BCAPP

FAR NORTH DISTRICT COUNCIL

APPLICATION FOR BUILDING CONSENT

OWNER	BUILDER
NAME D.J. & J.G. WEBB.	NAME WEBB DESIGN PARTNERSHIP.
ADDRESS 7 CHIPPING DALE	ADDRESS 7 CHIPPING DALE
MANGERE BRIDGE	MANGERE BRIDGE
AUCKLAND.	AUCKLAND

LOCATION OF PROPERTY

STREET NO. 25A.	VALUATION NO. 00040-553-00
STREET NAME CABLE BAY BLOCK RD	LOT 19 D.P. 60617
TOWN/DISTRICT MANGONUI.	SECTION 15 BLOCK IV
WARD	SURVEY DISTRICT MANGONUI

DESCRIPTION OF PROPOSED WORK

FOR EXAMPLE; DWELLING/CARPORT/ADDS TO DWELLING/GARAGE/FACTORY/HAYBARN ETC.	FLOOR AREA OF BUILDING	NUMBER OF UNITS
NEW DWELLING.	UPPER 114m². LOWER 106m².	ONE

ESTIMATED VALUE OF BUILDING	$ 93000-00.
ESTIMATED VALUE OF PLUMBING	$ 4050-00
ESTIMATED VALUE OF DRAINAGE	$ 1800-00.
TOTAL VALUE	$105150-00

SIGNATURE OF APPLICANT J Webb **DATE** 1ST OCT. 92.

CONTACT PHONE NUMBER 6343738 ANSWERPHONE.

BUILDING CONSENT	$ 600.00	D.P.B.A.A.B.C
PLUMBING/DRAINAGE	$ 290.00 (350-60 PD FOR SW)	D.P.B.A.A.B.C
ROAD DAMAGE DEPOSIT	$ —	D.P.B.A.A.D.D
WATER METER	$ —	T.S.C.W.C.S
B.R.A. LEVY	$ 119.25	D.P.B.A.B.R.A.N.Z
TOTAL FEES	$ 1009.25	**RECEIPT NO** 260506
		DATE 14.10.92

KAITAIA SERVICE CENTRE, P.O.BOX 262, KAITAIA. PH.(09) 408 1400

BUILDING	PLUMBING & DRAINAGE	PLANNING

FAR NORTH DISTRICT COUNCIL

REDAN ROAD,
P.O. BOX 262,
KAITAIA.
PHONE 408-1400

APPLICANT FILE **A** 684

NAME: Registration No. 52-004-926

D.J & J.G. WEBB

Valid Until

Receipt No. 260506

Date Paid 14.10.92

Valuation No. 40/533

AGE, Kaitaia

Building Permit	600	—
Drainage/Plumbing Permit	290	—
Sewerage Connection Fee		
Building Research Levy	119	25
Water Meter		
Water Meter Connection		
Other Fees		
Total Including G.S.T. $		
Street Damage Deposit (No G.S.T. Content) $		
TOTAL FEES DUE $	1009	25.

This document is an Advice Note — **NOT A TAX INVOICE.** Should you wish to proceed with the application, payment must be made at the above address and the appropriate Certificate/Permit will be issued subject to compliance.

PLEASE PRODUCE THIS COPY WHEN MAKING PAYMENT

D. J. WEBB.
7 CHIPPING DALE
MANGERE BRIDGE
AUCKLAND.

YR REF 40-553

ATTN
CHRIS MASKELL
BUILDING OFFICIAL.

DEAR SIR.

IN REPLY TO YOUR LETTER DATED 8 OCT. 92
PLEASE FIND ENCLOSED CHEQUE FOR $1009-25
(ONE THOUSAND & NINE DOLLARS - TWENTY FIVE CENTS).
TO COVE FEE FOR BUILDING PERMIT.
THE APPLICATION FORM FOR REMAINDER OF
PLUMBING/DRAINAGE WORK WILL BE SENT UNDER
SEPARATE COVER. I HAVE FILLED THE FORM IN
AND FORWARDED IT TO THE PLUMBER FOR SIGNING
REG NO. WHO WILL FORWARD THE FORM
DIRECT TO YOURSELF.

YOURS FAITHFULLY
D. J. Webb.

D. J. WEBB.
7 CHIPPING DALE
MANGERE BRIDGE
AUCKLAND.
1 OCT 92.

ATTN. CHRIS MASKELL.

DEAR SIR.

PLEASE FIND ENCLOSED 2 SETS OF PLANS & CALCS ETC. FOR PROPOSED RESIDENCE AT 25A CABLE BAY BLOCK RD. TOGETHER WITH APPLICATION PERMIT FORMS. THE PLUMBING APPLICATION WAS HANDED TO BARRY MOOR LAST FRIDAY. DUE TO THE NATURE OF MY WORK IT'S NOT ALWAYS CONVENIENT TO PHONE SO IF YOU COULD ADVISE TOTAL AMOUNT OF PERMIT FEE I WILL FORWARD CHEQUE BY RETURN POST. PLEASE BEAR IN MIND THAT I HAVE ALREADY DEPOSITED A CHEQUE FOR $60400.

