

**National Certificate in Building, Construction and Allied Trades Skills (BCATS)**  
Teacher Information & Resources

**Read and interpret plans, working  
drawings and specifications for  
BCATS projects**

Unit Standard – 22607

Level 2, Credit 3





## Teaching and assessment tips

**Intent** – The intent of the unit standard is that the learner is able to read and interpret plans, working drawings and specifications. This includes;

- reading and interpreting different plans,
- identifying abbreviations, symbols and preliminary work and,
- determining the quality and types of materials required in undertaking a specific project.

The skills and knowledge required for this unit standard are best assessed using the worksheet provided.

A worksheet is included in this document as a means of assessment for this unit standard. This worksheet requires the use of A3 sized plans **that are also** included. Students require these plans in order to complete the worksheet.

If you need to gather further evidence it can be collected by observing the student read and interpret any number of given plans for projects that they complete as a part of the BConstructive programme.

### Assessment



Assessment of this unit standard consists of:

- Completion of the worksheet.

# Worksheet US 22607

**Student Name:** \_\_\_\_\_

**1.** What does a scale of 1:20 mean?

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**2.** What drawing scale would be used where an object is to be drawn showing it twice its actual size?

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**3.** What does a thin line with a series of long and short dashes mean?

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**4.** What is the purpose of a cross-sectional drawing?

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**5.** What type of drawing can provide information about window and door heights?

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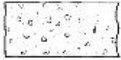





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6. Complete the following table:

Symbol/abbreviation	Meaning
	Door
	
	
	
	Electrical socket outlet
	
	
RSD	
	Underground

7. What are 4 main functions of the plans and specifications?

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8. List 3 types of drawings that may form part of a set of working drawings.

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9. What are 2 advantages of preparing a schedule of quantities?

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**10.** From the supplied plans and specifications, answer the following questions:

How many anchor piles are required for the foundation?

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What is the size of the anchor pile footing?

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What is the scale of the foundation plan?

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What is the scale of the floor plan?

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What is the slope of the ramp?

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What are the sizes of the following framing members?

Bearers:

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Joists

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Purlins

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What is the total length and width of the building, excluding the deck?

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What is the pitch of the roof?

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What is the slope of the ceiling in the reception area?

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What grade of batts is specified for wall framing insulation?

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What grade of batts is specified for ceiling insulation?

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What thickness of "hardiflex" is specified for the base surrounding the foundations?

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**11.** Before construction can be started on the building detailed in the supplied plans, what information must be obtained from the owner?

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**12.** As part of preparing for the construction of the building in the supplied plans, how is the septic waste to be dealt with?

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**Assessor Sign off:**

Assessor name: .....

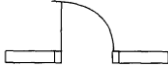
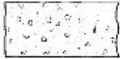





Assessor signature: ..... Date:.....

**RESULT:** A = Achieved,  
N = Not Yet Achieved

# Worksheet Model Answers

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1. What does a scale of 1:20 mean?  
*1 mm on the drawing represents 20mm on the actual object.*
2. What drawing scale would be used where an object is to be drawn showing it twice its actual size?  
*2:1.*
3. What does a thin line with a series of long and short dashes mean?  
*A centre line.*
4. What is the purpose of a cross-sectional drawing?  
*To show the hidden construction details.*
5. What type of drawing can provide information about window and door heights?  
*Elevations.*
6. Complete the following table:

Symbol/abbreviation	Meaning
	Door
	<i>Concrete</i>
	<i>Window (top hung)</i>
	<i>Fluorescent light</i>
	Electrical socket outlet
	<i>Tub</i>
	<i>Washing machine</i>
RSD	<i>Roller shutter door</i>
<i>U/G</i>	Underground

7. What are 4 main functions of the plans and specifications?
- *Show compliance with the Building Code.*
  - *Provide sufficient information to allow accurate costing of the project.*
  - *Form part of the contractual agreement between various parties.*
  - *Provide information for the accurate completion of the project.*
8. List 3 types of drawings that may form part of a set of working drawings.
- *Floor plans.*
  - *Foundation plans.*
  - *Cross sectional views.*
  - *Exterior elevations.*
  - *Roofing plan.*
  - *Special construction details.*
9. What are 2 advantages of preparing a schedule of quantities?
- *Identifies the quality and quantity of materials so it is known how much to order.*
  - *Provides for the organised delivery of materials at the appropriate time.*
  - *Provides for the accurate costing and monitoring of materials.*
10. From the supplied plans and specifications, answer the following questions.

