

Current Roof Structure (Volume)

Front elevation gables 3 no

$$2 \times \frac{1}{2} \times 5.00 \times 2.10 \times 3.60 = 37.80 \text{ m}^3$$

$$\frac{1}{2} \times 3.35 \times 1.50 \times 3.60 = 9.05 \text{ m}^3$$

Subtotal 46.85 m³

Rear elevation hipped roof

$$\frac{1}{2} \times 5.25 \times 2.5 \times 7.00 = 45.5 \text{ m}^3$$

$$\frac{1}{2} \times 5.25 \times 2.5 \times 3.20 = 21.00 \text{ m}^3$$

Subtotal 66.50 m³

Front elevation hipped roof

$$\frac{1}{2} \times 1.65 \times 0.80 \times 7.00 = 4.62 \text{ m}^3$$

$$\frac{1}{2} \times 1.65 \times 0.80 \times 3.20 = 2.11 \text{ m}^3$$

$$1.65 \times 1.70 \times 7.00 = 19.64 \text{ m}^3$$

$$2 \times \frac{1}{2} \times 3.40 \times 1.70 \times 1.20 = 6.94 \text{ m}^3$$

Subtotal 33.31 m³

Previous extension gable roof

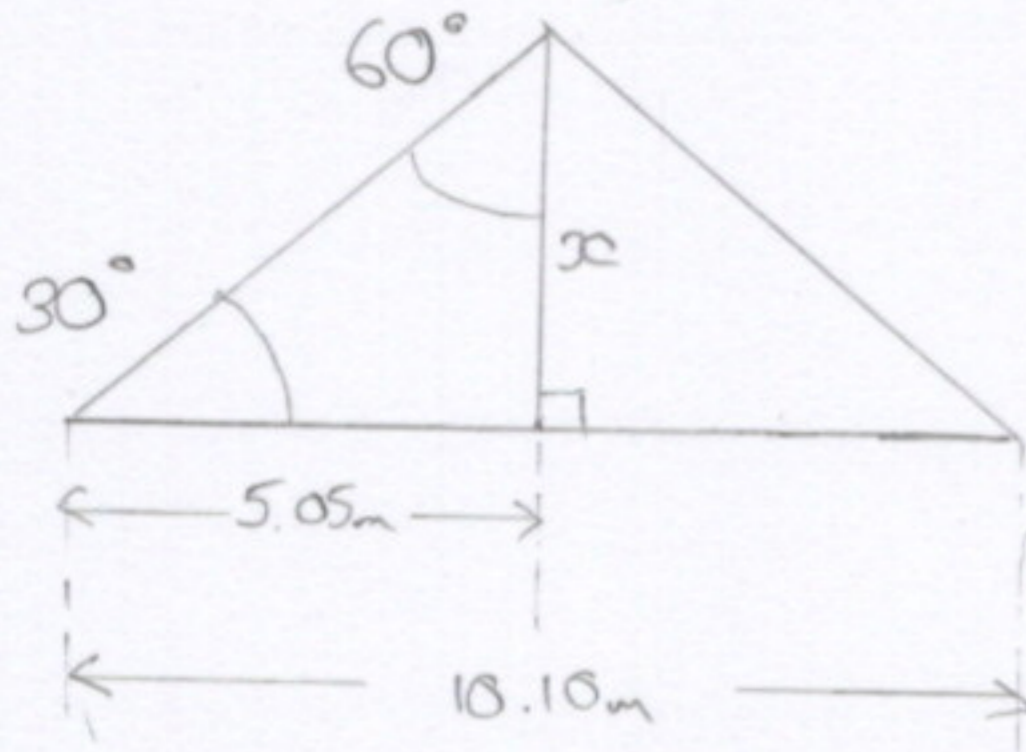
$$\frac{1}{2} \times 4.70 \times 2.10 \times 10.10 = 49.84 \text{ m}^3$$

Garage roof (gable)

$$\frac{1}{2} \times 4.50 \times 1.90 \times 6.80 = 29.07 \text{ m}^3$$

Total Volume 225.57 m³

Proposed Roof Structure (Volume)



$$\tan(30^\circ) = \frac{x}{5.05}$$

L →

$$\begin{aligned} \tan(30^\circ) \times 5.05 &= x \\ &= \underline{\underline{2.92\text{m}}} \end{aligned}$$