YOURS FAITHFULLY
D. Webb.

NOTES: MATERIAL SPECIFICATION AND WORKMANSHIP

1. All concrete and grout for filling concrete block cavities shall have a nominal 28 day strength of 17.5 mPa.

2. All concrete workmanship and practises shall be in accordance with the requirements of NZS3109:1980.

3. All reinforcement shall, except for HRC mesh, be deformed or plain bars grade 300.

4. All masonry materials and workmanship shall comply with NZS4229 and NZS4210 Class C Masonry and mortar for concrete blockwork shall have a nominal 28 day strength of 12.5 mPa.

5. All bolts shall be grade 4.6 "Black" or "Commercial" grade and shall be galvanised when used for exterior use.

6. Unless noted otherwise all timber framing shall be No. 1 Framing Grade Pinus Radiata or equivalent and shall be treated H1 for interior use, H3 for external use and H4 when in contact with ground.

7. Framing member sizes and centre to centre spacing shall be not less than stated on the drawings and in any case not less than specified in NZS3604:1990 "Light Timber Frame Buildings" for similar application. A copy of this standard shall be kept on site at all times.

8. Joints in timber framing members shall be accurately formed, assembled and fixed with not less than the configuration of fixings set out in NZS3604 for similar joints and applications.

9. General workmanship and methods shall be those considered to be good trade practise within the industry and in accordance with NZS3604:1990.

10. Foundations shall be founded on original undisturbed ground or may be sited on filled ground provided the filling was undertaken at the time of the original land development and was certified at that time as having been carried out in accordance with the provisions of NZS4431:1978 "Code of Practice for Earth Filling for Residential Development".

11. Wall bracing types nominated are for the Winstones "Braceline Gibraltarboard Wall Bracing System" as described in Winstones' brochure of the same title and supported by BRANZ Appraisal Certificate No. 177, and in BRANZ "3604 FIX LIST" - Bracing Elements Feb 1992.

12. Granular fill material placed under the concrete floor slab shall comply with Clause E5.2 of NZS3604:1990.

13. The 20 mm thick H.D. particle board sheet flooring shall be fixed by nailing 3.15 diameter nails at 150 maximum centres at all sheet edges and 300 maximum centres at all interior joist crossings. Any sheet joints not over joists shall be solid blocked with not less than 100 x 50 blocking. The first floor shall be fixed as a "Structural Diaphragm" in accordance with the requirements of Section 7 of NZS4229:1986.

NEW DWELLING
25A CABLE BAY BLOCK RD.
BRACING LOWER STOREY
CALCULATION SHEET

JOB NAME:	PAGE No:
SECTION:	
JOB No: SELF.	DESIGNED: TJW
DATE: 1 SEPT 92	CHECKED:

WIND AREA H.

E.Q ZONE C

LONG WALL 12.0m.

SHORT WALL 10.2m.

STOREY HT LOWER 2.4m.

ROOF PITCH 11°. LIGHT.

W. MINM BRACING UNITS/m. = 130 BU'S/m. (P75-NZS4229)

BRACING UNITS REQUIRED ACROSS BUILDING
=12×130 = 1560 BU's.

BRACING UNITS REQUIRED ALONG BUILDING
=10.2×130 = 1326 BU's

E.Q BRACING UNITS/m^2 = 25 BU/m^2 (P70 NZS4229)
AREA 107 m^2.

BRACING UNITS REQUIRED = 25×107 = 2675 BU's

EARTHQUAKE PREDOMINANT.

STRUCTURAL DIAPHRAGM SYSTEM.

MINM BU's PER WALL = 60% = 1605.

BU'S PROVIDED.

NORTH WALL SOLID FILL PANEL 2.4×2.4 = 2100 BU's.

SOUTH WALL " " " 2.4×2.2 = 1750 BU's

EAST WALL. " " " 2.4×2.4 = 2100 BU's.

WEST WALL. " " " 2.4×3.6 = 4600 BU's

GIBRALTAR BOARD
Wall Bracing Systems

WALLBRACING CALCULATION SHEET A

(For use with NZS 3604 : 1990)

Name: WEBB

1.

Location of STOREY	foundation single (upper of two) lower of two
SITE WIND ZONE: (Table 2.4)	low / medium (high) / very high
EARTHQUAKE ZONE: (Fig. 2.2, Table 2.3)	A / B / (C)

SITE ADDRESS

City/Town or District: MANGONUI

Street and Number: 25A CABLE BAY BLOCK ROAD

or

LOT and D.P. Number: LOT 19 DP 60617

2. FOR EARTHQUAKE

Roof weight:	(light) / heavy
Average Roof Pitch:	11°
Type of Cladding:	(light) / heavy
Earthquake Zone:	
Storey in Roof space:	yes / (no)

E = 1·4 BU's/m²

3. FOR WIND

Building Height:	6/:7	m
Roof Height	:1	m
Stud Height	2·4/2·3	m
Wind Speed	: H	

W = 71 BU's/m

4.

