# 16. Geometry and Measures

The small village of St. Ree plans to generate more of its own electricity by taking advantage of the consistent wind in the area through using wind turbines. The village's council has asked students at your school to assist with mapping out the wind turbine locations.

The map below shows the location of the houses at the edge of the village. For health and safety reasons, the turbines must be a minimum of 100m away from any houses. There is a spare map at Appendix 1 in case you need another map to answer the questions.

St. Ree

North

1 square = 10m
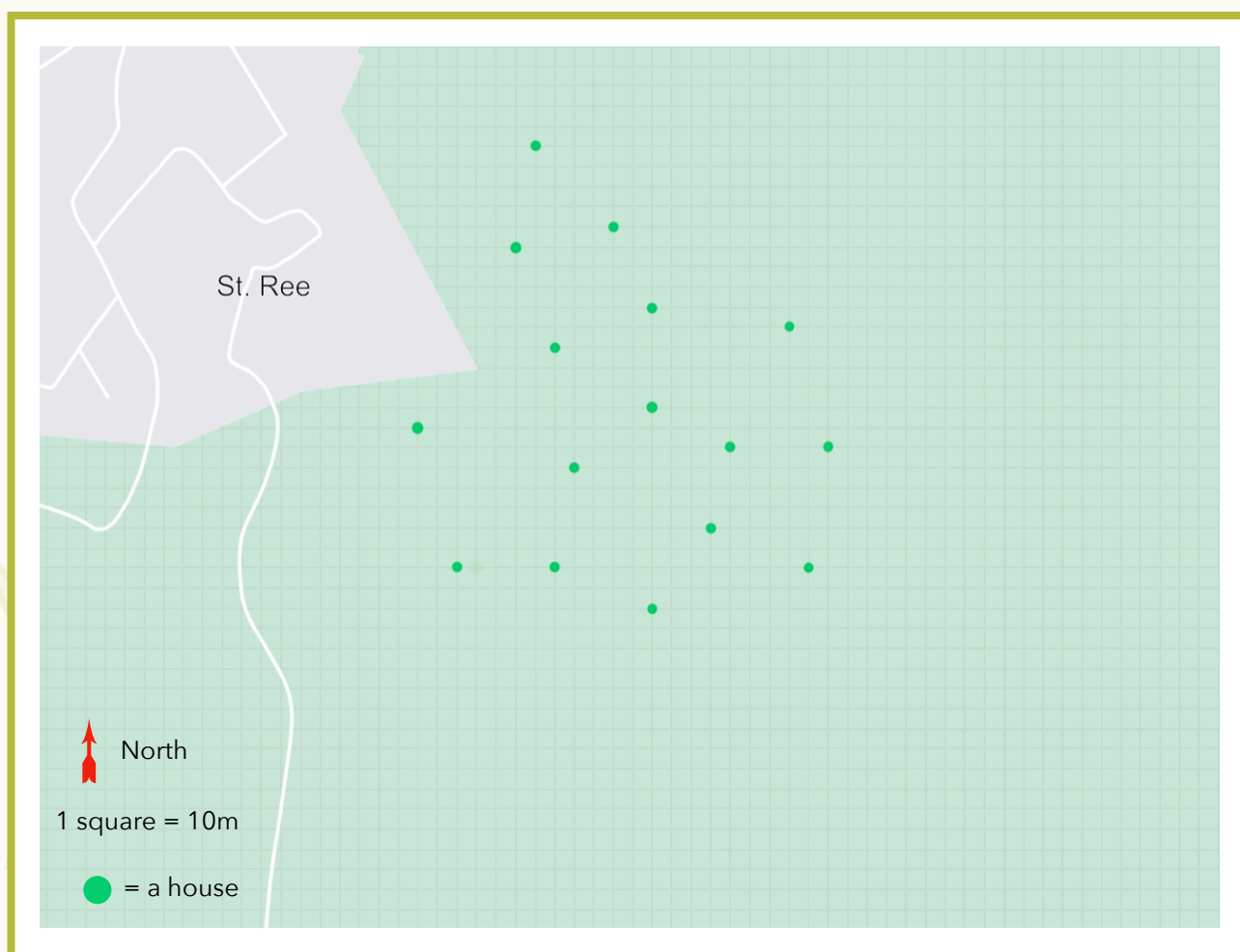
🟢 = a house

1. Draw the loci around houses A, B and C to show the minimum safe distances from each property.

2. Shade the areas where it would be safe to place the turbines.

3. A turbine is placed closer to house D than house C. Draw the perpendicular bisector and shade the area in which the turbine could be safely located.

4. Houses A and B plan to share a backup generator. Using construction lines, find the midpoint between the two homes where the generator will need to be placed.

5. A turbine is placed exactly 100m from both houses B and C. Plot the location of this turbine on the map and label it 'T1'.

6. Measure the bearing between house B and T1.

7. Turbine 'T2' is placed 100m from house A on the bearing 340°, plot this turbine on the map.

8. Measure the bearing from house C to house D.

Appendix 1: Spare map

St. Ree

North

1 square = 10m

● = a house