How many anchor piles are required for the foundation? 8

What is the size of the anchor pile footing?  $0.400 \times 0.400 \times 0.900$

What is the scale of the foundation plan?  $1:100$

What is the scale of the floor plan?  $1:50$

What is the slope of the ramp? *No steeper than 1 in 12*

What are the sizes of the following framing members?

Bearers  $150 \times 100$

Joists  $200 \times 50$

Purlins  $75 \times 50$



What is the total length and width of the building, excluding the deck?	<i>12.600 x 7.200m</i>
What is the pitch of the roof?	<i>20°</i>
What is the slope of the ceiling in the reception area?	<i>10°</i>
What grade of batts is specified for wall framing insulation?	<i>R1.8</i>
What grade of batts is specified for ceiling insulation?	<i>R2.0</i>
What thickness of "hardiflex" is specified for the base surrounding the foundations?	<i>45mm</i>

- 11.** Before construction can be started on the building detailed in the supplied plans, what information must be obtained from the owner?

*The position of the building on the site.*

- 12.** As part of preparing for the construction of the building in the supplied plans, how is the septic waste to be dealt with?

*By connection to existing septic tank.*

## Examples of oral assessment questions

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1. Name two types of pictorial drawings.

*Isometric.*

*Oblique.*

*Perspective.*

2. What drawing method is used to produce a set of working drawings?

*Orthographic projection.*

3. Name 3 of the views that make up an orthographic drawing.

*Front.*

*Right side view.*

*Left side view.*

*Top view or plan.*

*Rear view.*

4. What angle is used to draw an oblique drawing?

*45°*

5. Which method of projection is used to produce a set of working drawings?

*Orthographic projection.*

6. When a drawing of an object is to be produced showing it 5 times its normal size, what is the scale that would be used?

*5:1*

7. What legislative act governs all construction work in New Zealand?

*The Building Act.*

# Worksheet US 22607

**Student Name:** \_\_\_\_\_

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	Electrical socket outlet
RSD	
	Underground

7. What are 4 main functions of the plans and specifications?

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8. List 3 types of drawings that may form part of a set of working drawings.

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9. What are 2 advantages of preparing a schedule of quantities?

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**10.** From the supplied plans and specifications, answer the following questions:

How many anchor piles are required for the foundation?

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What is the size of the anchor pile footing?

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What is the scale of the foundation plan?

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What is the scale of the floor plan?

---

What is the slope of the ramp?

---

What are the sizes of the following framing members?

Bearers

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Joists

---

Purlins

---

What is the total length and width of the building, excluding the deck?

---

What is the pitch of the roof?

---

What is the slope of the ceiling in the reception area?

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On what sheet are the stopping and painting specifications?

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What thickness of "hardiflex" is specified for the base surrounding the foundations?

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**11.** Before construction can be started on the building detailed in the supplied plans, what information must be obtained from the owner?

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**12.** As part of preparing for the construction of the building in the supplied plans, how is the septic waste to be dealt with?

