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This document contains the site plans for the 2357 Level 3 NVQ Diploma in Electrotechnical Technology. Where possible, plans should be printed at high resolution, and A3 size. Colour printing is not necessary.

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Notes
These drawings show a forty year old domestic property which is to undergo major refurbishment which includes a total rewire of the premises (new wiring, accessories and appliances) and the installation of a new workshop in the garden. The installation forms part of a 230 V single-phase TN-C-S supply with a declared \( Z_e \) of 0.19 \( \Omega \) and PFC of 1.2 kA.
Notes and Specification

Building utilisation
The attached drawings show the proposed refurbishment of the shop/offices and shower block at the Touring Caravan Park.

Building construction
The construction of the two single-storey building are as follows:

Walls
External walls consist of fair-faced brickwork, a cavity and an inner leaf of concrete blockwork. Internal walls consist of concrete block-work with structural supports where required. All walls have a plaster finish throughout.

Floors
The floor is to be a standard raft of reinforced concrete with a 100mm screed finish.

Floor finishes
Floor finishes are as follows:
- Carpet: Shop floor and office areas
- Non-slip vinyl covering: Throughout public shower and toilet areas
- Compressed treated screed: Service intake and store rooms.

Ceilings
Ceilings are as follows:
- All ceilings in the shop/office block are to be suspended 600 mm x 600 mm grid with removable tiles 2400 mm above fl in all areas, with the exception of the service intake.
- All ceilings in the shower/toilet block are to be plasterboard with moisture proof paint with access panels where required in all areas, 2400 mm above fl, with the exception of the service intake room.

Roof
The roof will be tile hung on wood truss.

Electrical supply
The incoming supply is 400 / 230 V 50 Hz three-phase four-wire, which together with the installation forms part of a TN-C-S system. The declared value of Z_s is 0.08 Ω and the prospective fault current is 5 kA. Consumer’s control unit (CCU) together with metering equipment are housed in the service intake room located in the shop/office block. The supply to the shower/toilet block will be wired using XLPE multi-core steel-wire-armoured cable.

Electrical installation
This is to be carried out in accordance with BS 7671 and any statutory/non statutory regulations that may apply. All materials and practices employed are to comply with the relevant standards. All wiring systems are to be surface mounted PVC conduit on walls with a metal trunking in the ceiling void. Accessories will be surface mounted.

All wiring to the pitch supplies located around the park and to the park lighting will be using XLPE multi-core steel-wire-armoured cable.

Telephones, security/fire alarm and information technology systems
To be installed by specialist installers.

Heating and ventilation
To be installed by specialist contractors.

Temporary site supplies
Installation and maintenance is part of the general electrical contract.
SHOWER BLOCK SOUTH ELEVATION
SCALE 1:50

SHOP NORTH ELEVATION
SCALE 1:50

Key

600 x 600 mm recess modular luminaire
1800 mm IP 65 surface mounted fluorescent luminaire
2-gang switched 13 A socket-outlet
Shaver outlet unit
Distribution Board
6 kW Electric Water Heater (immersion type)
Building Construction
The construction of this building is as follows:

Walls
External walls consist of standard brick, cavity and inner leaf blockwork. Internal walls are blockwork to roof height, with exception of the toilet/restroom area where blockwork extends to 2.5 m above FFL.

Floors
The floor is to a standard raft of reinforced concrete with a 100 mm compressed screed finish. Floor finishes are to be epoxy treated throughout.

Ceilings
The underside of the steel clad roof is to be used throughout with the exception of the toilet/restroom area which will have a plasterboard ceiling, 2.4 m above FFL, 200 mm void and chipboard fixed on wood truss which will form a mezzanine storage facility.

Roof
The roof will be steel clad sheeting supported by a steel frame. Steel uprights will be enclosed by fire proof boarding

Electrical Supply
The 11 kV/400/230 V Transformer supply to the Main Distribution Panel will form a TN-C-S supply having a declared Ze of 0.008 Ω and Prospective Fault Current declared as 50 kA. Standby (essential) systems will be supplied by the standby generator should the supply system fail.

Electrical Installation
All wiring systems are to be a mixture of PVC and metallic containment systems. Main metallic trunking routes are shown. Surface conduit will link trunking to final points. All machines will require correct starting/control equipment. Accessories must be suitable for the given environment.

