

CPCCBC4004A

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

ASSESSMENT SUMMARY

The assessment activities for *CPCCBC4004A Identify and produce estimated costs for building and construction projects* cover all aspects of the unit of competency required. To demonstrate competence in this unit, a participant must undertake all tasks and complete them satisfactorily and consistently. For Apprentices and Trainees, this includes employer completion of the Employer Record Book (ERB).

Participants must read all the information given before starting any assessment task. The assessment tasks are intended to be equitable, fair and flexible. If a participant has any questions or requires alternative arrangements to be made such requests should be directed to their Trainer/Assessor, who should note such arrangements in the 'Assessor Comments' on the affected assessment. If a participant feels they are not yet ready to be assessed, they should discuss their options with their Trainer/Assessor.

To satisfactorily complete the assessment, the participant is required to answer all questions correctly and demonstrate their skills to industry standards. If a participant does not answer some questions or perform some tasks, they will be deemed 'Not Satisfactory' for the task and 'Not Yet Competent' for the unit of competency. The Trainer/Assessor is able to provide the participant with additional information on interpreting the assessment outcomes and provide guidance on the participant's options. Should a participant still be deemed 'Not Satisfactory' they will have the opportunity to undertake a supplementary assessment or appeal the result.

By signing the cover page for each assessment item, the participant acknowledges they understand the assessment instructions and requirements and consent to being assessed. The participant also verifies and assures the RTO that the work submitted is their own work.

Participant Name	Nathan Wheeler
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Task	Assessment Results	
Theory Exam	☐ Satisfactory	☐ Not Yet Satisfactory
Practical Assessment	☐ Satisfactory	☐ Not Yet Satisfactory
Outcome for Unit of Competency	☐ Competent	☐ Not Yet Competent

Assessor Name	
Assessor Signature	
Unit Competence Determination Date	Click here to enter a date.

CPCCBC4004A

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

THEORY EXAM INSTRUCTIONS

- This exam will occur under standard assessment conditions.
 - An oral examination may be allowed under certain circumstances, whereby the Participant's answers will be documented by a party other than the Participant. This must be acknowledged in writing (e.g. FT001 and Assessor Comments)
- Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
- Please fill in the details below, providing your name, signature and date of assessment.
 - Your signature acknowledges that this is your own work.
- Assessors are to complete marking in pen of a different colour to the Participant.
- If a Participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
 - If a Participant changes their response in writing, they must put their initials next to the written change.
 - If a Participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name

