Level 3 NVQ Diploma in Testing, Inspecting and thorough Examination Occupations (Construction)

Qualification Specification

Contents

Introduction

The aim of this qualification is to recognise the knowledge, skills and competence of individuals who specialise in testing and inspection in the construction industry. The learner will need to demonstrate skills, knowledge and understanding in core subject areas, and will also need to demonstrate occupational competence in a specialist subject area:

Pathway 1 **Testing, Inspecting and thorough Examination of Plant, Machinery, Equipment or Accessories**

Pathway 2 **Leak Detection in Waterproof Systems**

Pathway 3 **Dynamic Pile Testing**

The awarding organisation for this qualification is ProQual Awarding Body and the regulatory body is the Office of Qualifications and Examinations Regulation (Ofqual). This qualification has been accredited onto the Regulated Qualifications Framework (RQF).

Qualification Profile

Qualification title	**ProQual Level 3 NVQ Diploma in Testing, Inspecting and thorough Examination Occupations (Construction)**
Ofqual qualification number	603/3001/6
Level	Level 3
Total qualification time	750 hours
Guided learning hours	187
Assessment	Pass or fail Internally assessed and verified by centre staff External quality assurance by ProQual verifiers
Qualification start date	2/3/2018
Qualification end date	

Entry Requirements

There are no formal entry requirements for this qualification.

Centres should carry out an **initial assessment** of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Structure

Candidates must complete ALL of the Mandatory units, plus the Mandatory unit(s) for ONE of the Pathways.

Mandatory Units – complete all units			***CITB refs provided for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
A/503/2772	Confirming work activities and resources for an occupational area in the workplace	3	*209v2*
M/503/2915	Developing and maintaining good occupational working relationships in the workplace	5	*210v2*
R/503/2924	Confirming the occupational method of work in the workplace	3	*211v2*

Pathway 1 – Testing, Inspecting and thorough Examination of Plant, Machinery, Equipment or Accessories

Mandatory Units – complete both units			***CITB refs provided for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
J/616/4461	Inspecting plant or machinery for operational serviceability in the workplace	2	*663v2*
H/616/4466	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace	3	*668v3*

Pathway 2 – Leak Detection in Waterproof Systems

Mandatory Unit – complete this unit			***CITB references provided for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
K/616/9054	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace	3	*800v1*

Pathway 3 – Dynamic Pile Testing

Mandatory Unit – complete this unit			***CITB refs provided for information only***
Unit Ref.	**Title**	**Level**	*CITB Internal Unit Ref.*
M/616/9055	Dynamic load and integrity testing of piles in the workplace	3	*801v1*

Centre Requirements

Centres must be approved to offer this qualification. If your centre is not approved please complete and submit form **ProQual Additional Qualification Approval Application**.

Staff
Staff delivering this qualification must be appropriately qualified and occupationally competent.

Assessors/Internal Quality Assurance
For each competence-based unit centres must be able to provide at least one assessor and one internal quality assurance verifier who are suitably qualified for the specific occupational area. Assessors and internal quality assurance verifiers for competence-based units or qualifications will normally need to hold appropriate assessor or verifier qualifications, such as:

- Award in Assessing Competence in the Work Environment
- Award in Assessing Vocationally Related Achievement
- Certificate in Assessing Vocational Achievement
- Award in the Internal Quality Assurance of Assessment Processes and Practices
- Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practices

Support for Candidates

Materials produced by centres to support candidates should:

- enable them to track their achievements as they progress through the learning outcomes and assessment criteria;
- provide information on where ProQual's policies and procedures can be viewed;
- provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence

Assessment

Candidates must demonstrate the level of knowledge described in the unit. Assessment is the process of measuring a candidate's knowledge and understanding against the standards set in the qualification.

Assessment guidance is included to assure consistency.

Each candidate is required to produce evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence can include:

- assignments/projects/reports
- worksheets
- portfolio of evidence
- record of oral and/or written questioning
- candidate test papers

Learning outcomes set out what a candidate is expected to know, understand or be able to do.

