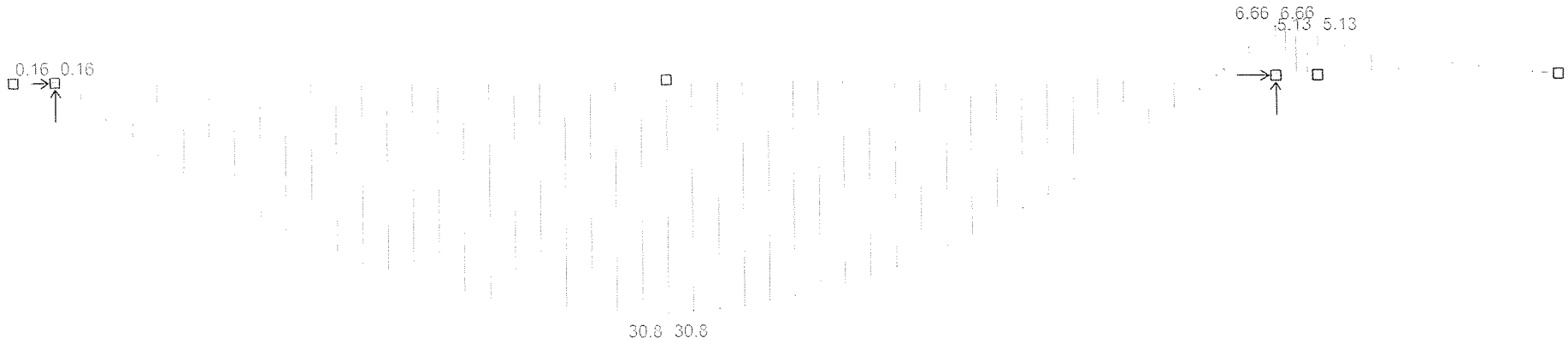
Job: Beam
140547.02
23 Holloway Place, Hamilton

5 May 2015
09:59 a.m.

Load Cases:
3 C 1.2G + 1.5Q



Y
Z X
theta: 270 phi: 0

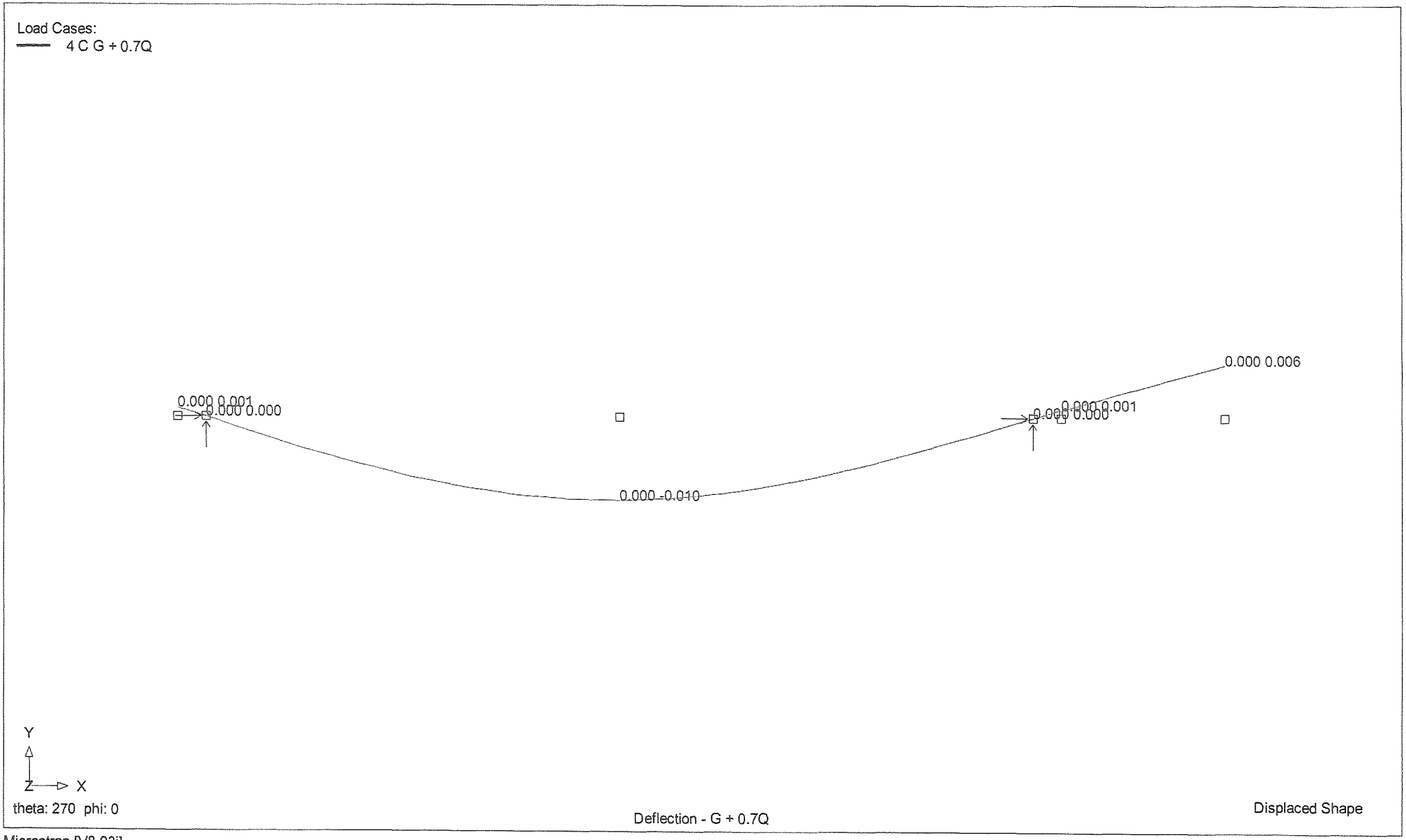
Moment ULS - 1.2G + 1.5Q

Bending Moment, Mz

47

Job: Beam
140547.02
23 Holloway Place, Hamilton

5 May 2015
09:59 a.m.



Microstran [V8.03j]

C:\Users\daven\Desktop\23 Holloway Place\Beam

dbcon Consulting Engineers

Project	Job ref.
Calculations by	Element
Date	1-D7

Max moment, M^*_{ULS} = 30.8 kNm

ϕM_{bx} = 90 kNm (restraint by joists)

✓ okay.

deflection:

10mm at midspan → $\frac{span}{585}$

6mm at end → $\frac{span}{258}$

✓ okay.

Design Post

Consider Post next to Cantilever

from microstran:

Reactions: G = 4.11 kN

Q = 18.7 kN

assume soil class D

μ = 1.25

Z = 0.16 (Hamilton)

∴ C_{dT}(ULS) = 0.39g C_{dT}(SLS) = 0.07g

dbcon Consulting Engineers	Project	Job ref.
	Calculations by	Element
	Date	P8

Seismic Wk = $G + \psi_{EQ}$

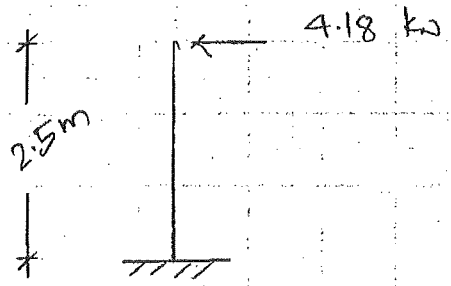
$= (0.39 \times 4.11) + 0.3(0.39 \times 18.7)$

$= 1.603 + 2.19$

$= 3.8$ kN

Allow 10% ecc loads.

$\therefore$ Eu = 4.18 kN →



$M^* = 4.18 \times 2.5\text{m} = 10.45$ kNm

Try 100 × 100 × 6.0 SHS.

Check deflection: (ULS)

$$\Delta = \frac{PL^3}{3EI}$$

$$= \frac{4.18\,(2500)^3}{3 \times 200 \times 10^3 \times 3.04 \times 10^6}$$

$= 35.8$ mm $<$ 2.5% × 2500

$<$ 62.5 mm ✓ okay

dbcon Consulting Engineers

Project	Job ref.
Calculations by	Element
Date	

Check SLS:

$F_s = (0.07 \times 4.11) + 0.3(0.07 \times 18.7)$

$= 0.65$ kN

allow 10% ecc loads

$\therefore = 0.748$ kN →

deflection (SLS)

$$\Delta = \frac{358}{4.16} \times 0.748$$

$\Delta_s = 6.4$ mm → $\frac{ht}{390}$

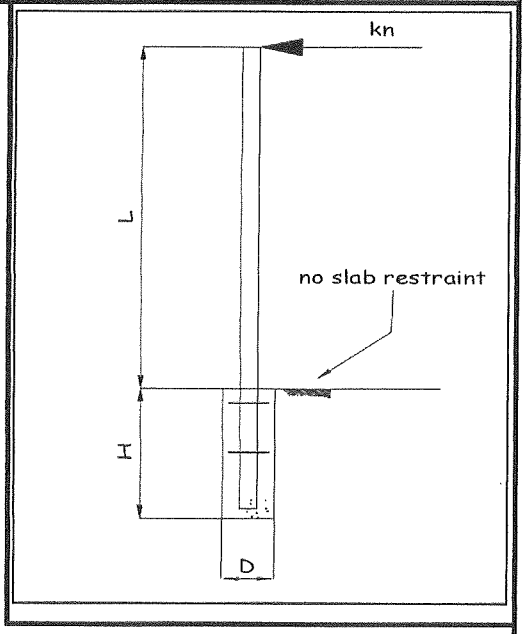
✓ Okay.

Provide 100 × 100 × 6 SHS Post and 200 UB 29.8 Beam

* From Scala results, soft peat is present from 1.5 – 3.1m depth. Provide foundation past this layer

dbcon Consulting Engineers	Project: 23 Holloway Place		Job ref: 140547
	Drawing ref	calculations by: DN	revision	sheet no: P10
	Element: Portal Columns Cantilever Foundation Design		Date: May-15

1) Design Post Footing



H = $A(1 + \sqrt{(1 + 2.18\ L/A)}$

A = 1.17(P/SB)

R(radians) = 0.0187/H

S = 100kPa @ 1.5m Deep — From Tables, Soft Clay

P = 1.48 kN — applied load

L = 2.50 m — ht above ground level to the ht of application P

D = 0.45 m

Try H = 4 m

Therefore H/3 = 1.33 and from tables S = 37

A = 1.17(P/SB)
= 1.17 x (1.48 kN / 37 x 0.45)
= 0.10

H = $A(1 + \sqrt{(1 + 2.18\ L/A)}$
= 0.1 (1 + sqrt(1 + 2.18 (2.5 m/ 0.1)
= 0.84

0.84	< 4.00	O.K

Provide 450 ø Concrete footing 4m deep.

dbcon Consulting Engineers	Project	Job ref.
	Calculations by	Element
	Date	

min reinforcement in conc. pile:

$$\rho_t = \frac{2.4}{f_y}$$

$$= \frac{2.4}{500}$$

$$= 4.8 \times 10^{-3} \times \frac{\pi (450)^2}{4}$$

$$= 763 \text{ mm}^2$$

Provide 4-HD16 bars and R6 spiral @ 200 c/c

Design Front Post

supporting area $= \left(\frac{7.4}{2} + \frac{2.2}{2}\right) \times \frac{1.05}{2}$

$= 2.52 \text{ m}^2$

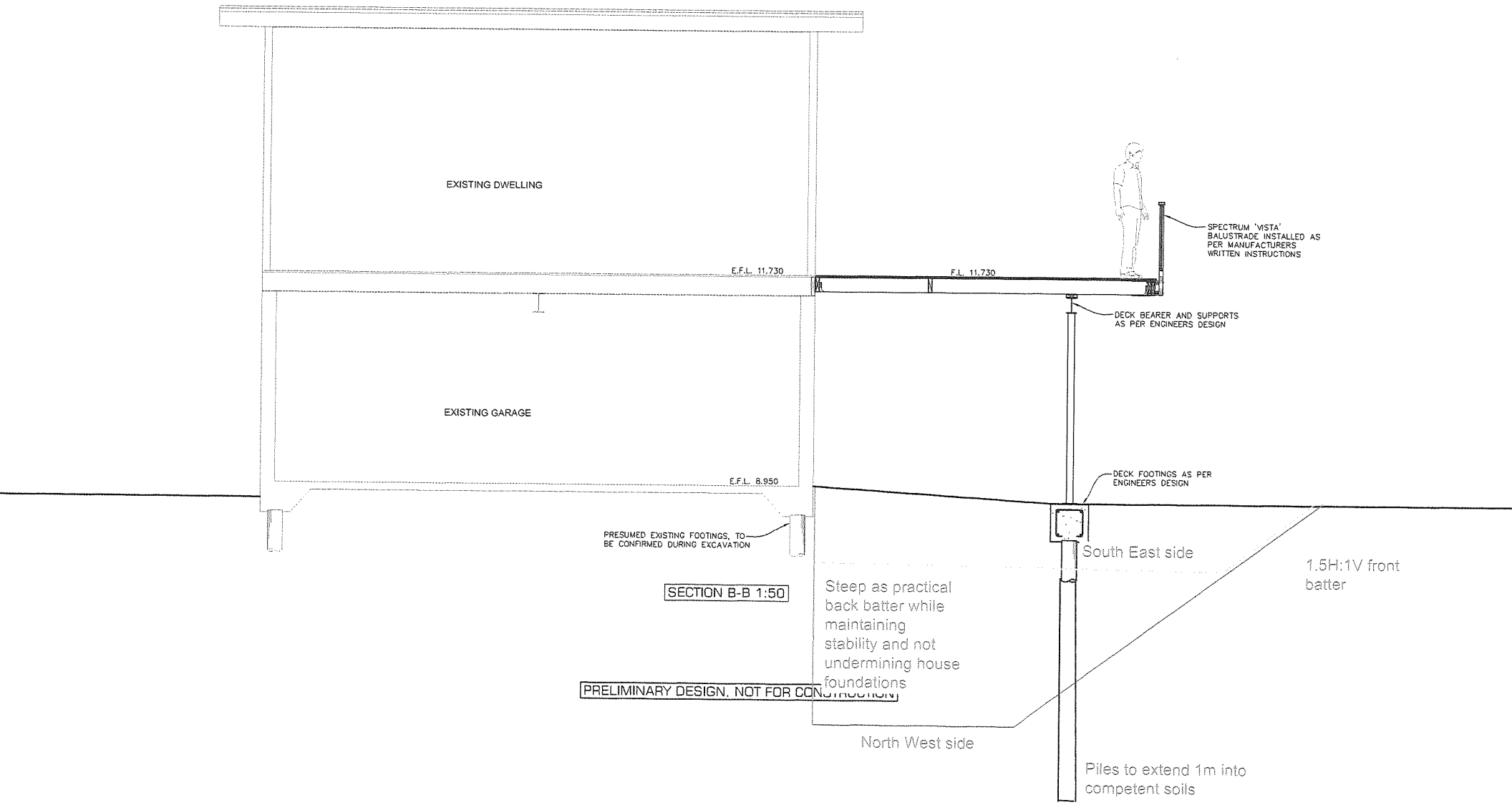
DL = 0.3 kpa x 2.52m = 0.756 kN

LL = 2 kpa x 2.52m = 5.04 kN

$F_{cu} = (0.39 \times 0.756) + 0.3(0.39 \times 5.04)$

$= 0.88\ f_{cu}$ < loads from FE

From inspection, adopt same size post



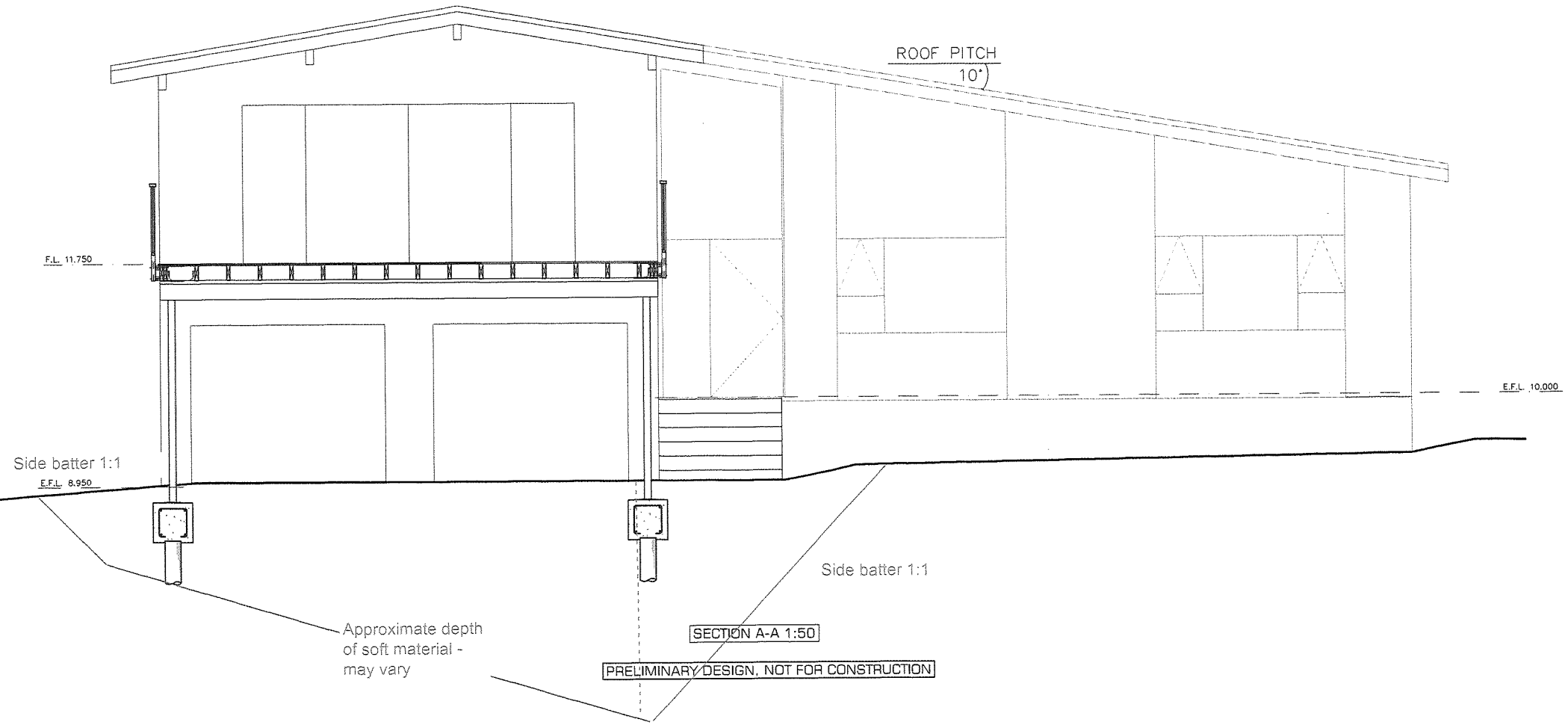
SECTION B-B 1:50

PRELIMINARY DESIGN, NOT FOR CONSTRUCTION

onstruction in accordance with NZS3604
ated NZBC documents including E2 AS1
mber to comply with NZS3602
oncrete work to comply with NZS3109 & NZS3124
asonry work to comply with NZS4210 & NZS4229
aterials to be fixed in accordance
manufacturers written instructions
k all dimensions on site
ok with designer if in any doubt

