



**SUCCESSION
TRAINING**

BSB51415 Diploma of Project Management



Constraint Management

Version 1.11 Produced 18 October 2018

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TABLE OF CONTENTS

This is an interactive table of contents. If you are viewing this document in Acrobat, clicking on a heading will transfer you to that page. If you have this document open in Word, you will need to hold down the Control key while clicking for this to work.

TABLE OF CONTENTS	3
ASSESSMENT WORKBOOK COVERSHEET.....	4
WRITTEN QUESTIONS	5
Part 1 – Project Scope	5
Part 2 – Project Time.....	17
Part 3 – Project Cost.....	26
Part 4 – Project Quality	30
CASE STUDY	36
Instructions to Student.....	36
Introduction.....	37
WORKBOOK CHECKLIST	52

ASSESSMENT WORKBOOK COVERSHEET

WORKBOOK:	Workbook 2
TITLE:	Constraint Management
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Please read the Candidate Declaration below and if you agree to the terms of the declaration sign and date in the space provided.

By submitting this work, I declare that:

- I have been advised of the assessment requirements, have been made aware of my rights and responsibilities as an assessment candidate, and choose to be assessed at this time.
- I am aware that there is a limit to the number of submissions that I can make for each assessment and I am submitting all documents required to complete this Assessment Workbook.
- I have organised and named the files I am submitting according to the instructions provided and I am aware that my assessor will not assess work that cannot be clearly identified and may request the work be resubmitted according to the correct process.
- This work is my own and contains no material written by another person except where due reference is made. I am aware that a false declaration may lead to the withdrawal of a qualification or statement of attainment.
- I am aware that there is a policy of checking the validity of qualifications that I submit as evidence as well as the qualifications/evidence of parties who verify my performance or observable skills. I give my consent to contact these parties for verification purposes.

Name : Jay Pery

Signature: 

Date:
23/4/2020

WRITTEN QUESTIONS

Part 1 – Project Scope

1. Which of the following are project initiation documentation required at the start of the project?

Select all that apply.

☐	a. Communications log
☒	b. Project plan
☒	c. Work Breakdown Structure (WBS)
☒	d. Gantt Chart
☒	e. Project charter
☐	f. Risk management

2. Which of the following are components of a project scope-management plan?

Select all that apply.

☒	a. Project deliverables
☐	b. Project staff assignments
☐	c. Change request
☒	d. Project justification
☒	e. Product description
☐	f. Performance reports
☒	g. Project objectives
☐	h. Project funding requirements
☒	i. Quality metrics
☐	j. Budget forecasts

3. In your own words, discuss how project time and cost affect the project scope. Do not exceed 100 words.

Changes to the project time will directly influence the achievable project scope (and vice versa), where a decreased project timeline will force the scope to be reduced to avoid a decrease in project quality. Project cost (ie. increased labor) can be increased to ensure a decrease in project time does not impact the scope or quality of the works.

4. Which of the following are events or problem areas relating to project scope that could trigger the need for a formal change request?

Select all that apply.

☒	a. The deliverables may not meet quality requirements.
☐	b. Grammatical and typo errors are found in the project initiation documents.
☒	c. The deliverables may not be what the client wanted, even though they were covered in the project plan.
☐	d. The stakeholder considers the change request and advises the project manager.
☐	e. Observance of non-working holidays affecting project time.
☒	f. Additional quality requirements (such as new legislation or changes in standards) will render the deliverables non-compliant.
☒	g. Failure of equipment needed to produce the deliverables.
☐	h. Missing documentations in the project's information system.
☒	i. Raw materials are no longer available.
☒	j. Supplier or contractor closing business.

5. Which of the following are procedures that typically must be followed under change control processes?

Select all that apply.

☐	a. Project manager seeks advice from supervisor regarding changes in cost.
☐	b. Project manager assigns a project team member to recalculate for the critical path.
☒	c. Project manager provides the change request to the appropriate stakeholder for approval.
☒	d. The stakeholder considers the change request and advises the project manager.
☒	e. The project manager updates the project plan and other documentation where required.
☒	f. Project manager drafts the change request.
☐	g. Project manager delegates the authority to the project team members in advising other stakeholders of the changes.
☒	h. The project manager advises relevant stakeholders (sponsor, team members, etc.) of the changes.
☒	i. Details of the proposed change to be communicated to the project manager.
☐	j. The project sponsor and owner may automatically terminate the project contract.

6. The following are methods of measuring work outcomes and progress against plans. Match each method to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Method	Description
c	Units completed	a. Also known as the 'steps' method, this is used for projects that involve subtasks that need to be completed in an orderly fashion.
a	Incremental milestones	b. In this method, tasks that are being calculated tend to occur over a longer duration time and include multiple subtasks, where subtasks can have different units of measurements.
d	Start / finish	c. This method is used when project tasks are done repeatedly. Assuming that each task is completed at the same amount of time, resources and effort, each task is counted and totaled.
b	Weighted or equivalent units	d. This method is used to determine the percentage of the work completed and the percentage of the work that is still yet to be completed.

