

## National Occupational Standards

**Sector:** Building and Construction

**Occupation:** Excavation Plant Operative (without licence to operate mobile plant operative)

**MQF Level:** 3



**National Occupational Standards do not replace any licenses or permissions required to operate certain machinery or to work in certain positions.**

**Units:**

- **EXC31.** Contribute to and carry out health and safety requirements in the workplace
- **EXC32.** Locate and protect services and substructures in the workplace
- **EXC33.** Operate portable powered plant and equipment in the workplace
- **EXC34.** Manually excavate ground and surfaces to form holes and trenches
- **EXC35.** Manually re-instate excavated surfaces, holes and trenches

### **EXC31 - Contribute to and carry out health and safety requirements in the workplace**

This unit lists the knowledge and skills required by a person holding this position to contribute to carrying out safe work activities in compliance with health and safety activities.

Upon completion of this unit the persons carrying out this work will possess the necessary knowledge and skills to follow and carry out health and safety procedures which ensure that their actions do not create health and safety risks to others.

#### **Performance Criteria**

The candidate must have the necessary knowledge and skills to:

1. Carry out safe working practices in accordance with the workplace health and safety regulations
2. Identify potential hazards associated with own work practices and the workplace, and report them in accordance with organisational procedures and take the necessary corrective actions.
3. Follow the correct procedures in the event of hazards, injury *or ill health*
4. Carry out work practices to comply with supplied information to contribute to a healthy, safe and secure working environment

#### **Required Knowledge**

The Level 3 Excavation plant Operative must know and explain:

1. Their roles and responsibilities under the Health and Safety Act as amended by Act XXXII of 2007 or as per most current legislation
2. Health concerns associated with the workplace and safe practices when carrying out work activities
3. The organisational policies and procedures, instructions and information which need to be complied with
4. The importance of co- operating with their employer on matters related to health and safety to safeguard their own wellbeing and of those others affected by their work activities
5. The potential hazards in the workplace such as; electricity and other utility services, hazardous and non-hazardous substances, waste materials, working at height, access equipment, fire risks, other occupational work activities, manual handling, proximity hazards, changing weather conditions, and third party hazards
6. The importance of being aware and alert to the presence of hazards on site and other work areas
7. The effect of any toxic or hazardous materials detected on site and what precautions need to be taken
8. The risks to health within a construction environment- substances hazardous to health, drugs and alcohol, solvents, etc.
9. The importance of correct storage of combustibles and chemicals on site

10. The importance of working around mobile plant and equipment on site- keeping safe distances away from working equipment (exclusion zones)
11. The procedures for dealing with accidents and emergencies associated with the workplace and environment
12. The importance of reporting accidents and near misses
13. Personal responsibility for behaviour of health safety and welfare on site and the consideration of others
14. The arrangements for maintaining security on site and in the workplace e.g. storage of materials, components, tools, plant and equipment
15. The importance of correct storage of combustibles and chemicals on site
16. How to use methods and techniques to identify and recommend opportunities to improve health and safety in the workplace
17. The different arrangements used for checking security and operational arrangements in the workplace for workers, visitors, unauthorised personnel, public.

#### **Required Skills**

The Level 3 Excavation plant Operative must be able to:

18. Comply with their individual duties and legal obligations under the Health and Safety Act XXXVII of 2007 or as per most current legislation
19. Work under supervision according to health and safety regulations and other relevant regulations that apply to the work requirements
20. Comply with safe working practices in accordance with organisational procedures
21. Recognise any hazards and hazardous materials associated with workplace activities and how changing circumstances could increase those hazards
22. Report any hazards and risks and changing circumstances in accordance with organisational procedures
23. Report near misses and accidents
24. Recognise emergency situations and report them in accordance with organisational requirements.
25. Make full use of Personal Protective Equipment (PPE) and RPE (where necessary) to carry out work duties
26. Comply with and carry out organisational procedures for safely working around mobile plant and equipment
27. Carry out work activities to protect work areas from damage
28. Demonstrate good personal behaviour for workplace health safety and welfare
29. Carry out the security arrangements and procedures that should be observed and followed when working on site

**EXC32 - Locate and protect services and substructures in the workplace**

This unit lists the knowledge and skills needed by a person holding this position to carry out activities in identifying, locating and protecting sub- structures and utility services prior to and during excavation operations.