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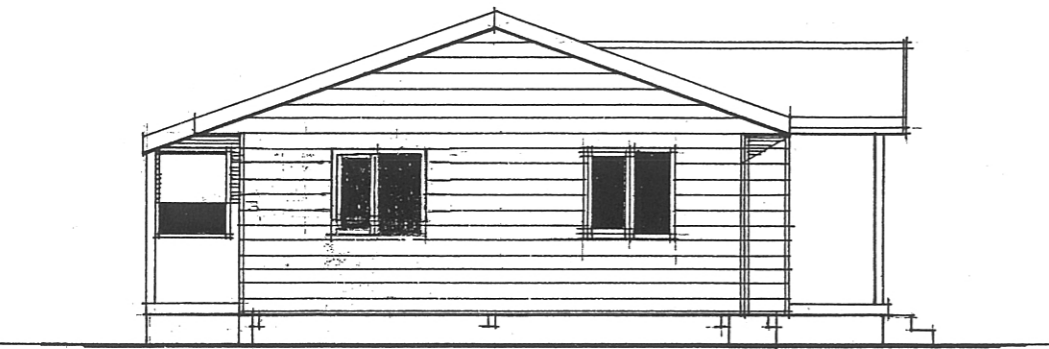
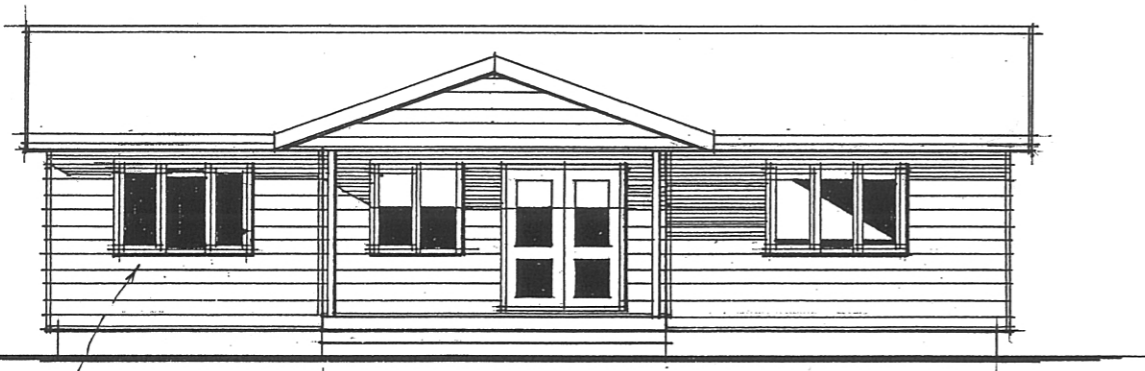
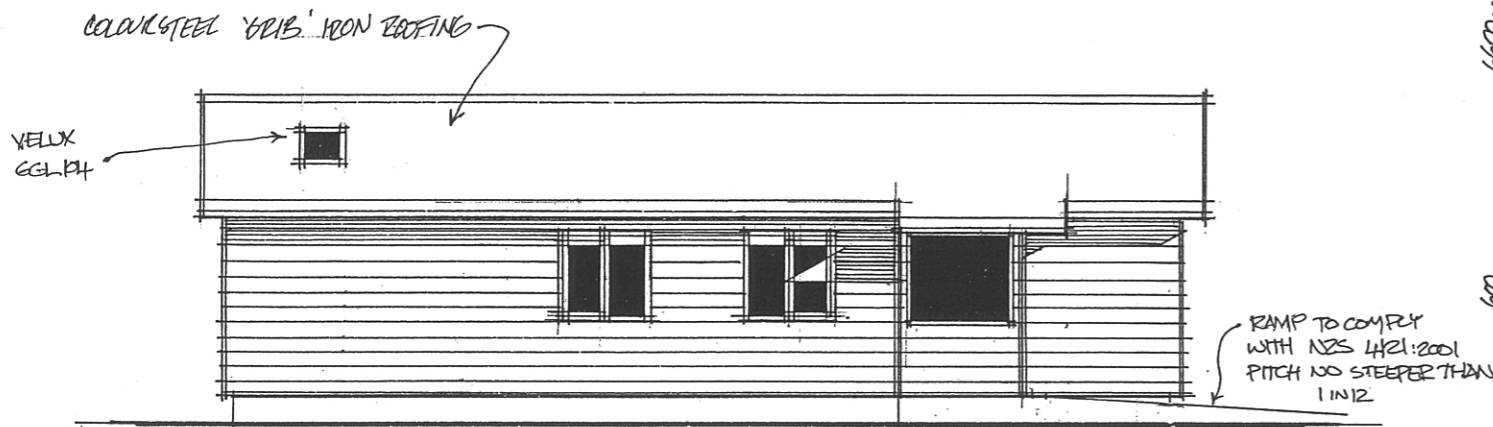