Assessment criteria specify the standard a candidate must meet to show the learning outcome has been achieved.

Learning outcomes and assessment criteria for this qualification can be found from page 9.

Internal Quality Assurance

An internal quality assurance verifier confirms that assessment decisions made in centres are made by competent and qualified assessors, that they are the result of sound and fair assessment practice and that they are recorded accurately and appropriately.

Adjustments to Assessment

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements.

Centres should contact ProQual for further information or queries about the contents of the policy.

Results Enquiries and Appeals

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Certification

Candidates who achieve the requirements qualifications will be awarded:

- A certificate listing the unit achieved, and
- A certificate giving the full qualification title -

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Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the requirements for a qualification. All certificates will be issued to the centre for successful candidates.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement certificates.

Title:	Confirming work activities and resources for an occupational work area in the workplace
Unit Number:	A/503/2772

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*	
1 Identify work activities, assess required resources and plan the sequence of work.	1.1	Identify work activities, assess required resources and plan the sequence of work.
	1.2	Identify work activities and formulate a plan for their own sequence of work.
	1.3	Explain the types of work relative to the occupational area and how to identify different work activities.
	1.4	Explain methods of assessing the resources needed from a range of available information.
	1.5	Explain the required information and the different methods used to prepare a work programme relative to the occupational area.
2 Obtain clarification and advice where the resources required are not available.	2.1	Seek advice and clarity from appropriate sources on resources available and the alternatives that can be used for the work when required resources are not available.
	2.2	Explain the different sources and methods that can be used to obtain clarification and advice when the required resources are not available.
3 Evaluate the work activities and the requirements of any significant external factors against the project requirements.	3.1	Assess progress of work against project requirements, taking into account external factors relating to: – other occupations and /or customers – resources – weather conditions – health and safety requirements.
	3.2	Explain different methods of evaluating work activities against the following project requirements: – contract conditions – contract programme – health and safety requirements of operatives.
	3.3	Evaluate the requirements of significant external factors that could affect the progress of work, in relation to: – other related programmes – special working conditions – weather conditions – other occupations/people – resources – health and safety requirements.

Title:	Confirming work activities and resources for an occupational work area in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
4 Identify work activities which influence each other and make the best use of the resources available.	4.1 Determine work activities that have an influence on each other.
	4.2 Evaluate which work activities make the best use of available resources in relation to: – occupations and/or customers associated with the work – tools, plant and/or ancillary equipment – materials and components.
	4.3 Explain different methods and sources that can identify which work activities influence each other.
	4.4 Describe how to determine the sequence of work activities and how long each work activity will take.
	4.5 Describe what zero and low carbon requirements are.
	4.6 Explain how work activities and different ways of using resources can impact on zero and low carbon requirements, and make a positive contribution to the environment.
5 Identify changed circumstances that require alterations to the work programme and justify them to decision makers.	5.1 Evaluate project progress against the work programme to identify any changed circumstances.
	5.2 Inform line management and/or customers on the type and extent of any required changes to the work programme.
	5.3 Explain how to identify possible alterations to the work programme to meet changed circumstances relating to action lists, method statements, duration, schedules and/or occupation specific requirements.
	5.4 Explain how to assess contractual/work effects resulting from alterations to the work programme.
	5.5 Explain the methods used to justify to decision makers on the effects resulting from alterations to the work programme.

Title:	Confirming work activities and resources for an occupational work area in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Subject Sector Area	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	33

Title:	Developing and maintaining good occupational working relationships in the workplace
Unit Number:	M/503/2915

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
1 Develop, maintain and encourage working relationships to promote good will and trust.	1.1 Give appropriate advice and information to relevant people about the occupational work activities and/or associated occupations involved.
	1.2 Apply the principles of equality and diversity by considering the needs of individuals when working and communicating with others.
	1.3 Explain the methods and techniques used and personal attributes required to encourage and maintain working relationships that promote goodwill and trust with relevant people.
	1.4 Explain the principles of equality and diversity and how to apply them when working and communicating with others.
2 Inform relevant people about work activities in an appropriate level of detail, with the appropriate level of urgency.	2.1 Communicate on the following work activity information to relevant people following organisational procedures: – appropriate timescales – health and safety requirements – co-ordination of work procedures.
	2.2 Explain the different methods and techniques used to inform relevant people about work activities.
	2.3 Explain the effects of not informing relevant people with the expected level of urgency.
	2.4 Explain the different types of work activity related information and to what level of detail the following people would expect to receive: – colleagues – employers – customers – contractors – suppliers of products and services – other people affected by the work/project.