Nathan Wheeler

Participant signature

Nathan Wheeler

Date

Click here to enter a date. 24/07/2021

Assessor name

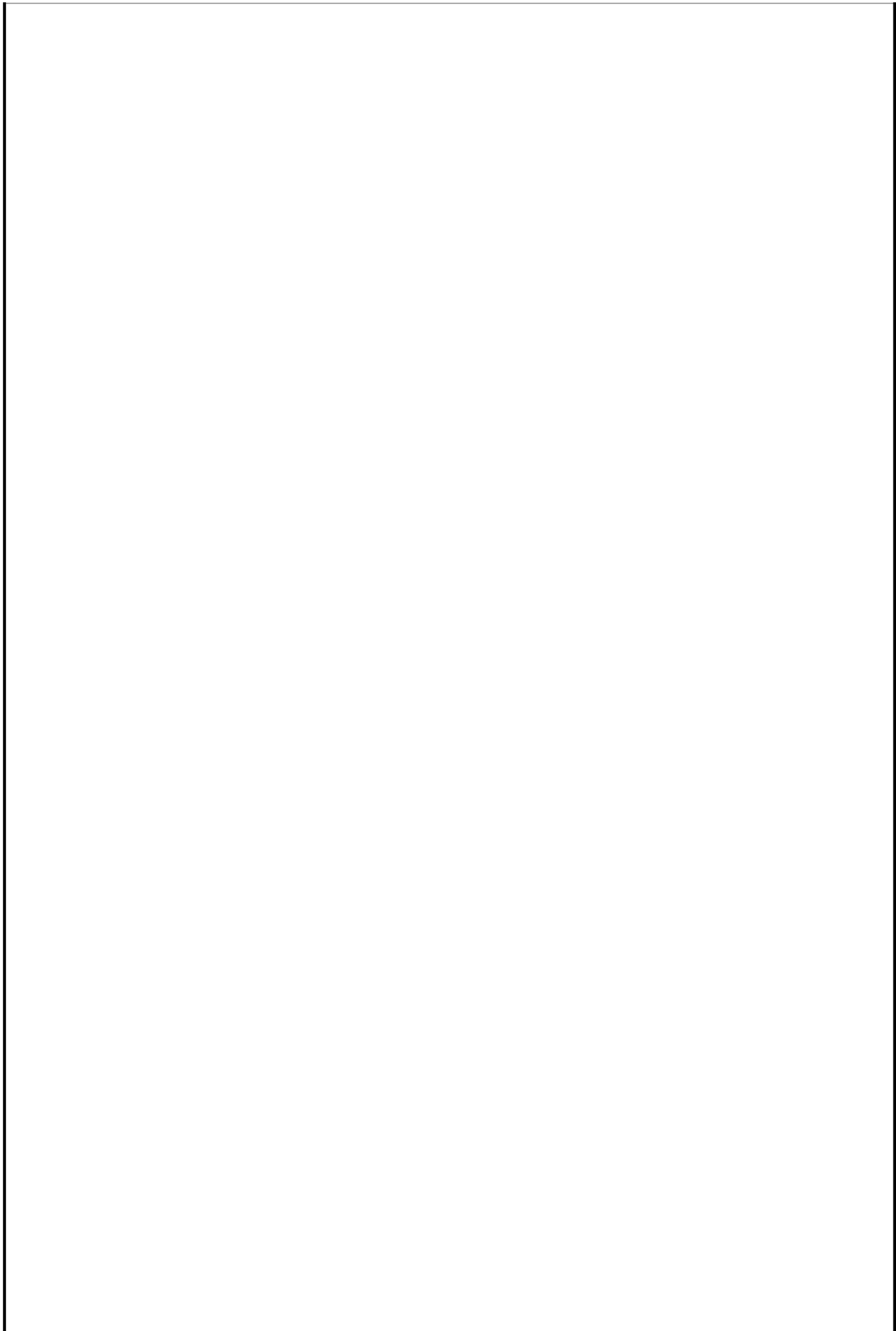
Assessor signature

Date

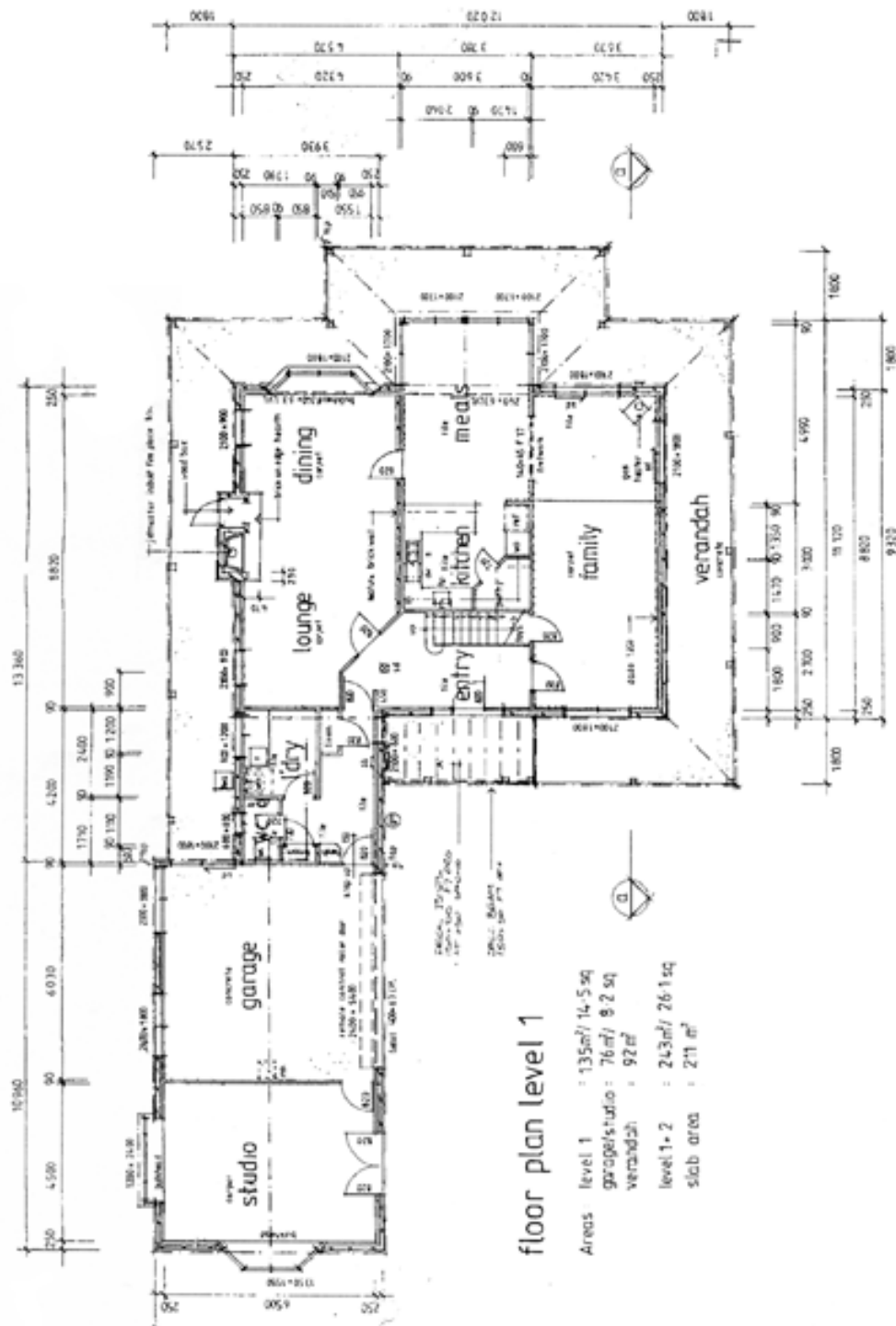
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Number of questions	Number of questions answered correctly	Task outcome (Tick)	
37		Satisfactory	Not Yet Satisfactory
		☐	☐