On completion of this unit persons carrying out this work will possess the necessary skills and knowledge to select and use tools and ancillary equipment, protection and electronic detection equipment to mark out and locate services, sub-structures and apparatus. Upon completion of this unit, the candidate will be able to assist in maintaining and protecting services in accordance with work requirements and statutory procedures

**Performance Criteria**

The candidate must have the necessary knowledge and skills to:

1. Interpret given information relating to work area protection
2. Follow health and safety work practices
3. Select the required resources for the methods of work
4. Assist in marking and locating services and sub- structures in the workplace
5. Maintain the safety and security of services and sub-structures in the workplace

**Required Knowledge**

The Level 3 Excavation plant Operative must know and explain:

1. The different types of organisational information – method statements, risk assessments instructions, procedures, specifications
2. The organisational information extracted from method statements, risk assessments, instructions and any work permits, for the control of and the support of excavations
3. The organisational procedures for rectifying and reporting any inaccuracies with given information
4. Own responsibilities under current legislation and organisational requirements whilst working on site: Above and below ground level and working with materials, substances, tools and equipment
5. The purpose of health and safety equipment and the reasons for why and when it needs to be used –Personal Protective Equipment (PPE) Respiratory Protective Equipment (RPE)
6. How to respond to emergencies in accordance with organisational procedures such as -fire, spillages, injuries, other work- related hazards, and third party hazards
7. The different types of services, plants and accessories that may be encountered during excavation activities
8. Methods of identifying, locating and marking underground supply services
9. The different types of hazards associated with services and equipment and the actions that need to be taken

10. The risks associated with maintaining the safety of services and sub- structures
11. The organisational procedures to be followed if any damage occurs to supply services or sub – structures
12. The need to protect exposed services during excavation work
13. Different methods used for marking out for excavation work to ensure correct identification and location for the excavation activities
14. The consequences of incorrect marking out – time, labour, wastage of materials
15. The reasons why it may be necessary to dig trial holes to locate underground services
16. The different types of tools and, equipment required to carry out the work – hand tools, portable power tools, ancillary equipment, marking equipment, electronic detection equipment
17. How to use and interpret readings from electronic detection equipment
18. Procedure to check and maintain tools and equipment for serviceability to carry out protection and excavation activities
19. The importance of providing temporary and permanent support for services and sub structures during excavation work activities
20. The consequences of leaving supply services and sub-structures unsupported
21. The importance of ensuring excavations, service apparatus and sub- structures are maintained and left in a safe and secure state during and on completion of work activities

#### **Required Skills**

The Level 3 Excavation plant Operative must be able to:

1. Interpret and obtain appropriate information from method statements, risk assessments, drawings, procedures, specifications
2. Conform with information acquired from method statements, risk assessments, procedures, specifications
3. Report any inaccuracies with given information to the appropriate person(s)
4. Use health and safety control equipment, tools and equipment and access equipment in accordance with organisational procedures to carry out protection and excavation activities
5. Identify, select and use PPE, RPE equipment to carry out protection and excavation activities and report any damaged equipment
6. Follow organisational procedures in case of emergencies, accidents, spillages and equipment failure
7. Carry out hazard identification and take appropriate action within the limits of one's own responsibility
8. Check, use and maintain hand tools, portable power tools, pedestrian plant, ancillary equipment, electronic detection equipment, and marking equipment
9. Identify position of and location of services and supply services from given information – plans, maps, surface evidence
10. Use electronic detection equipment for the location of services
11. Interpret and record the results of electronic detection
12. Mark out areas and positions for location of excavation work to be carried out in accordance with organisational procedures
13. Report any deviations or problems with the position and location of services and structures in

- accordance with organisational procedures and instructions
14. Dig trial holes for the location of services for excavation work
  15. Protect work areas and surroundings and install/erect barriers and equipment to protect exposed services and sub – structures
  16. Assist with the positioning, installation and removal of excavation support and shoring equipment
  17. Maintain the condition and security of services, supply apparatus and sub-structures to avoid any tampering
  18. Communicate with colleagues and line management to carry out safe and productive working practices

### **EXC33 - Operate portable powered plant and equipment in the workplace**

This unit lists the knowledge and skills required by a person holding this position to carry out activities in operating powered plant and equipment in the workplace.