Title:	Developing and maintaining good occupational working relationships in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Offer advice and help to relevant people about work activities and encourage questions/requests for clarification and comments.	3.1 Give appropriate advice and information to relevant people about the different methods of carrying out occupational work activities to achieve the required outcome.
	3.2 Explain the techniques of encouraging questions and/or requests for clarification and comments.
	3.3 Explain the different ways of offering advice and help to different people about work activities, in relation to: – progress – results – achievements – occupational problems – occupational opportunities – health and safety requirements – co-ordinated work.
4 Clarify proposals with relevant people and discuss alternative suggestions.	4.1 Engage regular discussions with relevant people about the occupational work activity and/or other occupations involved.
	4.2 Explain the methods of clarifying alternative proposals with relevant people.
	4.3 Explain the methods of suggesting alternative proposals.
5 Resolve differences of opinion in ways that minimise offence and maintain goodwill, trust and respect.	5.1 Examine and agree the work activities that satisfy all people involved and will meet the required outcome of the proposed method of work.
	5.2 Explain the methods and techniques used to resolve differences of opinion in ways which minimise offence and maintain goodwill, trust and respect.

Title:	Developing and maintaining good occupational working relationships in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	27

Title:	Confirming the occupational method of work in the workplace	
Unit Number:	R/503/2924	
Learning outcomes *The learner will be able to:*		**Assessment criteria** *The learner can:*
1 Assess available project data accurately to determine the occupational method of work.		1.1 Interpret and extract information from drawings, specifications, schedules, manufacturer's information, methods of work, risk assessments and programmes of work.
		1.2 Explain how to summarise the following project data: – required quantities – specifications – detailed drawings – health and safety requirements – timescales – scope of works.
		1.3 Explain the different methods of assessing available project data.
		1.4 Explain how to use project data to interpret the work method, In relation to: – standard work procedures – sequence of work – organisation of resources (people, equipment, materials) – work techniques – working conditions (health, safety and welfare) – risk assessment.
2 Obtain additional information from alternative sources in cases where the available project data is insufficient.		2.1 Collect and collate additional information from alternative sources to clarify the work to be carried out.
		2.3 Explain different methods and techniques of obtaining additional information from the following alternative sources when available project data is insufficient: – customers or representatives – suppliers – regulatory authorities – manufacturer's literature.

Title:	Confirming the occupational method of work in the workplace
Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Identify work methods that will make best use of resources and meet project, statutory and contractual requirements.	3.1 Examine potential work methods to carry out the occupational work activity.
	3.2 Determine which work methods will make best use of relevant resources and meet health and safety requirements relating to technical and/or project criteria.
	3.3 Explain how to identify work methods that make best use of resources and meet project, statutory and contractual requirements against technical criteria, in relation to: – health and safety welfare (principles of protection) – fire protection – access and egress – equipment availability – availability of competent workforce – pollution risk – waste and disposal – zero and low carbon outcomes – weather conditions.
	3.4 Explain how to identify work methods that make best use of resources and meet project, statutory and contractual requirements against project criteria, in relation to: – conforming to statutory requirements – customer and user needs – contract requirements in terms of time, quantity and quality – environmental considerations.
	3.5 Explain how different methods of work can achieve zero/low carbon outcomes.
4 Confirm and communicate the selected work method to relevant personnel.	4.1 Confirm the selected occupational work method that meets project, statutory and contractual requirements.
	4.2 Communicate appropriately to relevant people on the selected occupational work method.
	4.3 Describe the different techniques and methods of confirming and communicating work methods to relevant people.
	4.4 Explain the principles of equality and diversity and how to apply them when working and communicating with others.

