

CARAVAN PARK INSTALLATION SITE PLAN

Q19. Complete the following summary of planning detail. Show the calculations, assumptions and any other detail in a logical sequence on a separate sheet of paper so that it can be checked by others. Remember, when you need to perform this task on the job it needs to be thoroughly checked to see that it complies with the relevant requirements.

Consumer's Mains

Maximum demand: 124A

Minimum permissible size (copper): 95mm²

Type of cable: V75, 4C+E, Circular, Orange Sheath, TPS.

Calculations:

413V at Main Switchboard $V_D = 415 - 413 = 2V$

C.C.C. T13, C25 Buried in enclosure, 50mm², C23, Buried direct, 35mm²

$V_C = 1000V_D / L \times I$, $V_C = 1000 \times 2V / 30m \times 124A = 0.5376$

T42, C6 – 95mm²

Site Distribution Board Submains:

Maximum demand: 72A

Minimum permissible size (copper): 35mm²

Type of cable: V75, 4C+E, Circular, Orange Sheath, TPS

Installation conditions: Buried in enclosure, or **Buried direct**

Calculated maximum voltage drop: 1%, - 4.13V

Calculations:

Voltage at Site Distribution Board Submains $V = 413 - 4.13 = 408.87V$

C.C.C. T13, C25 Buried in enclosure, 16mm² (25mm²), C23, Buried direct, 16mm²

$V_C = 1000V_D / L \times I$, $V_C = 1000 \times 4.13V / 39m \times 72A = 1.470$

T42, C6 – 35mm²

Amenities Distribution Board Submains:Maximum demand: 47AMinimum permissible size (copper): 16mm²Type of cable: V75, 4C+E, Circular, Orange Sheath, TPSInstallation conditions: Buried in enclosure, or **Buried direct**Calculated maximum voltage drop: 1% - 4.08V**Calculations:****Voltage at Site Distribution Board Submains $V = 413 - 4.13 = 408.87V$** **C.C.C. T13, C25 Buried in enclosure, 10mm², C23, Buried direct, 10mm²**

$V_c = 1000V_D / L \times I, V_c = 1000 \times 4.13V / 35m \times 47A = 2.511$

T42, C6 – 16mm²**Site Distribution Pillar (Number 6):**Maximum demand: 40A – 3001 Clause A2.2(b)(i)Minimum permissible size (copper): 25mm²Type of cable: V75, 2C+E, Circular, Orange Sheath, TPSInstallation conditions: Single Circuit Buried in Separate enclosures, enclosures separatedCalculated maximum voltage drop: 3% of 236.06V =**Calculations:****Voltage at Site Distribution Pillar (Number 6) = $408.87/1.73 = 236.06$ ie 3% of 236.06 = 7.08V****Deration Tables T26 (2) C3 = 0.82, T22 C4 = 0.57****New C.C.C. = $40 / 0.82 = 48.78A$, New C.C.C = $40 / 0.57 = 70.17A$** **C.C.C. T10, C25, Buried in enclosure, 10mm², C23, Buried direct, 10mm²**

$VC = 1000VD / L \times I, VC = 1000 \times 7.08V / 64m \times 40A = 2.765 \times 0.866 (1\emptyset - 3\emptyset)$

New VC = 2.39**T42, C6 – 25mm²**

Taking into account Voltage Drop

$$230V \times 5\% = 11.5V,$$

$$230V - 11.5V = 218.5V$$

$$\text{Voltage at Service Pillar 6} = 408.87V / \sqrt{3}$$

$$= \underline{236.71V - 7.08V = 228.97V}$$

Installation is compliant