Upon completion of this unit the persons carrying out this work will possess the necessary knowledge and skills to prepare, position and set up the portable powered plant, tools and equipment for work, carry out pre and post use functional checks and operate, use and control the tools and equipment in accordance with work requirements and organisational procedures.

#### **Performance Criteria**

The candidate must have the necessary knowledge and skills to:

1. Interpret given information relating to the requirements for setting up and using powered plant and equipment and portable power tools
2. Carry out safe working practices
3. Select portable powered plant and equipment, power source, fuels lubricants and consumables
4. Set up and operate portable powered plant, tools and equipment to carry out various work activities

#### **Required Knowledge**

The Level 3 Excavation Plant Operative must know and explain:

1. The types of information applicable to the operation and use of powered plant and equipment, portable power tools, operating instruction manuals, safety literature, risk assessments and organisational instructions
2. The health and safety requirements associated with using powered plant and equipment and portable power tools - e.g. different power sources and attachments
3. The protective clothing and equipment to be worn (PPE and RPE) when using powered plant and portable power tools
4. The safety checks that need to be carried out on portable power tools prior to connecting to supply source
5. The actions to be taken if powered plant equipment and power tools are found to be faulty or defective
6. The different types of powered plant, portable plant and attachments and how they are prepared and set up for use
7. The requirements for supply lines, routing, position, lengths of cables, hoses
8. Methods and requirements for fitting drill bits, tooling, and attachments

9. Methods and safety requirements for the fitting of abrasive wheels
10. Operating procedures for starting and stopping different power sources - engines; pneumatic, hydraulic, electrical and cordless powered tools and equipment
11. The necessary precautions to be taken to prevent injury when using hand held portable power tools
12. Basic maintenance requirements to items of powered plant and equipment
13. Different types of fuels, lubricants and coolants used on powered plant and equipment
14. The purpose and reason for identifying, selecting and using the correct item of powered plant and equipment/portable power tool to carry out the work requirements

#### **Required Skills**

The Level 3 Excavation Plant Operative must be able to:

1. Interpret and obtain information for the safe use and operation of powered plant and equipment
2. Conform with information acquired from manufacturers' machine operator manuals, risk assessments, organisational instructions and procedures and risk assessments related to the work being undertaken
3. Use the correct PPE and RPE when operating plant, equipment and portable power tools
4. Carry out functional and safety checks of plant equipment and portable power tools and equipment prior to use
5. Report faults and defects with plant and equipment in accordance with organisational procedures
6. Select, prepare and set up powered plant and equipment and their associated cables, hoses, tooling for work activities cables/hoses, tooling for operation;
7. Select, prepare and set up portable power tools and their associated tooling and attachments in accordance with manufacturer's instructions and recommendations to carry out work activities
8. Remove and fit abrasive wheels and discs, securing accessories and tool attachments
9. Carry out pre and post start checks on powered plant equipment and portable power tools
10. Operate powered plant and equipment and portable power tools safely to carry out work activities
11. Replenish fuels, lubricants and fluids in accordance with operating and maintenance requirements
12. Carry out basic maintenance to plant equipment, portable power tools and attachments



13. Comply with manufacturers' and organisational instructions and procedures for maintaining portable, powered plant, tools and equipment

**EXC34 - Manually excavate ground and surfaces to form holes and trenches**

This unit lists the knowledge and skills required by a person holding this position to carry out activities in excavating ground and materials by manually forming holes and trenches.

Upon completion of this unit the persons carrying out this work will possess the necessary skills and knowledge to select tools and equipment to excavate holes and trenches (manual digging) safely including digging around utility services in accordance with work requirements and organisational procedures.