Title:	Confirming the occupational method of work in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	05.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	37

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Unit Number:	J/616/4461

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when inspecting plant or machinery for operational serviceability.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the inspection, examination and test of plant and machinery.
2 Know how to comply with relevant legislation and official guidance when inspecting plant or machinery for operational serviceability.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.
3 Maintain safe and healthy working practices when inspecting plant or machinery for operational serviceability.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when inspecting plant or machinery for operational serviceability.
	3.2 Comply with information relating to specific risks to health when inspecting plant or machinery for operational serviceability.

Title:	Inspecting Plant or Machinery for Operational Serviceability in the Workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Continued	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating inspecting plant or machinery for operational serviceability and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to inspect plant or machinery for operational serviceability.	4.1 Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – inspection equipment – fixings – hand tools, portable powered tools, specialist tools and equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, area and wastage associated with the method/procedure to inspect plant and machinery for operational serviceability.

Title:	Inspecting Plant or Machinery for Operational Serviceability in the Workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
5 Minimise the risk of damage to the work and surrounding area when inspecting plant or machinery for operational serviceability.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when inspecting plant or machinery for operational serviceability.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to inspect plant or machinery for operational serviceability to the required specification.	7.1 Demonstrate the following work skills when inspecting plant or machinery for operational serviceability: – inspecting, checking, recording and reporting.
	7.2 Complete the following inspections to given working instructions: – routine checks, daily, weekly – periodic e.g. monthly, annual, number, hours run – pre-use, delivery – post-use, return, off hire.
	7.3 Record and report results and findings of inspection using the appropriate method, in accordance with given working instructions.
	7.4 Safely use and handle materials, hand tools, specialist tools, portable power tools and ancillary equipment.
	7.5 Safely store the materials, tools and equipment used when inspecting plant or machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.6 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – identify inspection criteria – conduct inspections, daily/weekly, periodic (monthly, annual, number and hours run), pre-use and post-use and returned items – identify the difference between test, inspection and thorough examination – check the calibration of inspection tools and equipment – use specialist inspection equipment and test and diagnostic aids – identify deterioration, damage, excess wear and leaks – identify non-critical defects – identify critical defects – classify the serviceability of plant and machinery – consider plant and machinery life expectancy – report findings – use hand tools, portable power tools, specialist tools and equipment – work at height – use access equipment – complete and maintain records.
	7.7 Describe the needs of other occupations and how to effectively communicate within a team inspecting plant or machinery for operational serviceability.
	7.8 Describe how to maintain the tools and equipment used when inspecting plant or machinery for operational serviceability.

Title:	Inspecting plant or machinery for operational serviceability in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	87