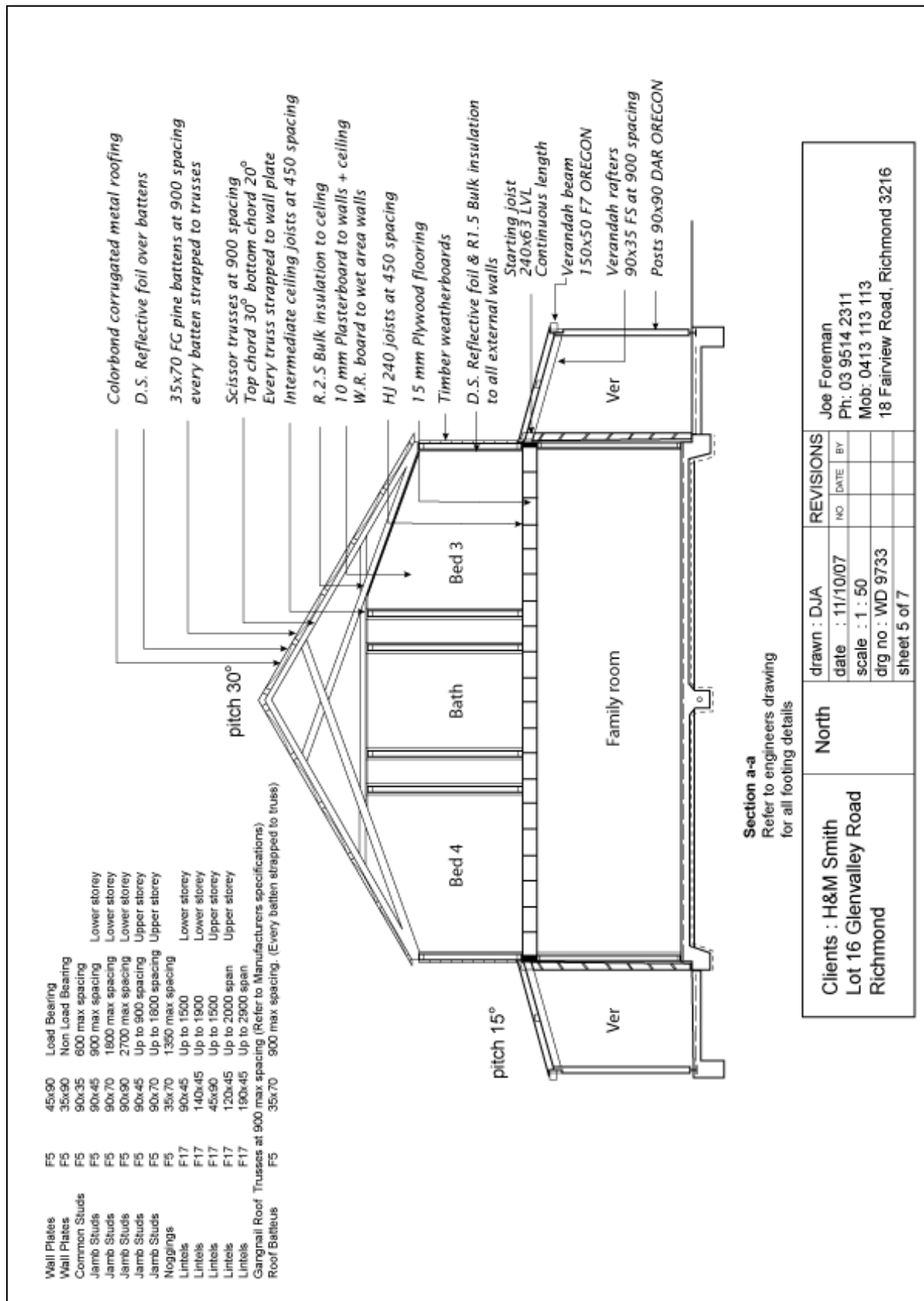
ASSESSOR COMMENTS

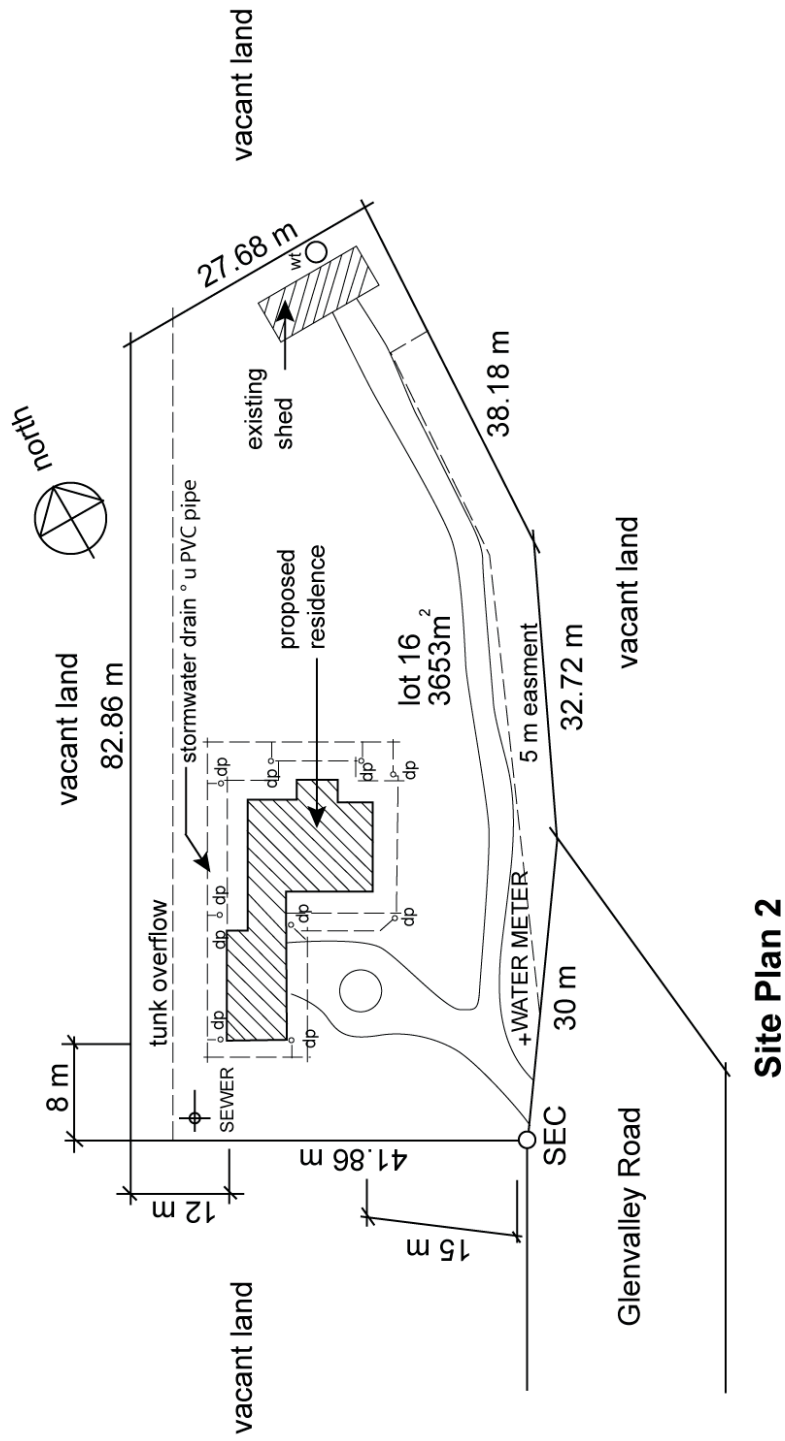
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Refer to the plans and specifications below to respond to Q1. to Q9.



