

# **Recommended Qualification Structure for Sub-structure Work Occupations (Construction) Level 2**

This structure has been recommended by employers and stakeholders from the above occupational area for organisations to form the basis of academic capability and competence outcomes. Qualifications with a competence outcome at the above level must have units derived from the following National Occupational Standards (NOS) and consist of the mandatory/optional groups as stated for the individual option route.

## **MANDATORY (all option routes)**

- VR641 v2 Conform to general workplace health, safety and welfare
- VR642 v1 Conform to productive work practices
- VR643 v1 Move, handle or store resources

## **PLUS ONE OF THE FOLLOWING OPTIONAL ROUTES**

### **Underpinning Operations Option Route (one of the following option groups required)**

#### **Excavated Underpinning Option Group (Total 9)**

##### **Mandatory**

- VR167 v2 Set out and mark positions for underpinning sequence

##### **Plus optional (one of the following)**

- VR168 v2 Excavate for underpinning
- VR173 v3 Excavate and provide temporary support to pits and trenches

##### **Plus optional (four of the following)**

- VR161 v3 Erect and strike underpinning formwork
- VR164 v2 Install reinforcement steel for underpinning
- VR169 v2 Install drypacking
- VR171 v2 Repair sub-structure after underpinning
- VR225 v2 Place and compact concrete
- VR763 v1 Install, construct, maintain, dismantle temporary works

#### **Underpinning Piling Option Group (Total 7 )**

##### **Mandatory**

- VR167 v2 Set out and mark positions for underpinning sequence
- VR170 v2 Install piles in areas of restricted access (micro- or mini-piling)
- VR657 v2 Inspect and complete user maintenance on plant or machinery

##### **Plus optional (one of the following)**

- VR171 v2 Repair sub-structure after underpinning
- VR173 v3 Excavate and provide temporary support to pits and trenches
- VR225 v2 Place and compact concrete
- VR402 v2 Slinging and signalling the movement of suspended loads
- VR763 v1 Install, construct, maintain, dismantle and remove temporary works

## **Dewatering Option Route**

### **Mandatory all options**

VR486 v2 Site preparation for the installation of dewatering systems

### **Plus optional (one of the following)**

VR360 v4 Install, maintain and remove work area protection and safety equipment

VR402 v2 Slings and signalling the movement of suspended loads

VR400 v2 Operate powered units, tools or pedestrian plant, machinery or equipment

VR657 v2 Inspect and complete user maintenance on plant or machinery

### **Plus one of the following optional groups**

#### **Wellpoints Option Group (Total 6)**

VR487 v2 Install wellpoint dewatering systems

#### **Deep Wells Option Group (Total 6)**

##### **Mandatory**

VR489 v2 Install deep well dewatering systems

#### **Ejectors Option Group (Total 6)**

##### **Mandatory**

VR490 v2 Install ejector dewatering systems

## **Structural Waterproofing Option Route (Total 6)**

### **Mandatory**

VR491 v2 Prepare surfaces for waterproofing

VR492 v2 Carry out structural waterproofing

### **Plus optional (one of the following)**

VR360 v4 Install, maintain and remove work area protection and Safety equipment

VR400 v2 Operate powered units, tools or pedestrian plant, machinery or equipment

VR401 v2 Set out secondary dimensional work control

VR657 v2 Inspect and complete user maintenance on plant or machinery

**NB VR491 re NOS title**

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## **Ground Anchors Option Route**

### **Mandatory**

VR513 v2 Site preparation for the installation of ground anchors

### **Plus one of the following optional groups**

#### **Driven Option Group (Total 5)**

##### **Mandatory**

VR514 v2 Install mechanical ground anchors

#### **Open Hole Option Group (Total 5)**

##### **Mandatory**

VR515 v2 Install open hole ground anchors

#### **Self-Drilling Ground Anchor Option Group (Total 6)**

##### **Mandatory**

VR516 v2 Install self-drilling ground anchors

##### **Plus one of the following**

VR402 v2 Slinging and signalling the movement of suspended loads

VR657 v2 Inspect and complete user maintenance on plant or machinery

## **Box Beam Post Tensioning Option Route (Total 6)**

### **Mandatory**

VR360 v4 Install, maintain and remove work area protection and safety equipment

VR518 v2 Site preparation for the installation of post tensioning systems as sub-structural repair