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace
Unit Number:	H/616/4466

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
1 Interpret the given information relating to the work and resources when carrying out specific tests on plant or machinery to determine operational serviceability.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals and manufacturers' information.
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, workshop manuals, technical service bulletins, parts manuals, manufacturers' information and current regulations associated with the specific testing of plant or machinery.
2 Know how to comply with relevant legislation and official guidance when carrying out specific tests on plant or machinery to determine operational serviceability.	2.1 Describe their responsibilities regarding potential accidents and health hazards, whilst working: – in the workplace, below ground level, at height, in confined spaces, with tools and equipment, with materials and substances, with movement/storage of materials and by manual handling and mechanical lifting.
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
3 Maintain safe and healthy working practices when carrying out specific tests on plant or machinery to determine operational serviceability.	3.1 Use health and safety control equipment and access equipment (if applicable) safely to carry out the activity in accordance with current legislation and organisational requirements when carrying out specific tests on plant or machinery to determine operational serviceability.
	3.2 Comply with information relating to specific risks to health when carrying out specific tests on plant or machinery to determine operational serviceability.
	3.3 Explain why and when health and safety control equipment, identified by the principles of protection, should be used, relating to carrying out specific tests on plant or machinery to determine operational serviceability and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE) – local exhaust ventilation (LEV).
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related hazards.
4 Select the required quantity and quality of resources for the methods of work to carry out specific tests on plant or machinery to determine operational serviceability.	4.1 Select resources associated with own work in relation to materials, components, fixings/fittings, tools, equipment and consumables.
	4.2 Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – consumables – fixings and fittings – hand tools, portable power tools, specialist test equipment and ancillary equipment.
	4.3 Describe how the resources should be used correctly and how problems associated with the resources are reported.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
4 Continued	4.4 Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.5 Describe any potential hazards associated with the resources and methods of work.
	4.6 Describe how to calculate quantity, length, volume, area and wastage associated with the method/procedure to conduct specific tests on plant or machinery to determine operational serviceability.
5 Minimise the risk of damage to the work and surrounding area when carrying out specific tests on plant or machinery to determine operational serviceability.	5.1 Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2 Minimise damage and maintain a clean work space.
	5.3 Dispose of waste in accordance with current legislation.
	5.4 Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5 Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.
6 Complete the work within the allocated time when carrying out specific tests on plant or machinery to determine operational serviceability.	6.1 Demonstrate completion of the work within the allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of progress charts, timetables and estimated times – organisational procedures for reporting circumstances which will affect the work programme.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Comply with the given contract information to carry out specific tests on plant or machinery to determine operational serviceability to the required specification.	7.1 Demonstrate the following work skills when carrying out specific tests on plant or machinery to determine operational serviceability: – measuring, testing and comparing.
	7.2 Complete specific tests to given working instructions on four of the following: – electric systems – cooling systems – lubrication systems – emission control – hydraulic systems – hydrostatic drive – transmission systems – pneumatic systems – braking systems – vibration management – steering/suspension systems – generator output control – electronic management – powered access equipment – material handling equipment – water pumps – craneage – lifting equipment – load testing (cranes, hoists, MEWPs, MHE)
	7.3 Complete fests to given working instructions for the following: – statutory requirement – compliance with policy and procedures – operational efficiency (speeds, flow rates, consumption, emissions, outputs).
	7.4 Complete functional, operational and safety checks on plant or machinery, to given working instructions.
	7.5 Complete and maintain records when carrying out specific tests on plant or machinery to determine operational serviceability.
	7.6 Safely use and handle materials, hand tools, portable power tools, specialist test equipment and ancillary equipment.
	7.7 Safely store the materials, tools and equipment used when carrying out specific tests on plant or machinery to determine operational serviceability.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace

Learning outcomes The learner will be able to:	**Assessment criteria** The learner can:
7 Continued	7.8 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – isolate plant, machinery and components – confirm calibration of test equipment – test electric systems, cooling systems, lubrication systems, hydraulic systems, hydrostatic drive, transmission systems, pneumatic systems, braking systems, vibration management, steering/suspension systems, generator output control, electronic management, powered access equipment, material handling equipment, water pumps, craneage, lifting equipment and load testing (cranes, hoists, MEWPs, MHE) – conduct tests for statutory requirements, compliance with policy and procedures and operational efficiency (speeds, flow rates, consumption, emissions, output) – collect measurements, readings, input and output data, working cycle times and tolerances – identify and assess the relevance of inconsistent data – make allowances for situation, environment, atmospheric conditions – operate pressure gauge, flow gauge, multi-meter, portable appliance testing equipment, computer aided diagnostic software, test lamp, compression measurement equipment and timing devices – analyse information collected; make comparisons with other plant and machinery, consider previous knowledge, apply sensory abilities (visual, audible, touch and smell) consult manufacturers' information and results of other tests – compare and confirm test outcome with given specifications – report findings – use hand tools, portable power tools and equipment – work at height – use access equipment – complete and maintain records.
	7.9 Describe the needs of other occupations and how to communicate effectively within a team when carrying out specific tests on plant or machinery to determine operational serviceability.
	7.10 Describe how to maintain the tools and equipment used when carrying out specific tests on plant or machinery to determine operational serviceability.