7. Which of the following are activities involved in decomposition of the total work project?

Select all that apply.

☐	a. Summarise project tasks in the form of a written report.
☒	b. Identify and analyse the deliverables and related work.
☒	c. Structure and organise the work breakdown structure (WBS).
☐	d. Arrange the smallest project tasks to form an aggregate representation of the total project task
☒	e. Decompose the upper work breakdown structure (WBS) levels into lower level detailed components.
☐	f. Calculate duration and resource effort for each project task.
☒	g. Develop and assign identification codes to the WBS components.
☐	h. Inspect whether work and deliverables meet requirements and product acceptance criteria.
☐	i. List resources required for each project task.
☒	j. Verify that the degree of decomposition of the work is necessary and sufficient.

8. List three (3) ways in which the Work Breakdown Structure (WBS) can be created.

- a. Use phases of the project lifecycle as the first level of decomposition
- b. Use major deliverables as the first level of decomposition
- c. Use subprojects which may be developed by organizations outside of the project team

9. The following are some problem areas in scope management. In your own words, briefly discuss each problem area.

Do not exceed 100 words for each discussion.

Problem areas	Discussion
Scope creep	Small additions or variations to the project scope can result in large scale creep across the project lifecycle. Effective recording of any scope variations throughout the project are crucial to avoid any impacts to the project timeline as a result of scope creep.
Sponsor / project owner approval	Sponsors may not have a firm understanding of the logistical issues involved with making scope change requests. This may result in delays in having scope variations approved, or not having scope variations approved at all
Project team accountability	Project members may not understand their responsibilities in relation to the project delivery. This may be caused by new members joining the team, or ignorance by existing team members. This can be avoided by clearly laying out the responsibilities of each team member at the beginning of the project lifecycle.

10. In your own words, discuss the significance of scope management.

Do not exceed 150 words.

Effective scope management is crucial to ensure the project is delivered on time and on budget. If changes to the project scope are left unattended and unrecorded, large-scale scope creep is likely to be present by the end of the project. By ensuring all team members are familiar with their responsibilities, all team members will be accountable for their input across the life of the project. In addition, by clearly defining the scope management plan and scope variation processes, all scope changes can be effectively tracked.

11. The *PMBOK Guide* outlines the following processes in project scope management. List one (1) tool or technique used in each process.

Project Scope Management	Tool or technique
Collect requirements	Interviews
Define scope	Product analysis
Create WBS	Decomposition
Verify scope	Inspection
Control scope	Variance analysis

12. Consider the roles and responsibilities of the project manager in project planning. List five (5) roles of the project manager in project planning and list at least one responsibility for each of these roles.

Roles (list five (5))	Responsibilities (List at least one (1) for each role)
Understanding the project	Understand deliverables of the project
Scope management	Turn requirements into work packages
Time management	Create schedule baseline
Cost management	Create cost baseline
Quality management	Define quality requirements

Part 2 – Project Time

- The following are estimation tools and techniques used in determining duration. Match each tool and technique to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Estimation tools and techniques	Description
b	Analogous estimating	a. This technique uses a statistical relationship between historical data and other variables to calculate an estimate for activity duration.
a	Parametric estimating	b. This uses parameters such as duration, budget size, weight, and complexity, from a previous, similar project, as the basis for estimating the same parameter to measure for a future project. This technique relies on the actual duration of previous, similar projects as the basis for estimating the duration of the current project.
e	Three-point estimating	c. This is guided by historical information. It provides duration estimate information or recommended maximum activity durations from prior similar projects. This can also be used to determine whether to combine methods of estimating and how to reconcile differences between them.
c	Expert judgement estimating	d. Contingencies are accounted for into the overall project schedule to account for schedule uncertainties.
d	Reserve analysis	e. This technique uses a mathematical formula to determine a weighted average of estimates. It uses the formula: $Te = \frac{To + 4 \times Tm + Tp}{6}$.

2. The following are estimation tools techniques used in determining activity resource. Match each to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Estimation tools and techniques	Description
d	Expert judgment	a. Several companies or organisations routinely distribute updated production rates and unit costs of resources for an extensive array of labour trades, material, and equipment for different countries and geographical locations within countries.
e	Alternative analysis	b. In this technique, when an activity cannot be estimated with a reasonable degree of confidence, the work within the activity is decomposed into more detail. The resource needs are estimated. These estimates are then aggregated into a total quantity for each of the activity's resources.
a	Published estimating data	c. This tool has the capability to help plan, organise, and manage resource pools and develop resource estimates.
b	Bottom-Up estimating	d. This technique is often required to assess the resource-related inputs to this process. Any group or person specialised with knowledge in resource planning and estimating can provide such expertise.
c	Project management software	e. These include using various levels of resource capability or skills, different, size or type of machines, different tools (hand versus automated), and make-or-buy regarding the resource.