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WITH EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	PROPOSED SECTION B-B	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A07



SECTION A-A 1:50

PRELIMINARY DESIGN, NOT FOR CONSTRUCTION

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WITH EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

onstruction in accordance with NZS3604
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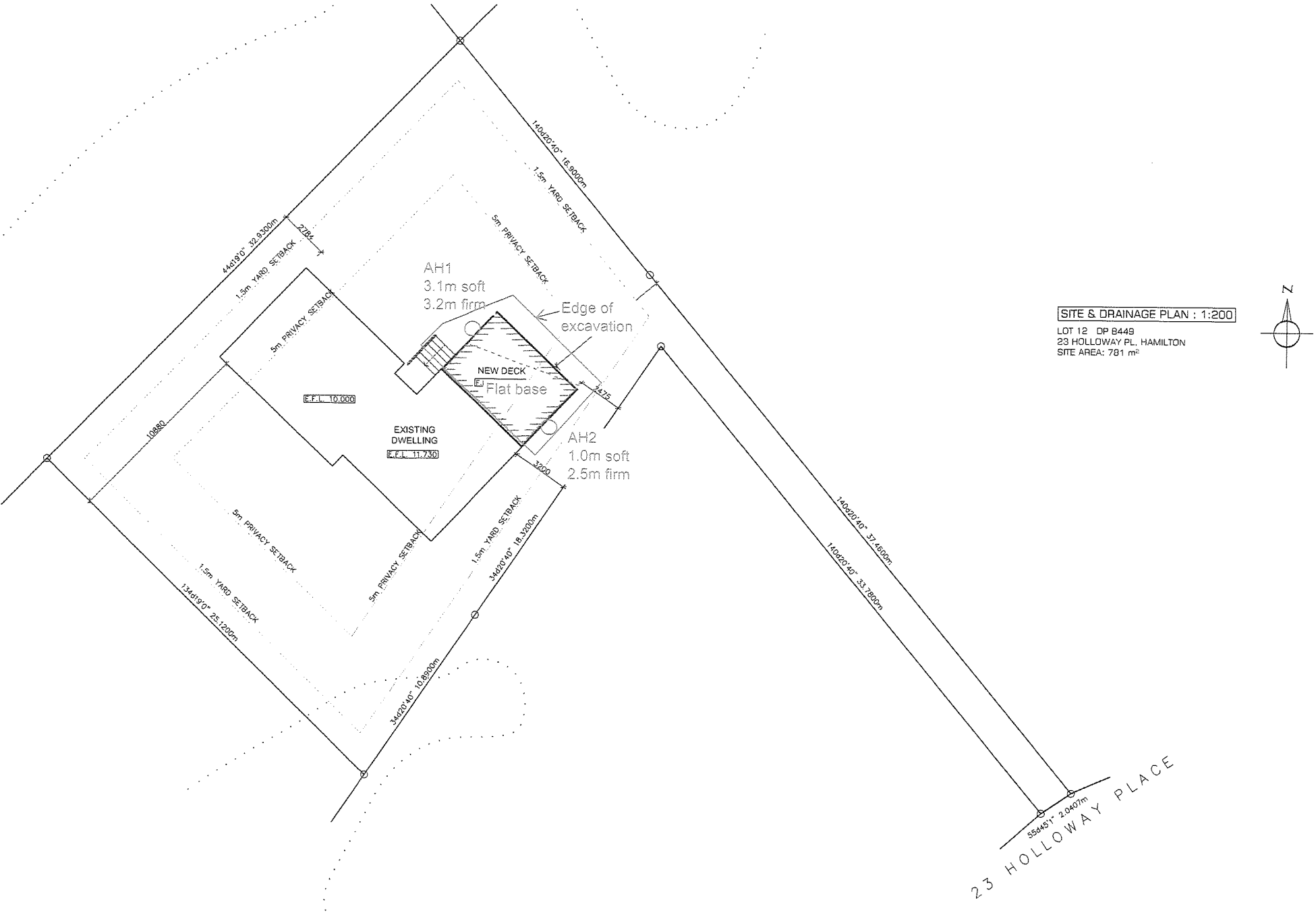
ck with designer if in any doubt

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	PROPOSED SECTION A-A	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A06



SITE & DRAINAGE PLAN : 1:200

LOT 12 DP 8449
23 HOLLOWAY PL, HAMILTON
SITE AREA: 781 m²

N

struction in accordance with NZS3604
ed NZBC documents including E2 AS1
ber to comply with NZS3602
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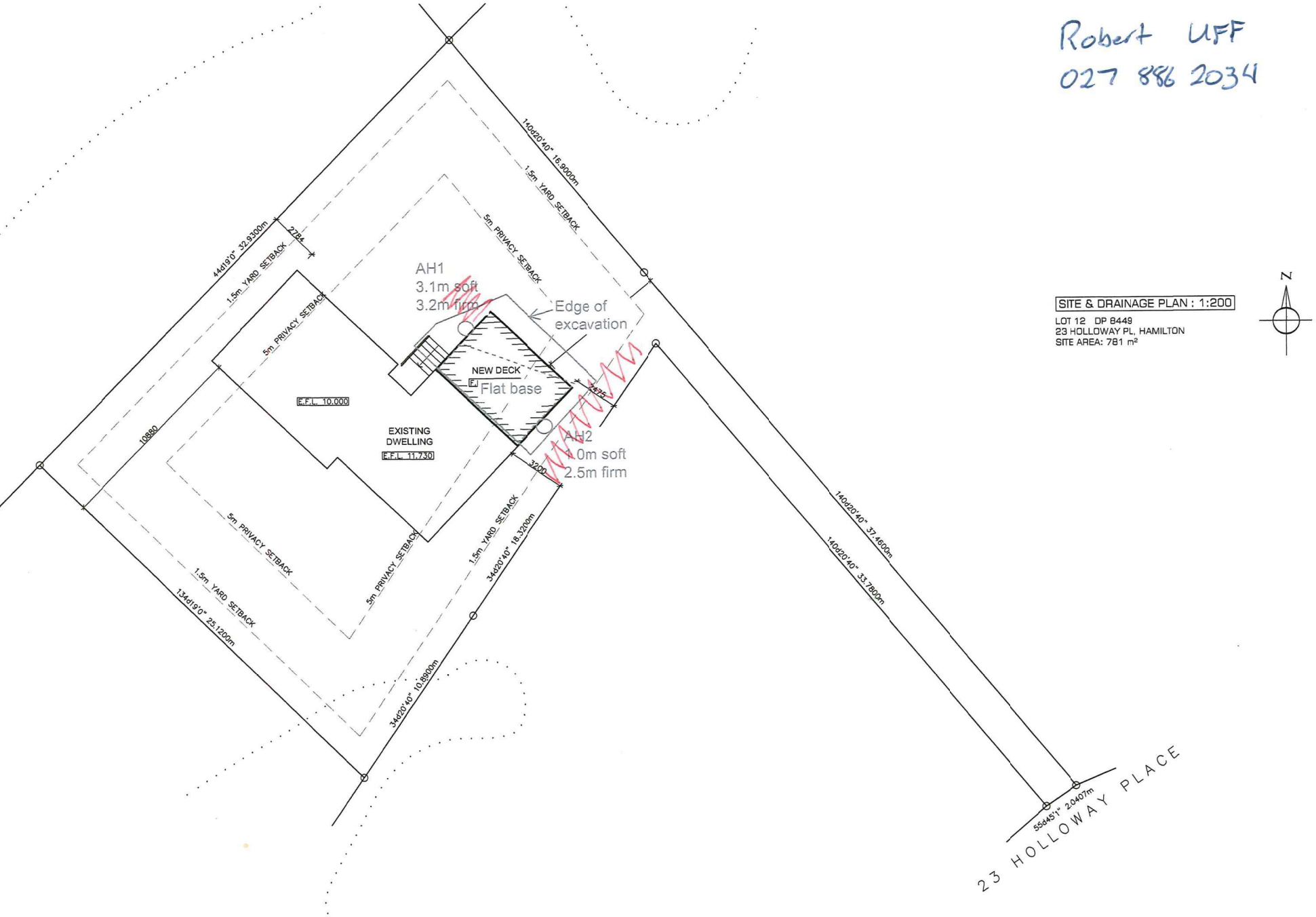
MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	SITE & DRAINAGE PLAN	DATE: 07/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A01

Robert UFF
027 886 2034



SITE & DRAINAGE PLAN : 1:200

LOT 12 DP 8449
23 HOLLOWAY PL, HAMILTON
SITE AREA: 781 m²

N

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MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	SITE & DRAINAGE PLAN	DATE: 07/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A01

ARCHITECTURAL DESIGNERS NZ

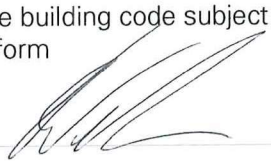
ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.	
Name: **Kris Wilson**	LBP or Registration number: **BP 113861**
The practitioner is a: ☑ Design LBP ○ Registered architect ○ Chartered professional engineer	
Design Entity or Company (optional): **Design House Architecture ltd**	
Mailing address (if different from below): **N/A**	
Street address/Registered office: **29 Marnane Terrace**	
Suburb: **St Andrews**	Town/City: **Hamilton**
PO Box/Private Bag: **N/A**	Postcode: **3200**
Phone number: **07 849 3074**	Mobile: **021 574 700**
After hours: **N/A**	Fax: **N/A**
Email address: **kris@designhouse.co.nz**	Website: **www.designhouse.co.nz**

DECLARATION

I **Kris Wilson** LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- Complies with the building code subject to any waiver or modification of the building code recorded on this form

Signature: 

Date: **2 June 2015**

Application for PIM and/or Building Consent

Section 33 or section 45, Building Act 2004

Working together

1. THE BUILDING

[Complete ALL fields on this form – put N/A if not applicable]

Street address of building: 23 Holloway Place, Forest Lake, Hamilton

Legal description of land where building is located: Lot(s) 12 DP/S 8449

Building name: Detached dwelling

Location of building within site / block number: [include nearest street access] Central

Number of levels: [above & below ground] 2 Level / Unit Number: n/a

Floor area: 110m² (ex) 34m² (sq m) [Indicate area affected by the building work]

Current, lawfully established, use: [add no. of occupants per level and per use if more than 1]

Detached dwelling

Year first constructed: [approximate date is acceptable e. g.: c1920s or 1960-1970] 1970's

OFFICE ONLY:

Consent / PIM No.:

Document or Parcel No.:

Valuation No.:

Date received:

2. THE OWNER

Name of Owner / Company: Greg & Julie Marshall

Contact person Julie Marshall

Mailing address: 23 Holloway Place, Forest Lake, Hamilton, 3200

Street address / registered office: n/a

Phone Number: Landline: 07 849 0858

Mobile: 0210422812

Daytime: n/a

After hours: n/a

Facsimile number: n/a

Email address: marshallfamily@paradise.net.nz

Website: n/a

THE FOLLOWING EVIDENCE OF OWNERSHIP IS ATTACHED TO THIS APPLICATION:

- [x] Certificate of Title
- [ ] Agreement for Sale and Purchase
- [ ] Lease Agreement
- [ ] Other document

3. AGENT [if application is being made on behalf of the owner]

Name of Agent / Company: Alemann Architecture Ltd.

Contact person: Daniel Alemann

Mailing address: 369a Sunset Road, Sunnybrook, Rotorua, 3010

Street address / registered office: 369a Sunset Road, Sunnybrook, Rotorua, 3010

Phone Number: Landline: n/a

Mobile: 0274679519

Daytime: n/a

After hours: n/a

Facsimile number: n/a

Email address: daniel@alemann.com

Website: n/a

Relationship to owner: [state details of the authorisation from the owner to make the application on the owner's behalf] Designer

FIRST POINT OF CONTACT for communications with the Council / Building Consent Authority: [ ] Owner [x] Agent

INVOICE TO: [x] Owner [ ] Agent

4. APPLICATION [tick if applicable]

I request that for the building work described in this application, you issue:

- [ ] A Project Information Memorandum (PIM) — PLEASE COMPLETE SECTIONS 5 and 7
- [x] A Building Consent [The existing PIM No.: n/a (If applicable)] — PLEASE COMPLETE SECTIONS: 5, 6, 8, 9 and 10
- [ ] An Amendment to an existing Building Consent [Existing BC No.: ...] — PLEASE COMPLETE SECTIONS: 5, 6, 8, 9 and 10

State the reference number if this application involves a National Multiple Use Approval: .....

Name: ..... Signature: ..... Date: .....

The signature is that of the [ ] Owner OR the [ ] Agent on behalf of and with the approval of the Owner

5. THE PROJECT [if more than one project please list on a separate page]

DESCRIPTION OF THE BUILDING WORK: Provide enough information to enable scope of work to be fully understood, (e.g. adding ensuite to house)

New upper level timber slat deck & reconfigured bathroom.

Will the building work result in a change of use of the building? ☐ Yes ☑ No. If Yes, provide details of the new use of the building (e.g. home to hostel, implement shed to chemical storage, office to restaurant): n/a

Intended life of the building if less than 50 years: 50 [Years]

List Building Consents previously issued for this project (if any): [List who issued the consent, the date of issue and the consent number]

n/a

Estimated value of the building work on which the building levy will be calculated (including goods and services tax):

$ 130,000 [State estimated value as defined in section 7 of the Building Act 2004]

6. RESTRICTED BUILDING WORK: BUILDING PRACTITIONERS INVOLVED IN THIS PROJECT

Will the building work include any restricted building work? ☑ Yes ☐ No. If Yes, provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work:

[if these details are unknown at the time of the application, they must be supplied before the building work begins]

DESIGNER Name: Kris Wilson Licence Class: Design D2
Registration / Licence No.: BP113861
Address: 29 Marnane Terrace, St. Andrews, Hamilton
Telephone: 07 849 3074 Fax: n/a Mobile: n/a
Email: kris@designhouse.co.nz

ENGINEER Name: Derek Booth Licence Class: Chartered Engineer
Registration / Licence No.: 15472
Address: 70a Rotokawa St. Taupo 3351
Telephone: 0800232266 Fax: 07 378 2800 Mobile: 0274947016
Email: derek@dbcon.co.nz

CARPENTER Name: Nic Adams Licence Class: Carpentry
Registration / Licence No.: BP109814
Address: n/a
Telephone: n/a Fax: N/A Mobile: 022 0507337
Email: acltd@hotmail.com

ROOFER Name: N/A Licence Class:
Registration / Licence No.:
Address:
Telephone: Fax: Mobile:
Email:

EXTERNAL PLASTERER Name: N/A Licence Class:
Registration / Licence No.:
Address:
Telephone: Fax: Mobile:
Email:

PLEASE CONTINUE SECTION 6 ON THE NEXT PAGE

BRICK / BLOCKLAYER Name: N/A Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

FOUNDATION SPECIALIST Name: N/A Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

PLUMBER Name: Anthony Blewman Licence Class: .....

Registration / Licence No.: 19634

Address: n/a

Telephone: n/a Fax: n/a Mobile: 021 08253097

Email: n/a

GASFITTER Name: N/A Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

Other LBP Name: ..... Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

Other LBP Name: ..... Licence Class: .....

Registration / Licence No.: .....

Address: .....

Telephone: ..... Fax: ..... Mobile: .....

Email: .....

7. PROJECT INFORMATION MEMORANDUM The following matters are involved in the project: Tick the matters relevant to the project [do not fill in this section if the application is for a building consent only]

- ☐ Subdivision
- ☐ Alterations to land contours [e.g. digging out the site for a building platform]
- ☐ New or altered connections to public utilities [e.g. Council sewer, storm water or water mains]
- ☐ New or altered locations and / or external dimensions of buildings
- ☐ New or altered access for vehicles
- ☐ Building work over or adjacent to any road or public place
- ☐ Disposal of stormwater and wastewater [e.g. are you altering domestic sewer or storm water drains]
- ☐ Building work over any existing drains or sewers or in close proximity to wells or water mains
- ☐ Is the site contaminated?
- ☐ Will the building be sited on sloping ground, or near to a bank, a stream or a coastal zone?
- ☐ Other matters known to the applicant that may require authorisations from the Territorial Authority: [Please attach]

8. BUILDING CONSENT

The following plans and specifications are attached to this application: [Note: All plans and specifications must meet the minimum requirements set out in the regulations or required by the Building Consent Authority (BCA)]

☑ Refer to documents indicated on the applicant checklist ☐ Other documents [Please specify]: .....