Title:	Carrying out specific tests on plant or machinery to determine operational serviceability in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated. This unit must be assessed against the endorsements detailed within the relevant NVQ Structure. <u>ProQual Level 3 NVQ Diploma in Testing, Inspecting and thorough Examination Occupations (Construction)</u> <u>Pathway 1 – Testing, Inspecting and thorough Examination of Plant, Machinery, Equipment or Accessories</u> **Four** of the following endorsements required: Electric systems Cooling systems Lubrication systems Emission control Hydraulic systems Hydrostatic drive Transmission systems Pneumatic systems Braking systems Vibration management Steering/suspension systems Generator output control Electronic management Powered access equipment Material handling equipment Water pumps Craneage Lifting equipment Load testing (cranes, hoists, MEWPs, MHE)
Sector Subject Areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	110

Title:	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace
Unit Number:	K/616/9054

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
1 Interpret the given information relating to the work and resources when detecting breaches in waterproofing systems using non-destructive leak detection.	1.1 Interpret and extract relevant information from drawings, specifications, schedules, method statements, risk assessments, manufacturers' information and instrument readings
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information, official guidance and current regulations governing buildings and official guidance associated with waterproofing systems.
2 Know how to comply with relevant legislation and official guidance when detecting breaches in waterproofing systems using non-destructive leak detection.	2.1 Describe their responsibilities regarding potential accidents, health hazards and the environment, whilst working: – in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and storage of materials by manual handling and mechanical lifting
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and vehicles.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.

Title:	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace
Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Maintain safe and healthy working practices when detecting breaches in waterproofing systems using non-destructive leak detection.	3.1 Use health and safety control equipment safely and comply with the methods of work to carry out the activity in accordance with current legislation and organisational requirements when detecting breaches in waterproofing systems using non-destructive leak detection.
	3.2 Demonstrate compliance with given information and relevant legislation when detecting breaches in waterproofing systems using non-destructive leak detection in relation to the following: – safe use of access equipment – safe use, storage and handling of materials, tools and equipment – specific risks to health
	3.3 Explain why and when health and safety control equipment, identified by the principles of prevention should be used, relating to detecting breaches in waterproofing systems using non-destructive leak detection, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – local exhaust ventilation (LEV) – personal protective equipment (PPE) – respiratory protective equipment (RPE)
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given working instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related activities.

Title:	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace

Learning outcomes *The learner will be able to:*		**Assessment criteria** *The learner can:*
4 Select the required quantity and quality of resources for the methods of work when detecting breaches in waterproofing systems using non-destructive leak detection.	4.1	Select resources associated with own work in relation to tools, equipment and consumables.
	4.2	Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – test instruments and ancillary equipment - consumables (batteries, wax crayons, markers and pencils) - recording and report writing equipment - hand tools, test equipment and ancillary equipment
	4.3	Describe how to confirm that the resources and materials conform to the specification.
	4.4	Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.5	Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.6	Describe any potential hazards associated with the resources and methods of work.
	4.7	Describe how to calculate quantity, length and area associated with the method and procedure to detect breaches in waterproofing systems using non-destructive leak detection.
5 Minimise the risk of damage to the work and surrounding area when detecting breaches in waterproofing systems using non-destructive leak detection.	5.1	Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2	Maintain a clear and tidy work space.
	5.3	Dispose of waste in accordance with current legislation.
	5.4	Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5	Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.

Title:	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
6 Complete the work within the allocated time when detecting breaches in waterproofing systems using non-destructive leak detection.	6.1 Demonstrate completion of the work within the estimated, allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of productivity targets and time scales - how times are estimated – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information when detecting breaches in waterproofing systems using non-destructive leak detection.	7.1 Demonstrate the following work skills when detecting breaches in waterproofing systems using non-destructive leak detection: – measuring, marking, assessing, recording, interpreting and reporting
	7.2 Use and maintain hand tools, testing instruments and ancillary equipment.
	7.3 Detect breaches in waterproofing systems using non-destructive leak detection to given working instructions using at least one of the following test methods: - electrical earth leakage – wet method - electrical earth leakage – dry method - electrical capacitance (moisture profiling)
	7.4 Prepare and present verbal and written reports.
	7.5 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – identify and follow quality requirements - identify types of waterproofing systems and their characteristics - complete visual inspections - conduct the following tests, flood, vacuum, electrical earth leakage – wet, electrical earth leakage – dry, electrical capacitance (moisture profiling) and any combination thereof - liaise with on-site and test location personnel