Proposed pitched roof with gable ends

$$\frac{1}{2} \times 5.05 \times 2.92 \times 13.80 = 101.75\text{m}^3$$

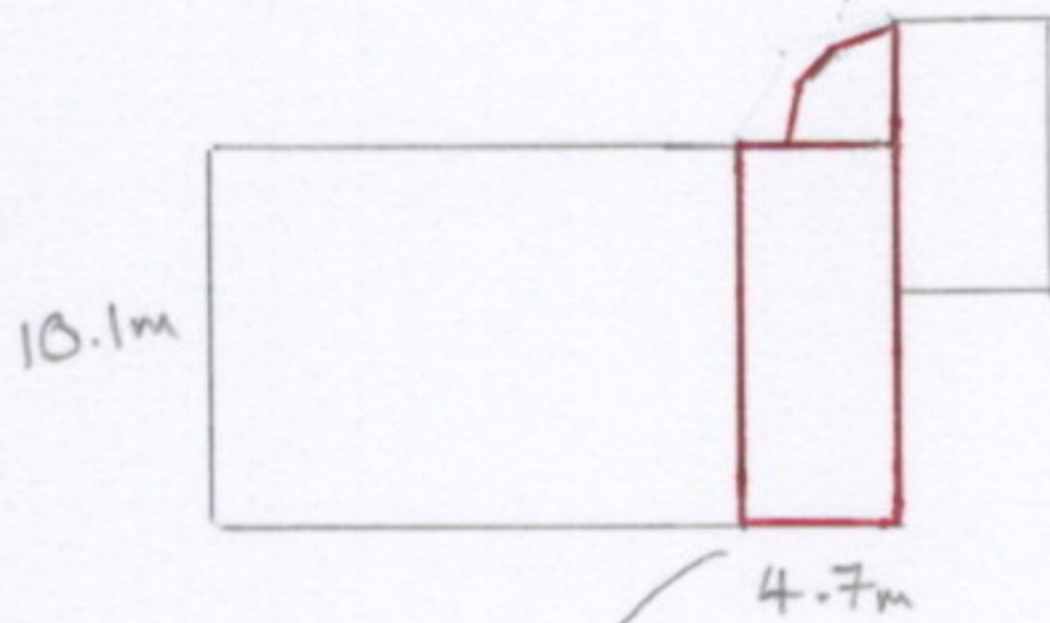
Garage roof as original build

$$\frac{1}{2} \times 4.50 \times 1.90 \times 6.80 = 29.07\text{m}^3$$

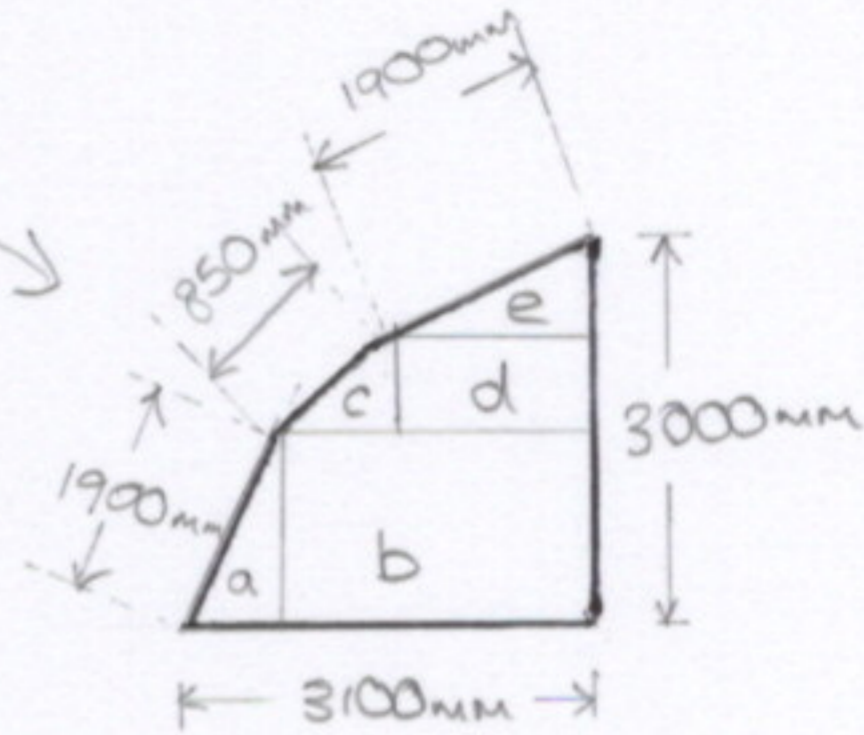
$$\underline{\underline{\text{Total Volume } 130.82\text{m}^3}}$$

Redevelopment Proposal

Demolish previously approved planning app



$$10.10 \times 4.70 = \underline{\underline{47.47\text{m}^2}}$$



$$a = \frac{1}{2} \times 1.80 \times 0.70 = 0.63\text{m}^2$$

$$b = 2.40 \times 1.80 = 4.32\text{m}^2$$

$$c = \frac{1}{2} \times 0.64 \times 0.65 = 0.21\text{m}^2$$

$$d = 1.76 \times 0.65 = 1.14\text{m}^2$$

$$e = \frac{1}{2} \times 0.55 \times 1.76 = 0.48\text{m}^2$$

$$\text{Subtotal Area} = \underline{\underline{6.78\text{m}^2}}$$

$$\text{Total Area} = 47.47\text{m}^2 + 6.78\text{m}^2 = 54.25\text{m}^2$$

$$\text{Total Volume} = 54.25\text{m}^2 \times 2.40\text{m} = 130.20\text{m}^3$$

(to height of ceiling)

* It is proposed that we recycle the 130.2m³ into first floor/dormered living space, subject to WDC approval.