THE BUILDING WORK WILL COMPLY WITH THE BUILDING CODE AS FOLLOWS:

[If you're not sure which clauses are applicable, talk to your Designer]

Building Code clause [☑ Tick / list relevant clause of building code]	**Means of Compliance** [Refer to relevant compliance document(s) or detail of alternative solution in the plans and specifications]		**Waiver / modification required** [Supporting documents recorded below]
	Acceptable Solution [Specify]	**Other Means of Compliance – Verification Method or Alternative Solution** [If ☐ Other, then list at the end of this section]	
☑ B1 Structure	☑ B1/AS1 ☐ Other ☑ NZS3604 ☐ NZS4229	☐ B1/VM1 ☐ Other ☐ AS/NZS1170 ☑ SED	☐
☑ B2 Durability	☑ B2/AS1	☐ B2/VM1 ☐ Other	☐
☑ C 1 – C6 Protection From Fire	☑ C/AS1 ☐ C/AS2 ☐ C/AS3 ☐ C/AS4 ☐ C/AS5 ☐ C/AS6 ☐ C/AS7	☐ Other	☐
☑ D1 Access routes	☑ D1/AS1 ☐ NZS 4121	☐ Other	☐
☐ D2 Mechanical installations for access	☐ D2/AS1 ☐ D2/AS2 ☐ D2/AS3 ☐ NZS 4121	☐ Other	☐
☐ E1 Surface water	☐ E1/AS1 ☐ AS3500	☐ E1/VM1 ☐ Other	☐
☑ E2 External moisture	☑ E2/AS1 ☐ E2/AS2 ☐ E2/AS3	☐ E2/VM1 ☐ Other ☐ SED	☐
☑ E3 Internal moisture	☑ E3/AS1	☐ Other	☐
☐ F1 Hazardous agents on site	☐ F1/AS1	☐ F1/VM1 ☐ Other	☐
☑ F2 Hazardous building materials	☑ F2/AS1	☐ Other	☐
☐ F3 Hazardous substances / processes	☐ F3/AS1	☐ F3/VM1 ☐ Other	☐
☑ F4 Safety from falling	☑ F4/AS1	☐ Other	☐
☑ F5 Construction / Demolition hazards	☑ F5/AS1	☐ Other	☐
☐ F6 Lighting for emergency	☐ F6/AS1	☐ Other	☐
☑ F7 Warning systems	☑ F7/AS1	☐ Other	☐
☐ F8 Signs	☐ F8/AS1 ☐ NZS 4121	☐ Other	☐
☑ G1 Personal hygiene	☑ G1/AS1 ☐ NZS 4121	☐ Other	☐
☐ G2 Laundering	☐ G2/AS1 ☐ NZS 4121	☐ Other	☐
☐ G3 Food preparation / Prevention of contamination	☐ G3/AS1 ☐ NZS 4121	☐ Other	☐
☑ G4 Ventilation	☑ G4/AS1	☐ G4/VM1 ☐ Other	☐
☑ G5 Interior environment	☑ G5/AS1	☐ Other	☐
☐ G6 Airborne and impact sound	☐ G6/AS1	☐ G6/VM1 ☐ Other	☐
☐ G7 Natural light	☐ G7/AS1	☐ G7/VM1 ☐ Other	☐

PLEASE CONTINUE SECTION 8 ON THE NEXT PAGE

Building Code clause	Acceptable Solution	Verification Method or Alternative Solution	Waiver / modification required
☐ G8 Artificial light	☐ G8/AS1	☐ G8/VM1 ☐ Other	☐
☑ G9 Electricity	☑ G9/AS1	☐ G9/VM1 ☐ Other	☐
☐ G10 Piped services	☐ G10/AS1	☐ G10/VM1 ☐ Other	☐
☐ G11 Gas as an energy source	☐ G11/AS1	☐ Other	☐
☑ G12 Water supplies	☑ G12/AS1 ☐ G12/AS2	☐ G12/VM1 ☐ Other	☐
☑ G13 Foul water	☑ G13/AS1 ☐ G13/AS2 ☐ AS3500 ☐ G13/AS3	☐ G13/VM1 ☐ G13/VM4 ☐ Other	☐
☐ G14 Industrial liquid waste	☐ G14/AS1	☐ G14/VM1 ☐ Other	☐
☐ G15 Solid waste	☐ G15/AS1	☐ Other	☐
☑ H1 Energy efficiency	☑ H1/AS1	☐ H1/VM1 ☐ Other	☐
Other	☐ BCH Back country huts ☐ SH Simple House		☐

Waiver / Modification required [List supporting documents]

Alternative Solution [List supporting documents]

9. COMPLIANCE SCHEDULE *[do not fill in this section if this is an application for a Project Information Memorandum only]*

☐ The specified systems for the building are as follows: *[specified systems are defined in regulations]* **OR**

☐ The following specified systems are being altered, added to, or removed in the course of the building work: **OR**

☑ There are **NO** specified systems in the building ***[Note**: If unsure whether your building has specified systems, talk to the BCA or your architect]*

The following specified systems are being altered, added to, or removed in the course of the building work: [Tick those that are applicable]	**Existing** [✓Tick]	**New or Added** [✓Tick]	**Altered** [✓Tick]	**Removed** [✓Tick]
SS1 Automatic systems for fire suppression (e.g. sprinkler systems)	☐	☐	☐	☐
SS2 Automatic or manual emergency warning systems for fire or other dangers (other than a warning system for fire that is entirely within a household unit and serves only that unit)	☐	☐	☐	☐
SS3 Electromagnetic or automatic doors or windows (e.g. ones that close on fire alarm activation)				
SS3/1 Automatic doors	☐	☐	☐	☐
SS3/2 Access controlled doors	☐	☐	☐	☐
SS3/3 Interfaced fire or smoke doors or windows	☐	☐	☐	☐
SS4 Emergency lighting systems	☐	☐	☐	☐
SS5 Escape route pressurisation systems	☐	☐	☐	☐
SS6 Riser mains for use by fire services	☐	☐	☐	☐
SS7 Automatic back-flow preventers connected to a potable water supply	☐	☐	☐	☐
SS8 Lifts, escalators, travelators, or other systems for moving people or goods within buildings				
SS8/1 Passenger carrying lifts	☐	☐	☐	☐
SS8/2 Service lifts	☐	☐	☐	☐
SS8/3 Escalators and moving walks (travelators)	☐	☐	☐	☐
SS9 Mechanical ventilation or air conditioning systems				
SS9/1 Mechanical ventilation	☐	☐	☐	☐
SS9/2 Air conditioning systems	☐	☐	☐	☐
SS10 Building maintenance units providing access to exterior and interior walls of buildings	☐	☐	☐	☐

PLEASE CONTINUE SECTION 9 ON THE NEXT PAGE

SS11 Laboratory fume cupboards	☐	☐	☐	☐
SS12 Audio loops or other assistive listening systems				
SS12/1 Audio loops	☐	☐	☐	☐
SS12/2 FM radio frequency systems and infrared beam transmission systems	☐	☐	☐	☐
SS13 Smoke control systems				
SS13/1 Mechanical smoke control	☐	☐	☐	☐
SS13/2 Natural smoke control	☐	☐	☐	☐
SS13/3 Smoke curtains	☐	☐	☐	☐
SS14 Emergency power systems for, or signs relating to, a system or feature specified in any of clauses 1 to 13				
SS14/1 Emergency power systems	☐	☐	☐	☐
SS14/2 Signs in relation to any specified systems 1-13	☐	☐	☐	☐
SS15 Any or all of the following systems and features, so long as they form part of a building's means of escape from fire, and so long as those means also contain any or all of the systems or features specified in clauses 1 to 6, 9, and 13:				
SS15/1 Systems for communicating spoken information intended to facilitate evacuation	☐	☐	☐	☐
SS15/2 Final exits	☐	☐	☐	☐
SS15/3 Fire separations (as defined by the Building Code)	☐	☐	☐	☐
SS15/4 Signs for communicating information intended to facilitate evacuation	☐	☐	☐	☐
SS15/5 Smoke separations	☐	☐	☐	☐
SS16 Cable Cars	☐	☐	☐	☐

10. ATTACHMENTS

[**Note**: all plans and specifications must meet the minimum requirements set out in the regulations or required by the BCA]

The following documents are attached to this application: [Tick as applicable or put NA if there are no attachments]

☑ Plans and specifications [*list*]. Plans dated 29/05/15 & specification dated June 2015

☐ Memoranda (Certificates of Design Work) from licensed building practitioner(s) who carried out or supervised any design work that is restricted building work

☐ Project Information Memorandum

☐ Development contribution notice

☐ Certificate attached to Project Information Memorandum

☐ Other relevant information: [Please specify]: .....

11. MATAMATA PIAKO DISTRICT COUNCIL ONLY

If your Building Consent is at Matamata Piako District Council, please tick which of your Council offices you wish to collect your Consent from when it is ready:

☐ Te Aroha ☐ Matamata ☐ Morrinsville

OFFICE USE ONLY **FEES PAYABLE:**	**AMOUNT ($)**
PIM	
Building Consent - Application fee - Approval fee - Inspection fee - Mileage	
Code Compliance Certificate	
BRANZ levy	
MBIE levy	
Photocopying	
Microfilm (A3 / A4) / Scanning	
Certificate of Title	
Street crossing administration	
Structural check	
Amendments to consent	
External consultant 1	
External consultant 2	
NZ Fire Service check	
Planning Bond / Resource Consent	
Planning Bond / Resource Consent	
Rural connection	
Fire main	
Water connection	
Water disconnection	
Wastewater / sewerage connection	
Wastewater disconnection	
Backflow inspection	
Stormwater connection - mains	
Stormwater connection - kerb & channel	
Stormwater disconnection	
CCTV survey wastewater	
CCTV survey stormwater	
Cellar indemnity	
Council bonds	
Compliance schedule	
Development Contributions: Water..... Stormwater.....Wastewater..... Transport / Roading..... Community infrastructure.....	
BCA accreditation	
Total fees (incl. GST)	
Deposit paid – Date:	
Remainder fees due:	

REFERRALS:
Structural consultant: Name: Sent: Returned:
Structural consultant: Name: Sent: Returned:
Other consultant: Name: Sent: Returned:
Other consultant: Name: Sent: Returned:
NZ Fire Service: Name: Sent: Returned:
Historic Places Trust: (Notification) Date advised:
ADDITIONAL NOTES AND / OR FEES:
Planning Officer: Date:
Building Officer: Date:
Engineer: Date:
CHECKED BY: Officer: Date:
ISSUED BY: Officer: Date:
Receipt No.:
Receipt No.:
Receipt No.:

Applicant's Checklist:

Minor Works

Projects: bathroom facilities, level access showers, retaining walls, decks & verandahs, marquees, signs (>3m), other / fully engineered projects

FILL IN THIS FORM, AND PROVIDE A COPY

INSTRUCTIONS – please give this form to your designer to complete Please ensure that the following information has been supplied with the Building Consent application. If this information is not provided, the application will be rejected or put on hold. We will not be able to lodge or process the application until this information has been received. **Please state the page number for each item.**	**TICK** ☑ if Supplied (S) **OR** ☑ if Not Applicable (**NA**)		**WRITE** Plans / Specs Page Number	Office only ✓ = Pass ✖ = Fail **NA** = Not applicable
APPLICATION FORM AND REQUIRED DOCUMENTS	**S**	**NA**	**PG No.**	**✓/✖/ NA**
All sections of the application form have been completed.	☑	☐	NA	Fill
If Restricted Building Work, a Certificate of Design Work has been provided.	☑	☐	NA	Fill
If Restricted Building Work, a list of all Licensed Building Practitioners has been supplied – where known. (NOTE: Fire wetbacks and solar water heating systems must be installed by a registered plumber)	☑	☐	NA	Fill
A copy of the FULL Certificate of Title (up to 2 months old) / Proof of Ownership provided.	☑	☐	NA	Fill
Good quality drawings to an appropriate scale of 1:100 (detail 1:50, site plan 1:200) with metric dimensions.	☑	☐	NA	Fill
Please provide the 2 copies of all plans and specifications.	☑	☐	NA	Fill
Letter of authority (from owner).	☐	☑	NA	Fill
Fee payment.	☑	☐	NA	Fill
SITE PLAN (Use an appropriate metric scale of 1:200 or 1:100 and include a north point.)	Please note page numbers for plans / specs			
Show the legal boundaries of the site, and easements. Show adjacent street / road names. Show the location and distances of all existing and proposed buildings, including accessory buildings such as sheds or garages, in relation to the boundaries.	☑	☐	A01	Fill
If it is a large site or a cross-lease or a unit title, provide a locality plan to indicate the position within the site.	☐	☑		Fill
Show the layout of existing and proposed sanitary and stormwater drains. Include the location of each drain's connection to the public mains. Provide details of on-site stormwater disposal, e.g. rain tanks, soak holes etc. (Check that kerb connection is acceptable if the site is unsuitable for on-site disposal or a Council stormwater connection is unavailable - see effluent disposal).	☐	☑		Fill
Show the gross floor area of <u>all</u> buildings on the title.	☑	☐	A01	Fill
Have you checked that your plans meet your Council's district plan requirements: **Check with your planner**	☑	☐	A01	Fill
FLOOR PLANS				
Supply a floor plan of the proposed works, including complete floor layout and use of each area. Floor areas and roof areas in square metres should be shown on plans drawn to an appropriate scale, e.g. 1:100 or 1:50. Show the location of all plumbing fittings / waste pipes.	☑	☐	A02, A03, ✚	Fill
Show location of smoke alarms (*if applicable*).	☑	☐	A03	Fill
ELEVATION PLAN				
Supply an elevation plan of each external wall showing heights from eaves to finished ground level at each external corner, and the existing and proposed land contours. Also show the overall height of the building from ground level to the apex of the roof.	☑	☐	A05	Fill
Show location of wall and roof bracing and of all opening window sashes.	☑	☐	A05	Fill
FOUNDATION PLAN				
For timber floors: show the location of piles, and pile type (i.e., braced, anchor, or cantilever piles).	☑	☐	A07	Fill
For concrete floors: provide clear CROSS-SECTION DETAILS below, and location of slab thickenings and steel.	☐	☑		Fill
STRUCTURAL BRACING CALCULATIONS				
Supply bracing calculations in an approved form.	☐	☑		Fill

PLEASE CONTINUE ON NEXT PAGE

	S	NA	PG No.	✓/✗/ NA
Show the location of the pile bracing elements on the foundation plan, the wall bracing elements on the floor plan and the roof bracing on the truss plan. (For 1 - 2 room additions the location, type and value of the bracing element will be sufficient).	☑	☐	A06, A07	Fill
WEATHERTIGHTNESS (for habitable buildings only)				
A Weathertightness Risk Matrix Calculation must be provided – refer to NZ Building Code E2.AS1.3.0. (Compliance Document E2/AS1)	☑	☐	A03	Fill
CROSS-SECTIONAL PLANS / DETAILS				
Provide sufficient scaled cross-section drawings (1:50 or better) through the building to show foundation details, floor systems, wall, ceiling and roof construction.	☑	☐	A07	Fill
Provide a finalised roof truss / framing plan and producer statement from truss manufacturer.	☐	☑		Fill
Show construction details of terraces, steps, stairs (internal and external), barriers and balustrades.	☑	☐	A08	Fill
Show the location and type of wall cladding and roof sheathing including underlays.	☑	☐	A05, A08	Fill
Give details of thermal insulation: calculations, type and R values (*for habitable rooms only*).	☑	☐	A03	Fill
FIRE WALL, FIRE RATING REQUIREMENTS (recommend IPENZ Practice Note 22)				
If using an approved and tested fire system, provide details and state the particular design type and number.	☐	☑		Fill
If the system is specifically designed by an engineer, then supply the specific design and Producer Statement (PS1).	☐	☑		Fill
PLUMBING (if applicable)				
Specify AS/NZS 3500 or G13 plumbing system. Show positions of all fittings and hot water / infinity systems (indicate any upgrade). Show pipe sizes / gradients.	☑	☐	A06	Fill
For multi-level buildings, provide isometric drawings of the plumbing reticulation including soil and waste system showing positions of all fittings and pipe sizing.	☐	☑		Fill
Backflow philosophy if this is a commercial building.	☐	☑		Fill
Show how accidental overflow is addressed for Duplex dwellings.	☐	☑		Fill
SPECIFICATIONS				
A written specification may not be required provided adequate written and graphic detail is shown on the other plans.	☑	☐	SPEC	Fill
SPECIFIC DESIGN (Specific design is required for: Buildings outside the scope of NZS 3604, structural steel frames, foundations on weak soils and large retaining walls)				
Provide a structural engineer's Design Producer Statement (PS1), drawings and calculations. (NOTE: A peer review may be required, provided at cost to the applicant).	☑	☐	SPEC	Fill
Provide an engineer's Certificate of Design – for carrying out or supervising residential work that is restricted building work.	☑	☐	SPEC	Fill
An engineer's letter of supervision may be required.	☐	☑		Fill
Provide specific details for fixings for ballustrading to decks.	☑	☐	A07, SPEC	Fill

Project Location: 23 Holloway Place, Hamilton .....

Applicant's declaration: I have provided all the required information:

Name ..... Signature ..... Date .....