3. In identifying the critical path, the following parameters need to be determined for each task. Discuss each parameter.

Do not exceed fifty (50) words for each discussion.

Parameter	Discussion
ES	ES is the Earliest Start time of an activity or work package. This may be reliant upon the finish times for previous tasks
EF	EF is the Earliest Finish time, where the task duration is added to the ES with the assumption of no creep
LF	LF is the Latest Finish time, which is the latest time a work package can be started without influence the closeout date of the project.
LS	LS is the Latest Start time, where the duration of the activity is taken from the LF with the assumption of no creep

4. Which of the following statements accurately explain the process of developing the project schedule, including the schedule baseline?

Select all that apply.

☒	a. Developing the schedule is the process of analysing activity sequences, durations, resource, requirements, and schedule constraints to create the project schedule.
☒	b. The project schedule and schedule baseline are developed or established using the activity lists, activity attributes, project scope statement as the bases.
☒	c. Entering the activities, durations, and resources into the scheduling tool generates the schedule baseline.
☐	d. Tools and techniques used in developing the project schedule and schedule baseline include decomposition of the total project work.
☐	e. Developing the schedule baseline starts and ends in the planning phase of the project.

5. Schedule control is the process of monitoring the status of the project to update project progress and manage changes to the schedule baseline.

Which of the following are processes that are involved in schedule control?

Select all that apply.

☒	a. Determining the current status of the project schedule.
☐	b. Defining activities or specific actions to be performed to produce project deliverables
☒	c. Influencing the factors that create schedule changes
☐	d. Decomposing total project work into its lowest levels.
☒	e. Determining that the project schedule has changed
☐	f. Estimating duration and resource effort for the project.
☒	g. Managing the actual changes as they occur.

6. Consider the methods used in project time management.
 - a. In your own words, discuss the application/use of the Gantt Chart. Do not exceed fifty (50) words.
 - b. List three (3) project data generated from the Gantt Chart.
 - c. List three (2) limitations of the Gantt Chart.

- a. Gantt charts are used to visualize crucial information in the project lifecycle such as, task dependencies, schedule changes, activity lead times, and important dates. Gantt charts can be used to determine if project acceleration is required due to delays on the critical path
- b. Project duration
Time cost of activities
Key milestone dates
- c. MS project is not a commonly used program, so PDF's must be created
Task durations are subjective
Difficulties in printing and reading chart areas

7. Consider the methods used in project time management.
- a. In your own words, discuss the application/use of the Critical Path Method. Do not exceed fifty (50) words.
 - b. List three (3) project data generated from the Critical Path Method.
 - c. Discuss the limitation of the Critical Path Method. Do not exceed fifty (50) words.

- a. The Critical Path Method is a widely used method of tracking the impact of task durations, and their impact on the project timeline. This is especially true for the critical pathway, where any alteration to the critical task duration will impact the overall project timeline.
- b. Earliest Start, Earliest Finish, Latest Finish
- c. The critical path method is only as accurate as the chart logic it is based off. If the project manager underestimates the task durations, the final closeout of the project may be pushed back.

8. The following are tools and techniques used in project scheduling. Match each tool and technique to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Project scheduling tools and techniques	Description
b	Schedule network analysis	a. This is the process of looking at all of the activities that must be completed, and calculating the 'best line' – or critical path – to take so that you'll complete the project in the minimum amount of time. The method calculates the earliest and latest possible start and finish times for project activities, and it estimates the dependencies among them to create a schedule of critical activities and dates.
a	Critical Path Analysis	b. This is a graphic representation of the project's activities, the time it takes to complete them, and the sequence in which they must be done. Project management software is typically used to create these analyses. Common formats for this include Gantt Charts and PERT Charts
d	Schedule compression	c. They expedite the scheduling process by generating start and finish dates based on the inputs of activities, network diagrams, resources, and activity durations.
c	Automated scheduling tools	d. This tool helps shorten the total duration of a project by decreasing the time allotted for certain activities. It's done so that you can meet time constraints, and still keep the original scope of the project.

9. Which of the following statements accurately explain the work breakdown structure (WBS) including its application in project schedules?

Select all that apply.