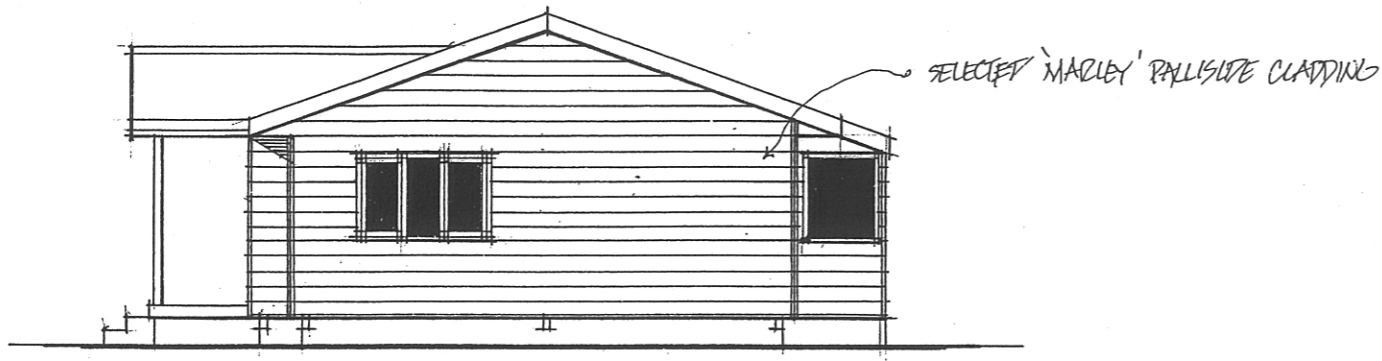
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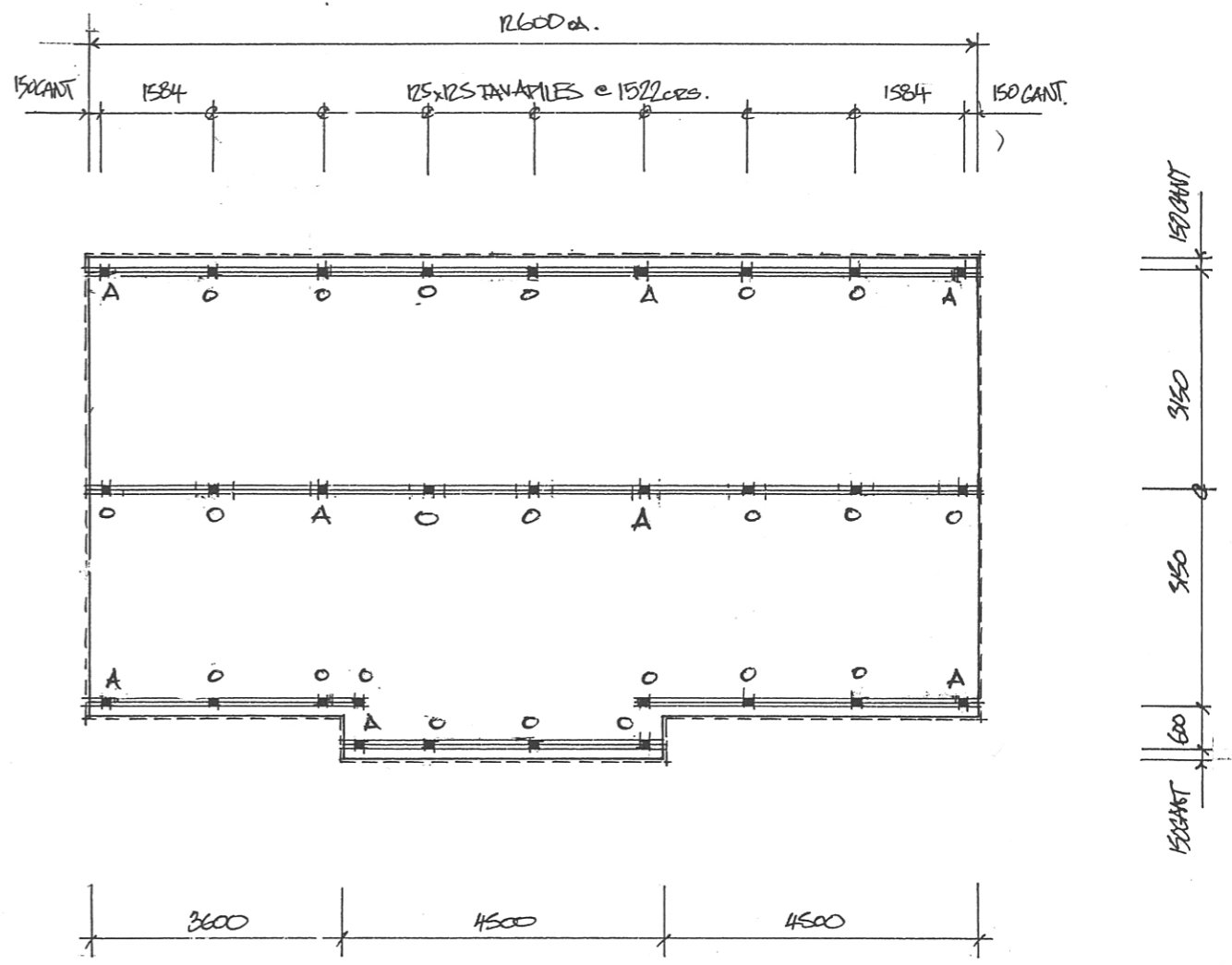
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ELEVATIONS  
SCALE 1:100.