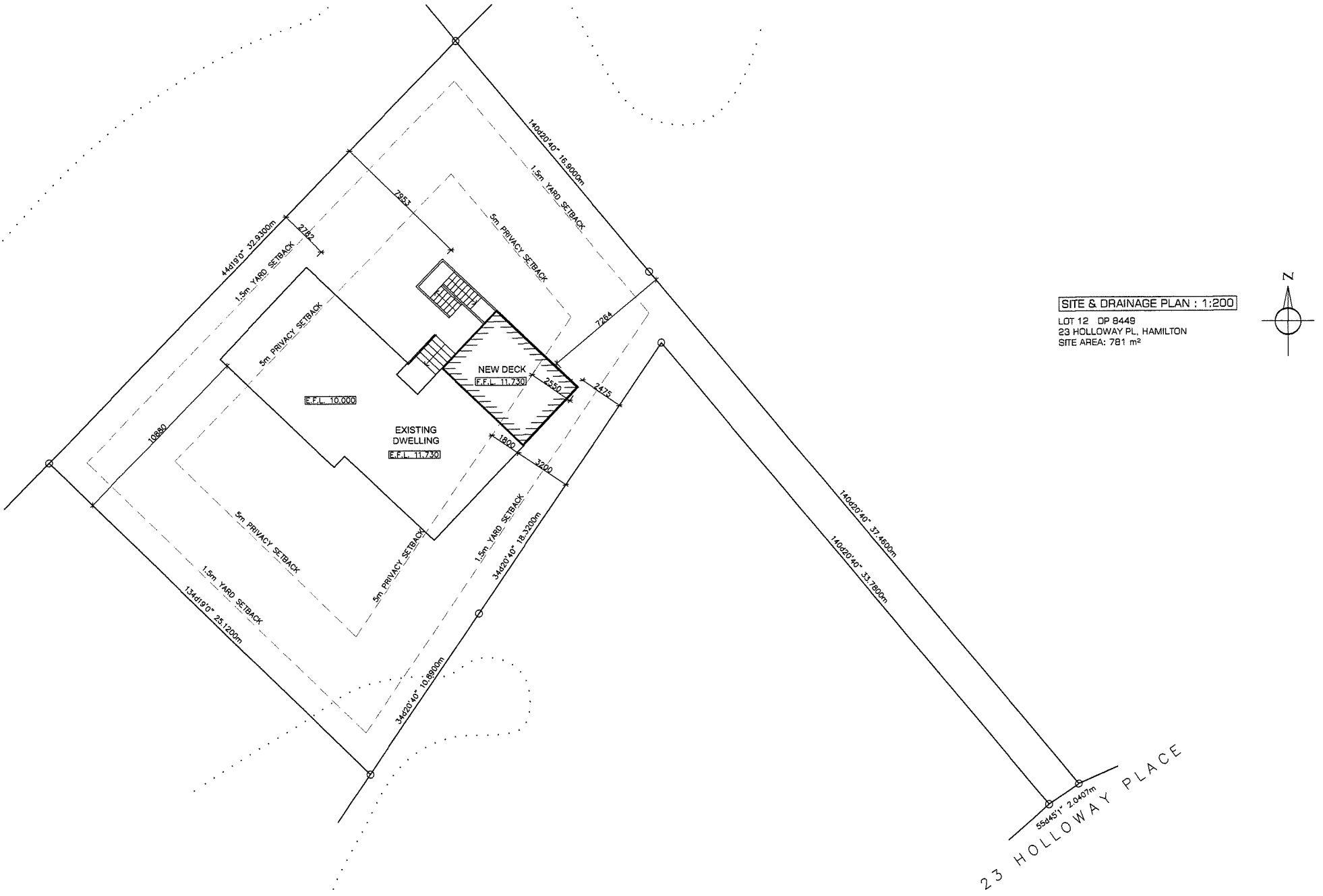
OFFICE USE ONLY: **OUTCOME OF DECISIONS**

☐ This application was accepted for lodgement because all required information was supplied

☐ This application was not accepted for lodgement because documentation was incomplete

☐ Documentation is now complete and the application is accepted for lodgement

Officer's Name: ..... Signature: ..... Date.....



SITE & DRAINAGE PLAN : 1:200

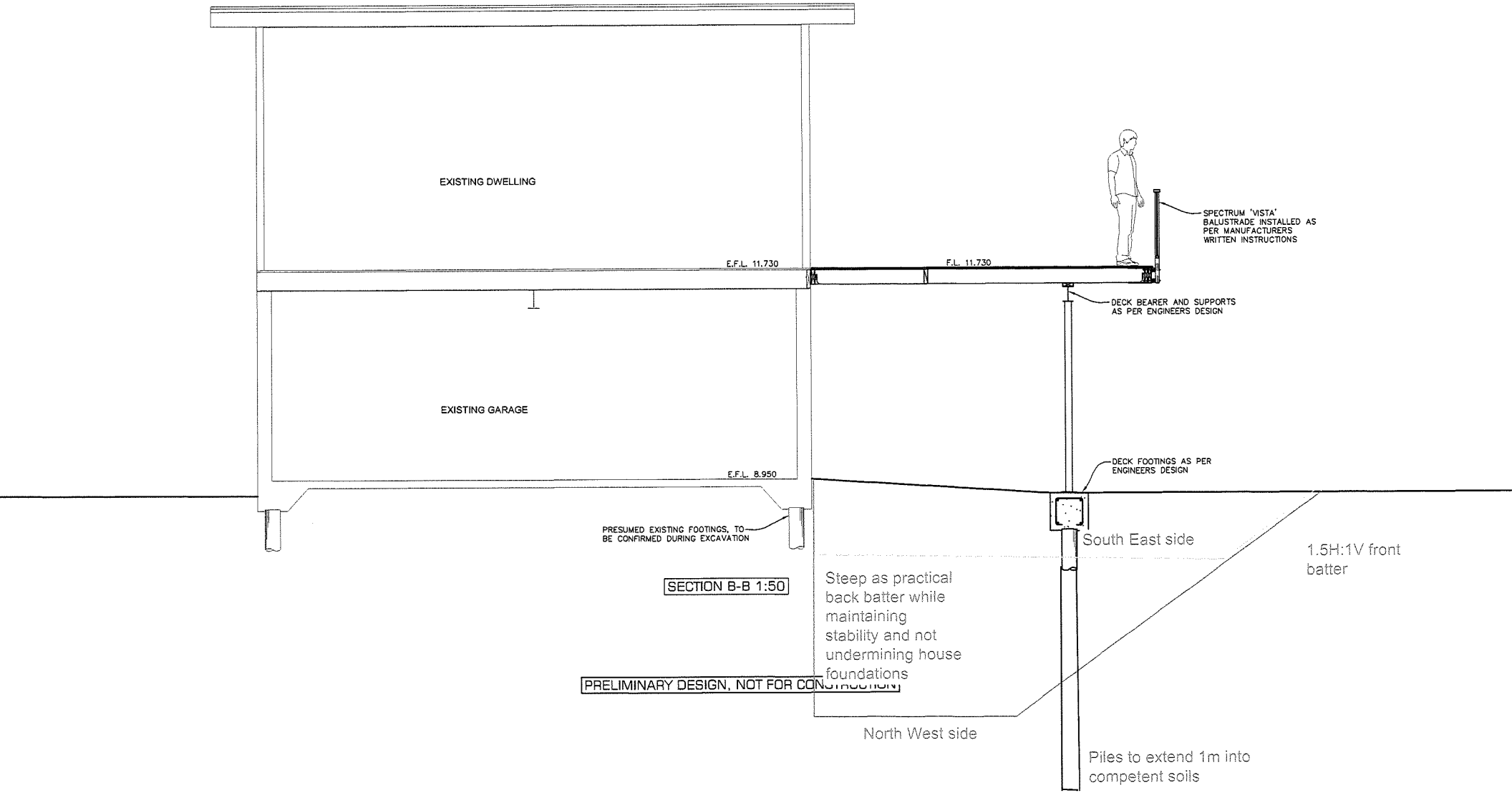
LOT 12 DP 8449
23 HOLLOWAY PL, HAMILTON
SITE AREA: 781 m²

N

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WI
EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

onstruction in accordance with NZS3604
lated NZBC documents including E2 AS1
imber to comply with NZS3602
oncrete work to comply with NZS3109 & NZS3124
asonry work to comply with NZS4210 & NZS4229
aterials to be fixed in accordance
manufacturers written instructions
ck all dimensions on site
ck with designer if in any doubt

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	SITE & DRAINAGE PLAN	DATE: 07/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A01



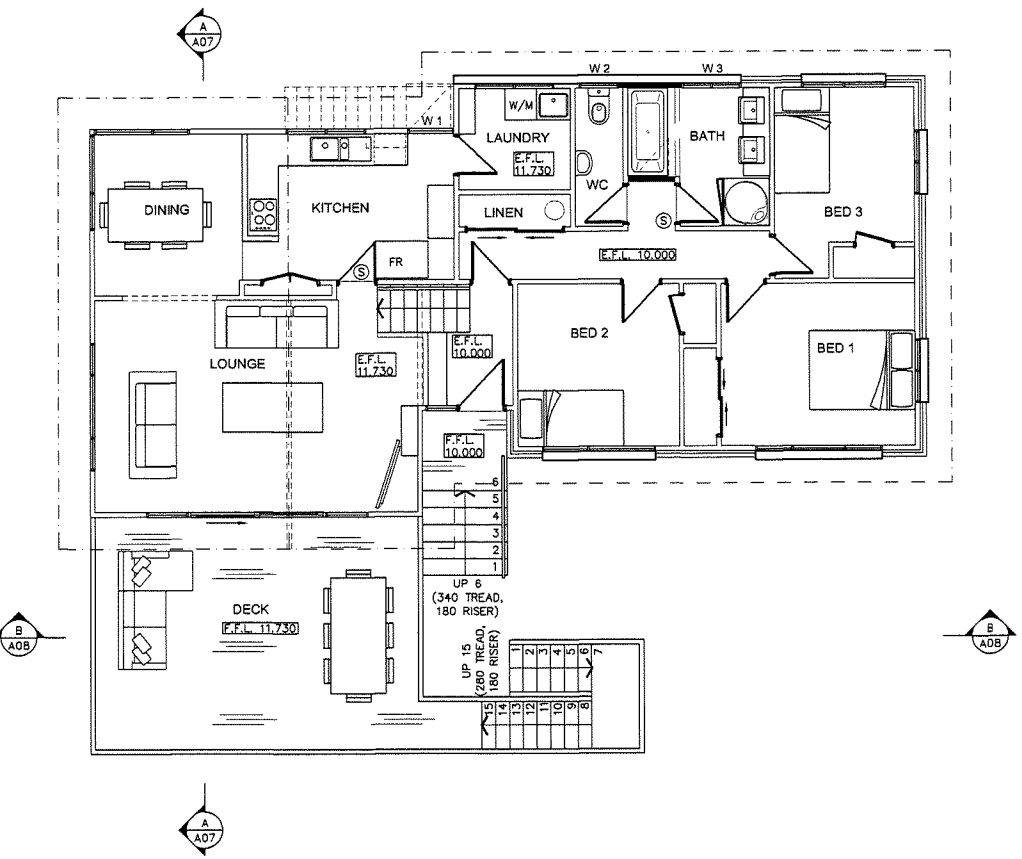
SECTION B-B 1:50

PRELIMINARY DESIGN, NOT FOR CONSTRUCTION

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WITH EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

onstruction in accordance with NZS3604
lated NZBC documents including E2 AS1
imber to comply with NZS3602
oncrete work to comply with NZS3109 & NZS3124
asonry work to comply with NZS4210 & NZS4229
aterials to be fixed in accordance
manufacturers written instructions
k all dimensions on site
ck with designer if in any doubt

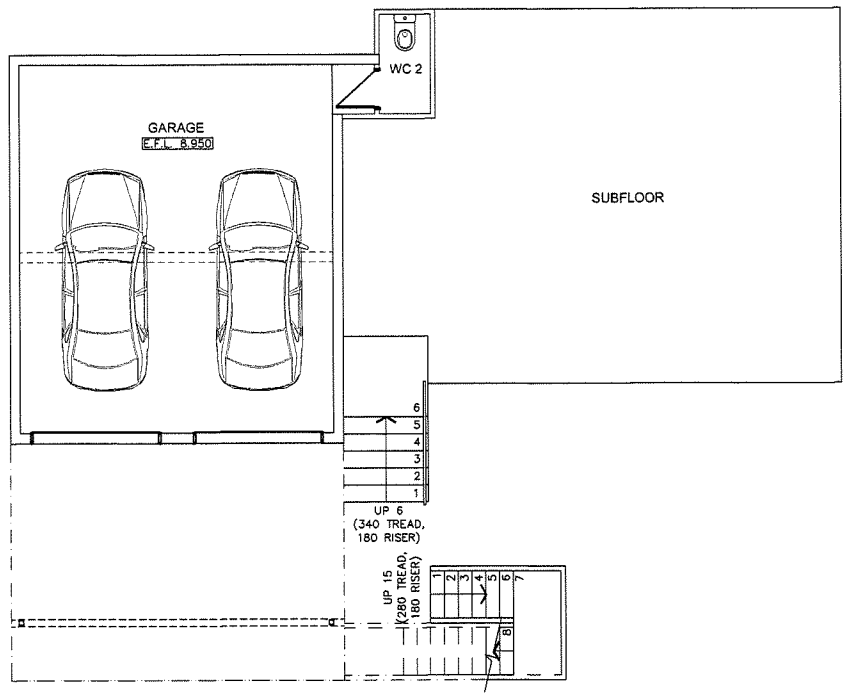
MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	PROPOSED SECTION B-B	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A07



ALTERED FIRST FLOOR PLAN : 1:100

EXISTING FIRST FLOOR AREA : 110 m²

PROPOSED DECK AREA : 34.4 m²



ALTERED GROUND FLOOR PLAN : 1:100

KEY

EXISTING DOOR TO REMAIN

OBJECT REMOVED

OBJECT OVER/UNDER

EXISTING TIMBER FRAMED WALL

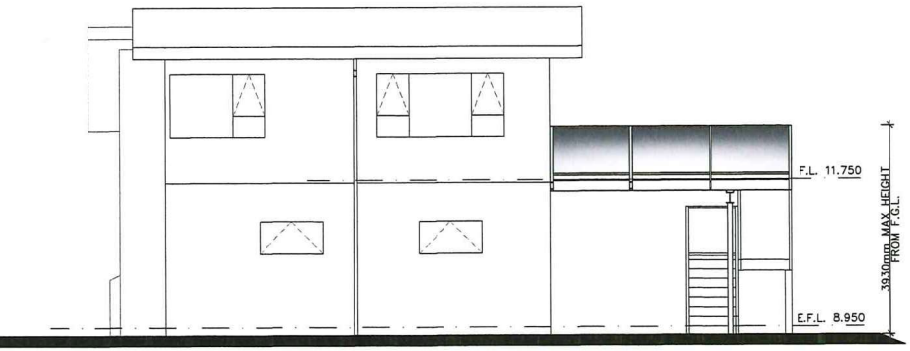
NEW TIMBER FRAMED WALL

ROOFLINE OVER (EXISTING)

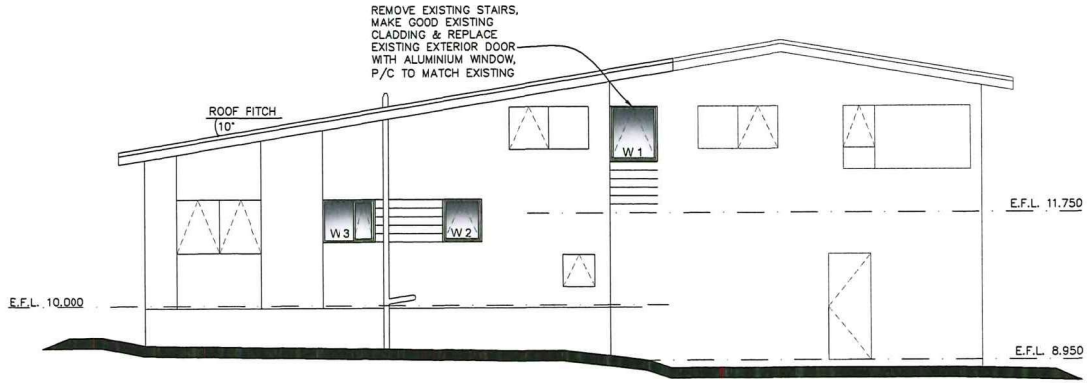
construction in accordance with NZS3604
lated NZBC documents including E2 AS1
imber to comply with NZS3602
oncrete work to comply with NZS3109 & NZS3124
asonry work to comply with NZS4210 & NZS4229
naterials to be fixed in accordance
manufacturers written instructions
ck all dimensions on site
ck with designer if in any doubt

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WITH EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

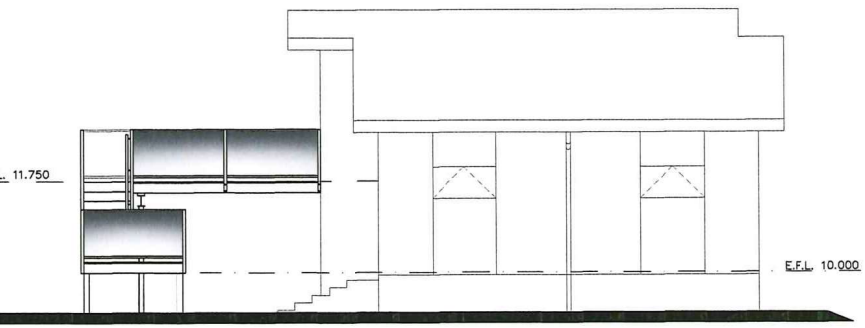
MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	ALTERED FLOOR PLANS	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A03