☒	a. Work breakdown structure (WBS) is the subdivision of project deliverables and project work into smaller, more manageable components.
☐	b. The work breakdown structure (WBS) identifies project personnel who are responsible for each project task.
☒	c. Work breakdown structure (WBS) helps define activities of the project which provide the basis for estimating, scheduling, executing, and monitoring and controlling the project work.
☐	d. The work breakdown structure (WBS) is used to represent the full project scope of the project.
☒	e. The work breakdown structure provides the relationships among all components of the project and the project deliverables.
☐	f. The work breakdown structure (WBS) is used as the basis for the scope baseline which is used in identifying activities or specific actions to be performed to produce of the project deliverables.
☒	g. Project work at lowest levels are not included in the work breakdown structure (WBS)

Part 3 – Project Cost

1. The following are processes involved in project cost management including budgeting the cost of the project. In your own words, discuss each.

Do not exceed fifty (50) words for each discussion.

Estimating costs	Long term estimated costs are difficult to accurately predict at the beginning of a project, thus the project costs should be tracked throughout the life of the project. Estimating costs can be achieved more accurately through forecasting and cost tracking.
Determine budget	The project budget can be refined to outline smaller aspects of the project. Budgeting for these smaller tasks can be combined to determine a more realistic indication of the overall project budget.
Control cost	Day to day tracking of project status to ensure the project budget is being followed. By following this process, the project status can be compared to the project baseline to determine if budget changes are required

2. The following are different tools and techniques used in cost management. Match each to its correct description.

Write the letters that correspond in the spaces provided.

	Strategy	Description
b	Analogous estimating	a. This is used to establish both the contingency reserves and the management reserves for the project with regards to cost.
c	Parametric estimating	b. This strategy uses the values of costings from a previous, similar project as the basis for estimating the same parameter or measure for a current project. This is used when the current project is similar to a previous one in terms of defined parameters.
e	Cost aggregation	c. This uses a statistical relationship between historical data and other variables to calculate and estimate for cost. This technique is used to produce higher levels of accuracy depending upon the sophistication and underlying data built into the model. Estimates made through this project can be applied to the whole project or to segments of a project.
a	Reserve analysis	d. These are used to develop mathematical models to predict total project costs.
d	Historical relationships	e. Cost estimates are combined by work packages in accordance with the Work Breakdown Structure. The work package cost estimates are then combined for the higher component levels of the WBS and ultimately for the entire project.
g	Earned value management	f. In this technique cost performance measurements are used to assess the magnitude of variation to the original cost baseline.

f	Variance analysis	g. This is commonly used as a performance measurement. It integrates project scope, cost, and schedule measure to help the project management team assess and measure project performance and progress.
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3. List four (4) processes which are followed in monitoring the project costs against outcomes to ensure that additional expenses are not incurred.

- a. Controlling cash flow
- b. Confirming invoice amounts are correct
- c. Tracking project expenses with software
- d. Tracking invoice payments

4. You are appointed as one of the Project Managers of Bigger than Big Corporation. As one of the Project Managers, it is essential that you have a full understanding of the organisation's policies and procedures relevant managing projects within Bigger than Big.

Review Bigger than Big Corporation's [Project Management Policy and Procedures](#) (username: cstclearner password: CstcPty@123).

- a. In your own words, discuss the organisation's Project Management Policy, including its background, purpose, and its scope.
- b. In your own words, discuss the organisation's Project Management Procedures including their purpose and scope.
- c. In your own words, list and discuss the Project Phases prescribed in the organisation's Project Management Procedures.

Do not exceed 100 words for each discussion.

- a. From Bigger than Big's policies and procedures, we can see that the company is taking a minimalistic approach in terms of project planning, delivery and personnel. By approaching the project with this strategy, Bigger than Big can reduce expenditure on resources and ensure the project is not needlessly complicated.
- b. As a result of BtB's minimised approach to project policy, the procedures remain simplified and minimalistic. This is highlighted in the fact that project phases are standardised between projects, with resources being allocated to each phase depending on the size of the project scope.
- c. Pre-initiate – Define the project scope, tender for project approval, create approval documentation and assign organizational resources. If a project has already been approved, BtB can move directly to the initiate phase.
Initiate – Create initiation documentation, investigate methodologies and determine how the project will be executed
Plan – Refine the project methodologies, create project documentation outlining the schedule, budget, risk and governance
Implement – The construction of the project outcomes occurs during this phase. Here, the construction plan is implemented to ensure the project outputs are achieved
Closeout – Handover of project documents to the governing bodies and quality audits of the project outcomes.

Part 4 – Project Quality

1. In your own words, discuss each of the following key concepts in Quality Management.

Do not exceed 100 words for each discussion.

Key Concepts in Quality Management	Discussion
Customer satisfaction	Relies heavily on the value for money received. If a high level of quality has been achieved with little money spent, the project will be deemed successful.
Prevention over inspection	Expending resources in areas of risk prior to works can ensure a high quality result is achieved the first time. Retroactive restoration of low quality works can be even more expensive than the initial works.
Continuous improvement	Relates to the experience gained on a project or task. If a similar task is repeated in different areas, individuals or teams should be improving from their gained knowledge.

