National Unit specification: general information

Unit title: Reinstatement of Sub-Base and Roadbase in Non-Bituminous Materials

Unit code: F935 04

Superclass: TK

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Version: Second

Credit points and level

1 National Unit credit(s) at SCQF level 5: (1 SCQF credit points at SCQF level 5*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

UNIT 005	Reinstatement of sub-base and roadbase in non-bituminous materials

Unit Aim

This unit is designed to allow the candidate to demonstrate the skills and knowledge required to reinstate sub-base and roadbase in non-bituminous materials. The candidate will be able to prepare the subgrade to receive subsequent layers, to identify and select materials to be used for the reinstatement, and to reinstate the sub-base or roadbase correctly, using the correct equipment. They will also be able to identify and dispose correctly and safely of surplus materials, and materials that cannot be re-used.

Learning Outcome 1	Prepare the backfill layer to receive subsequent layers

Assessment criteria:

1.1 remove loose and unacceptable **materials** from the area to be reinstated using suitable **equipment**
1.2 identify and make good backfill layer defects using approved **materials** and suitable **equipment**
1.3 use **equipment** to check and confirm that the backfill layer is suitable to accept subsequent reinstatement.

Learning Outcome 2	Understand how to prepare the backfill layer for subsequent layers

Assessment criteria:

2.1 explain why loose and unacceptable **materials** are removed from the area to be reinstated
2.2 describe how to remove loose and unacceptable **materials** from the area to be reinstated
2.3 state the purpose of the sub-base and roadbase layer construction
2.4 describe potential backfill layer defects and the **equipment**, **materials** and methods used to repair them
2.5 explain the implications of leaving backfill layer defects.

Learning Outcome 3	Select and store materials for sub-base and roadbase

Assessment criteria:

3.1 identify and select excavated **materials** that are suitable for re-use or disposal
3.2 identify imported **materials** suitable for use in sub-base and roadbase
3.3 unload imported **materials** safely on site
3.4 store all **materials** safely on site to prevent degradation.

Learning Outcome 4 Understand how to select materials for sub-base and roadbase

Assessment criteria:

4.1 describe different types of excavated and imported **materials** and their suitability for use in reinstating sub- base and roadbase

4.2 describe the permitted range of alternative reinstatement materials (ARMs), stabilised materials for fill (SMFs) and other materials for use as surround to **apparatus**

4.3 describe how to store **materials** on site to prevent degradation

4.4 describe how to unload and store imported **materials** safely on site

4.5 explain how to minimise the obstruction of essential facilities and damage to street furniture.

Learning Outcome 5 Reinstate the sub-base and roadbase layers

Assessment criteria:

5.1 select reinstatement **equipment** that is:

(a) suitable to the material type and trench dimensions

(b) in working condition and safe to use

5.2 identify the level to which the sub-base and roadbase layers should be reinstated

5.3 reinstate the sub-base and roadbase layers to the specified level using the correct quantities of **materials**

5.4 calculate the **materials** required to achieve full compaction of the layer construction

5.5 use selected compaction **equipment** to adequately compact the **materials** and layer thickness

5.6 complete the sub-base and roadbase layer construction to **specifications**.

Learning Outcome 6 Understand how to reinstate the sub-base and roadbase layers

Assessment criteria:

6.1 explain the factors that affect the selection of **equipment** for the prescribed operation and material type

6.2 explain how to measure the specified level of each layer

6.3 describe how to check that the sub-base and roadbase layer construction is completed to **specifications**.

Learning Outcome 7 Dispose of surplus materials

Assessment criteria:

7.1 identify **materials** that are unsuitable for re-use or surplus to requirements

7.2 store surplus **materials** and those unsuitable for re-use in safe temporary storage

7.3 ensure **materials** for disposal are loaded safely for transportation.

Learning Outcome 8 Understand how to dispose of surplus materials

Assessment criteria:

8.1 explain how to identify **materials** that are unsuitable for re-use or surplus to requirements
8.2 explain the importance of storing unsuitable and re-usable **materials** separately
8.3 describe how to load **materials** safely for transportation
8.4 explain when surplus **materials** should be removed from site.

Learning Outcome 9 Follow safe working practices

Assessment criteria:

9.1 follow current relevant health and safety regulations, standards and other legislation relating to:
  (a) **working practices** within the construction environment
  (b) **working practices** specific to any practical task that they are required to carry out
9.2 identify the current relevant health and safety regulations, standards and other legislation that must be applied in relation to:
  (a) **working practices** within the construction environment
  (b) **working practices** specific to any practical task that they are required to carry out
9.3 leave the site in a clean and safe condition
9.4 describe how to leave the site in a clean and safe condition.

Evidence Requirements / Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:
   (a) Hand tools – including square and round mouth shovels, hand pick, hard bristle broom, measuring tape, hand rammer or depth gauge
   (b) powered equipment – including vibrotamper, vibrating plate, percussive rammer and vibrating roller.

2. Safe **working practices** include:
   (a) safe use of tools and equipment
   (b) PPE (including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask)
   (c) use of risk assessment methods to identify and control hazards on site
   (d) precautions to minimise danger or inconvenience to road users
   (e) precautions to minimise danger or inconvenience to site personnel
   (f) precautions to minimise damage to equipment or apparatus.

3. **Specifications** and procedures include:
   (a) Specification for the Reinstatement of Openings in Highways
   (b) Health and Safety Guidance 47, *Avoiding Danger from Underground Services*
   (c) Health and Safety Guidance 150, *Health and Safety in Construction*
   (d) manufacturers' operating procedures for powered tools and plant.

4. **Materials** identified for reinstating sub-base and roadbase include:

(a) Granular Type 1 sub-base material
(b) excavated granular sub-base material Class A
(c) category 3 cement-bound material (CBM3)
(d) foamed concrete.

5. **Materials** for disposal include:
(a) unsuitable surplus materials
(b) surplus materials that are suitable for re-use.

6. Utilities **apparatus** includes:
(a) plastic and metallic gas mains
(b) plastic and metallic water mains
(c) sewers and drains
(d) high- and low-voltage electricity cables
(e) telecommunications and television cables.

Assessment Requirements

Assessment for this unit consists of practical observations and knowledge questioning to cover the requirements of the learning outcomes.

Current requirements for practical observations, including assessor and verifier qualifications and facilities requirements are provided in the joint awarding organisation centre document.