the steel fabricator based on the reactions in the calculations and to suit the relative levels on site. Any connection details contained in the calculations are intended for guidance only.

Unless otherwise stated in the calculations all bolted splices to beams are to be positioned at third points. It is permitted to either use one splice (with beam 1/3 and 2/3) or to provide 2 splices (beam cut into 1/3's) Mid span splices will not be accepted unless justified by the steel fabricators.

Item 13 :

All new timber is taken to be C16 unless noted otherwise in the calculations or details. All timber is to be suitably treated against decay and rot.

Item 14 :

All new dormers are to be clad externally in 12.5mm thick exterior quality ply fixed at 150 centres with nail centres closed to 75mm around any opening and to the corners.

Item 15 :

Its is assumed that any roof trusses, pre-cast floors, and balustrades will be designed and detailed by the specialist sub contractor. The specialist sub contractor is to provide all supporting calculations and details which are to be approved by the building inspector prior to construction.

ITEM 16 :

The structural items specified are the minimum required and can be increased as required to suit site conditions

ITEM 17 :

Guidance on the placement of movement joints should be in accordance with the block manufacturers current information and used in conjunction with BS 5628 - 3 Code of Practice for the use of Masonry and BS 6093 Code of practice for the design of joints and jointing in building construction. The guidance given in these standards is that joints should usually be included at 6.0m intervals and 3m from the corners, however, this will vary depending on the type of construction and the strength of the brick or block used.
It is further recommended that mortar bed reinforcement be provided at the weak points of the construction such as above and below window openings and doors. The amount and positioning of this reinforcement should be inaccordance with the block manufacturers current information.

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THESE CALCULATIONS RELATE TO THE RAFT FOUND' TO THE PROPOSED CAR PORT. THE LOADS HAVE BEEN CALCULATED BASED ON SKETCH PROVIDED AND NO ACTUAL LOADS HAVE BEEN GIVEN.

THE CONSTRUCTION IS TAKEN AS TIMBER FRAME WITH PITCHED ROOF OVER. WHERE THE SKETCH SHOWS POSTS THE ASSUMPTION IS THAT THERE ARE ROOF BEAMS TAKING THE ROOF CONST'.

WALL LOAD A (LINE LOAD).

ROOF	2.16 x 1.0	2.16.
WALL W7	0.98 x 1.3	1.27
		3.43 kN/m.

WALL LOAD B (LINE LOAD)

ROOF BEAM LOAD	2.16 x 0.9.	1.94.
WALL W7	0.98 x 3.10.	3.04
		4.98 kN

POST LOAD P1.

ROOF	2.16 x 3.0 x 1.50.	9.72 kN.

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Post Load P2

Roof	2.16x3.0x3	= 19.44 Kn.

Post load P3.

Roof	2.16x2x1.5.	6.48 Kn.

Post load P4.

Roof	2.16x2x3.0.	12.96 Kn.

Slab Construction.