ROOF or BUILDING LENGTH	BL	= 12·0 m
ROOF or BUILDING WIDTH	BW	= 10·0 m
GROSS ROOF or BUILDING PLAN AREA	GPA	= 120 m²

5.

EARTHQUAKE LOAD (ACROSS and ALONG)	E x GPA = 1·4 x 120	= 168	BU's
WIND LOAD: ACROSS	W x BL = 71 x 12·0	= 852	BU's
WIND LOAD: ALONG	W x BW = 71 x 10·0	= 710	BU's

WIND CRITICAL.

WALLBRACING CALCULATION SHEET B

(For use with NZS 3604 : 1990)

ALONG

LOCATION OF STOREY	WALL OR BRACING LINE		BRACING ELEMENTS PROVIDED				
1	2	3	4	5	6	7	8
foundation single (upper storey) lower storey	Line Label	Minimum BU's Required	Bracing Element No.	Bracing Type	Rating BU's	Length of Element (mm)	BU's Achieved
Total Bracing Units Required for foundation or this storey	A						
	B						
for EARTHQUAKE (from sheet A)	C						
	D						
	E						
					TOTAL		
for WIND (from Sheet A)	A	120	1	BR4	91	1·2	109
			2	BR4	91	1·5	137
	B		3	BR4	91	1·2	109
	C		1	BR5	98×3·4/3·4	3·0	220
	D		1	BR5	98×3·4/3·4	1·2	162
	E	120	1	CPS	94	1·2	113
			2	CPS	94	1·2	113
					TOTAL		963
710							

ACROSS

	WALL OR BRACING LINE		BRACING ELEMENTS PROVIDED				
1	2	3	4	5	6	7	8
	Line Label	Minimum BU's Required	Bracing Element No.	Bracing Type	Rating BU's	Length of Element (m)	BU's Achieved
Total Bracing Units Required for foundation or this storey	M						
	N						
for EARTHQUAKE (from sheet A)	O						
	P						
	Q						
					TOTAL		
for WIND (from Sheet A)	M	94	1	BR1	72	2·4	173
	N		1	BR2	75×3·4/3·0	1·8	108
	O		1	BR2	86×3·4/2·9	3·0	248
	P		1	BR2	86×3·4/2·9	3·0	248
	Q		1	BR2	75	1·8	135
	R	100	1	BR1	72×3·4/2·4	2·4	143
					TOTAL		1012
852							

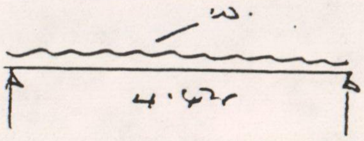
Tom Moynihan
Consulting Structural Engineer BE MIPENZ REGISTERED ENGINEER
14 Valley Road,
Browns Bay, Auckland 10
Telephone (09) 479-4285

JOB NO			
SHEET	1	OF	
BY	TMM.	DATE	17.8.92
CHECKED		DATE	

SUBJECT NEW DWELLING
25A CABLE BAY BLOCK ROAD

ROOF BEAMS

BEDROOMS 1 & 2 — SPAN 4.425 max.



RD = 2.24 kN
RL = 1.40 kN
RSM 3.64 kN

LOADS. Tru. Roof.

D =	Corr. Gal. Iron.	0.05 kpa.
	75×50 Purlins.	0.03 "
	200×50 @ 750 crs.	0.08 "
	75×50 N2651 @ 600	0.04 "
	Fo 150×20 T&G. Sark.	0.10 "
	misc.	0.02
		0.32 kpa.

L = 0.25 kpa.

WD = $(0.35 \times \frac{5}{2}) + (6 \times 0.2 \times 0.1) = 1.0$ kN/m

WL = $0.25 \times \frac{5}{2}$ = 0.625 kN/m

or 1.0 kN. pt. Load.

FLEXURE

M_{L+DL} = 3.93 kN.m or 3.56 kN.m.

Try. 2/200×100

fb = 6.61 mPa.

Fb = 6.0 × 1.4 × 1.0 = 8.4 mPa. a/ No1 F/G Pinus Radiata or Equal.

DEFLECTION

$\Delta D_{INST.} = \frac{5 \times 1.0 \times 4.425^4 \times 12}{384 \times 3 \times 0.095 \times 0.195^3} = 10.6$ mm.

$\Delta D_{LONG.} = 2 \times \Delta D_{INST} = 21.2$ mm.

$\Delta L_{INST.} = 10.6 \times \frac{0.625}{1.0} = 6.6$ mm.

$\therefore \Delta D_{LONG} + \Delta L_{INST.} = 27.8$ mm

Cf. 0.006 × 4425 = 26.6 mm. OK For SARKED ROOF.

USE EX 200 × 100 No1 F/G PINUS RADIATA.