**Performance Criteria**

The candidate must have the necessary knowledge and skills to:

1. Interpret given information relating to the excavation work
2. Adopt safe working practices
3. Select resources, tools and equipment for the manual excavation of holes and trenches
4. Safely store and handle materials and equipment
5. Form and finish excavations by manual methods
6. Conform to organisational instructions to carry out work efficiently and to specification

**Required Knowledge**

The Level 3 Excavation plant Operative must know and explain:

1. The different types of organisational information –, method statements, risk assessments, oral and written instructions, procedures, specifications, good industry practice
2. The organisation's rectifying and reporting procedures for inaccurate information
3. The organisational information extracted from: method statements, risk assessments, instructions, procedures, permits, for the control and the support of excavations
4. Own responsibilities under current legislation and organisational requirements whilst working: on site, above and below ground level, with materials, substances, tools and equipment.
5. The purpose and reason for health and safety equipment and the reasons why and when it needs to be used – personal protective equipment (PPE) and respiratory protective equipment (RPE)
6. The potential hazards and risks associated with carrying out manual excavation work, - working at ground and below ground level, temporary works areas, confined and restricted spaces and the appropriate action to be taken
7. Organizational procedures for responding to emergencies - fire, spillages, injuries and other work- related hazards and emergencies
8. The different types of tools and, equipment required to carry out the excavation work – hand tools, portable power tools and ancillary equipment
9. Procedures for checking and maintaining tools and equipment to carry out excavation

activities

10. The reasons for and how to protect the work area from damage e.g. – erecting barriers, sheeting, netting and warning notices for workplace occupational activities, proximity hazards and varying weather conditions
11. How resources should be used efficiently and how problems associated with them are reported
12. How to calculate basic measurement – quantity, length, depth, area, marking out, and wastage associated with the methods to excavate manually
13. How to identify and locate utility services and protect them
14. How to excavate ground structures manually and avoid damage to service apparatus and sub-structures
15. The different types of hand tools, portable power tools and equipment for the excavation work to be carried out
16. Methods for positioning securing and removing excavation supports
17. Reasons for disposing of and storing excavated materials for re-use
18. The needs of other occupations and the importance of communications with colleagues and other occupations when carrying out manual excavating activities
19. How the methods of work are applied to enable the work to be carried out efficiently and productively to specification
20. Procedures for dealing with problems which could affect the work programme

#### Required Skills

The Level 3 Excavation plant Operative must be able to:

1. Interpret and obtain appropriate information from method statements, risk assessments, drawings, organisational procedures, instructions, specification, good industry practice
2. Conform with information from method statements, risk assessments, organisational procedures, specifications, instructions, permits, good industry practice
3. Report any inaccuracies with information to the appropriate person
4. Follow organisational requirements for current legislation and official guidance
5. Use health and safety control equipment, tools and equipment and access equipment in accordance with organisational procedures
6. Identify, and use PPE, RPE equipment to carry out manual excavation activities
7. Protect the work area and surroundings and install/erect physical barriers to assist and carry out safe excavation activities
8. Assist with the installation and removal of excavation safety and support equipment
9. Check, use and maintain hand tools, portable power tools, pedestrian plant and ancillary equipment
10. Prepare, measure and mark out areas of ground for excavation activities
11. Work safely in confined and restricted spaces
12. Abide by organisational emergency response procedures -fire, spillages, injuries and other work- related hazards and emergencies
13. Excavate holes and trenches and finish to specification using hand tools portable power

tools, pedestrian plant and ancillary equipment

14. Monitor work activities and carry out visual inspections of holes, trenches and excavations
15. Work with, and in the vicinity of, plant machinery, equipment and vehicles
16. Handle and remove materials and components safely and store and dispose of them for waste and re-use
17. Maintain a clean and tidy work area
18. Report any problems or hazards associated with the excavation activities that may affect the work programme in accordance with organisational instructions.
19. Communicate with colleagues, supervisor and line manager to carry out efficient and productive working practices
20. Secure the excavation work area during and on completion of work activities

**EXC35 - Manually re-instate excavated surfaces, holes and trenches**

This unit lists the knowledge and skills needed by a person holding this position to carry out activities in excavating ground and materials by re- instating holes and trenches.