		- ensure own safety while working alone - ensure minimal disruption is caused to building occupants - mitigate risk of damage to the buildings - set up leak detection and testing equipment - operate leak detection and testing equipment, take, interpret and record readings - apply the principles of electrical conductions - recognise and determine when specialist skills and knowledge are required and report accordingly - work with, around and in close proximity to plant and machinery integrated into waterproof systems - direct and guide the operations and movement of plant and machinery - mark areas of entrapped water (moisture profiling) - identify the characteristics and limitations of leak detection methods - provide verbal and written provisional reports - write comprehensive test and inspection reports - use hand tools, testing instruments and ancillary equipment - work at height - use access equipment
	7.6	Describe the needs of other occupations and how to communicate effectively within a team when detecting breaches in waterproofing systems using non-destructive leak detection
	7.7	Describe how to maintain the hand tools, testing instruments and ancillary equipment used when detecting breaches in waterproofing systems using non-destructive leak detection.

Title:	Detecting breaches in waterproofing systems using non-destructive leak detection in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the CITB Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. This unit must be assessed against the endorsements detailed within the relevant NVQ structure. <u>ProQual Level 3 NVQ Diploma in Testing, Inspecting and thorough Examination Occupations (Construction)</u> <u>Pathway 2 – Leak Detection in Waterproof Systems</u> **<u>One</u>** of the following endorsements are required: Electrical earth leakage – wet method Electical earth leakage – dry method Electrical capacitance (moisture profiling) w Workplace evidence of skills cannot be simulated.
Sector Subject areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	90
Assessment hours	10

Title:	Dynamic Load and Integrity Testing of Piles in the workplace
Unit Number:	M/616/9055

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
1 Interpret the given information relating to the work and resources when dynamic load and integrity testing piles.	1.1 Interpret and extract relevant information from drawings, specifications, schedules method statements, risk assessments and manufacturers' information
	1.2 Comply with information and/or instructions derived from risk assessments and method statements.
	1.3 Describe the organisational procedures developed to report and rectify inappropriate information and unsuitable resources and how they are implemented.
	1.4 Describe different types of information, their source and how they are interpreted in relation to: – drawings, specifications, schedules, method statements, risk assessments, manufacturers' information, testing instructions and current regulations governing buildings and official guidance associated with testing of piles.
2 Know how to comply with relevant legislation and official guidance when dynamic load and integrity testing piles.	2.1 Describe their responsibilities regarding potential accidents, health hazards and the environment, whilst working: – in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and storage of materials by manual handling and mechanical lifting
	2.2 Describe the organisational security procedures for tools, equipment and personal belongings in relation to site, workplace, company and operative.
	2.3 Explain what the accident reporting procedures are and who is responsible for making reports.

Title:	Dynamic Load and Integrity Testing of Piles in the workplace
Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
3 Maintain safe and healthy working practices when dynamic load and integrity testing piles.	3.1 Use health and safety control equipment safely and comply with the methods of work to carry out the activity in accordance with current legislation and organisational requirements when dynamic load and integrity testing piles.
	3.2 Demonstrate compliance with given information and relevant legislation when dynamic load and integrity testing piles in relation to the following: – safe use of access equipment – safe use, storage and handling of materials, tools and equipment – specific risks to health
	3.3 Explain why and when health and safety control equipment, identified by the principles of prevention should be used, relating to dynamic load and integrity testing of piles, and the types, purpose and limitations of each type, the work situation and general work environment, in relation to: – collective protective measures – personal protective equipment (PPE) – respiratory protective equipment (RPE)
	3.4 Describe how the relevant health and safety control equipment should be used in accordance with the given working instructions.
	3.5 Describe how emergencies should be responded to in accordance with organisational authorisation and personal skills when involved with fires, spillages, injuries and other task-related activities.