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Telephone (09) 479-4285

JOB NO

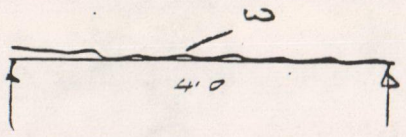
SHEET 2 OF

SUBJECT NEW DWELLING
27A CARLTON BAY BLOCK ROAD

BY Tom DATE 17.8.92

CHECKED DATE

BEAM OVER LOUNGE. SPAN 4.0m.



$W_D = (0.35 \times \frac{7.6}{2}) + (6 \times 0.2 \times 0.1) = 1.45$ kN/m

$W_L = 0.25 \times \frac{7.6}{2} = 0.95$ kN/m

$W_{DL} = 2.40$ kN/m

$R_D = 2.40$ kN.
$R_L = 1.90$ kN.
$R_{D+L} = 4.30$ kN.
$M^*_{DL} = 4.30$ kN.m
D+L

Try 200 × 100..
$f_b = 7.97$ mPa. cf. $F_b = 6.0 \times 1.4 \times 1.0 = 8.4$ mPa.

DEFLECTION

$$\Delta D_{int.} = \frac{5 \times 1.45 \times 4.0^4 \times 12}{384 \times 5 \times 0.045 \times 0.195^3 \times 40^3} = 10.3 \text{ mm}$$

$$\Delta D_{long} = 2 \times \Delta D_{int.} = 20.6 \text{ mm.}$$

$$\Delta L_{int.} = 10.3 \times \frac{0.95}{2.40} = 4.1 \text{ mm.}$$

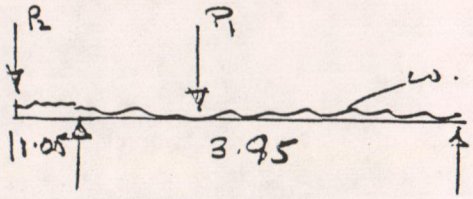
$\therefore \Delta D_{long} + \Delta L_{int.} = 20.6 + 4.1 = 24.7$ mm

cf. $0.006 \times 4000 = 24.0$ mm

OR FOR SARKED CEILING

use Ex 200 × 90 Pine Radiata #1 F6

DOUBLE JOIST OVER GARAGE TO TAKE WALL BETWEEN BED 1 & 2.



SPAN. 3.95.

Loads. $W_D = (0.45 \times 0.45) + (0.33 \times 3.4) + (0.15) = 1.15$ kN/m

$W_L = 1.5 \times 0.45 = 0.7$ kN/m

$P_{1_D} = 2.24 \times 2 = 4.48$ kN.

$P_{1_L} = 0.$

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JOB NO

SHEET 3 OF

SUBJECT NEW DWELLING

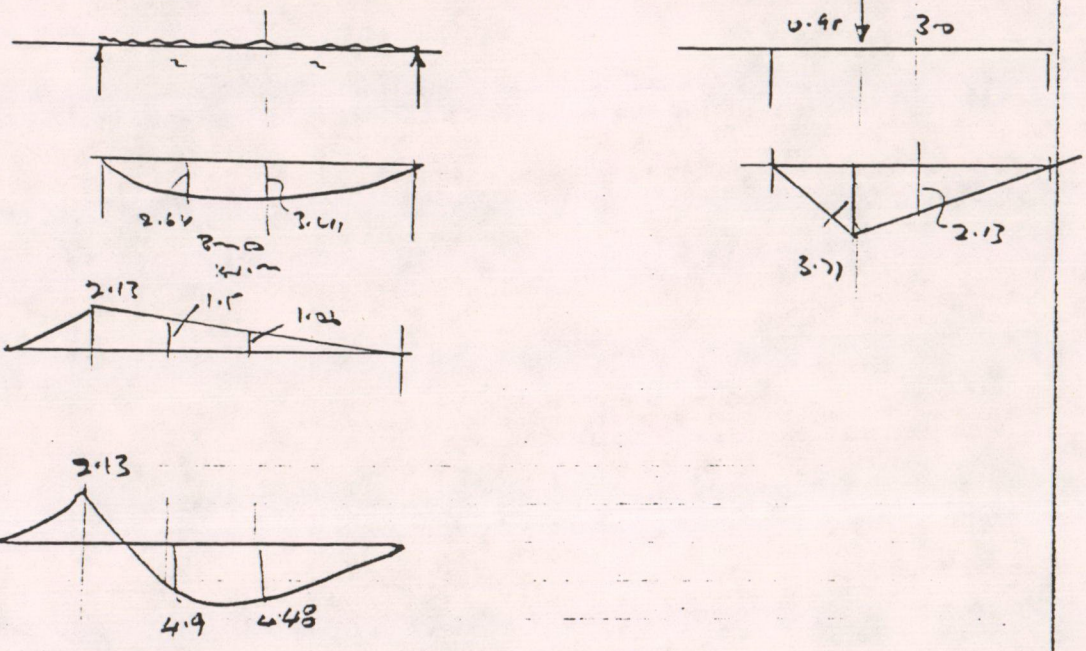
25A CABLE BAY BLOCK ROAD

BY Tom DATE 17.3.94

CHECKED DATE

$P_{2D} = (0.35 \times 2.0) + (0.33 \times 2.4 \times 0.45) = 1.06$ kN.