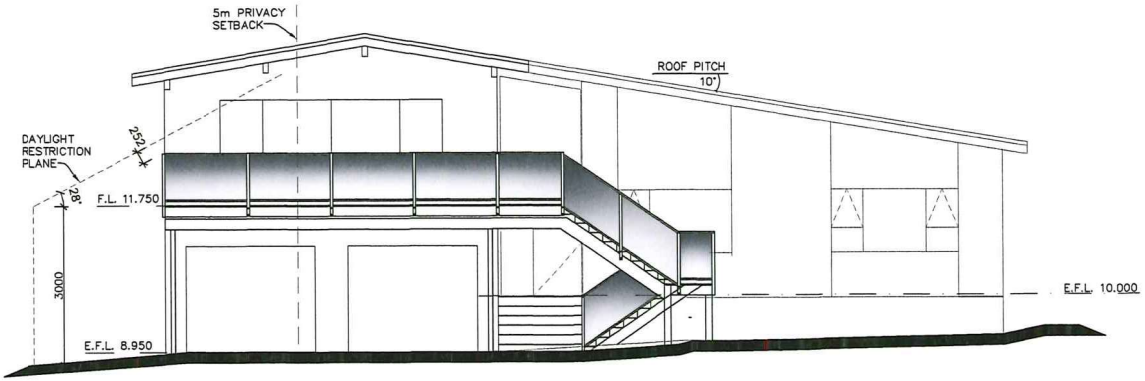
SOUTH-EASTERN ELEVATION



SOUTH-WESTERN ELEVATION



NORTH-WESTERN ELEVATION



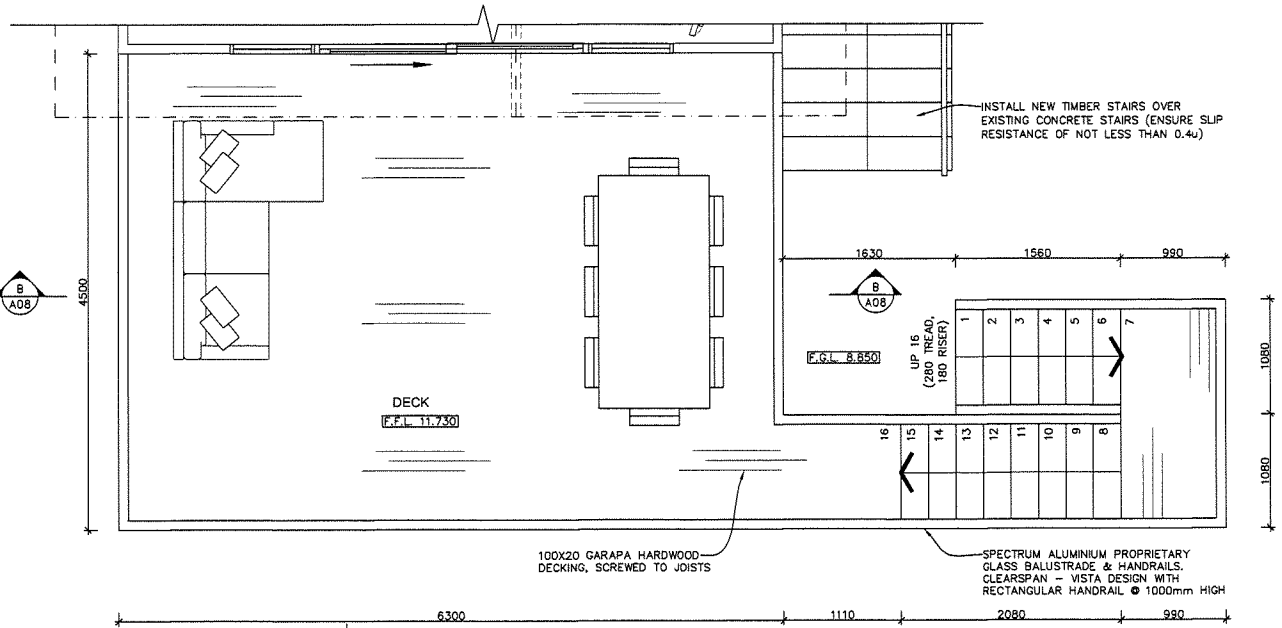
NORTH-EASTERN ELEVATION

construction in accordance with NZS3604
elated NZBC documents including E2 AS1
timber to comply with NZS3602
concrete work to comply with NZS3109 & NZS3124
masonry work to comply with NZS4210 & NZS4229
materials to be fixed in accordance
n manufacturers written instructions
ck all dimensions on site
ack with designer if in any doubt

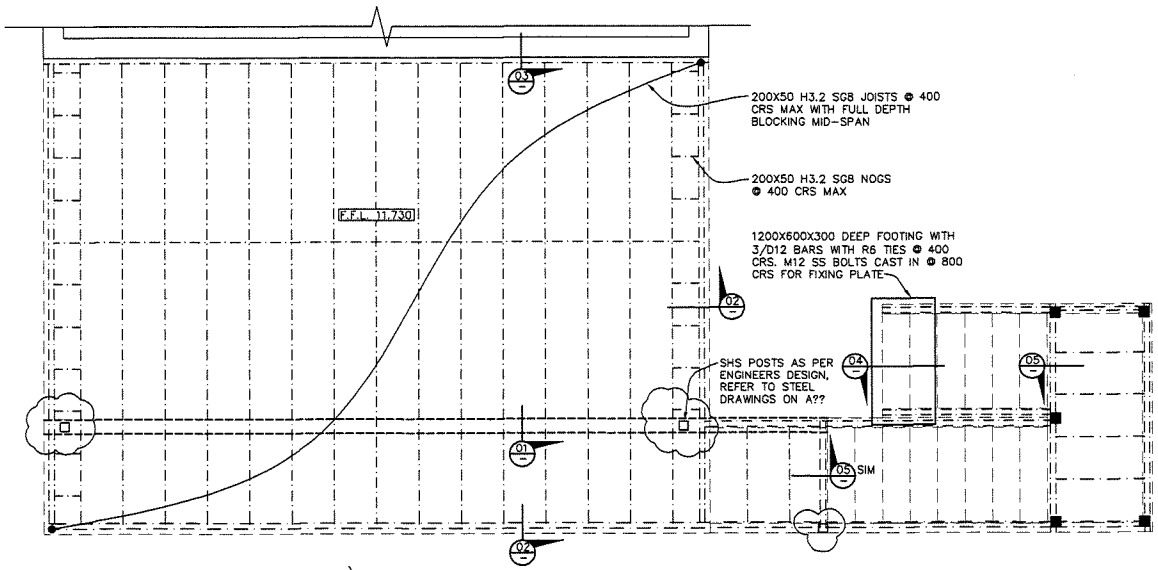
ALL ELEVATIONS 1:100

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WI
EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	PROPOSED ELEVATIONS	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A05



ALTERED UPPER DECK PLAN : 1:50



ALTERED DECK FOUNDATION PLAN : 1:50

KEY

- DECKLINE OVER (NEW)
- STEEL PORTAL (UNDER)
- 200X50 H3.2 SG8 JOISTS

construction in accordance with NZS3604
lated NZBC documents including E2 AS1
imber to comply with NZS3602
oncrete work to comply with NZS3109 & NZS3124
asonry work to comply with NZS4210 & NZS4229
aterials to be fixed in accordance
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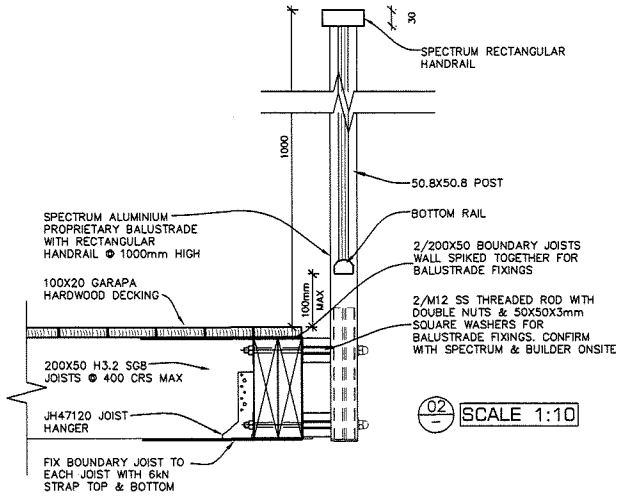
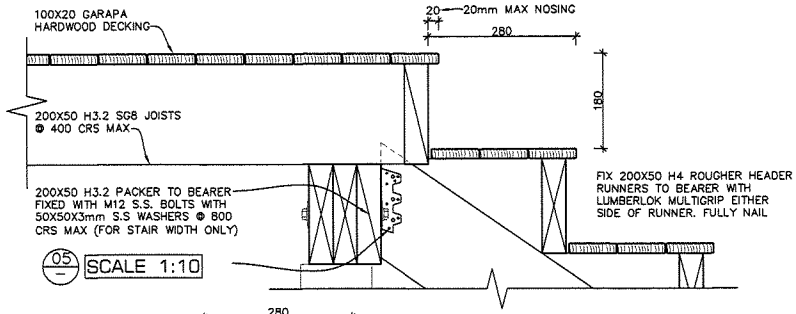
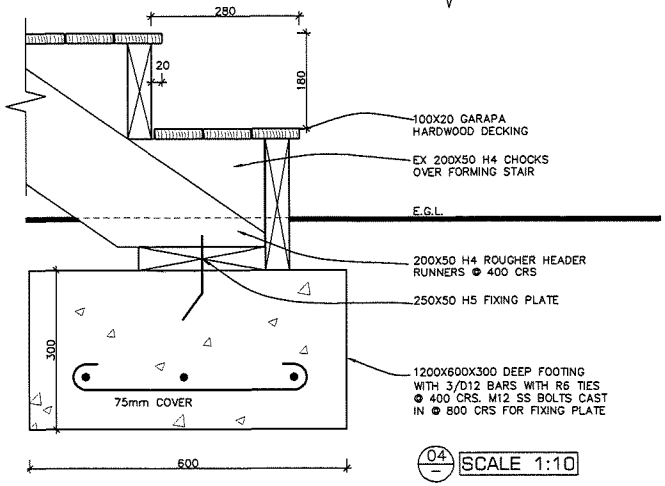
ck all dimensions on site
ck with designer if in any doubt



02 SCALE 1:10

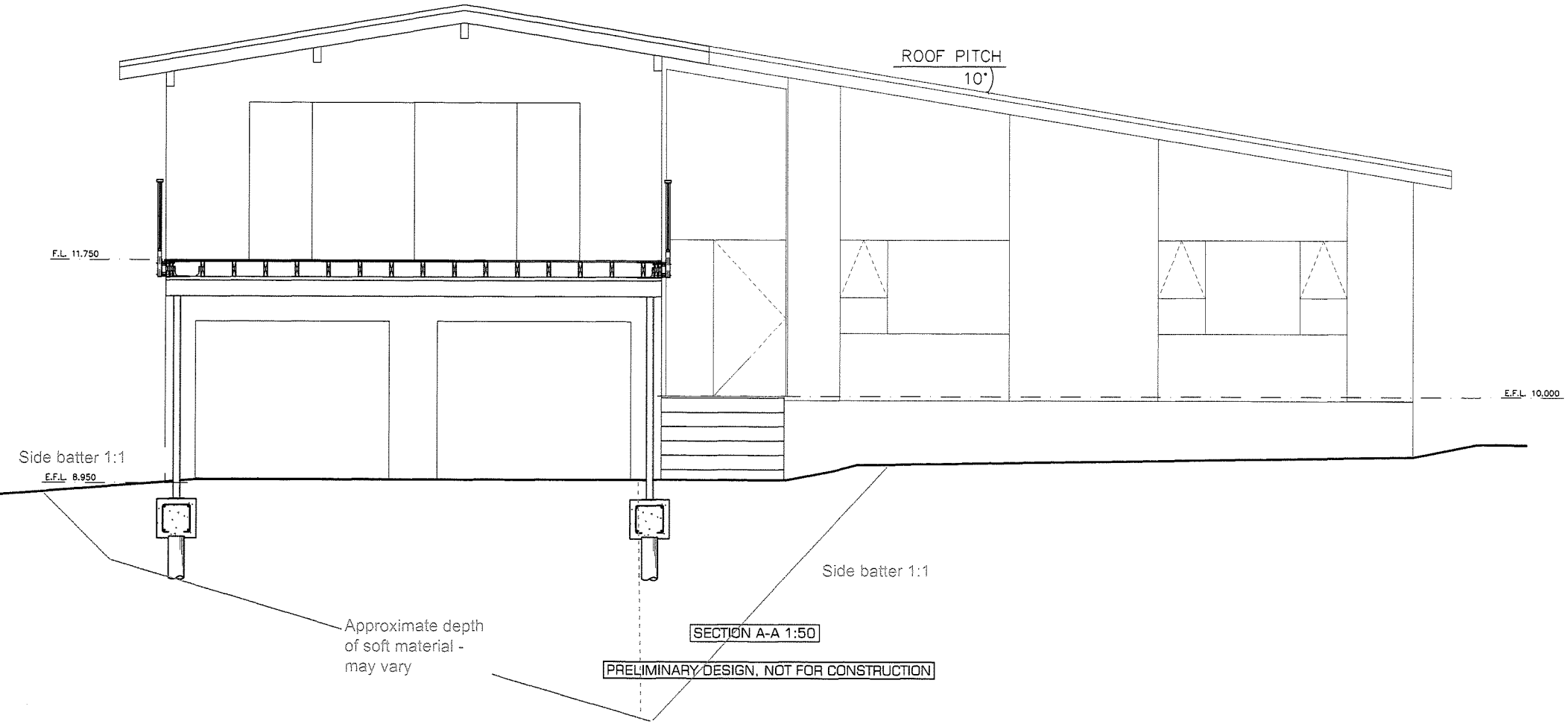


05 SCALE 1:10



04 SCALE 1:10

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	ALTERED FLOOR PLANS	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A03



SECTION A-A 1:50

PRELIMINARY DESIGN, NOT FOR CONSTRUCTION

onstruction in accordance with NZS3604
ated NZBC documents including E2 AS1
mber to comply with NZS3602
ncrete work to comply with NZS3109 & NZS3124
work to comply with NZS4210 & NZS4229
ed in accordance
structions

ALL ELEMENTS OF ADDITION TO MATCH, MARRY & LINE WITH EXISTING BUILDING. IF IN DOUBT CONTACT THE DESIGNER

MARSHALL HOME ALTERATIONS & ADDITIONS 23 HOLLOWAY PL, HAMILTON	PROPOSED SECTION A-A	DATE: 16/03/15	REVISION: -
		SCALE: AS SHOWN	DRAWING NO: A06

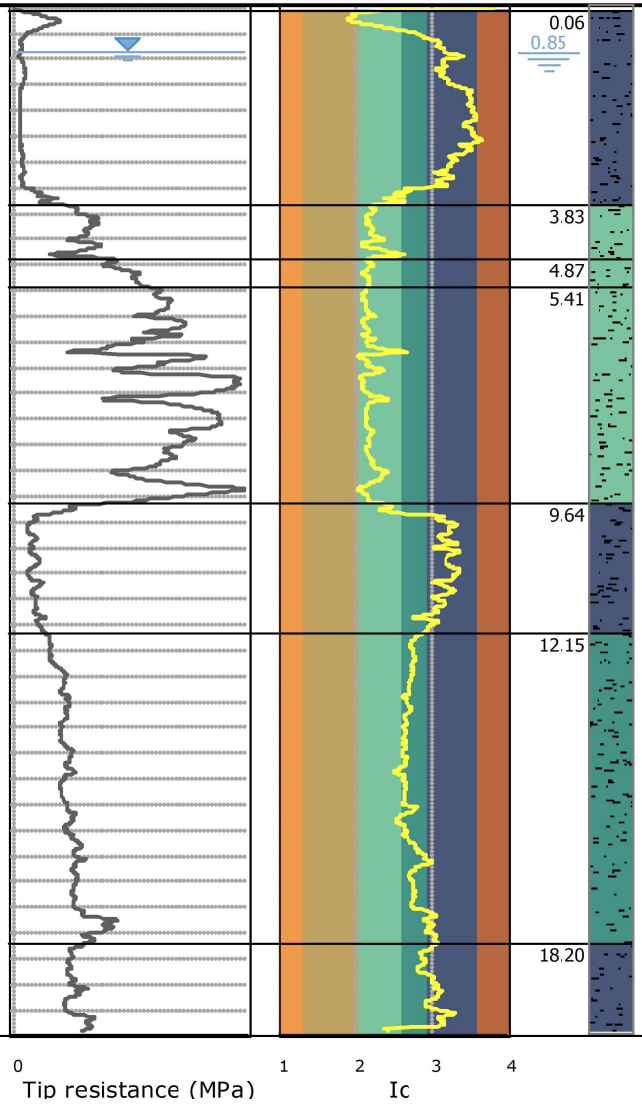
APPENDIX D: CPT TEST & MAGNOTOMETER RESULTS

soil-eng Ltd
25 Fontana street, Papamoa

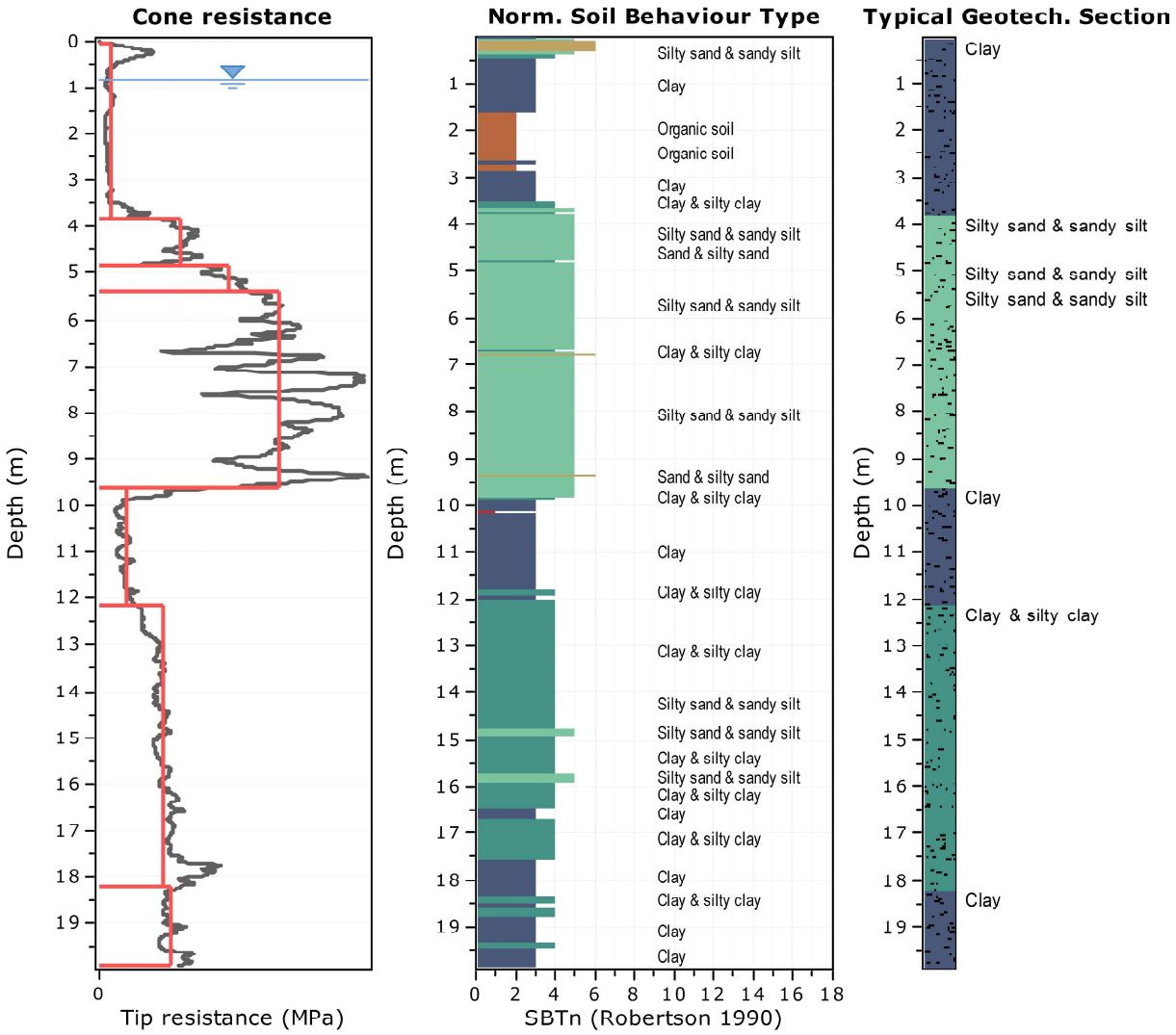
http://www.soil-eng.com

CPT: CPT01
Total depth: 19.90 m, Date: 03-Jul-25
Surface Elevation: 0.00 m
Coords: X:0.00, Y:0.00
Cone Type:
Cone Operator:

Project: **Retrospective Geotechnical Report**
Location: **23 Holloway Place, Forest Lake, Hamilton**



Depth (m)	Description	qt (MPa)	Ksbt (m/s)	N60	Es (MPa)	Dr	Phi (°)	M (MPa)	Go (MPa)	Su (kPa)	Su ratio	OCR	Gamma (kN/m³)
0.06	Clay	0.4	4.20E-9	1.9	-	-	-	2.8	14.6	18.4	0.7	3.4	19.0
3.83	Silty sand & sandy silt	2.5	1.40E-6	7.8	29.5	34.5	34.4	33.2	37.4	-	-	-	19.0
4.87	Silty sand & sandy silt	4.0	2.36E-6	12.0	43.5	41.0	36.1	54.0	55.5	-	-	-	19.0
5.41	Silty sand & sandy silt	5.5	2.15E-6	16.8	61.4	43.3	37.0	73.2	77.8	-	-	-	19.0
9.64	Clay	0.8	3.69E-9	4.4	-	-	-	3.2	27.5	38.7	0.4	1.6	19.0
12.15	Clay & silty clay	2.0	4.37E-8	8.6	-	-	-	19.6	49.4	120.4	0.8	3.8	19.0
18.20	Clay	2.2	6.69E-9	11.2	-	-	-	18.3	73.4	130.0	0.7	3.3	19.0



Tabular results

.:: Layer No: 1 ::.

Code: Layer_1 **Start depth:** 0.06 (m), **End depth:** 3.83 (m)

Description: Clay

Basic results

Total cone resistance: 0.35 ±0.37 MPa

Sleeve friction: 18.81 ±10.50 kPa

Ic: 3.08 ±0.45

σ_v': 21.48 ±12.01 kPa

SBT_n: 3

SBTn description: Clay

Schneider zone: Zone 3

Schneider desc.: Transitional soils

Estimation results

Permeability: 4.20E-09 ±2.64E-06 m/s

N_{60}: 1.88 ±0.96 blows

Es: 0.00 ±0.00 MPa

Dr (%): 0.00 ±0.00

φ (degrees): 0.00 ±0.00 °

Unit weight: 19.00 ±0.00 kN/m³

Constrained Mod.: 2.81 ±5.26 MPa

Go: 14.61 ±3.54 MPa

Su: 18.45 ±13.32 kPa

Su ratio: 0.73 ±0.89

O.C.R.: 3.36 ±4.11

.:: Layer No: 2 ::.

Code: Layer_2 **Start depth:** 3.83 (m), **End depth:** 4.87 (m)

Description: Silty sand & sandy silt

Basic results	Estimation results	
Total cone resistance: 2.48 ±0.44 MPa	Permeability: 1.40E-06 ±1.13E-06 m/s	Constrained Mod.: 33.24 ±5.75 MPa
Sleeve friction: 25.04 ±5.94 kPa	N_{60}: 7.79 ±1.06 blows	Go: 37.36 ±3.69 MPa
Ic: 2.24 ±0.12	Es: 29.52 ±2.82 MPa	Su: 0.00 ±0.00 kPa
σ_v': 48.23 ±2.80 kPa	Dr (%): 34.50 ±2.27	Su ratio: 0.00 ±0.00
SBT_n: 5	φ (degrees): 34.44 ±0.67 °	O.C.R.: 0.00 ±0.00
SBTn description: Silty sand & sandy silt	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: Zone 3		
Schneider desc.: Transitional soils		

.:: Layer No: 3 ::.

Code: Layer_3 **Start depth:** 4.87 (m), **End depth:** 5.41 (m)

Description: Silty sand & sandy silt

Basic results	Estimation results	
Total cone resistance: 4.01 ±0.47 MPa	Permeability: 2.36E-06 ±6.37E-07 m/s	Constrained Mod.: 54.01 ±6.16 MPa
Sleeve friction: 51.26 ±10.48 kPa	N_{60}: 12.03 ±1.34 blows	Go: 55.45 ±5.58 MPa
Ic: 2.16 ±0.04	Es: 43.51 ±4.38 MPa	Su: 0.00 ±0.00 kPa
σ_v': 55.56 ±1.47 kPa	Dr (%): 41.01 ±2.05	Su ratio: 0.00 ±0.00
SBT_n: 5	φ (degrees): 36.14 ±0.54 °	O.C.R.: 0.00 ±0.00
SBTn description: Silty sand & sandy silt	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: N/A		
Schneider desc.: N/A		

.:: Layer No: 4 ::.

Code: Layer_4 **Start depth:** 5.41 (m), **End depth:** 9.64 (m)

Description: Silty sand & sandy silt

Basic results	Estimation results	
Total cone resistance: 5.54 ±1.32 MPa	Permeability: 2.15E-06 ±1.26E-06 m/s	Constrained Mod.: 73.20 ±15.93 MPa
Sleeve friction: 83.31 ±25.21 kPa	N_{60}: 16.77 ±3.35 blows	Go: 77.79 ±13.18 MPa
Ic: 2.18 ±0.09	Es: 61.36 ±10.10 MPa	Su: 0.00 ±0.00 kPa
σ_v': 76.67 ±11.29 kPa	Dr (%): 43.29 ±4.97	Su ratio: 0.00 ±0.00
SBT_n: 5	φ (degrees): 37.04 ±0.98 °	O.C.R.: 0.00 ±0.00
SBTn description: Silty sand & sandy silt	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: N/A		
Schneider desc.: N/A		

.:: Layer No: 5 ::.

Code: Layer_5 **Start depth:** 9.64 (m), **End depth:** 12.15 (m)

Description: Clay

Basic results	Estimation results	
Total cone resistance: 0.82 ±0.44 MPa	Permeability: 3.69E-09 ±1.30E-07 m/s	Constrained Mod.: 3.23 ±7.37 MPa
Sleeve friction: 10.07 ±6.66 kPa	N_{60}: 4.45 ±1.22 blows	Go: 27.54 ±6.16 MPa
Ic: 3.08 ±0.24	Es: 0.00 ±0.00 MPa	Su: 38.71 ±11.63 kPa
σ_v': 108.26 ±6.70 kPa	Dr (%): 0.00 ±0.00	Su ratio: 0.35 ±0.10
SBT_n: 3	φ (degrees): 0.00 ±0.00 °	O.C.R.: 1.64 ±0.47
SBTn description: Clay	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: N/A		
Schneider desc.: N/A		

.:: Layer No: 6 ::.

Code: Layer_6 **Start depth:** 12.15 (m), **End depth:** 18.20 (m)

Description: Clay & silty clay

Basic results	Estimation results	
Total cone resistance: 1.98 ±0.46 MPa	Permeability: 4.37E-08 ±4.21E-08 m/s	Constrained Mod.: 19.55 ±7.45 MPa
Sleeve friction: 19.25 ±41.50 kPa	N_{60}: 8.62 ±2.69 blows	Go: 49.37 ±21.72 MPa
Ic: 2.73 ±0.12	Es: 0.00 ±0.00 MPa	Su: 120.44 ±31.62 kPa
σ_v': 146.92 ±16.11 kPa	Dr (%): 0.00 ±0.00	Su ratio: 0.83 ±0.14
SBT_n: 4	φ (degrees): 0.00 ±0.00 °	O.C.R.: 3.84 ±0.65
SBTn description: Clay & silty clay	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: Zone 1b		
Schneider desc.: Clays		

.:: Layer No: 7 ::.

Code: Layer_7 **Start depth:** 18.20 (m), **End depth:** 19.90 (m)

Description: Clay

Basic results	Estimation results	
Total cone resistance: 2.20 ±0.30 MPa	Permeability: 6.69E-09 ±6.86E-09 m/s	Constrained Mod.: 18.34 ±6.19 MPa
Sleeve friction: 45.36 ±51.53 kPa	N_{60}: 11.23 ±2.08 blows	Go: 73.37 ±20.60 MPa
Ic: 2.98 ±0.15	Es: 0.00 ±0.00 MPa	Su: 129.95 ±20.66 kPa
σ_v': 183.31 ±4.52 kPa	Dr (%): 0.00 ±0.00	Su ratio: 0.71 ±0.11
SBT_n: 3	φ (degrees): 0.00 ±0.00 °	O.C.R.: 3.28 ±0.49
SBTn description: Clay	Unit weight: 19.00 ±0.00 kN/m³	
Schneider zone: Zone 1b		
Schneider desc.: Clays		

Summary table of mean values

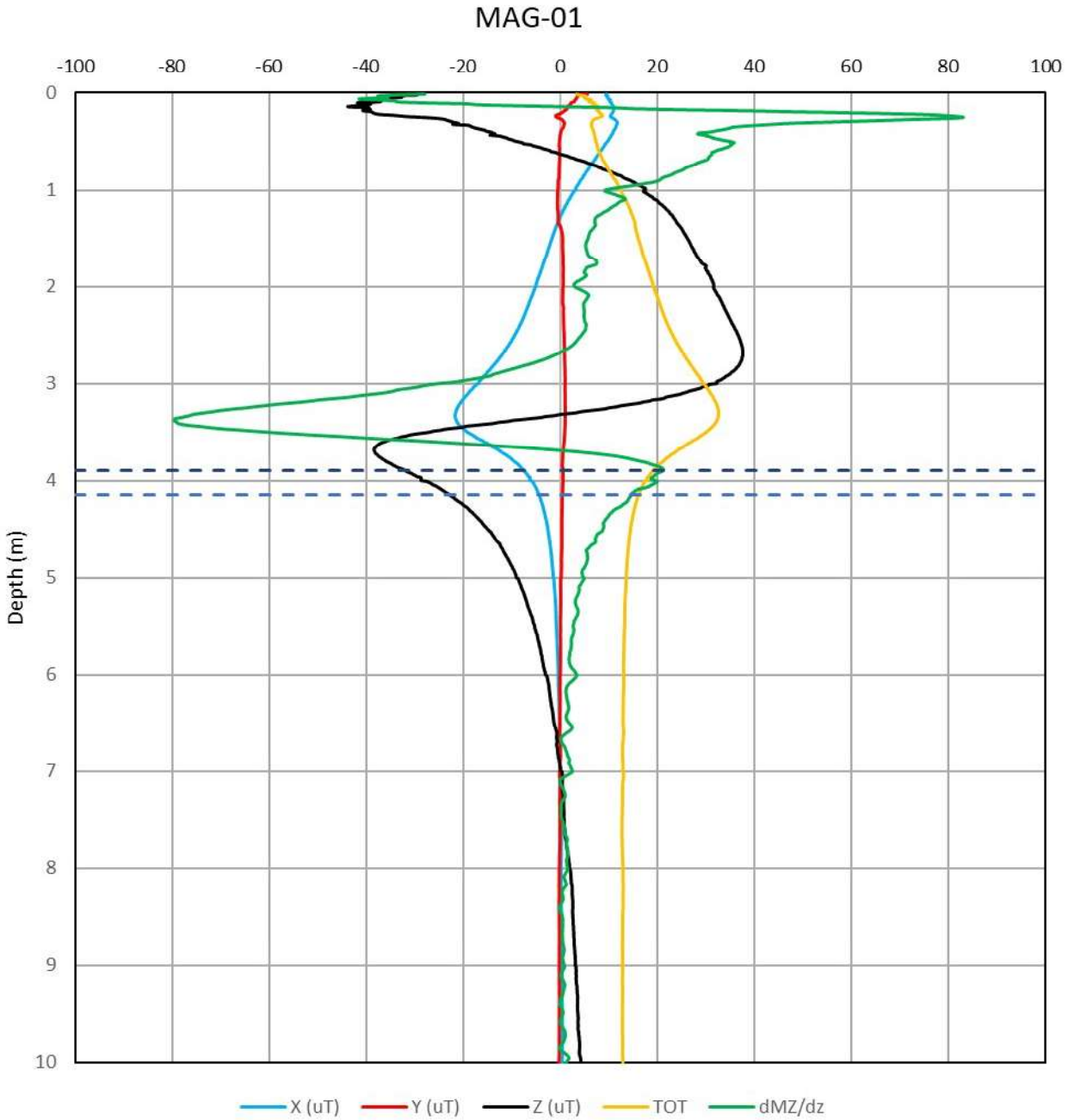
From depth To depth (m)	Thickness (m)	Permeability (m/s)	SPT_{N60} (blows/30cm)	E_s (MPa)	D_r (%)	Friction angle	Constrained modulus, M (MPa)	Shear modulus, G_O (MPa)	Undrained strength, S_U (kPa)	Undrained strength ratio	OCR	Unit weight (kN/m³)
0.06	3.77	4.20E-09	1.9	0.0	0.0	0.0	2.8	14.6	18.4	0.7	3.4	19.0
3.83		(±2.64E-06)	(±1.0)	(±0.0)	(±0.0)	(±0.0)	(±5.3)	(±3.5)	(±13.3)	(±0.9)	(±4.1)	(±0.0)
3.83	1.04	1.40E-06	7.8	29.5	34.5	34.4	33.2	37.4	0.0	0.0	0.0	19.0
4.87		(±1.13E-06)	(±1.1)	(±2.8)	(±2.3)	(±0.7)	(±5.7)	(±3.7)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
4.87	0.54	2.36E-06	12.0	43.5	41.0	36.1	54.0	55.5	0.0	0.0	0.0	19.0
5.41		(±6.37E-07)	(±1.3)	(±4.4)	(±2.0)	(±0.5)	(±6.2)	(±5.6)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
5.41	4.23	2.15E-06	16.8	61.4	43.3	37.0	73.2	77.8	0.0	0.0	0.0	19.0
9.64		(±1.26E-06)	(±3.3)	(±10.1)	(±5.0)	(±1.0)	(±15.9)	(±13.2)	(±0.0)	(±0.0)	(±0.0)	(±0.0)
9.64	2.51	3.69E-09	4.4	0.0	0.0	0.0	3.2	27.5	38.7	0.4	1.6	19.0
12.15		(±1.30E-07)	(±1.2)	(±0.0)	(±0.0)	(±0.0)	(±7.4)	(±6.2)	(±11.6)	(±0.1)	(±0.5)	(±0.0)
12.15	6.05	4.37E-08	8.6	0.0	0.0	0.0	19.6	49.4	120.4	0.8	3.8	19.0
18.20		(±4.21E-08)	(±2.7)	(±0.0)	(±0.0)	(±0.0)	(±7.4)	(±21.7)	(±31.6)	(±0.1)	(±0.7)	(±0.0)
18.20	1.70	6.69E-09	11.2	0.0	0.0	0.0	18.3	73.4	130.0	0.7	3.3	19.0
19.90		(±6.86E-09)	(±2.1)	(±0.0)	(±0.0)	(±0.0)	(±6.2)	(±20.6)	(±20.7)	(±0.1)	(±0.5)	(±0.0)

Depth values presented in this table are measured from free ground surface

alwyn@soil-eng.com

From: Marco Holtrigter | Ground Investigation <marco@g-i.co.nz>
Sent: Wednesday, June 25, 2025 3:35 PM
To: alwyn@soil-eng.com
Subject: 250535 - 23 Holloway Place
Attachments: geo-2021-0281.1.pdf

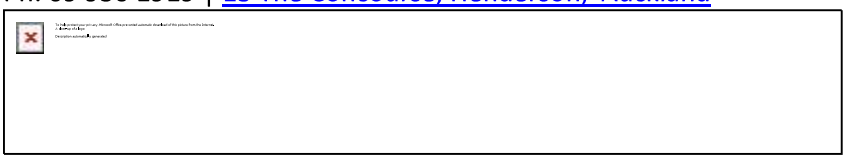
Hi Alwyn,
As discussed, I have reassessed the Magnetometer data and from that I would expect the base of the pile to be around 3.9m to 4.15m depth, based on the methods by Jo et al (2003) and Coe et al (2019), as referenced in the attached paper.
Please let me know if you need anything further or would like to discuss.