Clients : H&M Smith		North	drawn : DJA	REVISIONS	Joe Foreman
Clients : H&M Smith		North	drawn : DJA	REVISIONS	Joe Foreman
date : 11/10/07		date	date	NO	BY
scale : 1 : 50		scale	scale		
dig no : WD 9733		dig no	dig no		
sheet 4 of 7		sheet	sheet		
Clients : H&M Smith		North	drawn : DJA	REVISIONS	Joe Foreman
Lot 16 Glenvalley Road		Lot 16 Glenvalley Road	Lot 16 Glenvalley Road	Lot 16 Glenvalley Road	Lot 16 Glenvalley Road
Richmond		Richmond	Richmond	Richmond	Richmond
Joe Foreman		Joe Foreman	Joe Foreman	Joe Foreman	Joe Foreman
Ph: 03 9514 2311		Ph: 03 9514 2311	Ph: 03 9514 2311	Ph: 03 9514 2311	Ph: 03 9514 2311
Mob: 0413 113 113		Mob: 0413 113 113	Mob: 0413 113 113	Mob: 0413 113 113	Mob: 0413 113 113
18 Fairview Road, Richmond 3216		18 Fairview Road, Richmond 3216	18 Fairview Road, Richmond 3216	18 Fairview Road, Richmond 3216	18 Fairview Road, Richmond 3216





Clients : H&M Smith Lot 16 Glenvalley Road Richmond	North	drawn : DJA date : 11/10/07 scale : 1 : 500 drg no : WD 9733 sheet 6 of 7	REVISIONS		Joe Foreman Ph: 03 9514 2311 Mob: 0413 113 113 18 Fairview Road, Richmond 3216
			NO	DATE	BY

1. Match the sheet numbers and document types by writing the appropriate letter next to each number in the centre column.

Answer	Sheet Number		Answers	Document Type		☐
	1	Sheet 4		A	Floor plan	
	2	Sheet 5		B	Section plan	
	3	Sheet 6		C	Site plan	

2. Which sheet number of Drawing WD 9733 identifies the storm water drainage for the proposed structure? Tick your response.

Answer	Choice	Possible Answers	☐
	☐	Sheet 4	
	☐	Sheet 5	
	☒	Sheet 6	

3. Identify the Volume and Parts of the NCC that outline the requirements for stormwater drainage for Classes 1 and 10, and Classes 2 to 9.

Answer	Classes 1 and 10	Classes 2 to 9	☐
	Volume 2 part 3.1.3	Volume 1 Part F1.1	

4. Which Australian Standard is referenced in the NCC with regards to storm water drainage?

Answer	AS 3500.3	☐
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5. What is the area of the verandah? Tick your response.

Answer	Choice	Possible Answers	☐
	☐	76m ²	
	☒	92m ²	

☐	135m ²
☐	211m ²
☐	243m ²

6. What is the pitch of the verandah roof?

Answer 15 degrees

☐

7. What size are the verandah beams?

Answer 150x150

☐

8. Which of the following Jamb Studs are to be used for both the upper and lower storeys? Tick all that apply.

Answer

Choice	Possible Answers
☒	90x45
☒	90x70
☐	90x90

☐

9. Identify three (3) subcontractors that may work on this construction project.

Answer Carpenters
Plasterers
Electricians

☐

10. Identify three (3) items of plant and/or equipment that may be used on this construction project.

Answer Excavator
posi-track/bobcat
Scaffold

☐

11. Identify the Volume and Part of the NCC that outlines the requirements for the timber weatherboards identified in Sheet 5.

Answer Volume 2 Part 3.5.4.2

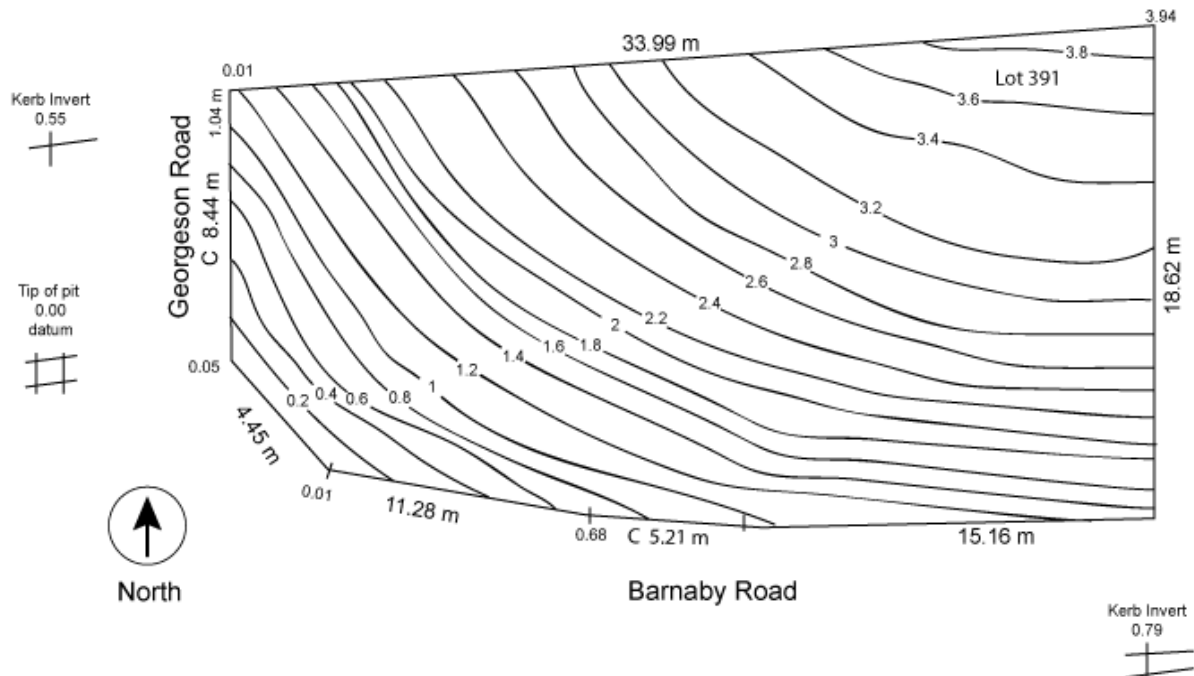
☐

12. Which Australian Standard is referenced in the NCC with regards to timber structures?

Answer AS 1684.2

☐

Refer to the contour plan below to respond to Q13. to Q15.