$P_{2L} = 2.0$.



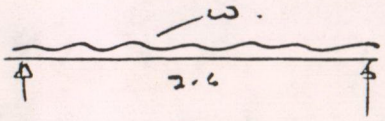
Σ BMD (DFL)

Try 2/250 x 50 $f_b = 5.44$ mPa.

$F_b = 6.0 \times 1.4 \times 1.14 \times 1.0 = 9.6$ mPa. OK.

use 2/250 x 50 SOLID.

LINTEL OVER GARAGE DOORS SPAN 2.6 m.



$w_D = (0.35 \times 0.25/2) + (0.33 \times 2.4) + (0.45 \times 0.45) + (24 \times 0.3 \times 0.2) = 2.57$ kN/m

$w_L = 1.5 \times 0.45 = 0.675$ kN/m or 1.8 kN.

$w_u = (2.57 \times 1.4) + (0.675 \times 1.7) = 4.75$ kN/m

$= 3.6$ kN/m $+ (1.8 \times 1.7) = 3.1$ kN pt. load.

$M_u = 4.0$ kN.m or 5.04 kN.m

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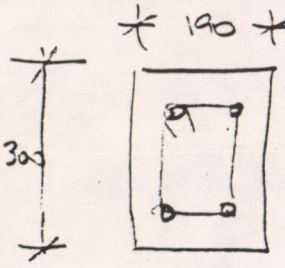
JOB NO

SHEET 4 OF

SUBJECT NEW DWELLING
25A CABLE BAY BLOCK ROAD.

BY Tom DATE 17.8.92

CHECKED DATE



INSITU BEAM.

$D = 300 \quad d = 300 - 50 - 10 - 10 = 230$

$f'_c = 17.5 \text{ mPa.} \quad f_y = 300 \text{ mPa.} \quad b = 190$

$\phi = 0.9.$

Try 2D12 $A_s = 114 \times 2 = 228 \text{ mm}^2$

$$M_R = \frac{0.9 \times 228 \times 300}{10^6}\left(230 - \frac{0.5 \times 228 \times 300}{0.85 \times 17.5 \times 190}\right) = 13.4 \text{ kN.m}$$

$> M_u$ OK.

∴ 300 × 190 INSITU CONC BEAM OK
WITH 2 D12 TOP & BOTTOM.
R6 STIRR. @ 200 MAX. CRS

ALTERNATIVELY USE 1D16 BAR TOP & BOTTOM.
WITH R6 LINKS @ 200 CRS.

$$M_R = \frac{0.9 \times 200 \times 300}{10^6}\left(230 - \frac{0.5 \times 200 \times 300}{0.85 \times 17.5 \times 190}\right)$$

$= 11.05 \text{ kN.m.} > 5.04$ OK.

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JOB NO

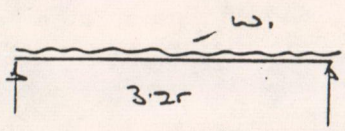
SHEET 4 OF

SUBJECT NEW DWELLING
25A CABLE BAY BLOCK ROAD.

BY Tom DATE 20.3.92

CHECKED DATE

BEAM 2/SL UPPER DECK (REAR LEVEL) SPAN 3.25m



$w_D = 0.3 \times \frac{1.8}{2} + 0.10 = 0.37$ kN/m

$w_L = 0.2 \times \frac{1.8}{2} = 0.23$

0.60 kN/m

$R_D = 0.60$kN

$R_L = 1.00$kN

of $P_L = 1.0$kN. pt.

$M_{D+L} = 0.8$ kN.m ≈ 1.3 kN.m.

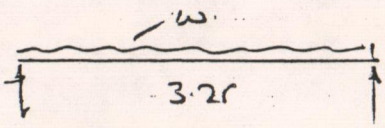
Try 200×50.

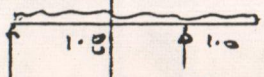
$f_b = 4.56$ mPa. OK.

USK. 200×50

BEAM OVER LOWER DECK (1ST FLOOR LEVEL) SPAN 3.25m

(AT DECK CANTILEVER)





$w_D = \frac{0.4 \times 2.8^2}{3.6} + 0.2 + 0.3 \times \frac{2.8}{1.8} = 1.54$ kN/m

$w_L = \frac{2.0 \times 2.8^2}{3.6} = 4.44$ kN/m

$w_{D+L} = 6.0$ kN/m

$R_D = 2.5$kN.

$R_L = 7.2$kN.

$M_{D+L} = 7.92$ kN.m

Try 2/300×50

$f_b = 6.07$mPa.

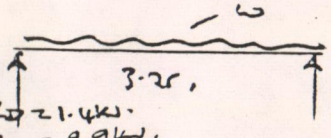
$F_b = 5.0 \times 1.4 \times 1.14 = 7.99$ mPa.

OK.

USK. 2/300×50.