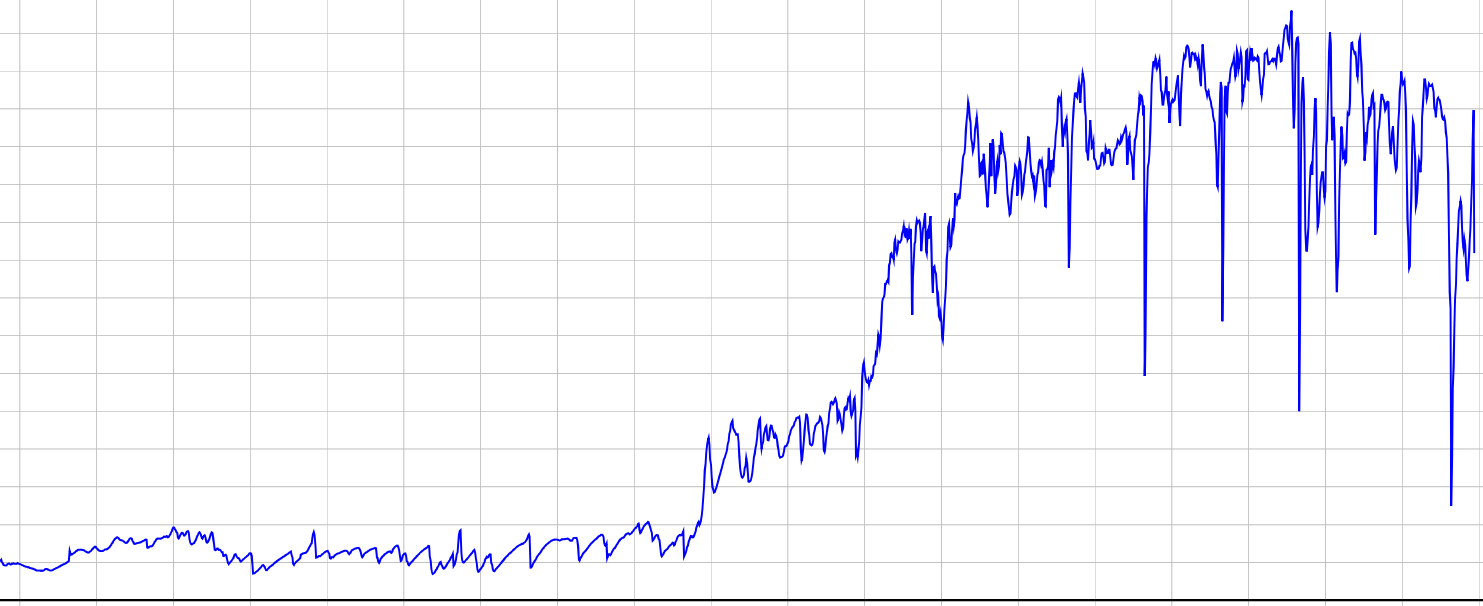
Regards,
Marco Holtrigter BE ME CMEngNZ CPEng IntPE(NZ)
Director

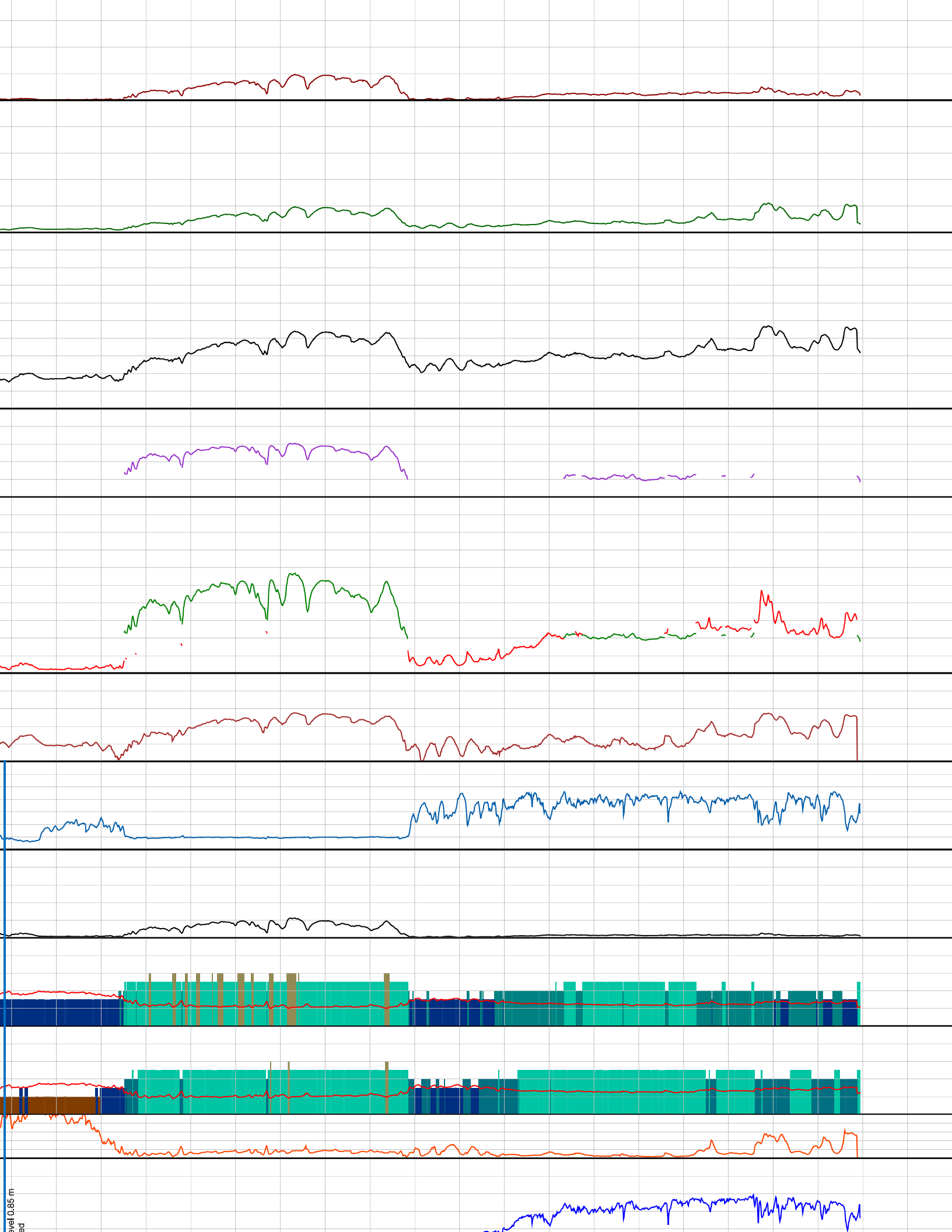
marco@g-i.co.nz
021 191 6000

info@g-i.co.nz | www.g-i.co.nz | 0800 DMT CPT
Ph: 09 950 1919 | 15 The Concourse, Henderson, Auckland



Services include: CPT, DMT, seismic, downhole and crosshole seismic, HVSR, MASW.
We can take discrete and continuous samples, and install piezometers. Visit our website or talk to our team.




vel 0.85 m

Rig details: Pagani 01

Location method: Handheld GPS

Elevation datum:

Friction ratio: $R_f = \frac{f_s}{q_c} \cdot 100$

Non-normalised soil behaviour type (SBT): Calculated using q_{net} and R_f for the Robertson's 2010 non-normalised CPT soil
by P.W. Mayne in "Evaluating effective stress parameters and undrained shear
DMT" 2016

Soil behaviour type index, (used for non-normalised SBT) : $I_c = \left(\left(3.47 - \log(q_t)\right)^2 + \left(\log(R_f) + 1.22\right)^2\right)^{0.5}$

Friction ratio: $F_r = \frac{f_s}{q_t - \sigma_{v0}} \cdot 100$

Refined normalised cone resistance: $Q_{tn} = \frac{(q_t - \sigma_{v0}) / \sigma_{atm}}{\left(\sigma'_{v0} / \sigma_{atm}\right)^n}$ where $n = 0.381 \cdot I_c + 0.05 \cdot \left(\sigma'_{v0} / \sigma_{atm}\right) - 0.05 \leq$

Normalised soil behaviour type index: $I_c = \left(\left(3.47 - \log(Q_{tn})\right)^2 + \left(\log(F_r) + 1.22\right)^2\right)^{0.5}$

Normalised pore pressure: $B_q = \frac{\Delta u}{q_t - \sigma_{v0}}$

Normalised soil behaviour type (SBTn): Calculated using Q_{tn} and F_r for the Robertson's 2010 normalised CPT soil beha
P.W. Mayne in "Evaluating effective stress parameters and undrained shear stre
2016

Undrained shear strength (s_u): $s_u = \frac{q_t - \sigma_{v0}}{N_{kt}}$

Relative density (D_r): $D_r = 100 \cdot \sqrt{\frac{Q_{tn}}{350}}$

Friction angle (Φ'): $\Phi' = 17.60 + 11 \cdot \log(Q_{tn})$

Small strain shear modulus (G_0): $G_0 = (qt - \sigma_{v0}) \cdot \left(0.0188 \cdot 10^{(0.55 \cdot I_c + 1.68)}\right)$

Estimated shear wave velocity (V_s): $V_S = \sqrt{\frac{G_0}{\rho}}$ where $\rho = \frac{\gamma}{\gamma_w}$

Constrained modulus (M): $M = \alpha_M (q_t - \sigma_{v0})$

when $I_c > 2.2$

$\alpha_M = Q_t$ when $Q_t < 14$

$\alpha_M = 14$ when $Q_t > 14$

when $I_c < 2.2$

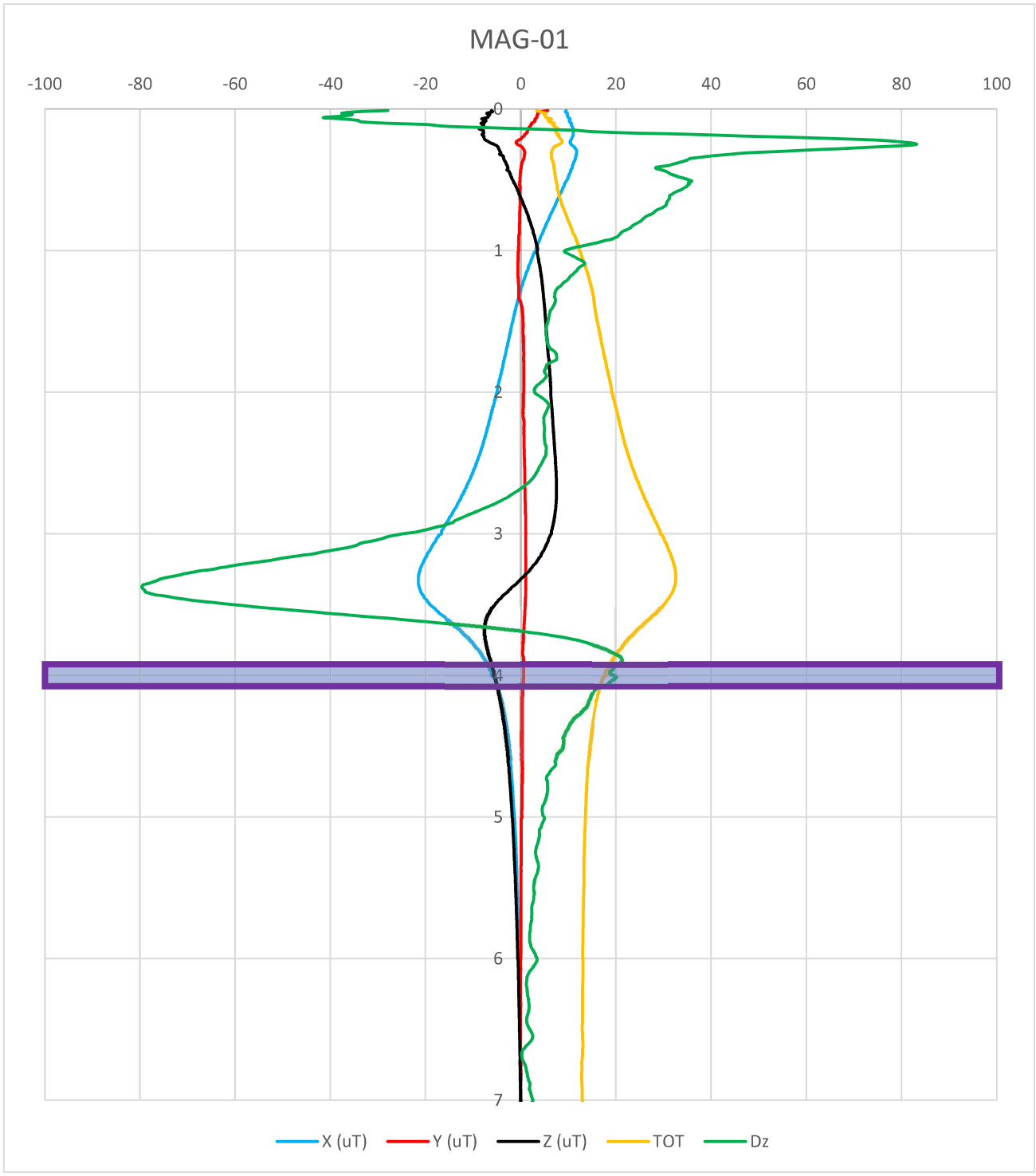
$\alpha_M = 0.0188 \cdot 10^{(0.55 \cdot I_c + 1.68)}$

Youngs modulus (E_s): $E_s = (qt - \sigma_{v0}) \cdot \left(0.015 \cdot 10^{(0.55 \cdot I_c + 1.68)}\right)$

Estimated SPT N_{60}: $N_{60} = \frac{q_t / p_a}{8.5 \cdot \left(1 - \frac{I_c}{4.6}\right)}$

Zero Readings

kPa	Initial zeros	Final zeros	Final difference	C
Cone resistance	22,341.70	22,352.50	10.88	


MAG-01
-100
-80
-60
-40
-20
0
20
40
60
80
100
0
1
2
3
4
5
6
7
X (uT)
Y (uT)
Z (uT)
TOT
Dz