Title:	Dynamic Load and Integrity Testing of Piles in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*	
4 Select the required quantity and quality of resources for the methods of work to dynamic load and integrity test piles.	4.1	Select resources associated with own work in relation to materials, components, fixings, tools, equipment and consumables.
	4.2	Describe the characteristics, quality, uses, sustainability, limitations and defects associated with the resources in relation to: – protection equipment - data acquisition units and transducers - hand tools, portable power tools and equipment - consumables, wedge anchors, acoustic putty and drill bits
	4.3	Describe how to confirm that the resources and materials conform to the specification.
	4.4	Describe how the resources should be used correctly and how problems associated with the resources are reported.
	4.5	Explain why the organisational procedures have been developed and how they are used for the selection of required resources.
	4.6	Describe any potential hazards associated with the resources and methods of work.
	4.7	Describe how to calculate quantity, length and area associated with the method and procedure to dynamic load and integrity test piles
5 Minimise the risk of damage to the work and surrounding area when dynamic load and integrity testing piles.	5.1	Protect the work and its surrounding area from damage in accordance with safe working practices and organisational procedures.
	5.2	Maintain a clear and tidy work space.
	5.3	Dispose of waste in accordance with current legislation.
	5.4	Describe how to protect work from damage and the purpose of protection in relation to general workplace activities, other occupations and adverse weather conditions.
	5.5	Explain why the disposal of waste should be carried out safely in accordance with environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance.

Title:	Dynamic Load and Integrity Testing of Piles in the workplace

Learning outcomes *The learner will be able to:*	**Assessment criteria** *The learner can:*
6 Complete the work within the allocated time when dynamic load and integrity testing piles.	6.1 Demonstrate completion of the work within the estimated, allocated time.
	6.2 Describe the purpose of the work programme and explain why deadlines should be kept in relation to: – types of productivity targets and time scales - how times are estimated – organisational procedures for reporting circumstances which will affect the work programme.
7 Comply with the given contract information to dynamic load and integrity test piles to the required specification.	7.1 Demonstrate the following work skills when dynamic load and integrity testing of piles: – measuring, marking out, fitting, assembling and recording
	7.2 Use and maintain hand tools, data acquisition units, transducers and ancillary equipment.
	7.3 Test and/or assess piles to given working instructions relating to the following: - identify test and/or assessment parameters (high strain dynamic and/or low strain integrity) - prepare piles - set up data acquisition unit and transducer(s) - record data for each pile - check quality of the data recorded - identify anomalies - remove equipment
	7.4 Report data to analyst.
	7.5 Describe how to apply safe and healthy work practices, follow procedures, report problems and establish the authority needed to rectify them, to: – liaise with on-site personnel - identify test parameters for high strain (dynamic) and low strain (integrity) testing - confirm methods of work - identify the characteristics between high and low strain integrity testing

		- prepare piles - prepare and set up data acquisition units and transducers - use data acquisition units - check quality of the data recorded - recognise anomalies in data - identify the criteria for conducting retests - estimate load bearing capacity of piles from the test data - remove transducers from piles - submit field records and data - recognise and determine when specialist skills and knowledge are required and report accordingly - use hand tools, portable power tools and equipment - use access equipment
	7.6	Describe the needs of other occupations and how to communicate effectively within a team when dynamic load and integrity testing piles
	7.7	Describe how to maintain the hand and portable power tools, data acquisition units, transducers and ancillary equipment used when dynamic load and integrity testing of piles.

Title:	Dynamic Load and Integrity Testing of Piles in the workplace
Additional information about this unit	
Assessment Guidance	This unit must be assessed in a work environment, in accordance with the CITB Consolidated Assessment Strategy for Construction and the Built Environment. Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy. Workplace evidence of skills cannot be simulated.
Sector Subject areas	5.2 Building and Construction
Availability for use	Shared unit
Unit guided learning hours	200
Assessment hours	10

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