2. In your own words, discuss the difference between Quality Assurance and Quality Control.

Do not exceed 100 words.

Quality assurance is a preactive process which relies heavily on safety and quality documentation. The aim of quality insurance is to prevent defects during the project lifetime.

Quality control focusses on the output of the project, and aims to identify and rectify defects when they do occur.

3. The following are standards that could apply in various projects. In your own words, discuss each standard. Do not exceed fifty (50) words for each discussion.

People standards	The requirement for workers to be qualified in the area they are working in. Usually relies on qualifications and experience.
Process standards	The requirement for processes to be followed as initially planned. Usually relates to pre-approved procedures and audits
Product / service standards	The requirement for the project outcomes to be met, and how defects are rectified if poor quality outcomes are provided

4. The following are quality assurance and control methods, techniques and tools. Match each to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Methods, tools, techniques	Description
h	Benchmarking standards	a. This is a distribution of dots comparing two variables. If the two variables are completely independent you would expect the dots to be evenly distributed randomly across the graph. If there is a strong relationship though, the graph will show a straight line or a mathematical curve going through it.
g	Brainstorming sessions	b. These are graphical representations showing a visual impression of the distribution of data. Usually it shows the frequency up the Y axis of the bar graph and the measuring variable along the X axis.
d	Control charts	c. It is a graph where the X axis is time dependent. This allows you to look for time-based cycles in processes.
f	Flowcharts	d. These are also known as Shewhart charts or process-behaviour charts. These charts are used to statistically measure the quality characteristics of a process are under control. This is based on a statistical analysis where a centre line is drawn for the mean of the output, then an upper control limit and a lower control limit is created either side of the centre line. The process is then measured over a period of time and the results plotted on the graph. Once the graph has been created, it can be analysed to test the stability of the process and also any cycles of errors.
b	Histograms	e. It is very similar to a histogram, but it includes a line over the graph indicating the cumulative distribution of the results.

e	Pareto charts	f. A diagram that represents a process. It shows the steps visually as a series of boxes with arrows in between them showing the work flow. Rectangular boxes represent tasks and diamond shaped boxes represent decision points, where the flow can split into two or more directions.
c	Run charts	g. It occurs when a group meets and is presented with a scenario where they creatively come up with a range of solutions.
a	Scatter grams	h. These may be dictated to by legislation through Federal, State or Local Government regulations, and may be dictated by industry bodies.

5. List five (5) responsibilities of the project manager in quality management.

- a. Conduct quality audits
- b. Report quality outcomes
- c. Ensure quality expectations are adhered to
- d. Communicating quality standards in QMP's
- e. Quality standards for deliverables

6. The following are methods used in managing continuous improvement. In your own words, discuss each method.

Do not exceed fifty (50) words for each discussion.

Six Sigma	Aims to remove defects in manufacturing due to variability of large scale work. Statistical analysis can be used to eradicate the cause of poor quality outcomes
Lean Six Sigma	Uses team experience to identify and eliminate waste in manufacturing. Lean six sigma relates to the principals used in lean manufacturing
Total Quality Management	A framework implemented in manufacturing to ensure that employees have a focus on quality outcomes. This can be achieved by implementing incentives for reporting for quality manufacturing.

CASE STUDY

Instructions to Student

These case studies are hypothetical situations which will not require you to have access to a workplace, although your past and present workplace experiences may help with the responses you provide. You will be expected to encounter similar situations to these in future as you work in a project team environment.

In the real world you are likely to encounter the situation where you enter a project, taking over from another project manager. The documentation that is handed over to you is not necessarily up to scratch, and there could be serious issues with the project. This assessment captures that real life scenario.

The case studies are the first part of dealing with “multiple complex projects” required in all the units of this subject. The other assessment covering this requirement is the practical assessment. When you have completed the case studies you will be able to commence the practical assessment which covers the generic skills needed to function as an effective project team member. This assessment on the other hand covers the application of the underpinning knowledge and background theory.

Introduction

You have been appointed as a project management consultant to the project team at Awesome Landscapes Pty Ltd. Specifically, you are required to provide independent advice on seeing their current project throughout its entire lifecycle.

You have already provided advice to Awesome Landscapes in the previous workbook.

Today is 24 July 20xx. The project will shortly progress into the implementation stage. You have now been provided with up-to-date project documentation below, including an updated Project Plan. The project steering committee have reviewed the Project Plan, but they wish to have you conduct an independent evaluation of the project prior to signing it off.

As part of your consultancy services, you will be assisting the team in addressing issues around project constraints by answering the questions that follow this scenario.

The documents you need to complete the succeeding tasks can be accessed through the following links:

[Project Charter version 2 \(.pdf\)](#)

[Project Plan version 2 \(.pdf\)](#)

[Project Gantt Chart version 2 \(.mpp\)](#)

[Project Gantt Chart version 2 \(.pdf\)](#)

[Project Network Diagram version 2 \(.pdf\)](#)

(username: cstclearner password: CstcPty@123)

Note: These documents were generated in year 2016. For the purpose of this assessment, refer to '2016' as the current year and '2017' as the succeeding year.