BEAM OVER LOWER DECK, NO CANTILEVER

SPAN 3.25m



$w_D = (0.4 \times \frac{1.8}{2}) + 0.2 + 0.3 = 0.86$ kN/m

$w_L = 2.0 \times \frac{1.8}{2} = 1.8$ kN/m

$R_D = 1.4$kN.

$R_L = 2.9$kN.

$M_{D+L} = 3.51$ kNm or. $(1.14 + 1.46) = 2.60$ kN.m

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JOB NO

SHEET 5 OF

SUBJECT NEW DWELLING

25A CABLE BAY BLOCK ROAD.

BY THM. DATE 29.8.92

CHECKED DATE

Try 1/300 x 50.

f_b = 5.38 mPa.

F_b = 5.0 x 1.4 = 7.0 mPa.

OK.

min. 1/300 x 50

Tom Moynihan
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Telephone (09) 479-4285

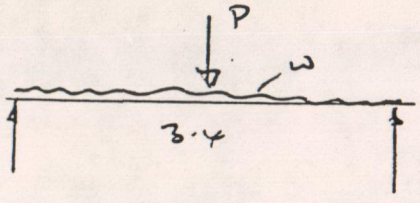
JOB NO	
SHEET 6	OF
BY Tom.	DATE 20.8.92
CHECKED	DATE

SUBJECT NEW DWELLING

25A CARLE BAY BLOCK ROAD

WATER STORAGE TANK.
SUSPENDED CONCRETE SLAB TO ROOF OF WATER TANK

SPAN 3.4m MAX.



COVER TO BOTTOM STEEL 40m
NOM d OF AT LEAST 100.
∴ SLAB MIN THICKNESS = 150m

DEAD LOAD. WD SELF 24 × 0.15 = 3.60 kPa.
SCREED & FINISH. ALLY = 1.20 kPa.
4.8 kPa.

W_L = 2.0 kPa.

P_D EX DEAD POINT. = 5.10 kN.

P_L " " " = 10.10 kN.

$W_u = (4.8 \times 1.4 + 2.0 \times 1.7) = 10.1$ kPa.

$P_u = (5.1 \times 1.4 + 10.1 \times 1.7) = 24.3$ kN.

$$M_u = \frac{10.1 \times 3.6^2}{8} + \frac{24.3 \times 3.4}{4} \times \frac{1}{0.6 \times 3.4}$$

$$= 14.54 + 10.13$$

$$= 24.72 \text{ kN.m.}$$

D = 150 c = 40 ∴ d = 100

f_y = 300 MAX. f'_c = 17.5 MPa ϕ = 0.9

Try D16 @ 200 CRS. A_s = 1000 mm^2/m

$$M_z = \frac{0.9 \times 1000 \times 300}{10^6} \left(100 - \frac{0.5 \times 1000 \times 300}{0.85 \times 1000 \times 17.5}\right)$$

= 24.3 kN.m. Cf. 24.72 Req. OK.

USE D16 @ 200 CRS 40 COVER BOTTOM

$$\frac{A_s}{bd} = \frac{200}{300 \times 100} = 0.67\% > 0.25\% \text{ OK}$$

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JOB NO

SHEET 7. OF

SUBJECT NEW DWELLING

BY TM DATE 20.8.92

IT A CARLE BAY BLOCK ROAD

CHECKED DATE

DISTRIBUTN STEEL D12 @ 300 cm.

$\frac{A_s \text{ req'd}}{bd} = \frac{114 \times 100}{300 \times 150} = 0.25\%$ < 0.25% R'qd. OK.

SHORT SPAN. Span. 1600. $w_u = 10.1$ kPa

$M_u = 10.1 \times \frac{1.6^2}{8} = 3.23$ kN.m.

Use min % steel 0.25% i.e. D12 @ 300 cm. $A_s = 393 mm^2/m$.

D = 150 $d = 150 - 40 - 12 - 5 = 93$. Say 90 mm.

$M_R = 0.9 \times \frac{393}{10^6} \times 300 \left(90 - \frac{0.5 \times 393 \times 300}{0.85 \times 25 \times 1000}\right)$

$= 8.9$ kN.m > 3.23 OK.

Use D12 @ 300 cm. both ways to cover bottom.

CONCRETE BLOCK WALL. 200 NOMINAL CLASS C MASONRY. ALL CELLS FILLED IN WATER TANK WALL.

MIN WALL STEEL 0.25% BOTH DIRECTIONS.

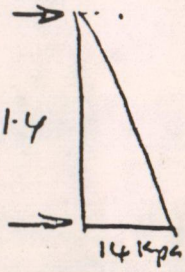
TRY D16 @ 1200 cm. $\frac{A_s \times 100}{80} = \frac{200 \times 100}{190 \times 400} = 0.263\%$. OK.

STEEL CENTRAL $d = 95$ $A_s = 1000 mm^2/m$

$f_y = 300$ mPa $\phi = 0.85$

$f'_c = 4$ mPa.