13. What is the datum reading at the tip of the pit?

Answer 3.94

☐

14. What is the level at the kerb invert?

Answer 0.01

☐

15. True or False (Tick your response): The lowest point on the site is found at the northernmost point.

Answer

☐	True
☒	False

☐

16. True or False (Tick your response): A Gantt Chart may assist with determining the numbers of on-site personnel required and the time requirements for a project.

Answer

☒	True
☐	False

☐

17. Identify labour that may be required for non-contract elements of a construction project.

Answer

These are company overheads linked to running the site project such as office administration staff.

☐

18. Explain how the following methods may be used to calculate the costs for on-site work.

Answer

Method	Explanation
Per hour	Based on the amount of hours worked
Per unit	Based on the installation of a unit (e.g split system air conditioner)
Per metre	Based on the amount of material installed per metre

☐

19. Which of the following documents may you refer to when establishing material quantities for a construction project? Tick all that apply.

Answer

Choice	Possible Answers
--------	------------------

☐

☒	Plans
☐	Project contract
☒	Specifications
☐	Standard construction contracts

20. **True or False (Tick your response): The fast way to locate suppliers, such as manufacturers and wholesalers, is to find them online.**

Answer

☒	True
☐	False

☐

21. **Explain how each of the following factors affects supplier selection.**

Answer

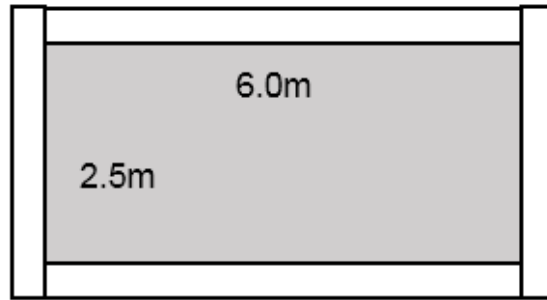
Factor	Impact
Location	Dealing with distant suppliers might mean longer delivery times and extra freight costs.
Price	Affordability is a key factor, but cheap does not always equate with quality.
Reliability	Suppliers should be able to deliver the right goods and on time.
Stability	Look for experienced suppliers who have been in business a long time. This illustrates financial stability.

☐

Supplier groups	While using a single supplier has its advantages, it also has risks. It might be better to use a carefully selected group of suppliers as insurance against any problems occurring.
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Read the following information to respond to Q22. to Q27.

The diagram below shows formwork that is required for a concrete slab.



The table below outlines the costs for this task.

Item	Cost
Timber	\$2.50 per metre
Concrete	\$50.00 per cubic metre (excluding GST)
Labour	\$49.50 per hour

22. Calculate the lineal meters of timber (150mm wide x 25mm thick) required to form up the edge of a concrete slab which is 6.0m x 2.5m x 150mm. Provide no allowance for waste. Show your answer to two decimal places.

Answer $2.5 \times 2 = 5\text{m}$
 $6 \times 2 = 12\text{m}$
 $12 + 5 = 17\text{m total}$



23. Use your response to Q22. to calculate how much the timber will cost. Show your workings and answer to two decimal places.

Answer $17 \times 2.5 = \$42.50$



24. Calculate how many cubic metres of concrete are required.
Show your workings and answer to two decimal places.

Answer $6 \times 2.5 \times 1.5 = 2.25$ cubic metres

☐

25. Use your response to Q24. to calculate the cost of the required concrete.
Show your answer to two decimal places and ensure it includes GST.

Answer $2.25 \times 50 = \$112.50$

☐

26. Calculate how much the labour will cost if the job takes $6 \frac{1}{2}$ hours.
Show your workings and answer to two decimal places.