1. List the three (3) project deliverables in Phase 1.

- a. Forming access roads through vegetation areas
- b. Building retaining walls for nearby structures
- c. Removing vegetation to allow for access to each site

2. Discuss the project constraints in terms of scope, time, cost, and quality.

Scope	The inclusions and exclusions found within the project plan remove conjecture regarding the scope of the three phases of the project
Time	The start and finish date of each date is set as a milestone as follows; Phase one – 27/7/16 – 15/9/16, phase two 15/9/16 – 29/12/16, and phase three 5/1/17 – 10/3/17
Cost	The project costs are comprised of two expenditure areas; procurement/ labour costs (\$462,153) and risk (\$87,847) to create a fixed sum of \$550,000. \$224,724 remains as a reserve cash fund for additional expenditure prior to the first progress claim, although using this additional cash resource is not ideal.
Quality	Approvals and permits for plant use on site are required, with the quality outcome following the Council and building codes. The project manager will complete audits throughout the construction process to confirm this

3. Review the project schedule as set out in the Project Plan and the Gantt Chart Arrange the following tasks in the proper sequence as dictated in Phase 3 of the critical path.

Write 1 – 12 in the spaces provided; where 1 go first and 12 go last.

7	Remove weeds
12	Plant additional plants
2	Move gravel to car park
1	Expand car park
10	Remove greenhouses

9	Plant plants from greenhouses
3	Seal car park
4	Soil preparation
6	Add boulders
5	Construct stone paving pathway
11	Purchase additional plants
8	Landscape over old access roads

4. Review the Project Plan. The change request has outlined one change in the scope of the project.
 - a. What is the change in scope?
 - b. How does this change in scope impact the overall duration of the project?
 - c. How does this change in scope impact the quality aspect of the project?

- a. The request is for three more retaining walls to be constructed
- b. This will delay the construction completion by 7 days
- c. With a scope change, and EOT can be submitted. With and extended deadline, quality should not be impacted

5. Why does the change request only list one change in project cost, yet when you look at the financial tables the costs seem to have increased in numerous parts of the project not even related to the item in the change request?

Do not exceed 100 words.

The financial tables capture the increase in cost in a number of areas, rather than just the scope change itself. By changing the scope, cash flow in areas such as the procurement, labour hire and machinery hire change too.

6. Who is responsible for working out these impacts of what initially seemed to be such a simple change, and ensuring all affected stakeholders understand the impact of such a change?

The project manager

7. Access and review the Gantt Chart version 2.
- What important tasks are not included in the project Gantt Chart?
 - Discuss why these tasks must be included in the Gantt Chart? Keep your discussion within 100 – 200 words in length.

- Although tasks such as ‘testing and troubleshooting’ are included in the Gantt Chart, the PM’s project audits are not listed
- If quality audits are not listed in the Gantt Chart, they may be missed by the Project Manager. This may cause a creep in the quality across the project. By scheduling quality audits as tasks are completed, the time cost of rectifying quality issues can be minimised.

8. List the three (3) personnel who signed off on the change request.

- Sam Ng
- Stephen Lyons
- Kate Chain

9. What is the total increase in cost of the project as a result of this change request?

An increase of \$17,900

10. List five (5) exclusions under Stage 2 – Building Support of the Scope Management Plan.

- a. Creation of additional retaining walls
- b. Installation of utilities.
- c. Provision or delivery of pipes and tanks
- d. Weather damage
- e. Monitoring and maintaining the main road

11. Review the Project Plan. Does it follow the change management procedure? Explain your reasoning.

Do not exceed 50 words.

Appendix 21 outlines the communication requirements for the change management procedure. In this case both the budget and finish date of the project was updated to reflect the change.

12. Access and review the Gantt Chart version 2. It shows double bars for each task.
- a. What do the coloured bars  represent?
 - b. What do the grey bars  represent?
 - c. Why do the grey and coloured bars do not match up in the Gantt chart?

- a. Progress and manual progress
- b. Summary of tasks. Multiple tasks will fall under this grey bar to show the completion of higher level tasks
- c. The projected and real tasks durations may not corroborate each other, causing the disparity between the bars.

13. Assuming the project runs on schedule, list two (2) tasks that should be in progress if Sam was to visit the site on Monday 22 August.

Do not include the task 'Project Management'.

- a. Install and compact soil behind walls
- b. Delivery of boulders

14. If Sam was to visit the site on Thursday, 22 September, he will see that two (2) tasks are in progress, namely:
- Construction of retaining walls.
 - Install and compact soil behind walls.