$M_R = 0.85 \times \frac{1000 \times 300}{10^6} \left(90 - \frac{0.5 \times 1000 \times 300}{0.85 \times 4 \times 1000}\right) = 11.7$ kN.m



$M_u = 1.7 \times 14 \times \frac{1.4}{2} \times 1.4 \times 0.128 = 3.0$ kN.m < 11.7

FLEXURAL STRESSES WILL BE LOW

∴ CRACKING WILL BE MINIMAL — CAPACITY AVAILABLE IN STEEL FOR SECONDARY STRESSES IE - TEMP. + SHRINKAGE STRESSES.

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JOB NO

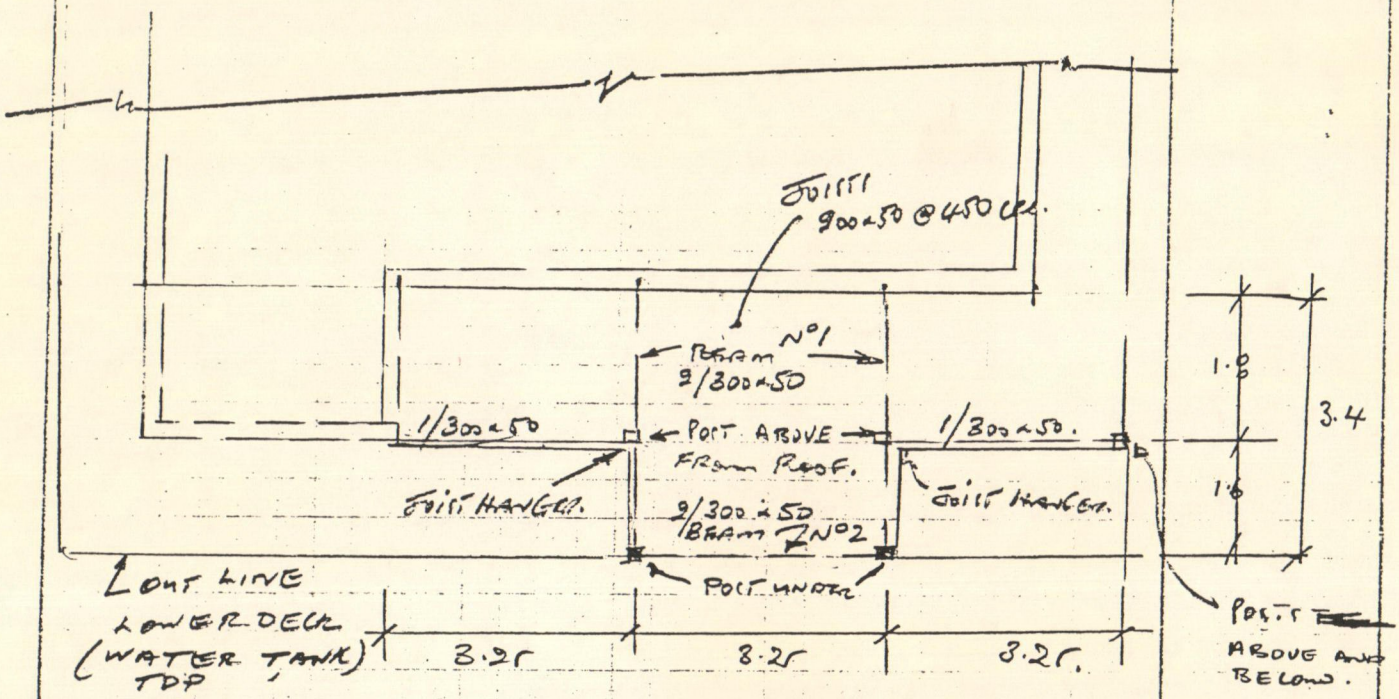
SHEET 8 OF

SUBJECT NEW DWELLING 25A CABLE BAY BLOCK ROAD. ALTERATIONS TO PERMIT.

BY Tom DATE 14.11.92

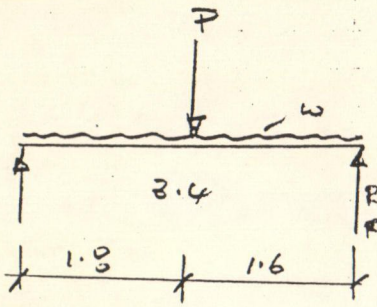
CHECKED DATE

CONFIGURATION:



PLAN AT LOWER FLOOR LEVEL SHOWING UPPER DECK SUPPORTING BEAMS

BEAM N°1 SPAN 3.4m.



w_D = 0.90 kN/m.

w_L = 2.0 x 0.45 = 0.9 kN/m

P_D = 0.6 + 0.15 + 1.4 = 2.15kN

P_L = 3.0 kN.

$M_{DL} = \frac{1.1 \times 3.4^2}{8} + \frac{5.15 \times 1.8 \times 1.6}{3.4}$ = 1.60 + 4.36 = 5.96 kN.m

SAY 6.0 kN.m

Try 2/300x50 f_b = 4.60 mPa.