Answer $49.50 \times 6.5 = \$321.75$

☐

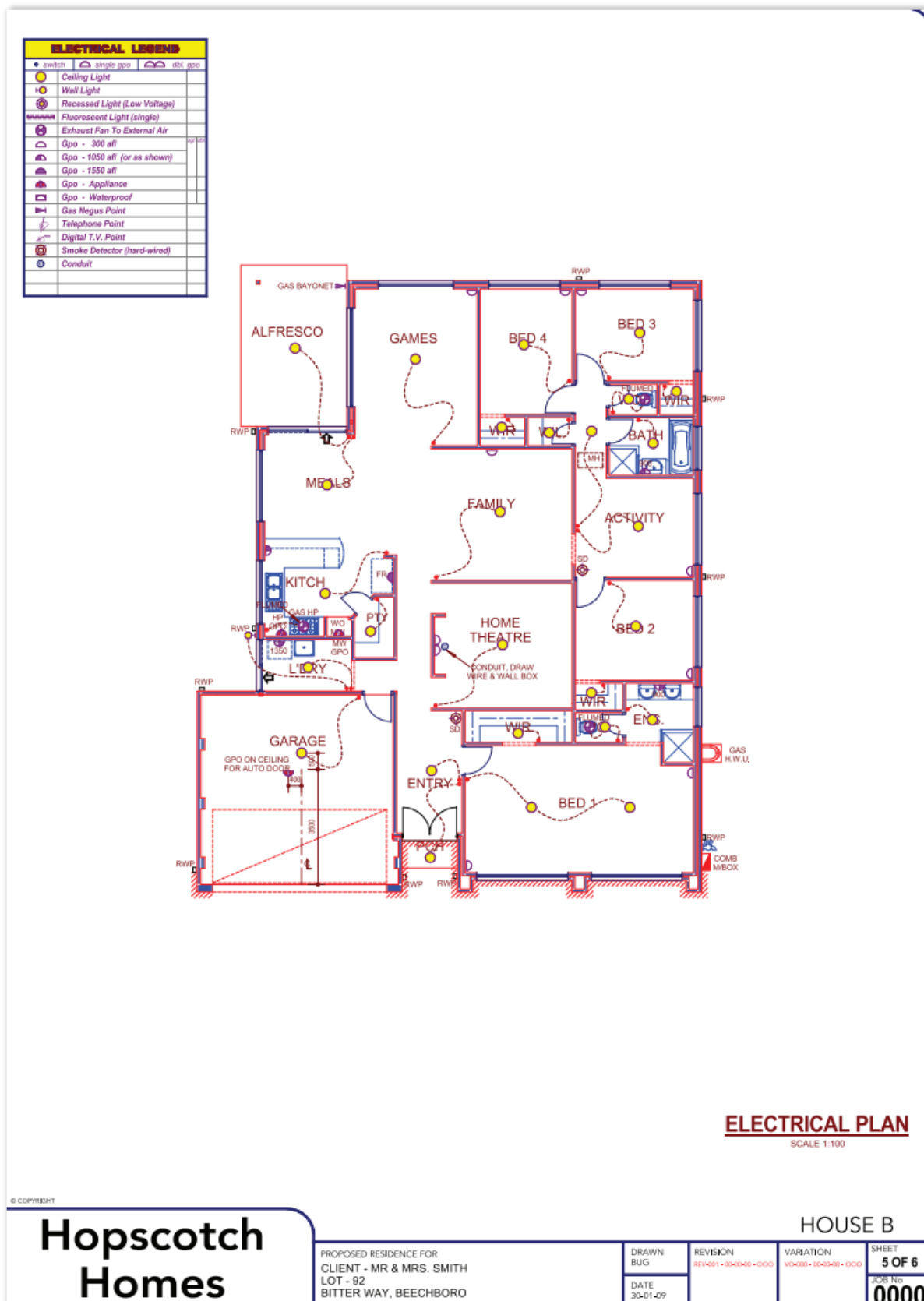
27. Use your responses for Q23. Q25. and Q26. to calculate how much this project will cost. Show your workings and answer to two decimal places.

Answer Timber = \$42.50
Concrete = \$112.50
Labour = \$321.75

Total job cost = \$476.75

☐

Refer to the electrical plan below to respond to Q28. and Q29.



Source: https://www.dtwd.wa.gov.au/sites/default/files/teachingproducts/BC1944_CCBY.PDF

28. Measure the required quantities for the items listed below.

Answer

Quantity	Item
27	Ceiling light
1	Wall light
1	External light
2	Exhaust fan
2	Smoke detector



29. The costs for each of the items are provided in the table below.

Cost	Item
\$49 each	Ceiling light
\$29 each	Exhaust fan
\$82 each	External light
\$39 each	Smoke detector
\$59 each	Wall light

Determine the total costs for each item (using the numbers from Q28.) and the total cost for all items.

Answer

Cost	Item
\$1323	Ceiling light
\$59	Wall light
\$82	External light
\$58	Exhaust fan
\$78	Smoke detector
	TOTAL



30. Name one (1) organisation that provides workers' compensation insurance.

Answer Workcover



31. Which of the following environmental costs should be considered when determining project costs? Tick all that apply.

Answer

Choice	Possible Answers
☒	Approvals
☒	Environmental protection
☐	Permits
☒	Waste management

☐

32. List three (3) statutory costs that should be considered when determining project costs.

Answer

Required licences (e.g. high risk building work, electrical workers, asbestos handling)
Registration of vehicles (e.g. plant, work vehicles)
Training for Health and Safety Representatives

☐

33. Which two (2) of the following methods are commonly used when determining the profit on a project? Tick all that apply.

Answer

Choice	Possible Answers
☐	Double the builder's cost
☒	Lump sum based on market conditions
☒	Percentage on builder's total cost

☐

34. True or False (Tick your response): Usually a percentage is added to the estimate to cover company overheads.

Answer

☒	True
☐	False

☐

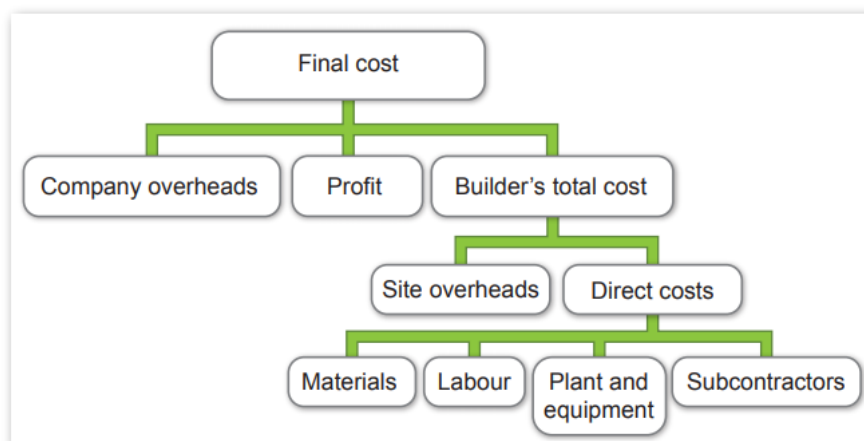
35. Identify one (1) example of company overheads for each of the listed categories.