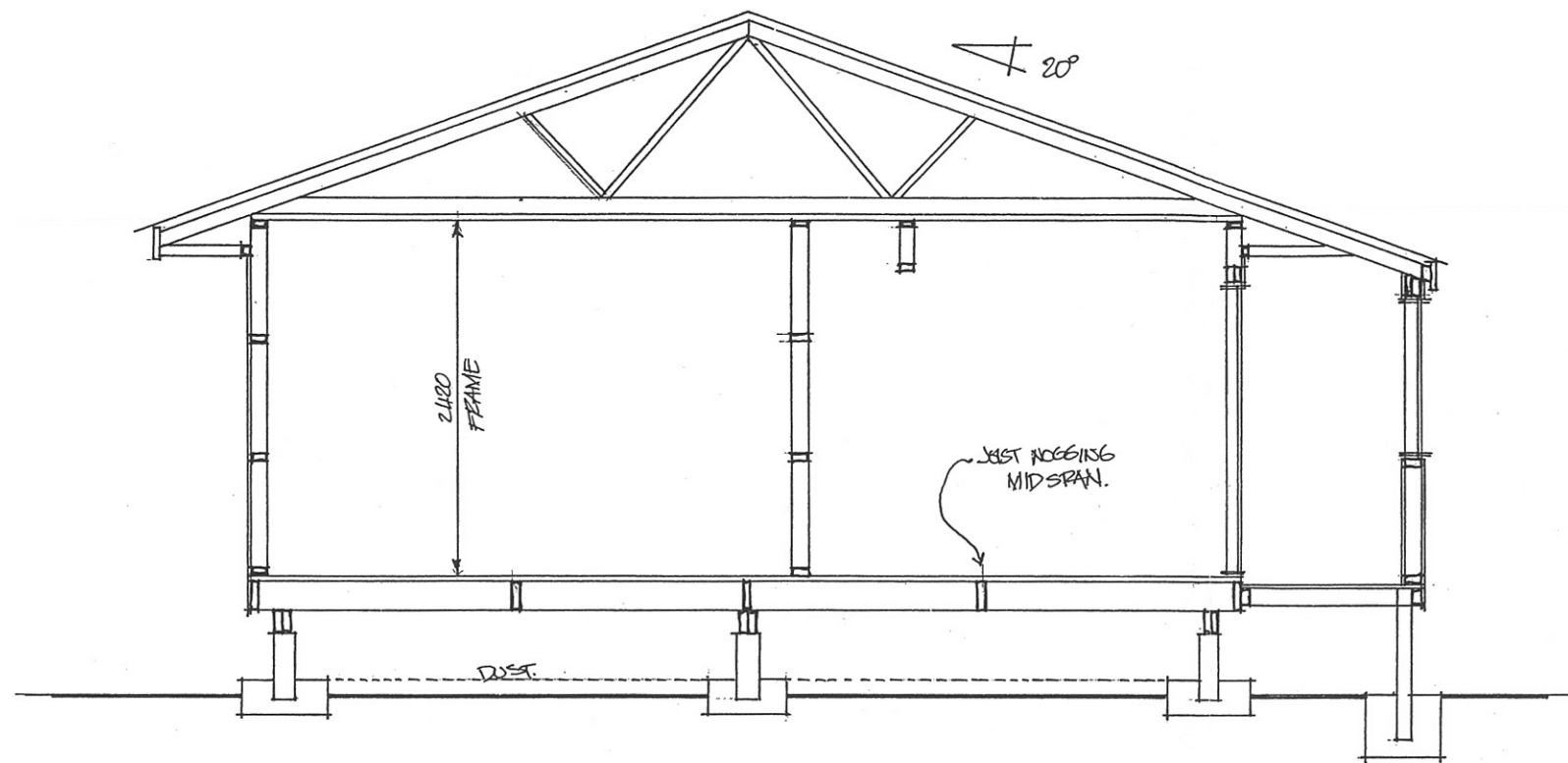
- #A ANCHOR PILE - FOOTING 400x400x900
- #O ORDINARY PILE - FOOTING 400x400x200

