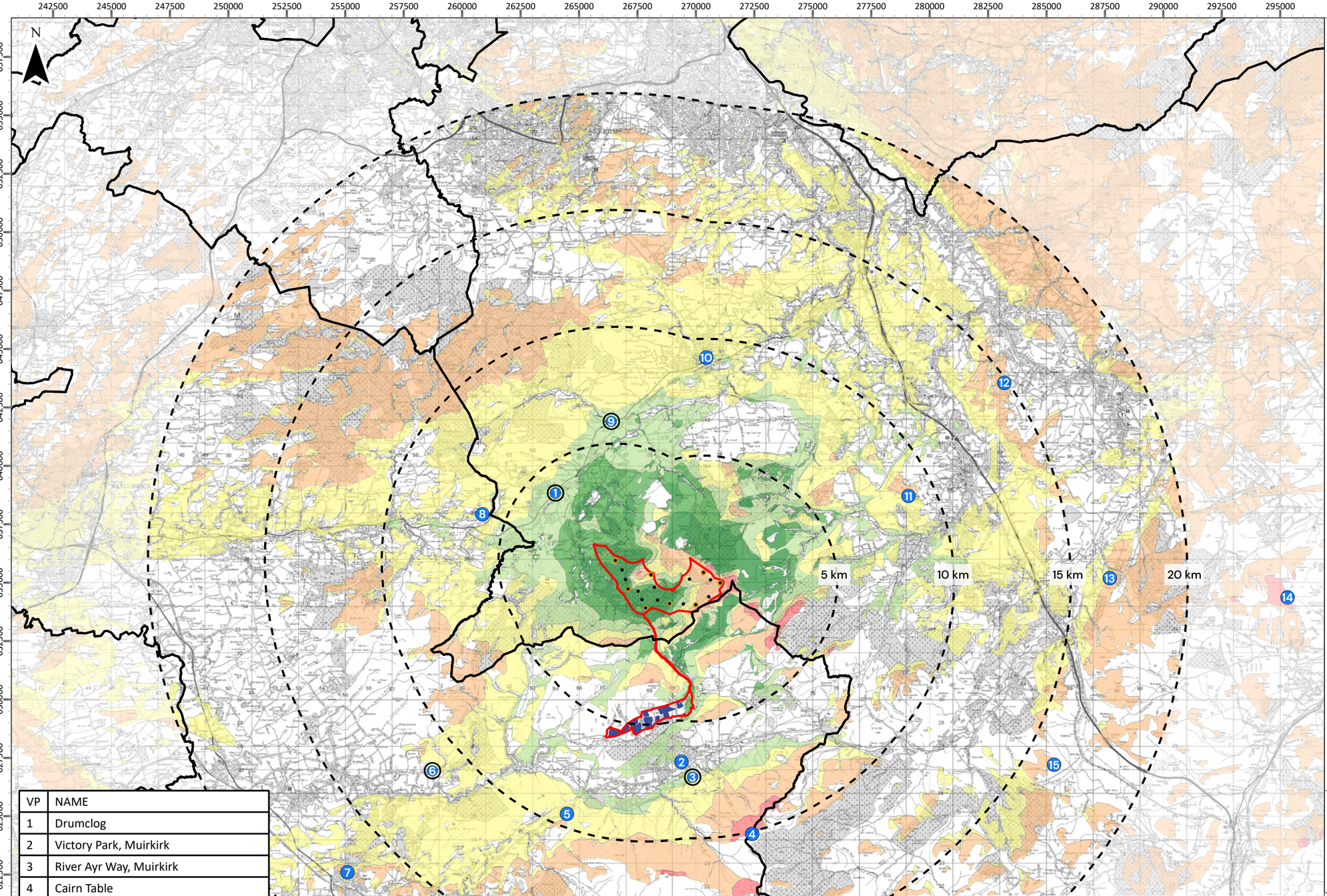

VP	NAME
1	Drumclog
2	Victory Park, Muirkirk
3	River Ayr Way, Muirkirk
4	Cairn Table
5	Nether Wellwood (A70)
6	B743 (east of Nethershield))
7	B705 (Auchlinleck)
8	Loudoun Hill
9	A71, bridge crossing Calder Water
10	Strathaven War Memorial
11	Minor road south-west of Lesmahagow
12	Black Hill
13	A70 Rigside
14	Tinto Hill
15	Auchensaugh hill

Legend

- Site Boundary
- Proposed Turbines (no aviation light)
- Proposed Turbine fitted with steady red aviation light
- 20km LVIA Study Area
- Proposed Solar Arrays
- Local Authority Boundary
- LVIA Viewpoints - Day
- LVIA Viewpoints - Day & Night

Turbines T1, T4, T6, T9, T11, T13, T16 and T18 to be fitted with visible medium intensity steady state red aviation light

INTENSITY OF TURBINE LIGHT SHOWN IN CANDELA (CD)

VERTICAL ANGLE	2000 CD LIGHT	200 CD LIGHT
3° TO 0°	UP TO 2500 CD	UP TO 250 CD
0° TO -1°	2185 CD TO 982 CD	218 CD TO 98 CD
-1° TO -2°	982 CD TO 413 CD	98 CD TO 41 CD
-2° TO -3°	413 CD TO 217 CD	41 CD TO 21 CD
-3° TO -4°	217 CD TO 172 CD	21 CD TO 17 CD
BELOW -4°	BELOW 172 CD	BELOW 17 CD

0 2.5 5 7.5 10 Km

Scale 1:175,000 @ A3

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NOTES
1. A reduced lighting scheme has been proposed with eight of the 18 turbines proposed to be lit (T1, T4, T6, T9, T11, T13, T16 and T18).
2. The visible turbine lights "will be switched on between Evening Civil Twilight and Morning Civil Twilight. Approximately 11 hours per day averaged over the year."
3. Civil Aviation Authority SARG Policy Statement (2017) states "If the horizontal meteorological visibility in all directions from every wind turbine generator in a group is more than 5 km, the intensity for the light positioned as close as practicable to the top of the fixed structure required to be fitted to any generator in the wind farm and displayed may be reduced to not less than 10% of the minimum peak intensity."
4. The lighting intensity for each of the vertical angles shown in the above table has been provided by Contarnex (Light Bulb Manufacturer) and is based on optimal test conditions in a calibration chamber.
5. The perception of theoretical candela intensity does not take account of atmospheric attenuation (reduction in brightness over distance).
6. The ZTV does not take account of surface features such as buildings or forestry.
7. The ZTV has been produced using OS Terrain 5 height data and calculates the difference in vertical angle between the turbine lights and the study area.
8. The ZTV represents a reasonable worst case and the theoretical lighting intensity illustrated may be the result of a single turbine within the group.
9. Actual visibility is likely to be less than predicted due to a range of other factors considered in Technical Appendix 5.2 of the LVIA which include the darkness adaptation of individual receptors and weather obscuration.

Further technical information can be found in Technical Appendix 5.2 Assessment of Night-time Lighting

HAGSHAW ENERGY CLUSTER WESTERN EXPANSION
3R Energy
SLR

Hagshaw Energy Cluster - Western Expansion
Phase 1
EIA Report

Figure 5.9
Lit Turbine Lighting Intensity ZTV to 20 km with Viewpoints

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