Upon completion of this unit the persons carrying out this work will possess the necessary skills and knowledge to select tools and equipment to re- instate holes and trenches manually safely including digging, placing and backfilling materials and finishing surfaces in accordance with work requirements and organisational procedures

**Performance Criteria**

The candidate must have the necessary knowledge and skills to:

1. Interpret given information relating to the re – instatement of excavations
2. Understand, follow and adopt safe working practices
3. Select resources for the manual re- instatement of holes and trenches
4. Safely store and handle materials and equipment
5. Re-instate and finish excavations by manual methods
6. Conform to organisational instructions to carry out work efficiently and to specification

**Required Knowledge**

The Level 3 Excavation plant Operative must know and explain:

1. The different types of organisational information –, method statements, risk assessments, oral and written instructions, procedures, specifications, good industry practice
2. The organisation’s rectifying and reporting procedures of inappropriate/inaccurate information
3. The organisational information extracted from: method statements, risk assessments, instructions, procedures, permits, for the control of excavations, re- instatement and temporary support of excavations
4. Their own responsibilities under current legislation and organisational requirements whilst working: on site, above and below ground level, with materials, substances, tools and equipment
5. Safe storing of materials and equipment by manual handling and use of lifting and handling equipment. and access equipment
6. The purpose of health and safety equipment and the reasons for why and when it needs to be used – Personal protective equipment (PPE) respiratory protective equipment (RPE )
7. The potential hazards and risks associated with carrying out re- instatement work manually - working at ground level and below ground level, temporary works areas, confined and restricted spaces
8. Organizational procedures for dealing with emergencies -fire, spillages, injuries and other work- related hazards and emergencies

9. The different types of tools and, equipment required to carry out the re- instatement work – hand tools, portable power tools and ancillary equipment
10. Procedures to check and maintain tools and equipment to carry out re- instatement activities
11. The reasons for and how to protect the work area from damage – erecting barriers, sheeting, netting and warning notices for workplace occupational activities, proximity hazards and varying weather conditions
12. The different types of materials required for carrying out re- instatement work – new and re-usable materials
13. The types of materials used in excavations and re- instatement and possible defects associated with them – backfill, sub- base, road base and paved surfaces
14. The actions to be taken if defects are found in material
15. The workplace procedures to use the resources efficiently and to report problems associated with them
16. How to calculate basic measurement – quantity, length, depth, area, marking out, and wastage associated with the methods to re- instate excavations manually
17. Methods for positioning securing and removing excavation supports
18. Reasons for storing and disposing of surplus materials
19. The needs of other occupations and the importance of communications with colleagues and other occupations when carrying out re - instatement activities
20. The principles and methods that need to be complied with for the re- instatement work to be carried out to specification
21. The organisational procedures for dealing with problems which could affect the work programme

#### **Required Skills**

The Level 3 Excavation plant Operative must be able to:

1. Interpret and obtain appropriate information from method statements, risk assessments, drawings, organisational procedures, instructions, specifications good industry practice
2. Conform with information from method statements, risk assessments, organisational procedures, specifications, instructions
3. Report any inaccuracies with information to the appropriate person
4. Follow organisational requirements for current legislation and official guidance, codes of practice
5. Use health and safety control equipment, tools, equipment and access equipment in accordance with organisational procedures
6. Identify, select and use PPE, RPE equipment to carry out re- instatement activities
7. Protect the work area and surroundings and install/erect physical barriers to assist and carry out safe excavation and re- instatement activities
8. Assist with and/or position, install and remove excavation safety support equipment
9. Check, use and maintain hand tools, portable power tools, pedestrian plant and ancillary equipment

10. Prepare, measure and mark out areas of ground for re-instatement activities
11. Work safely in confined and restricted spaces
12. Carry out preparation procedures for re-instatement of excavations in accordance with organisational and statutory procedures
13. Use hand tools portable power tools, pedestrian plant and ancillary equipment to carry out re- instatement activities
14. Carry out the laying and compaction procedures of the materials for re- instatement to meet the specification and statutory requirements
15. Check work activities and carry out visual inspections of holes, trenches and excavations during the re-instatement process
16. Work with, and in the vicinity of plant machinery and equipment and vehicles
17. Handle and remove materials and components safely and store and dispose of them for waste and re-use
18. Maintain a clean and tidy work area
19. Report any problems or hazards associated with the re- instatement activities that may affect the work programme in accordance with organisational instructions
20. Communicate with colleagues/supervisor, line manager to carry out efficient and productive working practices
21. Maintain the security of the excavation area during and on completion of re- instatement activities.
22. Use resources efficiently and report problems associated with them
23. Calculate basic measurement – quantity, length, depth, area, marking out, and wastage associated with the methods to re- instate excavations manually
24. Identify locate and protect utility services during re – instatement activities
25. Select and use the correct hand tools, portable power tools and equipment for the re- instatement work to be carried out