Road Capacity Calculations
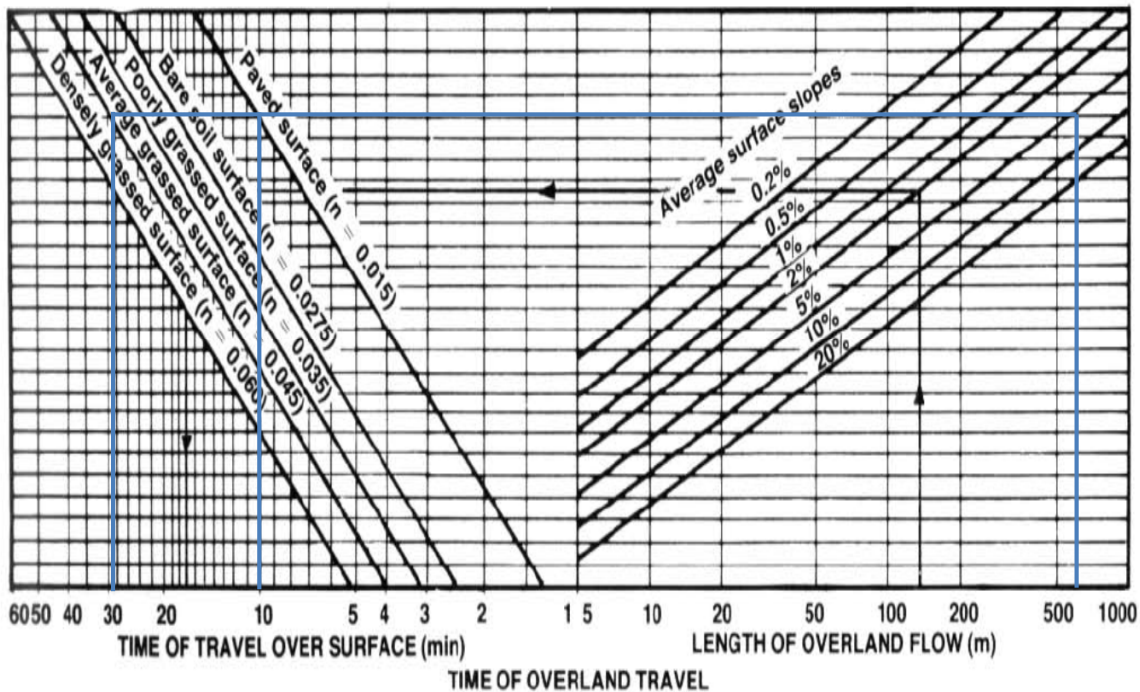
Project: **Boarding House Development**

Our Job No: **E210504**
Location: **54 Adderton Road, Telopea**

Step 1

Catchment   flowpath length = **690 m**

               Slope = **5.5%**

T_c (from chart, for paved surface n=0.015) =   10.0 mins

Adopt   **10 mins**

TIME OF OVERLAND TRAVEL

Step 2: IFD   Utilising the BOM IFD Data System, an IFD Chart was created for **Telopea**

Step 3: Rainfall Intensity's

100 yr ARI (5 mins duration)	**224.00**	mm/hr
20 yr ARI (5 mins duration)	**173.00**	mm/hr
5 yr ARI (5 mins duration)	**131.00**	mm/hr