- FIX ANCHOR PILE TO BEAMER WITH 12KN FIXING.
- 150x100 BEAMERS FIXED TO 125x125 TANAPILE WITH APPROPRIATE FIXINGS.
- 200x50 JOISTS 3450 CRS THROUGHOUT, PERFORATED FOIL UNDER PARTIAL BOARD FLOORING OVER.
- GALV BEAMER CAP TO END (EXPOSED) OF BEAMERS.
- 45MM HARDIFLEX BASE ON 75x50 BASE PREAMING. (INCLUDE SUFFICIENT VENTS FOR AIR FLOW)

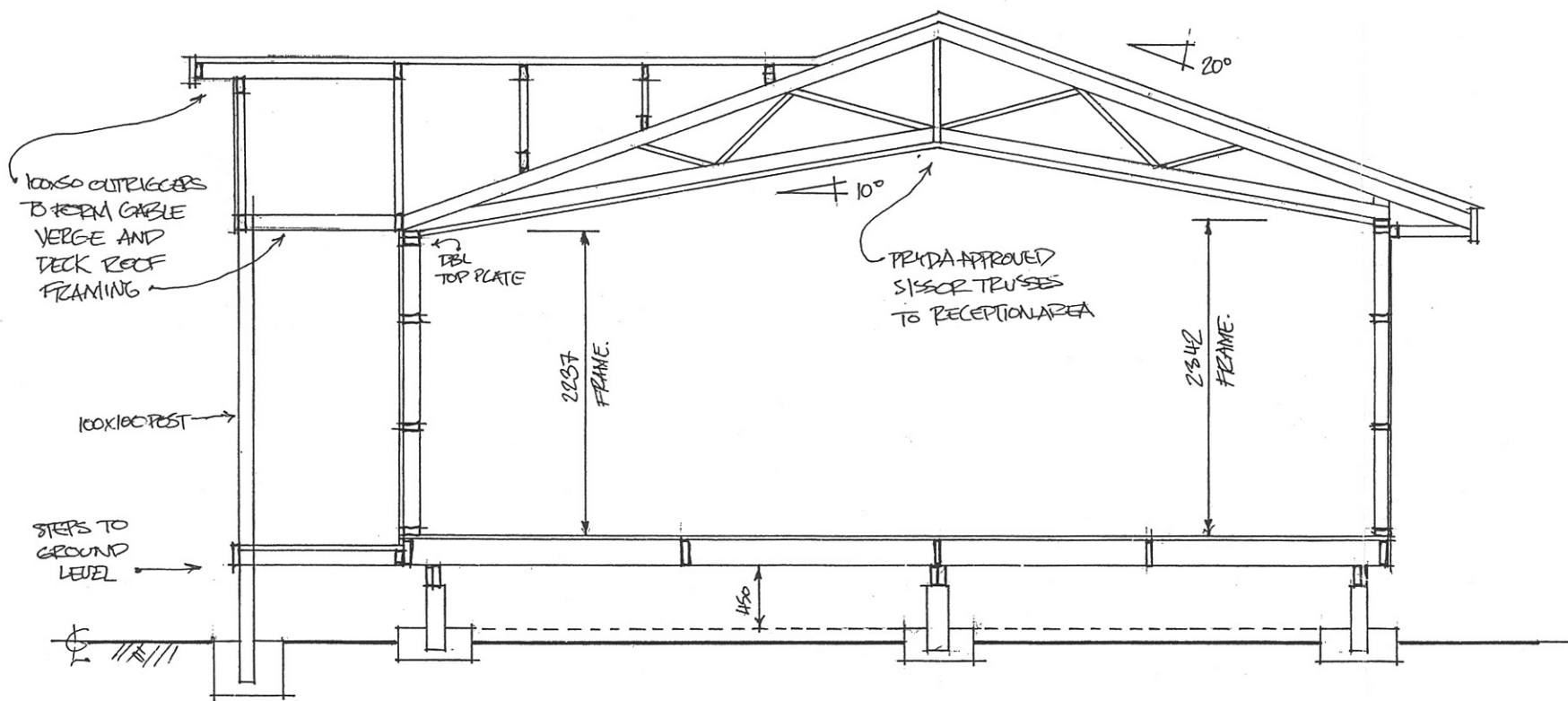
FOUNDATION PLAN  
SCALE 1:100

DATE 24/4/02	SUBJECT PROPOSED OFFICES FOR TRANSPORT LTD, RIMU STREET LOT - DPS.	AMENDED 14/5/02	2/5/02
DESIGNER [Signature]		WINDZONE HIGH	1/3
		SCALE 1:100	





- LIGHT WEIGHT COLOURSTEEL 'GIB' IRON OVER BT BUILDING PAPER
- 75x50 PURLIN (ON FLAT) @900cs OVER PRYDA APPROVED TRUSSES @900cs.
- 75x40 CEILING BATTENS @400cs AND 15x40 TOP PLATE PACKER OVER 95MM CHEBOARD CEILING, R20 CEILING INSULATION.
- 75x110 SOFFIT FRAMING UNDER 45MM HARDIFLEX.
- 200x25 FACIA TO 600% AND 300 GABLE VERGES.
- MARLEY FALLSIDE OVER 1ST BUILDING PAPER. (HARDIFLEX TO INSIDE OF PORCH)
- 100x50 FRAMING WITH STUDS @600cs AND NOSE @800cs.
- 95MM WALL GIB OVER 21-B WALL BATE (AQUALINE TO WET AREAS)
- SKIRTING AND SCOTIA 40x10 (OR SIMILAR)
- STOP AND PAINT INTERIOR TO OWNERS RECOMENDATION.
- 20MM PARTICACBOARD OVER PERFERATED FOL AND 200x50 JOISTS @450cs.
- 60x80 BEARERS ON DPC ON 125x125 TIMBER PILES.
- FOUNDATIONS AS PER FOUNDATION PLAN AND COUNCILS RECOMENDATION.
- PORCH AND DECK FORMED WITH 100x50 JOISTS @450cs FIXED TO 60x50 BOUNDARY JOISTS, 100x100 POSTS SET INTO CONCRETE PAD (SIZE TO SUIT PURPOSE)
- PORCH FRAME TO BE 'HANGSET', CANTILEVER ROOF 600MM, 100x50 FACIA BACKER TO OUTSIDE.
- SELECTIVE HARDWOOD OR PINE DECKING



SECTIONS  
