

	Unit ID: 705
Domain	ROAD CONSTRUCTION AND MAINTENANCE - CORE
Unit Title:	Batch and mix concrete by volume in road construction and maintenance operations
Level: 2	Credits: 5

Purpose

This unit standard is intended for those who work in road construction and maintenance operations. People holding credit for this unit standard are able to: Plan and prepare for work, prepare to mix concrete, mix concrete, off-load the concrete and conduct post mixing activities.

Special Notes

1. Entry information:
 - Prerequisite
 - Unit 712 - *Comply with health, safety and environmental rules and regulations in road construction and maintenance work operations.*
2. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which road construction and maintenance operations are carried out.
3. Assessment is made against the mixing of concrete by hand and by means of mechanical mixer.
4. Safe working practices are to include day to day observation of safety policies and procedures and compliance with emergency procedures.
5. Tools to include shovels, rakes, trowels, forming tools, buckets, concrete mixers, and wheel barrows.
6. Material to include but are not limited cement, sand, stone and water.
7. Drawings may include but not limited to site plans, cross-sectional plans and structural detail for kerbs, channels and fixtures.
8. Performance of all elements in this unit standard must comply with all relevant workplace requirements contractual agreement and manufacturers' specifications.
9. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 11 of 2007 as amended
 - Occupational Health and Safety Regulations No. 18, 1997
 - Road Traffic and Transport Regulations No. 52, 1999 and Government Notice 53 on Road Traffic and Transport Regulations.
 - Road Ordinance 1972 and other relevant legislations.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work.

Performance Criteria

- 1.1 Work instructions, including plans, specifications, quantity, quality requirements and operational details are obtained, confirmed and applied to the allocated task.
- 1.2 Safety requirements are obtained from the site safety plan and workplace policies and procedures, confirmed and applied to the allotted task.
- 1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented.
- 1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for usability and any faults rectified and reported prior to commencement.
- 1.5 Environmental protection requirements are identified from the project environmental management plan confirmed and applied to the allotted task.
- 1.6 Work area is checked for hazards. All hazards are identified and corrective action is taken in line with workplace housekeeping procedures including eliminating and reporting.

Element 2: Prepare to mix concrete

Performance Criteria

- 2.1 Materials are visually checked in line with manufacturer requirements and mixture design. Inadequacies in terms of quality, quantity and moisture content are reported in accordance with company policies.
- 2.2 Other related work activities are considered to maintain productive workflow in compliance with given schedules.
- 2.3 Consequences of not considering related work activities are identified in terms of product deterioration and wastage.

Element 3: Mix concrete.

Performance Criteria

- 3.1 Work is carried out in accordance with workplace safety requirements.
- 3.2 Tools and equipments are used in accordance with their designed purpose and manufacturers' specifications.
- 3.3 Personal protective equipment is used as required in accordance with the relevant safety legislation.
- 3.4 Materials are identified and selected from stockpiles in line with requirements for the given mix design and industry accepted procedure.
- 3.5 Materials are measured and added to the mix in accordance with the mix design and industry accepted procedures.
- 3.6 Consequences of incorrect quantities of materials are identified in terms of cost and quality of product.
- 3.7 Communication is maintained to promote good working relationships and ensures uninterrupted workflow.
- 3.8 Samples for quality control are obtained.
- 3.9 The consistence of concrete is assessed in terms of the workability and placing requirements.
- 3.10 Water is added to the mix according to the mix design and industry accepted procedures.

Element 4: Off-load the concrete.

Performance Criteria

- 4.1. Tools and equipments are used in accordance with their designed purpose and manufacturers' specifications.
- 4.2. Personal protective equipment is used as required in accordance with the relevant safety legislation.
- 4.3. Problems are identified and corrective measures are taken in terms of workflow, quality and set production targets.
- 4.4. Concrete is loaded into receptacles for transporting in accordance with workplace procedures and principles.
- 4.5. Wastage of material is kept within industry accepted levels.
- 4.6. Communication is maintained to promote good working relationships and ensures uninterrupted workflow.

Element 5: Conduct post mixing activities.

Performance Criteria

- 5.1 All concrete equipment is cleaned of excess concrete in accordance with good housekeeping principles.
- 5.2 The consequences of not thoroughly cleaning all concrete equipment are identified in terms of concrete build-up and productivity.
- 5.3 Personal protective equipment is used as required in accordance with the relevant safety legislation.
- 5.4 Unused materials are cleared, piled and grouped in accordance with good housekeeping principles.
- 5.5 Excess concrete is disposed of in accordance with work site requirements and environmental procedures.
- 5.6 All documentation is completed in accordance with work site requirements.

Registration Data

Subfield:	Road Construction and Maintenance
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Body responsible for review:	Namibia Training Authority