Answer

Factor	Impact
Business premises	Rent
Staff and professional fees	Wages of staff
Transport	Car and fuel allowances
Finance	Business loan repayments

☐

36. Fill in the blanks: Complete the following chart to identify what is included in the final cost for a project.



Choose from

Builder's total cost | Company overheads | Direct costs | Materials | Plant and equipment

☐

37. Which of the following should be included in a letter of quotation?
Tick all that apply.

Answer

Choice	Possible Answers
☒	Conditions to your price
☐	Discrepancies
☐	Final cost
☒	Invitation to proceed

☐

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PRACTICAL ASSESSMENT INSTRUCTIONS

- The following practical assessment will require the Participant to complete work related activities.
- The Assessor will conduct observations of the Participant's work to determine whether they display sufficient practical skills and knowledge.
- Please fill in the details below – providing your name, signature and date of assessment.
 - The Participant's signature acknowledges that the Assessor provided clear instructions and the Participant understood what was required to complete this assessment.
- The Assessor may substitute a Practical Task with an alternate task of equal value.
 - Alternate tasks must be fully documented by the assessor in the Assessor Comments area.

Participant name

Nathan Wheeler

Participant signature

Nathan Wheeler

Date

Click here to enter a date. 24/07/2021

Assessor name

Assessor signature

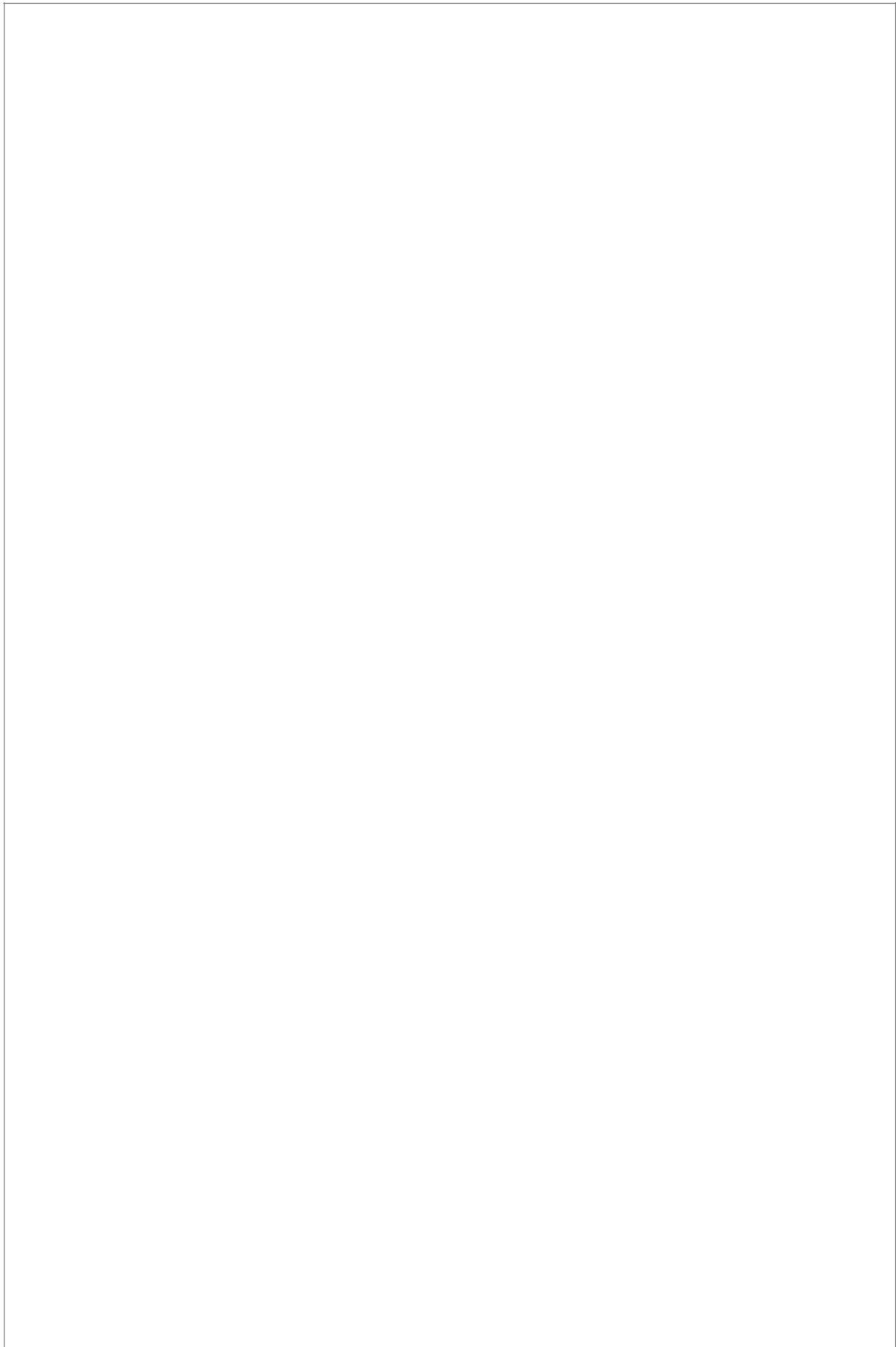
Date

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Task	Task outcome (Tick)	
	Satisfactory	Not Yet Satisfactory

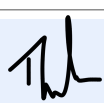
Task 1 (Occasion 1)	☐	☐
Task 1 (Occasion 2)	☐	☐