Telephone/Security/Security Systems
Containment systems to be installed as part of the general electrical installation contract, wiring and connections to be carried out by specialist contractors.

Fire Alarm
To be installed as part of the general electrical installation contract

HVAC
To be installed by specialist contractors

Temporary Site Supplies
Installation and maintenance is part of the general electrical installation contract.
This building is to be used as a store following completion of Block L.
EAST ELEVATION SCALE 1:100

STEEL CLAD ROOF SUPPORTED ON STEEL FRAME FORMING SHALLOW NORTH/SOUTH ELEVATIONS

STEEL FRAME CONSTRUCTION WITH BRICK INFILL, CAVITY AND INNER CONCRETE BLOCK

100 mm COMPRESSED SCREED

STEEL FRAME CONSTRUCTION WITH BRICK INFILL, CAVITY AND INNER CONCRETE BLOCK

1000 mm REINFORCED CONCRETE SLAB

100 mm REINFORCED CONCRETE SLAB

TYPICAL CROSS SECTION OF SERVICE TRENCH
SCALE 1:10

3 mm STEEL CLAD AT ACCESS POINTS

REINFORCED CONCRETE WALL

CONCRETE BASE

MECHANICAL SERVICES

ELECTRICAL SERVICES INCLUDING:
- DISTRIBUTION RING
- STREET AND SECURITY LIGHTING
- DATA/TELECOMS AND SECURITY SYSTEMS TRUNKING

TYPICAL CROSS SECTION OF SERVICE TRENCH
SCALE 1:10

2357
Assignment

Army Barracks
New Sub-Station

Elevations

Drawing Number
2357-C-03
BLOCK L BUILDING PLAN
SCALE 1:100

- DB 1 STREET LIGHTING AND POWER 100A SP-N
- DB 2 BLOCK L LIGHTING AND POWER 100A TP-N
- DB 3 SECURITY SYSTEMS 100A SP-N
- DB 4 SECURITY LIGHTING 100A TP-N
- SUB-STATION
- ELECTRICAL SWITCH-ROOM AND STORES
- WORKSHOP
- MAINTENANCE STAFF REST ROOM
- MAIN DISTRIBUTION PANEL
- SITE SERVICE TRENCH WITH STEEL COVERS WITHIN BLOCK L
- 2-Gang 13 A Socket-Outlets
- Switched Fused Spur Connection Unit
- Un-switched Fused Spur Connection Unit
- BS EN 60309-2 Socket-Outlet
- Multi-gang light switch
- Two-way light switch
- Intermediate Light Switch
- Transformer (Isolating)
- 1800 mm 2x70 W IP 65 Fluorescent Luminaire
- Wall Mounted Luminaire
- Automatic Fire Detector
- Distribution Board
- Building Management System Control Point
- Security Camera

KEY

City & Guilds
2357 Assignment
Army Barracks New Sub-Station
Floor Plan Block L Lighting
Drawing Number 2357-C-04
Notes
These drawings show a forty year old domestic property. The installation forms part of a 230 V single-phase TN-C-S supply with a declared impedance $Z_e$ of 0.19 $\Omega$ and PFC of 1.2 kA. The supply company main fuse located in the service 'cut out' is a 100 A BS 1361. The wiring appears to be twenty years old.
KEY
1. 2-gang socket-outlet
2. 1800mm IP 65 twin luminaire
3. Distribution Board
4. Flood light c/w PIR
5. Wall mounted Luminaire
6. Multi-gang single-pole switch

Proposed Route for SWA Supplying Workshop

Wooden five-bar gate 2.4 m width

West Elevation
Scale 1:100

Workshop Plan
Scale 1:100

Site Plan. Scale 1:200

2357 Assignment
House ‘As Fitted’
Site Plan Elevations and Workshop Plan
Drawing Number 2357-AM-03
Notes

Building utilisation
The attached drawings show the as fitted drawings of the shop/offices and shower block at the Touring Caravan Park.

Building construction
The construction of the two single-storey building are as follows:

Walls
External walls consist of fair-faced brickwork, a cavity and an inner leaf of concrete blockwork. Internal walls consist of concrete block-work with structural supports where required. All walls have a plaster finish throughout.

Floors
The floor is a standard raft of reinforced concrete with a 100mm screed finish.

Floor finishes
Floor finishes are as follows:
- Carpet - Shop floor and office areas
- Non-slip vinyl covering - Throughout public shower and toilet areas
- Compressed treated screed - Service intake and store rooms.