According to the procedure documents, these two activities cannot happen at the same time. The retaining wall has to be built first. Once construction is completed, the soil needs to be added behind. Why are these two tasks in progress on the same day?

This may be incorrect, Item 17 shows the soil installation to occur 25/8 – 15/9. In any case, if these two tasks were to be simultaneous, the construction of retaining walls shows all retaining walls as one task. This could mean the soil installation could begin after the first retaining wall is complete, and follow the crew creating the retaining walls once complete.

15. According to the Gantt Chart, if there is a delay in the completion of Task 57 'Construct stone paving walkway',
- Which tasks, if any, are immediately delayed?
 - Will this delay push out the completion of the project? Why or why not?
 - Discuss how this could affect the resourcing of the project.
 - List one (1) risk that could arise from this issue.

- This is the last task in stage 3.2, so any delay in this task will not impact the following tasks
- With consistent resourcing the delay will push back the completion of the project. This task can be completed simultaneously with other tasks with additional resourcing to ensure the project completion date is not altered.
- Additional resourcing is required to ensure the completion date is not pushed back
- If additional resourcing cannot be sourced to complete Task 57, the final completion date will be pushed back

16. What is the total budget for the project expenditure?

The total budget for project expenditure is \$550,000

17. Sam is very concerned about the cash flow of the project.
- What is the problem?
 - What would you suggest be done to rectify the cash flow issue?

- Cash flow is expected to exceed the cash reserve of \$224,724 during the project.
- The procurement of materials could be staggered throughout the project to ensure cash expenditure is decreased prior to the first progress payment.

18. Discuss whether Awesome Landscapes should seek increased funding from Massive Eco-development Corporation to absorb some or all of these cost increases.

Your discussion must be 200 – 300 words in length.

Guidance:

The change requests have incurred extra expense, yet the funding to be paid by Massive Eco-development Corporation has not changed.

If you believe Awesome Landscapes should seek increase funding from Massive Eco-development Corporation, provide a strong argument for your case. If not, explain your reasoning.

As there has been a formal request for scope change from Awesome Landscapes, they should be seeking financial compensation for works completed under this scope. When the scope change request was lodged, Awesome Landscapes is entitled to create a budget estimate for the additional works and claim this as a variation to the initial subcontract. This should be corroborated with hourly labor costs, dockets, receipts and invoices to be supplied to the contractor for payment. This is a clear example of a requirement for additional payment from Massive Eco-Development Corporation, where labour and consumables expended in the additional scope have caused an increase in cash expenditure.

As the additional work has directly incurred these additional costs, assuming all costs are fair and within reason, Awesome Landscapes has legal leverage to ensure that the main contractor follows through with the variation payment. If the payment was still rejected by the main contractor, Awesome Landscapes would need to consider moving to arbitration. In many cases, arbitration can be more costly than the variation payment itself, which Awesome Landscapes would need to consider prior to moving into a legal space.

19. Complete the following Audit Template with the standards determined in the previous question (Case Study Question 18). This will be given to an internal auditor to audit the financial processes at various points along the project.

Guidance: Complete only the fields highlighted in yellow. Do not complete the 'Assessment' and 'Comment' fields under 'Audit of Management of Project'.

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Quality Audit Template
Project Name: <i>Cascade Peak Chalets Landscaping Project</i>
Prepared by: Jay Pery
Date:
Project Manager: <i>Sam Ng, Awesome Landscapes</i>

Project Phase:	Overall Project Status:	
Audit Date:	Audit Number:	Audit Leader:
Audit Team:		
Goal(s) of This Specific Audit: Determine the outcome of scope variation requests		
Audit of Management of Project:		
1. Were additional works requested?	Assessment:	Comment:
2. Did Awesome Landscapes complete additional works?	Assessment:	Comment:
3. How were the works budgeted?	Assessment:	Comment:
4. Was the initial budget for additional works exceeded?	Assessment:	Comment:
5. Was labour considered and recorded?	Assessment:	Comment:
6. Was plant hire considered and recorded?	Assessment:	Comment:
7. Were invoices recorded?	Assessment:	Comment:
8. Were additional consumables required?	Assessment:	Comment:
9. Were additional administrative and managerial resources required?	Assessment:	Comment:
Overall Assessment of Management of Project:		

Recommended Action(s)/Lessons Learned Regarding Management of the Project: 1. 2. 3.			
Additional Audit Comments: 1. 2. 3.			
Have you attached additional material(s)?			☐ ye ☐ n
Name(s) of attachment(s): 1. 2.			
Audit Report Submitted To:			Date:

20. Sam has provided you with the following audit from a previous project (landscaping the new Cascade Peak Shopping Centre). Evaluate the audit report below and answer the following questions:
- What was the cause of the unsatisfactory results?
 - What action would you recommend to prevent the issue coming up again in this project?

