**Question: A pavement base layer is to be constructed in 30 days. Find the necessary truck numbers.**

|  |  |
| --- | --- |
| shift (hours/day) | 8+8 |
| Base layer density (t/m3) | 2 |
| Ѳtemporary (%) | 20 |
| Ѳpermenant (%) | 9.8 |
| Loader efficient (m3/saat) | 130 |
| Truck loading volume capacity (m3) | 6 |
| Truck engine power | 250 |
| Truck empty weight (kgf) | 4250 |
| Load and unload time (minutes) | 2.75 |
| Wr (kgf/kgf) | 0.15 |
| Work site efficiency (%) | 85 |
| Project time duration (day) | 30 |
| Max. trafik speed (km/hour) | 60 |

Base Layer

15.250 mt

Lenght =14000 mt

8250 mt

Base Layer

12 mt

80 cm

Stone quarry

V0

Slope (%)= 0

**Answer:**

|  |  |
| --- | --- |
| **Soil** | |
| Excavated volume necessary (m3) |  |
| Excavated volume necessary per day (m3/day) |  |
| **Loader** | |
| Loader efficiency (m3/day) | 130 m3/day x (8+8) hours = 2080 |
| Loader number needed to complet the work in 30 days |  |
| Vdeparture (km/hours) |  |
| Vreturn (km/hours) |  |
| **Truck** | |
| Load (tons) |  |
| t departure (minutes) |  |
| t return (minutes) |  |
| One period time (minutes) | 32.20+15.25+2.75 (loading and unloading) = 50.20 |
| D truck efficiency (m3/day) |  |
| Number of truck = |  |
| 2x2080 = 4160 m3 | |