Concrete	23.6x0.15.	3.54.
Live load	Cars	2.50
		6.04 Kn/m²

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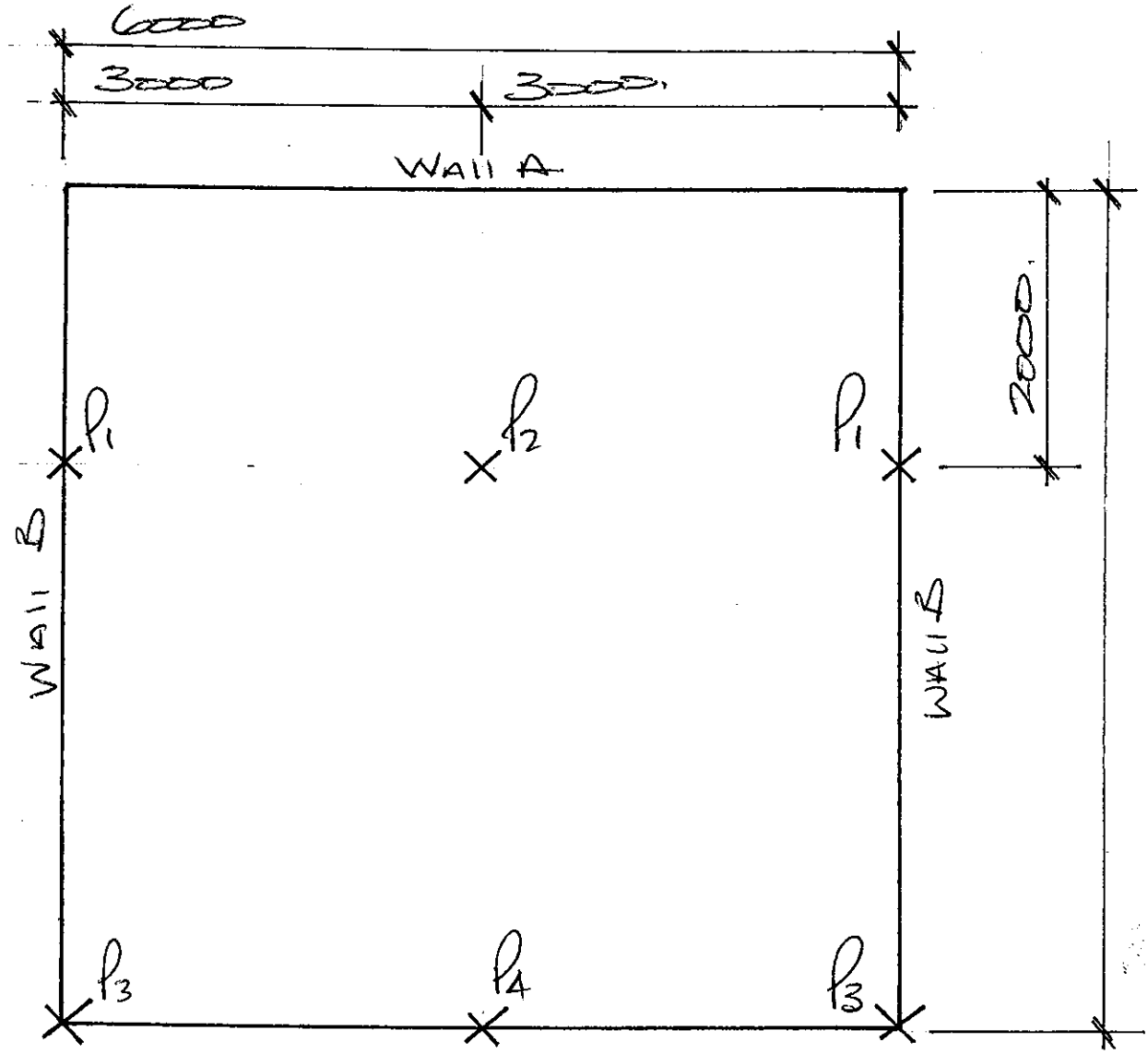

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THE PROPOSAL IS TO PROVIDE EDGE STRIPS WITH CENTRE STRIP WHICH WILL BE THE SUPPORT OFF THE GROUND. THE CONTRACTOR HAS ADVISED THAT THE BEARING STRATA IS CHALK BEARING PRESSURES WILL BE CHECKED UNDER THE STRIPS AS PART OF THE DESIGN.

SLAB

DESIGN SPAN OF SLAB 3.0m.