ASSESSOR COMMENTS

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CPCCBC4004A

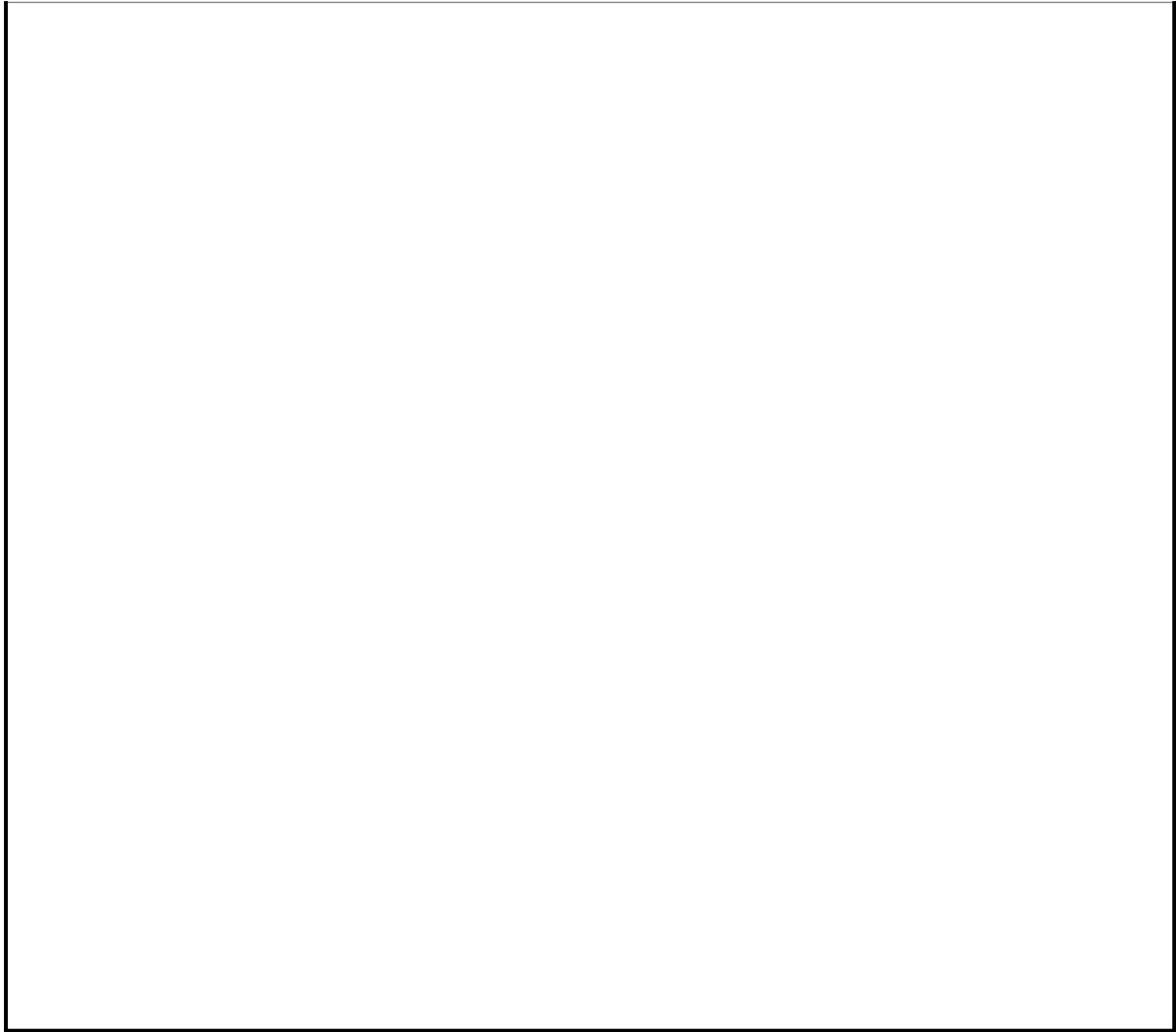
IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

Practical Task 1 (2X)		
Description of task: On two (2) occasions, a suitable observer is to verify the participant's ability to establish the estimated costs associated with the acquisition of materials and labour on building and construction sites, together with the application of relevant overhead costs and margins. The participant is to gather evidence of how they have completed each component of the Practical Task, which is to be submitted with this Practical Assessment sheet. Evidence to be submitted may include a copy of a Bill of Quantities or similar estimate for a project that shows the following: - Quantity calculations for material and labour requirements across the trades - All other associated costs - Overhead and Profit Margin allowances - A copy of a quotation - A copy of the plans and specifications, etc. for the project - Variation documentation The observer is to provide detailed comments on the tasks completed by the participant. The assessor is to verify the observer's comments in the Assessor Comments section, and provide the Practical Assessment outcome on the front cover of this document.		
Resources required: Project plans/drawings/specifications, Computer with costing software.		
Assessment of task		
Name of participant:	Nathan Wheeler	
Name of observer:	Tom Wheeler	
Role of observer (Confirm suitability to sign)	Director	
Email address of observer	tom@twbuilders.com.au	
Signature of observer:		
Date:	Click here to enter a date. 24/07/2021	
When completing the task, did the participant:	Tick if satisfactorily completed. Provide comments if left unticked.	
	1 st Occasion	2 nd Occasion
A. Identify, read and understand plans and drawings: - Interpreting levels, heights, gradients and other measurements - Make measurements and identify quantities that conform to standard industry practice (e.g. national codes, standards)	☒	☐
B. Identify types and numbers of appropriate on-site personnel and estimate the time required on-site, including labour hours for non-contract elements of on-site work.	☒	☐

C. Calculate costs or rates for required on-site work.	☒	☐
D. Identify physical resource requirements, producing lists of materials and calculated quantities against project or standard construction contracts.	☒	☐
E. Establish prices from suppliers for: - Materials and consumables - Plant or requirement requirements	☒	☐
F. Determine and apply estimates of unit costs, as appropriate.	☒	☐
G. Identify and apply costs of statutory/additional costs, including: - WorkCover requirements - Environmental Protection Agency requirements - Seeking approvals - Waste management site fees	☒	☐
H. Apply company overhead recovery and margins.	☒	☐
I. Using a costing software program, calculate completed estimated project costs for inclusion in a tender or bill.	☒	☐
J. Effectively communicate using the following methods: - Verbally using language/concepts appropriate to cultural differences - Non-verbal communication	☒	☐

The Participant's performance was: ☒ Satisfactory ☐ Not Satisfactory

OBSERVER COMMENTS

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