F_b = 5.0 x 1.6 x 1.14 = 7.98 mPa OK

USE 2/300 x 50

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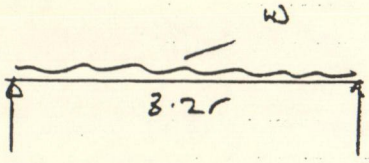
JOB NO	
SHEET 9	OF
BY THM.	DATE 14.11.92
CHECKED	DATE

SUBJECT NEW DWELLING
25A CABLE BAY BLOCK ROAD
AMENDMENT TO PERMIT.

BEAM N° 2
BEAM AT EDGE OF UPPER DECK SPAN 3.9m
DECK WIDTH 3400



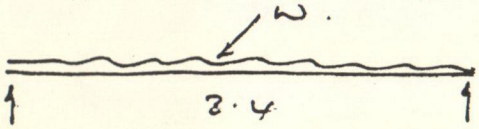
$W_D = (0.4 \times \frac{3.4}{2}) + (0.15) + (0.15)$
$= 1.0 kN/m$
$W_L = 2.0 \times \frac{3.4}{2} = 3.4 kN/m.$

$M^*_{D+L} = \frac{4.4 \times 3.2^2}{8} = 5.81 kN.m$

Try 2/300 x 50
$f_b = 4.45 MPa.$
$\phi.F_b = 5.0 \times 1.14 \times 1.4 = 7.98 MPa.$ OK

USE 2/300 x 50.

WATER STORAGE TANK. AGAIN
SUSPENDED CONC. SLAB TO ROOF OF WATER TANK.
SPAN 3.4m.



NOTE LOADING FROM DECK SUPPORT POSTS NO LONGER RELEVANT. (DELETED.)

FROM PREVIOUS CALC. $W_4 = 10.1 kPa.$

$\therefore M_4 = \frac{10.1 \times 3.4^2}{8} = 14.59 kN.m.$

$D = 150 \quad c = 40 \quad d = 100 \quad f_y = 300 \quad f'_c = 17.5 MPa$
$\phi = 0.9$

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JOB NO

SHEET 10 OF

SUBJECT NEW DWELLING
25A CABLEBAY BLOCK ROAD
AMENDMENT TO PERMIT.

BY TMM. DATE 14.11.92

CHECKED DATE

Try D12 @ 200 CRS.

$A_s = \frac{114}{0.2} = 570$

$M_R = \frac{0.9 \times 570 \times 300}{10^6}\left(100 - \frac{0.15 \times 570 \times 300}{0.85 \times 17.5 \times 1000}\right)$

$= 14.51$ Kn.m.

Cf. 14.59 REQUIRED OK.

USE D12 @ 200 CRS.
AS BOTTOM COVER.

$\frac{A_s \times 100}{bd} = \frac{114 \times 100}{200 \times 150} = 0.38\% > 0.25\%$ OK.

SUBJECT
RE, NEW DWELLING AT
25A CABLE BAY BLOCK RD.

BY 40/553 DATE

CHECKED DATE

ATTN CHRIS MASKELL. BUILDING INSPECTOR

DEAR CHRIS

1) HAVING HAD DISCUSSIONS WITH MY ENGINEER TOM MOYNIHAN IT WAS DECIDED TO MAKE THE BOTTOM OF THE WATER TANK LEVEL. RATHER THAN SLOPE AND AT THE SAME TIME EXTEND TO THE FULL LENGTH OF THE NORTH WALL.

2) I HAVE REPLACED THE 2mtg WINDOW ON THE WEST WALL OF THE GARAGE WITH A DOOR & WINDOW

THE ATTACHED DRGS INCORPORATE THESE MODIFICATION.

DRG			
	WDP	1-02.	ISSUE 3.
	WDP	2-01	" 4.
	WDP	2-02	" 2
	WDP	2-03	" 3

I TRUST THE ABOVE IS ACCEPTABLE.

KIND REGARDS
DEREK WEBB.

P.S. TO ALLOW CONC. TRUCK ACCESS FOR FOOTINGS & WATER STORAGE FLOOR, I INTEND POURING THE FOOTING ON THE SOUTH WALL FROM END OF STORAGE TANK TO S.W. CORNER AT A LATER DATE -.

40/553.

25A CABLE BRK track Rd.

JOB NAME:	PAGE No:
SECTION:	
JOB No:	DESIGNED:
DATE: 15 OCT 93.	CHECKED:

CALCULATION SHEET

SERVERY W'C. RELOCATIONED TO ENSUITE BED 1.
ENSUITE MODIFIED ACCORDINGLY
EXISTING W'C ROOM NOW BECOMES STORAGE CLOSET
DRG WDP 2-01 — ISSUE 5 INCORPORATES THESE MODIFICATIONS

DRG WDP 2-04. — ISSUE 2. INDICATES ADDITIONAL FLOOR JOIST UNDER ENSUITE WALL TO REDUCE SPAN OF RAFTER BEAM THRU BED 1.

AMENDMENTS.
15 OCT 93.