DESIGN LOAD $1.5 \times 6.04 = 9.06 kN/m^2$
FIELD MOMENT $= 10.19 kN/m^2$

DEPTH OF SLAB 150mm COVER 40mm.
EFF DEPTH $150 - 40 - 5 = 105mm^2$

$M/bd^2 = 10.19 \times 10^6 / 1000 \times 105^2 = 0.92$
DESIGN CHART 2 $100As/bd = 0.25$
$As = 0.25 \times 1000 \times 105 / 100 = 262.5mm^2$

USE 150 THICK SLAB WITH A393 MESH BOT WITH 40 COVER

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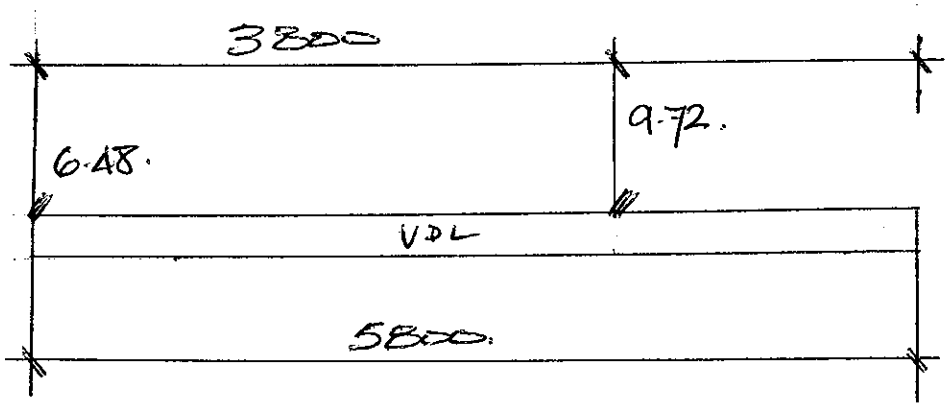
Wall B (Edge Strip.)



VDL on Strip.

Self wt.		3.18.
Wall load.		4.98.
Slab	6.0A x 1.5.	9.06
		17.22 kN/m.

Total Load Unfactored.

VDL	17.22 x 5.80	99.87
Point loads		16.20
		116.07 kN

Act G.B.P. (116.07 / 5.8) / 0.45 = 44 kN/m²

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CENTRE STRIP.

SELF WT
SLAB 6.04 x 3.0. 18.12
21.30 Kn/m.

POINT LOAD 19.44 Kn

NOTE ! FROM POINT LOAD ON THE FRONT STRIP

TOTAL LOAD (21.3 x 5.8) + 19.44 = 142.98 Kn.

UDL = 142.98/5.8 = 24.65 K/m Run. GBP 44 Kn/m²

CENTRE WIDTH REQ'D 24.65/44 = 0.56m.

THE CENTRE STRIP IS TO BE 600 WIDE TO GIVE CONSISTANT GROUND BEARING PRESSURE.

NOTE ! EDGE STRIPS 300 DEEP x 450 WIDE WITH CENTRE STRIP 600 WIDE DEPTH AS EDGE STRIP.

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THE CONTRACTOR HAS ADVISED THAT THE EXIST GROUND IS CHALK AND THEREFORE EDGE STRIPS WILL SPAN A CONSISTANT GROUND. RELIABLE POINT MIN AREA OF STEEL TO PROVIDE CONTINUITY TO THE PROPOSED SLAB.

EDGE STRIP.

