

Qbar Calculation

02/11/2021 15:44

54 Rathlyon Grove

Shed Area: 38 m²
0.0038 ha
3.8E-05 km²

SAAR 912 mm Station: Dublin Airport
SOIL TYPE 2 0.3 per Greater Dublin Strategic Drainage Study

Mean Annual Peak Flow (Permissible Outflow Rate)

$$QBAR = 0.583^* (SAAR)^{1.17^*} (SOIL)^{2.17^*} (AREA/50)$$

(per Greater Dublin Strategic Drainage Study))

QBAR = 0.00009 m³/s

QBAR = 0.09 l/s

TABLE 1

Attenuation Areas (Developed site):

| | Area m ² | Permblty Co-eff | Net non Permeable Area m ² |
|--------------|------------------------|--------------------|---|
| | | 1 | 0.0 |
| | | 0.7 | 0.0 |
| | | 0.7 | 0.0 |
| Building | 38 | 1.0 | 38.0 |
| Permeable | | | |
| Paved Areas | | 0.3 | 0.0 |
| Impermeable | | 1.0 | 0.0 |
| Grass Areas | | 0 | 0.0 |
| TOTAL | 38 | - | 38.0 |

0

TABLE 2: User to input site specific information

| Dublin. Ave Annual Rain Fall = 760 mm x 20% climate change 912mm | | | | | | | | | | | |
|--|-------|--------|------------------------|------|------|------|------|------|------|------|-------|
| Maximum Rainfall (mm) over indicated duration, expected in the indicated return period | | | | | | | | | | | |
| Duration | | | Return Period (Years) | | | | | | | | |
| | | | Ave:20&50 Assume 30 | | | | | | | | |
| Seconds | | | 0.5 | 1 | 2 | 5 | 10 | 20 | 50 | 100 | |
| 1 | min | 60 | 0.0 | 0.0 | 0.0 | 1.7 | 2.0 | 2.4 | 2.8 | 3.1 | 3.5 |
| 2 | min | 120 | 0.0 | 0.0 | 0.0 | 3.0 | 3.5 | 4.2 | 4.8 | 5.3 | 6.1 |
| 5 | min | 300 | 0.0 | 0.0 | 0.0 | 5.3 | 6.3 | 7.6 | 8.7 | 9.7 | 11.1 |
| 10 | min | 600 | 0.0 | 0.0 | 0.0 | 7.6 | 9.0 | 11.0 | 12.6 | 14.2 | 16.4 |
| 15 | min | 900 | 4.5 | 5.7 | 6.5 | 9.2 | 11.4 | 14.0 | 16.2 | 18.3 | 21.0 |
| 30 | min | 1800 | 6.1 | 7.7 | 8.6 | 12.2 | 15.1 | 18.4 | 21.2 | 24.0 | 28.0 |
| 60 | min | 3600 | 8.0 | 10.2 | 11.3 | 15.7 | 19.3 | 23.0 | 26.5 | 30.0 | 35.0 |
| 2 | hours | 7200 | 10.8 | 13.4 | 15.0 | 20.1 | 24.0 | 29.0 | 32.5 | 36.0 | 42.0 |
| 4 | hours | 14400 | 14.8 | 18.1 | 20.0 | 26.0 | 31.0 | 36.0 | 40.5 | 45.0 | 51.0 |
| 6 | hours | 21600 | 17.8 | 21.8 | 24.0 | 31.0 | 37.0 | 43.0 | 47.5 | 52.0 | 60.0 |
| 12 | hours | 43200 | 23.1 | 28.0 | 31.0 | 39.0 | 46.0 | 53.0 | 59.0 | 65.0 | 73.0 |
| 24 | hours | 86400 | 29.0 | 34.0 | 38.0 | 48.0 | 56.0 | 64.0 | 71.0 | 78.0 | 88.0 |
| 48 | hours | 172800 | 36.0 | 43.0 | 46.0 | 58.0 | 68.0 | 77.0 | 84.5 | 92.0 | 103.0 |

TABLE 3: = Table 2 x 38.0 (Net non permeable area m2)

| Duration | | | TOTAL WATER ON SITE (m ³) | | | | | | | | |
|----------|-------|--------|---------------------------------------|-----|-----|-----|-----|-----|-----------|-----|-----|
| | | | Return Period (Years) | | | | | | Ave:20&50 | | |
| Seconds | | | 0.5 | 1 | 2 | 5 | 10 | 20 | Assume 30 | 50 | 100 |
| 1 | min | 60 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2 | min | 120 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5 | min | 300 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 |
| 10 | min | 600 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 |
| 15 | min | 900 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| 30 | min | 1800 | 0.2 | 0.3 | 0.3 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.1 |
| 60 | min | 3600 | 0.3 | 0.4 | 0.4 | 0.6 | 0.7 | 0.9 | 1.0 | 1.1 | 1.3 |
| 2 | hours | 7200 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 1.6 |
| 4 | hours | 14400 | 0.6 | 0.7 | 0.8 | 1.0 | 1.2 | 1.4 | 1.5 | 1.7 | 1.9 |
| 6 | hours | 21600 | 0.7 | 0.8 | 0.9 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.3 |
| 12 | hours | 43200 | 0.9 | 1.1 | 1.2 | 1.5 | 1.7 | 2.0 | 2.2 | 2.5 | 2.8 |
| 24 | hours | 86400 | 1.1 | 1.3 | 1.4 | 1.8 | 2.1 | 2.4 | 2.7 | 3.0 | 3.3 |
| 48 | hours | 172800 | 1.4 | 1.6 | 1.7 | 2.2 | 2.6 | 2.9 | 3.2 | 3.5 | 3.9 |