MAGNETOMETER READINGS

Corrections				Peak Dz Depth (m)
100	-10.3	-7	3.2	3.38

Depth	X raw	Y raw	Z raw	TOT	GRAD	Temp	Tilt	HoleD	Speed	Depth (m)	X (uT)	Y (uT)	Z (uT)	Z_Ave (uT)	Dz	Dz_Ave	Dz big
1	-0.79	-1.33	-2.95	3.33	3.33	8.2	2.2	137	2	0.01	9.51	5.67	-6.15	-6.53	-0.04166667	-0.05583333	-27.9166667
2	-0.91	-2.9	-2.74	4.09	0.76	8.2	2.4	158.3	0.2	0.02	9.39	4.1	-5.94	-6.61333333	-0.11404762	-0.06933333	-34.6666667
3	-0.49	-3.42	-3.94	5.24	1.15	8.2	2.4	153	1.2	0.03	9.81	3.58	-7.14	-6.84142857	-0.03428571	-0.07527778	-37.6388889
4	-0.63	-3.48	-3.34	4.86	-0.38	8.2	2.3	153.4	1.9	0.04	9.67	3.52	-6.54	-6.91	-0.03333333	-0.07087302	-35.4365079
5	-0.45	-3.62	-3.68	5.18	0.32	8.2	2.3	153.5	2	0.05	9.85	3.38	-6.88	-6.97666667	-0.12333333	-0.07520833	-37.6041667
6	-0.36	-3.69	-3.83	5.33	0.15	8.2	2.3	152.3	2	0.06	9.94	3.31	-7.03	-7.22333333	-0.105	-0.08298611	-41.4930556
7	0.04	-3.99	-5.01	6.4	1.07	8.2	2.2	151.8	1.1	0.07	10.34	3.01	-8.21	-7.43333333	-0.04444444	-0.07491071	-37.4553571
8	-0.12	-4.01	-4.19	5.8	-0.6	8.2	2.2	154.9	1.9	0.08	10.18	2.99	-7.39	-7.52222222	-0.10555556	-0.06826389	-34.1319444
9	-0.05	-4.19	-4.31	6.01	0.21	8.2	2.2	152.8	1.9	0.09	10.25	2.81	-7.51	-7.73333333	-0.10388889	-0.06729167	-33.6458333
10	0.29	-4.75	-5.17	7.03	1.02	8.2	2.1	157.6	1.1	0.1	10.59	2.25	-8.37	-7.94111111	-0.04944444	-0.05631944	-28.1597222
11	0.26	-4.79	-4.63	6.67	-0.36	8.2	2.1	156.7	1.9	0.11	10.56	2.21	-7.83	-8.04	0.01888889	-0.03930556	-19.6527778
12	0.42	-5.04	-4.74	6.93	0.26	8.2	2.1	157.7	1.9	0.12	10.72	1.96	-7.94	-8.00222222	-0.02555556	-0.033125	-16.5625
13	0.58	-5.25	-5.24	7.44	0.51	8.2	2.1	157.1	1	0.13	10.88	1.75	-8.44	-8.05333333	-0.03555556	-0.01791667	-8.95833333
14	0.72	-5.48	-5.55	7.83	0.39	8.2	2	156.8	0	0.14	11.02	1.52	-8.75	-8.12444444	0.03111111	0.00222222	1.11111111
15	0.67	-5.52	-4.72	7.29	-0.54	8.2	2.1	158.4	1.9	0.15	10.97	1.48	-7.92	-8.06222222	0.005	0.02201389	11.0069444
16	0.71	-5.66	-4.67	7.37	0.08	8.2	2.1	158.5	2	0.16	11.01	1.34	-7.87	-8.05222222	0.01611111	0.03034722	15.1736111
17	0.71	-5.76	-4.65	7.44	0.06	8.2	2.1	158.5	1.9	0.17	11.01	1.24	-7.85	-8.02	0.05722222	0.049375	24.6875
18	0.67	-6.19	-4.95	7.95	0.52	8.2	2.1	159.3	0.1	0.18	10.97	0.81	-8.15	-7.90555556	0.10888889	0.07319444	36.5972222
19	0.62	-6.31	-4.61	7.84	-0.11	8.2	2.1	159.8	1.9	0.19	10.92	0.69	-7.81	-7.68777778	0.08555556	0.09277778	46.3888889
20	0.45	-6.73	-4.54	8.13	0.29	8.2	2.1	160.8	1.9	0.2	10.75	0.27	-7.74	-7.51666667	0.12666667	0.11395833	56.9791667
21	0.36	-6.94	-4.45	8.25	0.12	8.2	2.1	161.3	1.9	0.21	10.66	0.06	-7.65	-7.26333333	0.155	0.134375	67.1875
22	0.21	-7.48	-4.21	8.59	0.33	8.2	2.1	162.9	1.9	0.22	10.51	-0.48	-7.41	-6.95333333	0.18777778	0.14972222	74.8611111
23	0.06	-7.92	-3.59	8.7	0.11	8.2	2.1	163.6	1.9	0.23	10.36	-0.92	-6.79	-6.57777778	0.17444444	0.15840278	79.2013889
24	0.06	-7.96	-3.18	8.57	-0.12	8.2	2.1	164.3	1.9	0.24	10.36	-0.96	-6.38	-6.22888889	0.17944444	0.16402778	82.0138889
25	0.26	-7.69	-2.39	8.06	-0.51	8.2	2.1	163.3	1.9	0.25	10.56	-0.69	-5.59	-5.87	0.18	0.16618056	83.0902778
26	0.63	-7.15	-1.86	7.41	-0.64	8.2	2.1	162.2	1.9	0.26	10.93	-0.15	-5.06	-5.51	0.17833333	0.15993056	79.9652778
27	0.99	-6.67	-1.57	6.92	-0.49	8.2	2	161.1	1.9	0.27	11.29	0.33	-4.77	-5.15333333	0.13055556	0.14645833	73.2291667
28	1.14	-6.51	-1.47	6.77	-0.15	8.2	2.1	161.3	1.9	0.28	11.44	0.49	-4.67	-4.89222222	0.14388889	0.13368056	66.8402778
29	1.36	-6.29	-1.31	6.57	-0.2	8.2	2.1	159.4	1.9	0.29	11.66	0.71	-4.51	-4.60444444	0.105	0.12069444	60.3472222
30	1.42	-6.21	-1.21	6.48	-0.08	8.2	2.1	159.9	1.9	0.3	11.72	0.79	-4.41	-4.39444444	0.08	0.10770833	53.8541667
31	1.43	-6.14	-1	6.38	-0.1	8.2	2.1	159.6	2	0.31	11.73	0.86	-4.2	-4.23444444	0.07222222	0.09479167	47.3958333
32	1.34	-6.22	-1.24	6.48	0.1	8.2	2.1	158.4	0.5	0.32	11.64	0.78	-4.44	-4.09	0.07555556	0.08770833	43.8541667
33	1.27	-6.25	-0.59	6.4	-0.08	8.2	2.1	159.7	2	0.33	11.57	0.75	-3.79	-3.93888889	0.07611111	0.08118056	40.5902778
34	1.21	-6.31	-0.5	6.44	0.04	8.2	2.1	160.2	1.9	0.34	11.51	0.69	-3.7	-3.78666667	0.075	0.075625	37.8125
35	1.17	-6.37	-0.42	6.49	0.05	8.2	2.1	160.1	2	0.35	11.47	0.63	-3.62	-3.63666667	0.07388889	0.07111111	35.5555556
36	1.05	-6.5	-0.27	6.59	0.1	8.2	2.1	159.7	1.9	0.36	11.35	0.5	-3.47	-3.48888889	0.09166667	0.06986111	34.9305556
37	0.91	-6.64	-0.11	6.7	0.11	8.2	2.1	160.9	1.9	0.37	11.21	0.36	-3.31	-3.30555556	0.06055556	0.06805556	34.0277778
38	0.77	-6.76	0.06	6.8	0.1	8.2	2.1	160.8	2	0.38	11.07	0.24	-3.14	-3.18444444	0.04388889	0.06611111	33.0555556
39	0.7	-6.82	0.14	6.86	0.05	8.2	2.1	160.9	2	0.39	11	0.18	-3.06	-3.09666667	0.06222222	0.06361111	31.8055556
40	0.55	-6.91	0.33	6.94	0.08	8.2	2.1	161.4	2	0.4	10.85	0.09	-2.87	-2.97222222	0.06111111	0.06180556	30.9027778
41	0.51	-6.93	0.41	6.96	0.02	8.2	2.1	161.5	1.9	0.41	10.81	0.07	-2.79	-2.85	0.06055556	0.05701389	28.5069444
42	0.43	-6.94	0.5	6.97	0.01	8.2	2	161.1	1.9	0.42	10.73	0.06	-2.7	-2.72888889	0.055	0.05673611	28.3680556
43	0.21	-7.06	0.29	7.07	0.1	8.2	2	162.5	0.1	0.43	10.51	-0.06	-2.91	-2.61888889	0.05944444	0.05909722	29.5486111
44	0.17	-7.03	0.7	7.07	0	8.2	2.1	162.7	1.9	0.44	10.47	-0.03	-2.5	-2.5	0.05333333	0.06090278	30.4513889
45	0.02	-7.08	0.83	7.13	0.06	8.2	2	162.6	2	0.45	10.32	-0.08	-2.37	-2.39333333	0.05833333	0.06208333	31.0416667
46	-0.14	-7.11	0.98	7.18	0.05	8.2	2	162.9	2	0.46	10.16	-0.11	-2.22	-2.27666667	0.06277778	0.06298611	31.4930556
47	-0.22	-7.13	1.05	7.21	0.03	8.2	2	162.8	2	0.47	10.08	-0.13	-2.15	-2.15111111	0.07666667	0.06472222	32.3611111
48	-0.37	-7.15	1.21	7.26	0.05	8.2	2	163.3	1.9	0.48	9.93	-0.15	-1.99	-1.99777778	0.07055556	0.06652778	33.2638889
49	-0.46	-7.17	1.29	7.3	0.04	8.2	2	163.1	2	0.49	9.84	-0.17	-1.91	-1.85666667	0.06777778	0.06861111	34.3055556
50	-0.61	-7.18	1.46	7.35	0.05	8.2	2	162.9	1.9	0.5	9.69	-0.18	-1.74	-1.72111111	0.06888889	0.07055556	35.2777778
51	-0.77	-7.2	1.63	7.42	0.07	8.2	2	163	1.9	0.51	9.53	-0.2	-1.57	-1.58333333	0.07388889	0.07180556	35.9027778
52	-1.01	-7.23	1.67	7.49	0.07	8.2	2	162.9	0.1	0.52	9.29	-0.23	-1.53	-1.43555556	0.07	0.07034722	35.1736111
53	-1.1	-7.25	1.97	7.59	0.1	8.2	2	163.2	2	0.53	9.2	-0.25	-1.23	-1.29555556	0.07388889	0.07076389	35.3819444
54	-1.18	-7.27	2.05	7.65	0.05	8.2	2	163.2	2	0.54	9.12	-0.27	-1.15	-1.14777778	0.07277778	0.07	35
55	-1.35	-7.14	2.22	7.6	-0.05	8.2	2	161.8	1.9	0.55	8.95	-0.14	-0.98	-1.00222222	0.065	0.06951389	34.7569444
56	-1.51	-7.14	2.38	7.68	0.08	8.2	2	162.1	2	0.56	8.79	-0.14	-0.82	-0.87222222	0.07388889	0.06826389	34.1319444
57	-1.59	-7.15	2.47	7.73	0.05	8.2	2	162.3	1.9	0.57	8.71	-0.15	-0.73	-0.72444444	0.06166667	0.06736111	33.6805556
58	-1.75	-7.16	2.62	7.82	0.09	8.2	2	162.2	1.9	0.58	8.55	-0.16	-0.58	-0.60111111	0.065	0.06583333	32.9166667
59	-1.92	-7.16	2.77	7.91	0.09	8.2	2	162.6	1.9	0.59	8.38	-0.16	-0.43	-0.47111111	0.06388889	0.06451389	32.2569444
60	-2.05	-7.18	2.8	7.97	0.06	8.2	2	161.8	0	0.6	8.25	-0.18	-0.4	-0.34333333	0.06277778	0.06368056	31.8402778
61	-2.19	-7.17	3	8.07	0.1	8.2	2	162.5	2	0.61	8.11	-0.17	-0.2	-0.21777778	0.06166667	0.06256944	31.2847222
62	-2.27	-7.17	3.08	8.13	0.05	8.2	2	162.7	2	0.62	8.03	-0.17	-0.12	-0.09444444	0.06222222	0.06256944	31.2847222
63	-2.44	-7.17	3.22	8.23	0.1	8.2	2	162.7	1.9	0.63	7.86	-0.17	0.02	0.03	0.05833333	0.0625	31.25
64	-2.6	-7.16	3.37	8.33	0.1	8.2	2	163.1	1.9	0.64	7.7	-0.16	0.17	0.14666667	0.065	0.06208333	31.0416667
65	-2.75	-7.14	3.51	8.42	0.09	8.2	2	162.7	1.9	0.65	7.55	-0.14	0.31	0.27666667	0.06166667	0.06166667	30.8333333
66	-2.83	-7.14	3.58	8.47	0.06	8.2	2	162.5	1.9	0.66	7.47	-0.14	0.38	0.4	0.06444444	0.06125	30.625
67	-3	-7.13	3.74	8.59	0.12	8.2	2	163.3	1.9	0.67	7.3	-0.13	0.54	0.52888889	0.06055556	0.06118056	30.5902778
68	-3.07	-7.15	3.82	8.67	0.08	8.2	2	163	1.9	0.68	7.23	-0.15	0.62	0.65	0.05944444	0.06090278	30.4513889
69	-3.24	-7.15	3.97	8.8	0.13	8.2	2	163.1	1.9	0.69	7.06	-0.15	0.77	0.76888889	0.05833333	0.06006944	30.0347222
70	-3.39	-7.17	4.11	8.93	0.14	8.2	2	163.3	1.9	0.7	6.91	-0.17	0.91	0.88555556	0.06166667	0.05902778	29.5138889
71	-3.56	-7.19	4.24	9.07	0.14	8.2	2	163	2	0.71	6.74	-0.19	1.04	1.00888889	0.05611111	0.05756944	28.7847222
72	-3.65	-7.2	4.31	9.15	0.08	8.2	2	162.8	1.9	0.72	6.65	-0.2	1.11	1.12111111	0.05833333	0.05652778	28.2638889
73	-3.81	-7.21	4.44	9.29	0.13	8.2	2	163	1.9	0.73	6.49	-0.21	1.24	1.23777778	0.05333333	0.05597222	27.9861111
74	-3.98	-7.22	4.56	9.42	0.14	8.2	2	163.7	1.9	0.74	6.32	-0.22	1.36	1.34444444	0.05277778	0.05506944	27.5347222
75	-4.14	-7.22	4.69	9.55	0.13	8.2	2	163.5	1.9	0.75	6.16	-0.22	1.49	1.45	0.05222222	0.05368056	26.8402778
76	-4.23	-7.23	4.75	9.63	0.08	8.2	2	162.9	2	0.76	6.07	-0.23	1.55	1.55444444	0.055	0.0525	26.25
77	-4.39	-7.23	4.87	9.76	0.13	8.2	2	163.4	2	0.77	5.91	-0.23	1.67	1.66444444	0.05111111	0.05173611	25.8680556
78	-4.47	-7.24	4.93	9.83	0.07	8.2	2	163.2	2	0.78	5.83	-0.24	1.73	1.76666667	0.05055556	0.05111111	25.5555556
79	-4.64	-7.24	5.06	9.98	0.14	8.2	2	163.8	1.9	0.79	5.66	-0.24	1.86	1.86777778	0.04666667	0.05048611	25.2430556
80	-4.79	-7.25	5.18	10.12	0.14	8.2	2	164	1.9	0.8	5.51	-0.25	1.98	1.96111111	0.05222222	0.04958333	24.7916667
81	-4.96	-7.25	5.3	10.26	0.14	8.2	2	163.8	1.9	0.81	5.34	-0.25	2.1	2.06555556	0.04833333	0.04826389	24.1319444
82	-5.03	-7.26	5.36	10.33	0.07	8.2	2	163.8	1.9	0.82	5.27	-0.26	2.16	2.16222222	0.04777778	0.04736111	23.6805556
83	-5.19	-7.27	5.47	10.47	0.14	8.2	2	163.8	2	0.83	5.11	-0.27	2.27	2.25777778	0.045	0.04645833	23.2291667
84	-5.26	-7.27	5.53	10.54	0.07	8.2	2	164.2	1.9	0.84	5.04	-0.27	2.33	2.34777778	0.04444444	0.04597222	22.9861111
85	-5.49	-7.27	5.69	10.74	0.2	8.2	2	164.3	1.9	0.85	4.81	-0.27	2.49	2.43666667	0.04388889	0.04472222	22.3611111
86	-5.57	-7.28	5.74	10.82	0.07	8.2	2	164.4	2	0.86	4.73	-0.28	2.54	2.52444444	0.04333333	0.04340278	21.7013889
87	-5.65	-7.29	5.79	10.89	0.07	8.2	2	164.5	1.9	0.87	4.65	-0.29	2.59	2.61111111	0.04277778	0.04229167	21.1458333
88	-5.78	-7.27	5.87	10.99	0.1	8.2	2	165.3	2	0.88	4.52	-0.27	2.67	2.69666667	0.04222222	0.041875	20.9375
89	-5.99	-7.39	5.98	11.24	0.25	8.2	2	164.1	1.9	0.89	4.31	-0.39	2.78	2.78111111	0.03777778	0.04125	20.625
90	-6.14	-7.45	6.09	11.41	0.18	8.2	2	164.5	1.9	0.9	4.16	-0.45	2.89	2.85666667	0.03888889	0.04069444	20.3472222
91	-6.21	-7.44	6.14	11.47	0.06	8.2	2	164.7	1.9	0.91	4.09	-0.44	2.94	2.93444444	0.04166667	0.03944444	19.7222222
92	-6.35	-7.46	6.24	11.62	0.14	8.2	2	164.3	2	0.92	3.95	-0.46	3.04	3.01777778	0.03944444	0.03791667	18.9583333
93	-6.43	-7.46	6.29	11.69	0.07	8.2	2	164.5	2	0.93	3.87	-0.46	3.09	3.09666667	0.03944444	0.03520833	17.6041667
94	-6.58	-7.45	6.37	11.81	0.12	8.2	2	163.8	1.9	0.94	3.72	-0.45	3.17	3.17555556	0.03333333	0.03298611	16.4930556
95	-6.73	-7.45	6.44	11.93	0.12	8.2	2	163.8	1.9	0.95	3.57	-0.45	3.24	3.24222222	0.03055556	0.030625	15.3125
96	-6.88	-7.46	6.54	12.07	0.15	8.2	2	163.9	1.9	0.96	3.42	-0.46	3.34	3.30333333	0.02055556	0.02777778	13.8888889
97	-6.95	-7.47	6.58	12.14	0.07	8.2	2	164	1.9	0.97	3.35	-0.47	3.38	3.34444444	0.02	0.02493056	12.4652778
98	-7.09	-7.47	6.69	12.28	0.14	8.3	2	161.1	0	0.98	3.21	-0.47	3.49	3.38444444	0.02	0.02222222	11.1111111
99	-7.09	-7.47	6.69	12.28	0.14	8.3	2	161.1	0	0.99	3.21	-0.47	3.49	3.42444444	0.01888889	0.02006944	10.0347222
100	-7.09	-7.47	6.69	12.28	0.14	8.3	2	161.1	0	1	3.21	-0.47	3.49	3.46222222	0.01666667	0.01847222	9.23611111
101	-7.47	-7.57	6.61	12.52	0.24	8.5	2	163.5	2	1.01	2.83	-0.57	3.41	3.49555556	0.01777778	0.01840278	9.20138889
102	-7.55	-7.55	6.65	12.58	0.06	8.5	2	163.9	2	1.02	2.75	-0.55	3.45	3.53111111	0.01611111	0.01958333	9.79166667
103	-7.71	-7.54	6.73	12.71	0.13	8.5	2	163.7	2	1.03	2.59	-0.54	3.53	3.56333333	0.01777778	0.02090278	10.4513889
104	-7.8	-7.54	6.78	12.79	0.08	8.5	1.9	163.5	2	1.04	2.5	-0.54	3.58	3.59888889	0.02	0.02201389	11.0069444
105	-7.91	-7.57	6.84	12.91	0.12	8.5	2	163.5	2	1.05	2.39	-0.57	3.64	3.63888889	0.02944444	0.02319444	11.5972222
106	-8.03	-7.56	6.9	13.01	0.1	8.5	2	162.9	2	1.06	2.27	-0.56	3.7	3.69777778	0.03055556	0.02423611	12.1180556
107	-8.17	-7.57	6.98	13.14	0.13	8.5	2	163.4	2	1.07	2.13	-0.57	3.78	3.75888889	0.02777778	0.02548611	12.7430556
108	-8.26	-7.58	7.01	13.22	0.08	8.5	2	163.8	2	1.08	2.04	-0.58	3.81	3.81444444	0.02611111	0.02631944	13.1597222
109	-8.33	-7.59	7.05	13.29	0.07	8.5	2	163.1	2	1.09	1.97	-0.59	3.85	3.86666667	0.02611111	0.026875	13.4375
110	-8.54	-7.59	7.14	13.47	0.18	8.6	1.9	163.7	2	1.1	1.76	-0.59	3.94	3.91888889	0.02611111	0.02638889	13.1944444