VR519 v2 Install post tensioning system as sub-structural repair

## **Chemical and Resin Grouting Option Route (Total 6)**

### **Mandatory**

VR520 v2 Site preparation for chemical and resin grouting and soil injection

VR521 v2 Carry out chemical and resin grouting and soil injection

### **Plus optional (one of the following)**

VR402 v2 Slinging and signalling the movement of suspended loads

VR360 v4 Install, maintain and remove work area protection and safety equipment

VR657 v2 Inspect and complete user maintenance on plant or machinery

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## Retaining Structures Option Route (Total 7)

### Mandatory

- VR360 v4 Install, maintain and remove work area protection and safety equipment
- VR400 v2 Operate powered units, tools or pedestrian plant, machinery or equipment
- VR401 v2 Set out secondary dimensional work control

### Plus optional (one from the following)

- VR563 v2 Install mass gravity retaining structures
- VR564 v2 Install precast concrete retaining structures
- VR565 v2 Install reinforcement for the formation of soil structures and slopes
- VR566 v2 Stabilise steep slopes

## Installation of Gas Membranes Option Route (Total 5)

### Mandatory

- VR612 v2 Prepare to install gas membranes
- VR613 v2 Install gas membranes

## Basement Construction Option Route

### Mandatory

- VR762 v1 Working on basement construction projects
- VR763 v1 Install, construct, maintain, dismantle and remove temporary works

### Plus one of the following option routes, shown above:

**Excavated Underpinning Operations (Total 11)**

**Underpinning Piling (Total 9)**

**Dewatering (Total 8)**

**Structural Waterproofing (Total 8)**

**Ground Anchors (Total 8)**

**Box Beam Post tensioning (Total 8)**

**Chemical and Resin Grouting (Total 8)**

**Retaining Structures (Total 9)**

**Installation of Gas Membranes (Total 7)**

## Simulation Information from 01/01/2015

Evidence for competence qualifications and units derived from the following National Occupational Standards (NOS) must be work-based. Simulation is only allowed for the additional information items as detailed below. For a competence outcome, simulation must be conducted in accordance with the Construction Consolidated Assessment Strategy.

VR487	Additional information item 9.3 of Performance Criteria 5	Sub-Structure Work Occupations	L2
VR489	Additional information item 9.5 of Performance Criteria 5	Sub-Structure Work Occupations	L2

## Unit endorsements for Sub-structure Work Occupations Level 2

Where industry requests; qualifications can be endorsed to show an option route and the type of resources and/or activities that relate to the unit. Listed below are the endorsements that can apply for units derived from the following NOS.

NOS	Endorsement
VR161	One of the following: Structural underpinning Basement construction
VR170	Two of the following: Open auger Hollow stem auger Sectional flight auger (cfa) Down-hole hammer In-hole support drilling Drop hammer Jacked down piling Pneumatic displacement piling Proprietary micro piling systems
VR171	Two of the following: Brickwork Blockwork Concrete Timber Facings Linings Waterproofing systems
VR173	One of the following: Timber Trench sheet Frames Support systems
VR225	Three of the following: Chute Elephant's trunk Skip Pump Mono-rail Manual

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NOS	Endorsement
VR360	One of the following (i.e. own area of work). Dewatering Structural waterproofing Box beam post tensioning Chemical and resin grouting Retaining structures
VR400	One of the following: Generators Pumps Pedestrian operated plant or machines Mixers Compressors Self-powered tools
VR401	Three of the following: Lines Levels Depths Areas Heights Angles
VR402	One of the following (i.e. own area of work only). Slinger Signaller – Underpinning Piling only Slinger Signaller – Dewatering only Slinger Signaller – Self-drilling Ground Anchor only Slinger Signaller – Chemical and Resin Grouting
VR487	Two of the following: Set up pumping system Commission and monitor system Decommission system
VR563	Two of the following: Gabions Crib walls Dry laid segmental blocks
VR657	One of the following (i.e. own area of work) Underpinning piling Dewatering Structural waterproofing Ground anchors Chemical and resin grouting
VR762	One of the following: Underpinning Dewatering Structural waterproofing Ground anchors Box beam post tensioning Grouting Retaining structures Installation of gas membranes

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NOS	Endorsement
VR763	Four of the following: Protective screens, hoardings and covers Access and egress routes Supports Supporting structures Removal equipment Diverting equipment Site facilities Stabilisation

**Note:** Where industry requests an Awarding Organisation to further endorse a unit, the Awarding Organisation must first seek approval from the Standards Setting Body to ensure the endorsement is appropriate to the unit.