TABLE 4: = Time (secs) x 0.0000944148 (QBAR allowable discharge rate in m3/sec)

| Duration | | | ALLOWABLE RUN OFF m ³ OVER GIVEN PERIOD OF TIME | | | | | | | | |
|----------|-------|--------|--|------|------|------|------|------|-----------|------|------|
| | | | Return Period (Years) | | | | | | Ave:20&50 | | |
| Seconds | | | 0.5 | 1 | 2 | 5 | 10 | 20 | Assume 30 | 50 | 100 |
| 1 | min | 60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | min | 120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5 | min | 300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10 | min | 600 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 15 | min | 900 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 30 | min | 1800 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 60 | min | 3600 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 2 | hours | 7200 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 4 | hours | 14400 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 6 | hours | 21600 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 12 | hours | 43200 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 24 | hours | 86400 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 |
| 48 | hours | 172800 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 | 16.3 |

TABLE 5: = Table 3 - Table 4

| Duration | | | STORAGE REQUIRED m ³ | | | | | | | | |
|----------|-------|--------|---------------------------------|-----|-----|-----|-----|-----|-----------|-----|-----|
| | | | Return Period (Years) | | | | | | Ave:20&50 | | |
| Seconds | | | 0.5 | 1 | 2 | 5 | 10 | 20 | Assume 30 | 50 | 100 |
| 1 | min | 60 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2 | min | 120 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 5 | min | 300 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 |
| 10 | min | 600 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 |
| 15 | min | 900 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| 30 | min | 1800 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.9 |
| 60 | min | 3600 | 0.0 | 0.0 | 0.1 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 1.0 |
| 2 | hours | 7200 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.4 | 0.6 | 0.7 | 0.9 |
| 4 | hours | 14400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.6 |
| 6 | hours | 21600 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| 12 | hours | 43200 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 24 | hours | 86400 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 48 | hours | 172800 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

MAX STORAGE REQUIRED = (m³)

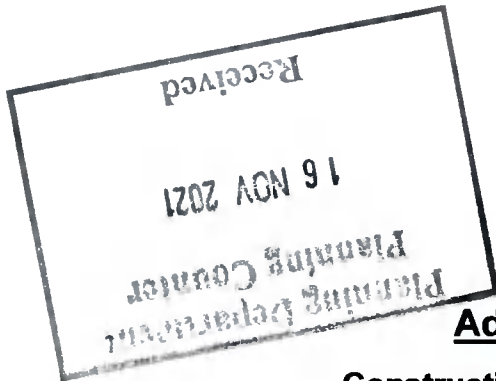
| | |
|-----|-----|
| 0.7 | 1.0 |
| | |

Granville Design Service

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087-2345393

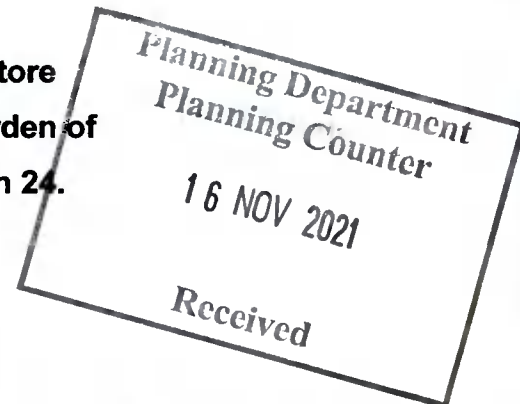
e-mail granvilledesignservice@gmail.com



Additional Information

**Construction of a garden room and store
and all associated site works in rear garden of
54 Rathlyon Grove, Ballycullen, Dublin 24.**

Reg. Ref: SD21B/0292



Dear Sir/Madam,

With reference to your request for "Further Information" for the above proposed development. We would like to submit the following information:

1. Revised Drawing 107/21/03A indicating the proposed building in relation to the surface water sewer on Daletree Drive. This revised drawing was prepared following consultation with SDCC Drainage Department.
2. Drawing 21/2037/01 and Qbar calculations prepared by Roger Cagney Engineering indicates the revised proposals for dealing with the surface water. The rear garden area would not be suitable for a soakaway. We hope the revised proposal is acceptable.

We trust this information is sufficient to enable you process this application and you can now decide favourably on the proposal. Please revert to us should you require further clarification in relation to any aspect of this application and we look forward to an early and favourable decision.

If you have any further queries do not hesitate to contact me on the above numbers.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Peadar Mc Adam".

Peadar Mc Adam