SCALE 1:50.

DATE	24/11/02
DRAWN	<i>WJ</i>

SUBJECT	PROPOSED OFFICES FOR TRANSPORT LTD. LOT - STREET, DPS-
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APPROVED	14/5/02 <i>(Signature)</i>
SCALE	1:50
ZONE	HIGH

3/3



# Assessment Schedule

## US 22607 Read and interpret plans, working drawings and specifications for BCATS projects (Level 2, Credit 3)

Outcome 1	Read and interpret plans, working drawings and specifications for basic construction.	Assessment evidence and judgement
ER 1.1	Plans, working drawings and specifications are identified and described in terms of their types and uses.	Evidence gathered from Worksheet questions 1-2, 4, 5, 7-8 showing; <ul style="list-style-type: none"> <li>• Plans, working drawings and specifications are identified and described correctly.</li> </ul>
ER 1.2	Abbreviations and symbols are identified and interpreted in terms of their use on plans, specifications and working drawings.	Evidence gathered from Worksheet questions 3, 6 showing; <ul style="list-style-type: none"> <li>• Abbreviations and symbols are identified and interpreted correctly.</li> </ul>
ER 1.3	Any preliminary work is identified from plans, specifications and working drawings.	Evidence gathered from Worksheet questions 11-12 showing; <ul style="list-style-type: none"> <li>• Any preliminary work is identified correctly.</li> </ul>
ER 1.4	Quality and types of materials are determined from plans, working drawings and specifications.	Evidence gathered from Worksheet questions 9-10 showing; <ul style="list-style-type: none"> <li>• Quality and types of materials are determined correctly.</li> </ul>