Ceilings
Ceilings are as follows:
- All ceilings in the shop/office block are suspended 600 mm x 600 mm grid with removable tiles 2400 mm above fl in all areas, with the exception of the service intake.
- All ceilings in the shower/toilet block are plasterboard with moisture proof paint with access panels where required in all areas, 2400 mm above fl, with the exception of the service intake room.

Roof
The roof is tile hung on wood truss.

Electrical supply
The incoming supply is 400 / 230 V 50 Hz three-phase four-wire, which together with the installation forms part of a TN-C-S system. The declared value of Z_e is 0.08 \( \Omega \) and the prospective fault current is 5 kA. Consumer’s control unit (CCU) together with metering equipment are housed in the service intake room located in the shop/office block. The supply to the shower/toilet block is wired using XLPE multi-core steel-wire-armoured cable.

Electrical installation
All wiring systems are surface mounted PVC conduit on walls with a metal trunking in the ceiling void. Accessories will be surface mounted.

All wiring to the pitch supplies located around the park and to the park lighting are wired using XLPE multi-core steel-wire-armoured cable.
Shower Block

Playground

150 W Son-T Luminaires mounted on 5 m Standards

Scale 1:500

City & Guilds

2357 Assignment

Touring Caravan Park ‘As Fitted’

Site Plan

Drawing Number 2357-BM-02
Key

- 600 x 600 mm recess modular luminaire
- 1800 mm IP 65 surface mounted fluorescent luminaire
- 2-gang switched 13 A socket-outlet
- Shaver outlet unit
- Distribution Board
- 6 kW Electric Water Heater (immersion type)
- 13 A Fused Spur Connection Unit for Hand Driers
- 13 A Fused Spur Connection Unit for Hair Driers
- 13 A Fused Spur Connection Unit
- Vending Machines (720 W)

SHOWER BLOCK SOUTH ELEVATION
SCALE 1:50

SHOP NORTH ELEVATION
SCALE 1:50

City & Guilds
2357 Assignment
Touring Caravan Park
‘As Fitted’
Elevations
Drawing Number
2357-BM-04
Notes/Specification

Building Construction
The construction of this building is as follows:

Walls
External walls consist of standard brick, cavity and inner leaf blockwork. Internal walls are blockwork to roof height, with exception of the toilet/restroom area where blockwork extends to 2.5 m above ffl.

Floors
The floor is to a standard raft of reinforced concrete with a 100 mm compressed screed finish. Floor finishes are epoxy treated throughout.

Ceilings
The underside of the steel clad roof is used throughout with the exception of the toilet/restroom area which is a plasterboard ceiling, 2.4 m above ffl, 200 mm void and chipboard fixed on wood truss which will form a mezzanine storage facility.

Roof
The roof is steel clad sheeting supported by a steel frame. Steel uprights will be enclosed by fire proof boarding.

Electrical Supply
The 11 kV/400/230 V Transformer supply to the Main Distribution Panel forms a TN-C-S supply having a declared Ze of 0.008 Ω and Prospective Fault Current declared as 50 kA.

Generator Set
Standby (essential) systems are supplied by the standby generator should the supply system fail. The generator set is a 700 kVA 400 V three-phase set with six cylinder 18.1 litre in line diesel drive at a constant 1500 rpm.

Electrical Installation
All wiring systems are a mixture of PVC and metallic containment systems. Main metallic trunking routes are shown. Surface conduit links trunking to final points. All machines have correct starting/control equipment. Accessories are suitable for the given environment.
STEEL CLAD ROOF SUPPORTED ON STEEL FRAME FORMING SHALLOW / NORTH/SOUTH ELEVATIONS

STEEL CLAD CONSTRUCTION WITH BRICK INFILL CAVITY AND INNER CONCRETE BLOCK

1000 mm REINFORCED CONCRETE SLAB

CONCRETE BASE

MECHANICAL SERVICES

ELECTRICAL SERVICES INCLUDING:
- DISTRIBUTION RING
- STREET AND SECURITY LIGHTING
- DATA/TELECOMS AND SECURITY SYSTEMS TRUNKING

5 mm STEEL CLAD AT ACCESS POINTS

100 mm COMPRESSED (SCREED)

TYPICAL CROSS SECTION OF SERVICE TRENCH
SCALE 1:10