EFF AREA 300×450 $\geq 135000\ mm^2$

$\geq$ AREA STEEL REQ'D $0.13\% A$ $\geq 175.5 mm^2$

USE 3 NO T10 BARS TOP & BOTTOM WITH R8 LINKS IN PAIRS AT 250 c/c

CENTRE STRIP

MIN AREA $0.13\% \times 300 \times 600$ $\geq 234\ mm^2$

USE 3 NO T10 BARS TOP & BOTTOM WITH R8 LINKS IN PAIRS AT 250 c/c

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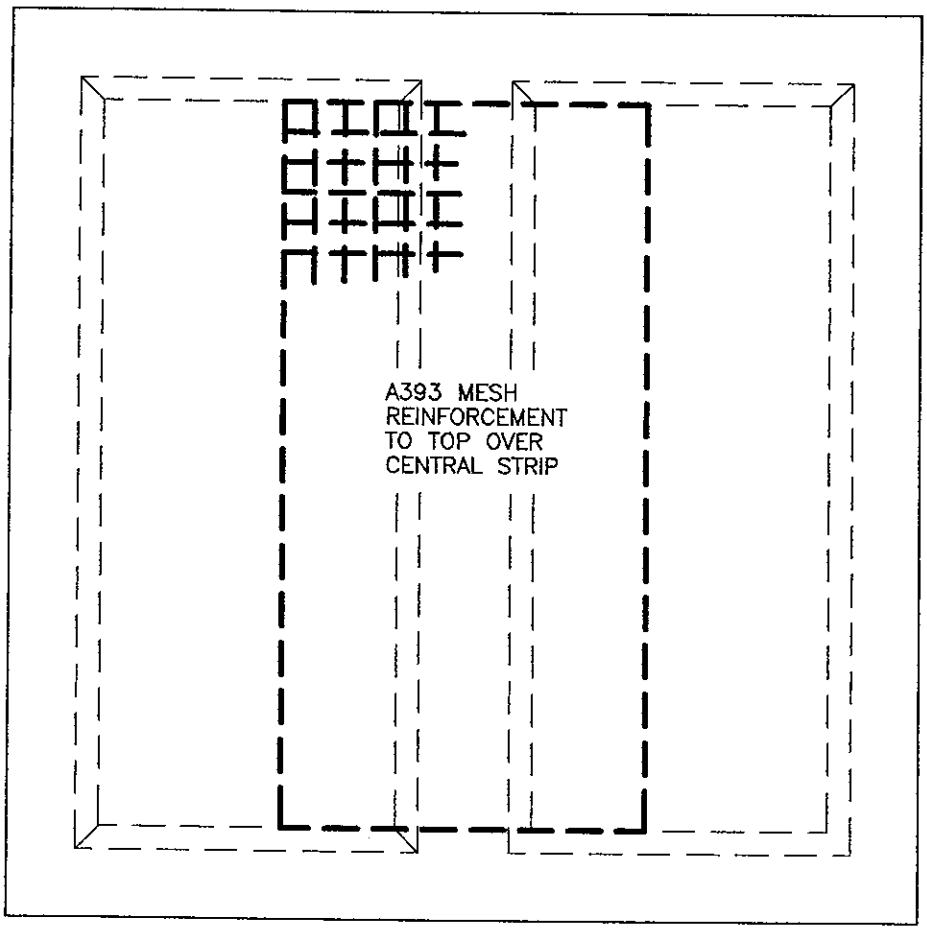