a. Tasks are not being directly communicated to the site supervisor. Tasks are only being communicated through the Gantt Chart
b. Daily prestart or weekly meeting to confirm the scope of the tasks being completed

Quality Audit Template

Project Name: *Cascade Peak Chalets Landscaping Project*

Prepared by: *Sam Ng*

Date: *17 August 2015*

Project Manager: *Sam Ng, Awesome Landscapes*

Project Phase:

Implementation

Overall Project Status: *On schedule*

Audit Date: *17 August 2011*

Audit Number: *26*

Audit Leader: *Sam Ng*

Audit Team: *Sam Ng, John Cowley, Ann Deak.*

Goal(s) of This Specific Audit: *To evaluate the communication and reporting processes.*

Audit of Management of Project:

1. Are tasks being communicated to site supervisor in a reasonable amount of time?

Assessment:
Satisfactory.

Comment:

2. Are tasks being communicated to site supervisor of sufficient detail?

Assessment:
Not satisfactory.

Comment:
Tasks only being communicated as per Gantt chart. Site supervisor having to seek clarification regularly on requirements of tasks.

3. Are tasks being communicated by the site supervisor to the team members and contractors done in a reasonable amount of time?

Assessment:
Not satisfactory.

Comment: Timing of communication can be improved if there wasn't the need for clarification of the details of the tasks.

4. Are tasks being communicated by the site supervisor to the team members and contractors of sufficient detail?	Assessment: Satisfactory.	Comment:		
Overall Assessment of Management of Project: Tasks being communicated to the supervisor do not have the level of detail required by the site supervisor. In particular detailed plans are not provided with the task briefs. Some delays in commencing tasks have been experienced as the site supervisor has awaited clarification from the project manager.				
Recommended Action(s)/Lessons Learned Regarding Management of the Project: 1. Project manager to prepare task briefs in enough time to add the required level of detail. 2. Task briefs are to be supplied with all relevant attachments such as detailed plans.				
Additional Audit Comments: 1. 2. 3.				
Have you attached additional material(s)?				
<table border="1"> <tr> <td data-bbox="209 1339 1268 1464"> Audit Report Submitted To: Kim Nguyen </td> <td data-bbox="1268 1339 1439 1464"> Date: 24/08/2015 </td> </tr> </table>			Audit Report Submitted To: Kim Nguyen	Date: 24/08/2015
Audit Report Submitted To: Kim Nguyen	Date: 24/08/2015			

21. The quality plan is very weak on cost management. Write a Cost Management Plan (of 200 – 300 words) for managing the quality of the financial processes while the project is in progress.

Guidance: Your Cost Management Plan must cover the following quality objectives and criteria.

- a. Meeting with contractual requirements.
- b. Paying invoices on time.
- c. Ensure invoices are sent out in time.
- d. Ensuring financial reporting is done on time.
- e. Include a calendar of when payments are likely to be due.
- f. Comparison of actual cash flow against projected cash flow.

Variations to the subcontract should be priced and reviewed by all parties. Without approval from the contractor and subcontractor on the scope and price of the variation, no works are to be undertaken.

Invoices should be logged on a daily basis and used as evidence in the monthly progress claim, either as project completion or variation orders. The progress claim will refer only to works completed within the 30 day period of the claim. All timesheets are signed off by supervisors and used as evidence for progress claims and variations.

All procurement should be staggered to ensure the stockpile of materials is kept to a minimum. In this way, the stockpile area is reduced, and materials are less likely to be damaged. Purchase orders for materials should be approved prior to confirmation of material purchase.

Forecasting can be used to compare projected cash flow v actual cash flow. This can be completed on a weekly or monthly basis, and alterations to the Cost Management Plan can be made if required. A project progress report detailing the cash flow for the month will be submitted to the Project Manager and Construction Manager as part of the monthly progress claim.

Payments are to be made as followed, based off the scheduled completion of tasks as per the Gantt chart:

1. Payment of \$275,000 on 1/10/2016 (50% payment)
2. Payment of \$110,000 on 29/10/2016 (20% payment)
3. Payment of \$110,000 on 1/3/2017 (20% payment)
4. Payment of \$55,000 on 29/4/2017 (100% payment)

WORKBOOK CHECKLIST

When you have completed this workbook, please ensure you have completed all parts of it:

- ☒ **Written Questions**
 - ☒ **Part 1 – Project Scope**
 - ☒ **Part 2 – Project Time**
 - ☒ **Part 3 – Project Cost**
 - ☒ **Part 4 – Project Quality**
- ☒ **Case Study**

IMPORTANT REMINDER

Students must achieve a satisfactory result to ALL assessment tasks to be awarded COMPETENT for the unit relevant to this subject.

To award the student competent in the units relevant to this subject, the student must successfully complete all the requirements listed above according to the prescribed benchmarks.

End of Document