Step 4: Calculate $C_{10(effective)}$

Total site area	**31000**	m²
road area	7080	m²
roof+garage+driveway	16744	m²
Pervious	7176	m²
Impervious	23824 m²	**77%**
Pervious	7176 m²	**23%**
$C_{10 (effective)}$	**0.75**	
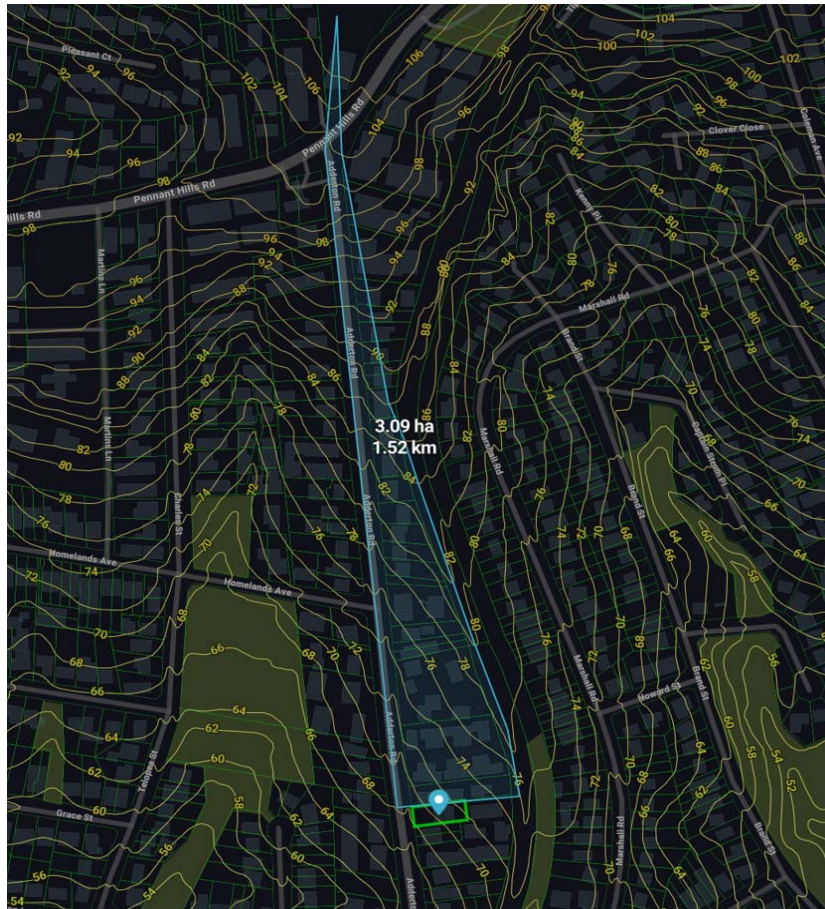
Step 5: Peak Flows

$C_{100} = $ **0.90**	$Q_{100} = $ **1.737 m³/s**	*using FF $_{100}$ = 1.2*
$C_{20} = $ **0.79**	$Q_{20} = $ **1.174 m³/s**	*using FF $_{20}$ = 1.05*
$C_5 = $ **0.71**	$Q_5 = $ **0.804 m³/s**	*using FF $_5$ = 0.95*
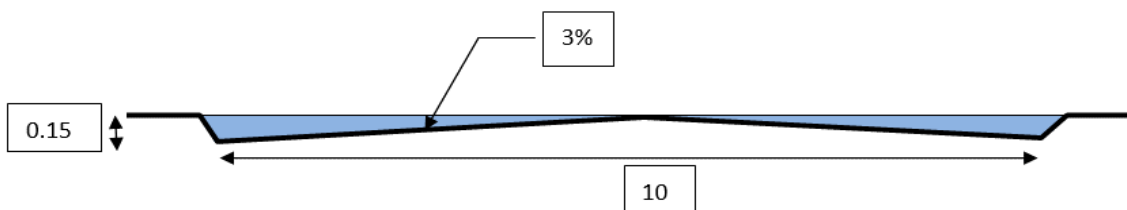
Full Roadway Capacity - Mannings equation

0.750 A = cross section area (m²)	Flow widths:	10 m
0.073 R = Area/Wetted Perimeter	Flow depth:	0.15 m
0.05 S = channel slope (m/m)	Side slope:	0.03 m/m
0.015 n = roughness factor (Manning's n)	Wetted Perimeter:	**10.3** m

Roadway Capacity - Q_{road} =   **1.9496** m³/s

greater than ≥

Catchment Peak Flows - Q_{100}   **1.737** m³/s

Q_{20}   **1.174** m³/s

Q_5   **0.804** m³/s

Adderton Road has ample capacity to contain flows upto and including the 100yr ARI.