SLAB TOP REINFORCEMENT

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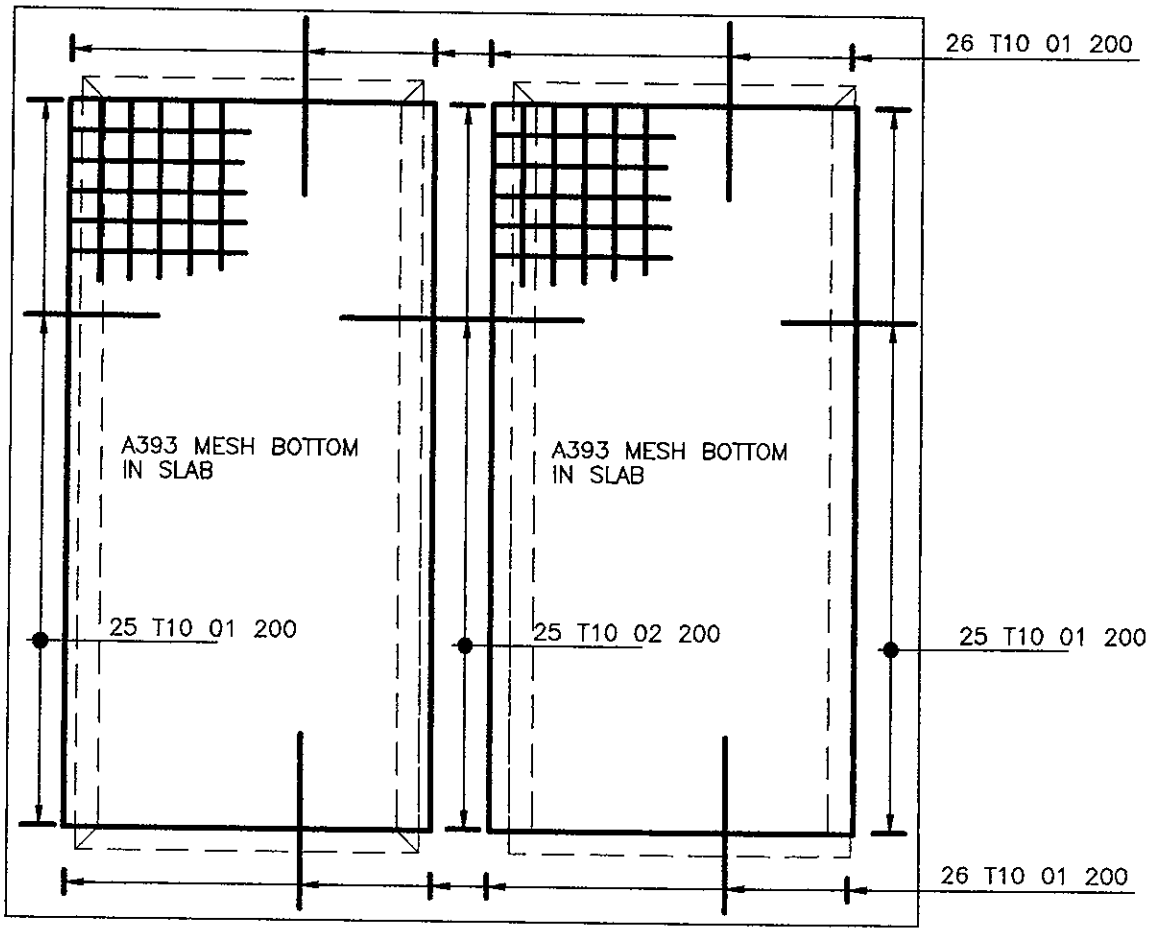

SLAB BOTTOM REINFORCEMENT

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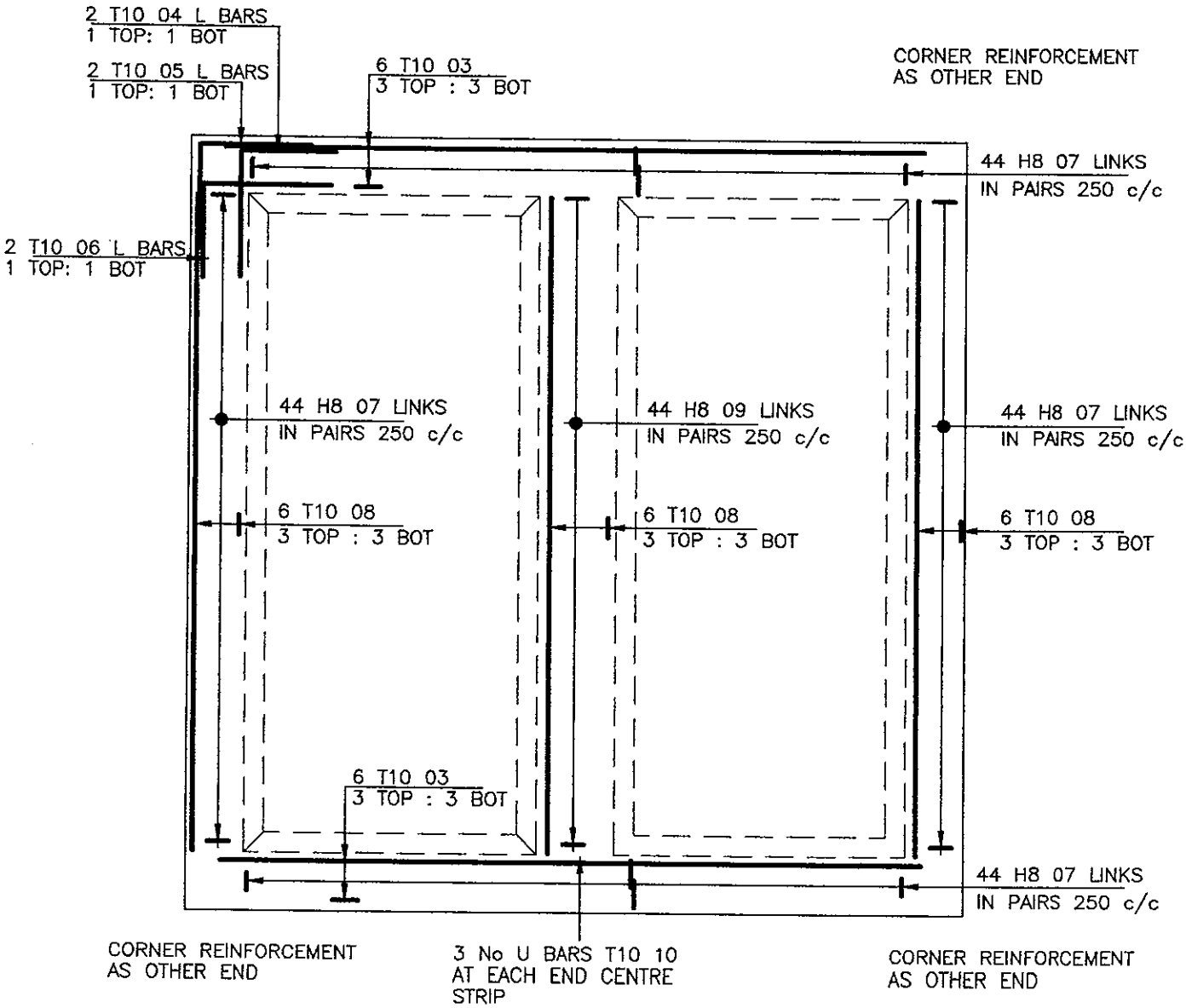
CONCRETE TO BE MIN 4C30
T DENOTES HIGH YEILD STREE
R DENOTES MILD STEEL
NOTE EQUIV CURRENT DENOTATION ON SCHEDULE IS EQUIV
CONCRETE COVER BOTTOM & SIDES 40mm
TOP COVER MIN 30mm



EDGE/ CENTRE BEAM REINFORCEMENT

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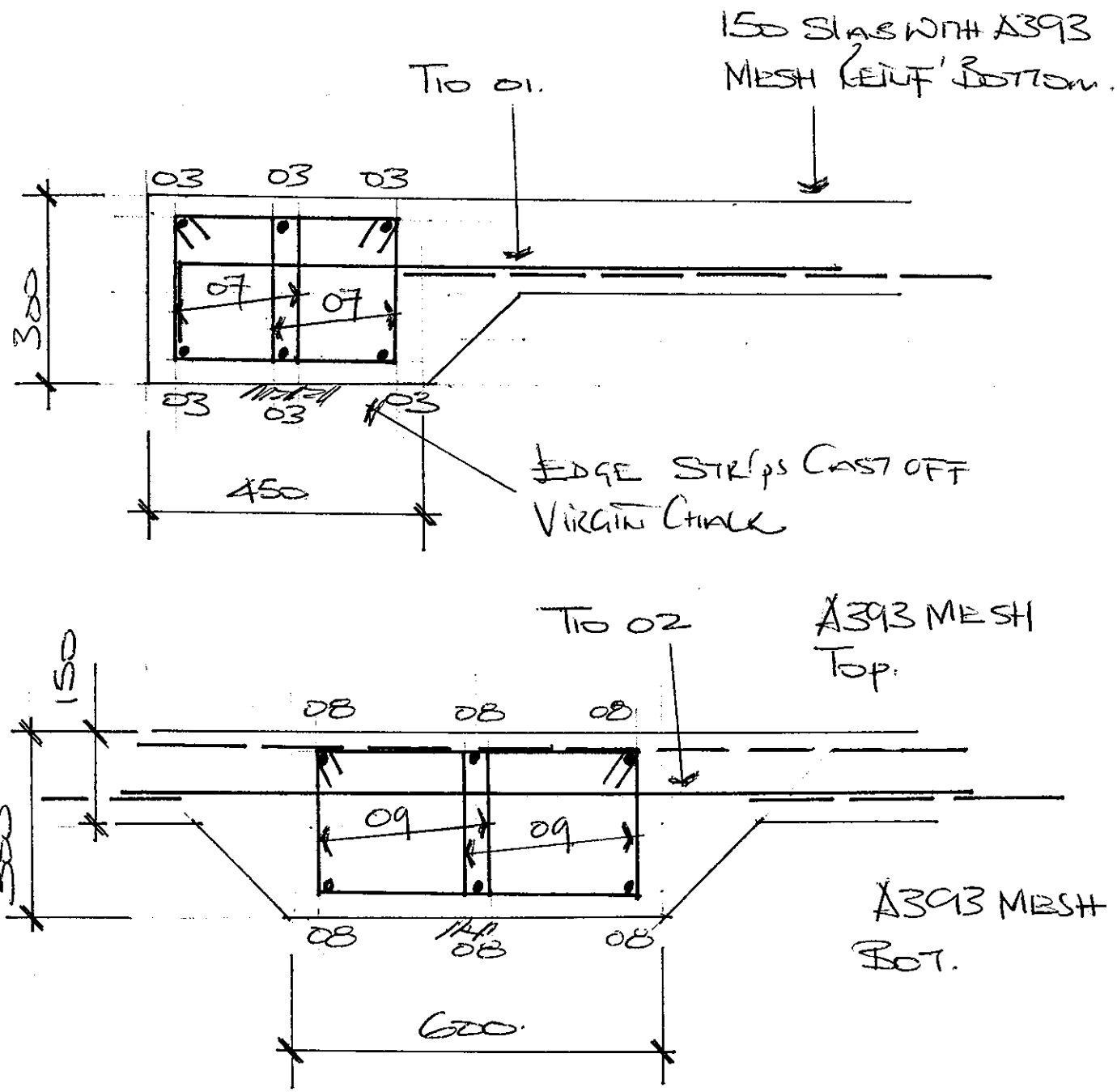

John Bender Associates

Bar schedule ref : 001 01 Rev letter

Site ref : Erringham Hall

Date prepared : 04-Jan-10

Job no : 100101

Prepared by : jmb Checked by :

Member	Bar mark	Type and size	No. of mbrs	No. of bars in each	Total no.	Length of each bar † mm	Shape code	A * mm	B * mm	C * mm	D * mm	E/R * mm	Rev letter
SLAB	01	H 10	1	102	102	1175	11	1050					
	02	H 10	1	25	25	1500	00	1500					
EDGE BEAM	03	H 10	2	6	12	5025	00	5020					
	07	H 8	2	44	88	1000	51	200	220				
	08	H 10	2	6	12	5000	00	5000					
	07	H 8	2	44	88	1000	51	200	220				
CENTRE	08	H 10	1	6	6	5000	00	5000					
BEAM	09	H 8	1	44	44	1150	51	275	220				
CORNERS	04	H 10	4	2	8	2100	11	1050					
	05	H 10	4	2	8	1750	11	700					
	06	H 10	4	2	8	1750	11	1050					
CENTRE	10	H 10	2	3	6	2250	21	1050	190				
LINK													

A393 MESH REINFORCEMENT TO TOP AND BOTTOM OF SLAB

This schedule conforms to BS 8666:2005

UNREGISTERED COPY FOR EVALUATION!

Bar Schedule 8666 v5.04

* Specified in multiples of 5mm.

† Specified in multiples of 25mm.

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