

Project:

Manchester BW15

Licensed user:

Infinite Renewables Limited

Number One, Waterton Park

GB-BRIDGEND CF31 3PH, Wales

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Ioan / ioan@infiniterenewables.com

Calculated:

17/09/2025 14:14/4.0.424

DECIBEL - Main Result

Calculation: Manchester BW15

Noise calculation model:

ISO 9613-2 General

Wind speed (at 10 m height):

6.0 m/s - 10.0 m/s, step 1.0 m/s

Ground attenuation:

Fixed values, Agr: 0.0, Dc: 0.0

Valley effect, Penalty: 1.5 dB

Topographic screening, Reduction: 2.0 dB

Meteorological coefficient, C0:

Selected option: Fixed value: 0.0 dB

Type of demand in calculation:

3: WTG noise is compared to ambient noise plus margin (UK, AT etc.)

Noise values in calculation:

All noise values are 90% exceedance values (L90)

Pure tones:

Fixed penalty added to source noise of WTGs with pure tones

Model: 5.0 dB(A)

Height above ground level, when no value in NSA object:

0.0 m; Don't allow override of model height with height from NSA object

Uncertainty margin:

0.0 dB; Uncertainty margin in NSA has priority

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

All coordinates are in

British TM-OSGB36/Airy (GB/IE)

WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Power, rated	Rotor diameter	Hub height	Noise data				
					Valid	Manufact.	Type-generator				Creator	Name	First wind speed	LwaRef	Last wind speed
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	[m/s]
1	383,996	398,771	36.1	POULSEN 15 10.6 !-! h... No		POULSEN	-15	15	10.6	15.0	USER	BW15	6.0	88.1	10.0
h) Generic octave distribution used															

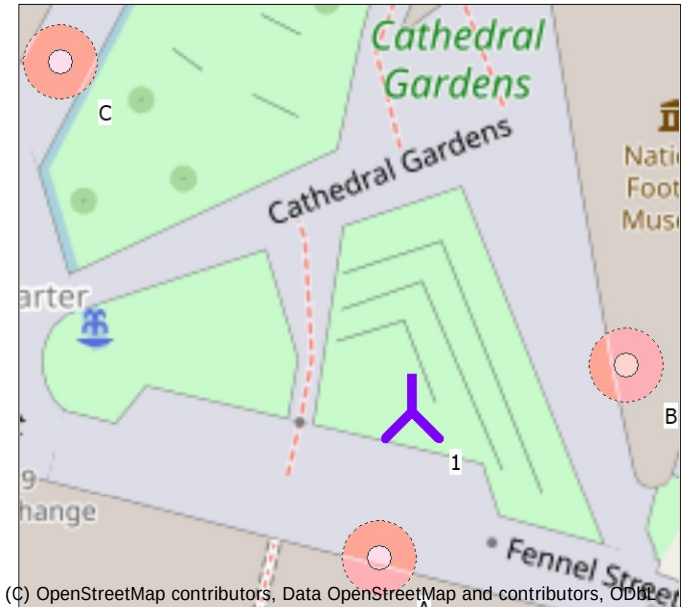
Calculation Results

Sound level

Noise sensitive area				Most critical demand			Predicted sound level		Demands fulfilled ?	
No.	Name	Easting	Northing	Z	Immission height	Wind speed	Demand	WTG noise	Max exceedance	Noise
				[m]	[m]	[m/s]	[dB(A)]	[dB(A)]	[dB(A)]	
A	Corn Exchange	383,991	398,751	35.4	0.0	10.0	55.0	55.9	0.9	No
B	Museum	384,024	398,777	35.6	0.0	10.0	55.0	53.6	-1.4	Yes
C	School	383,949	398,817	34.4	0.0	10.0	55.0	47.2	-7.8	Yes

Distances (m)

WTG	
NSA	1
A	20
B	29
C	66



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:1,000
New WTG Noise sensitive area

DECIBEL - Detailed results

Calculation: Manchester BW15 Noise calculation model: ISO 9613-2 General

Assumptions

Calculated L(DW) = LWA,ref + K + Dc - (Adiv + Aatm + Agr + Abar + Amisc) - Cmet
(when calculated with ground attenuation, then Dc = Domega)

LWA,ref:	Sound pressure level at WTG
K:	Pure tone
Dc:	Directivity correction
Adiv:	the attenuation due to geometrical divergence
Aatm:	the attenuation due to atmospheric absorption
Agr:	the attenuation due to ground effect
Abar:	the attenuation due to a barrier
Amisc:	the attenuation due to miscellaneous other effects
Cmet:	Meteorological correction

Calculation Results

Noise sensitive area: A Corn Exchange

Wind speed: 6.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	20	25	46.87	86.1	0.00	39.11	0.13	0.00	0.00	0.00	39.24

Wind speed: 7.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	20	25	49.57	88.8	0.00	39.11	0.13	0.00	0.00	0.00	39.24

Wind speed: 8.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	20	25	51.87	91.1	0.00	39.11	0.13	0.00	0.00	0.00	39.24

Wind speed: 9.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	20	25	54.67	93.9	0.00	39.11	0.13	0.00	0.00	0.00	39.24

Wind speed: 10.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	20	25	55.87	95.1	0.00	39.11	0.13	0.00	0.00	0.00	39.24

Noise sensitive area: B Museum

Wind speed: 6.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	29	33	44.59	86.1	0.00	41.36	0.16	0.00	0.00	0.00	41.52

Wind speed: 7.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	29	33	47.29	88.8	0.00	41.36	0.16	0.00	0.00	0.00	41.52

DECIBEL - Detailed results

Calculation: Manchester BW15 Noise calculation model: ISO 9613-2 General

Wind speed: 8.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	29	33	49.59	91.1	0.00	41.36	0.16	0.00	0.00	0.00	41.52

Wind speed: 9.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	29	33	52.39	93.9	0.00	41.36	0.16	0.00	0.00	0.00	41.52

Wind speed: 10.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	29	33	53.59	95.1	0.00	41.36	0.16	0.00	0.00	0.00	41.52

Noise sensitive area: C School

Wind speed: 6.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	66	68	38.16	86.1	0.00	47.64	0.31	0.00	0.00	0.00	47.95

Wind speed: 7.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	66	68	40.86	88.8	0.00	47.64	0.31	0.00	0.00	0.00	47.95

Wind speed: 8.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	66	68	43.16	91.1	0.00	47.64	0.31	0.00	0.00	0.00	47.95

Wind speed: 9.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	66	68	45.96	93.9	0.00	47.64	0.31	0.00	0.00	0.00	47.95

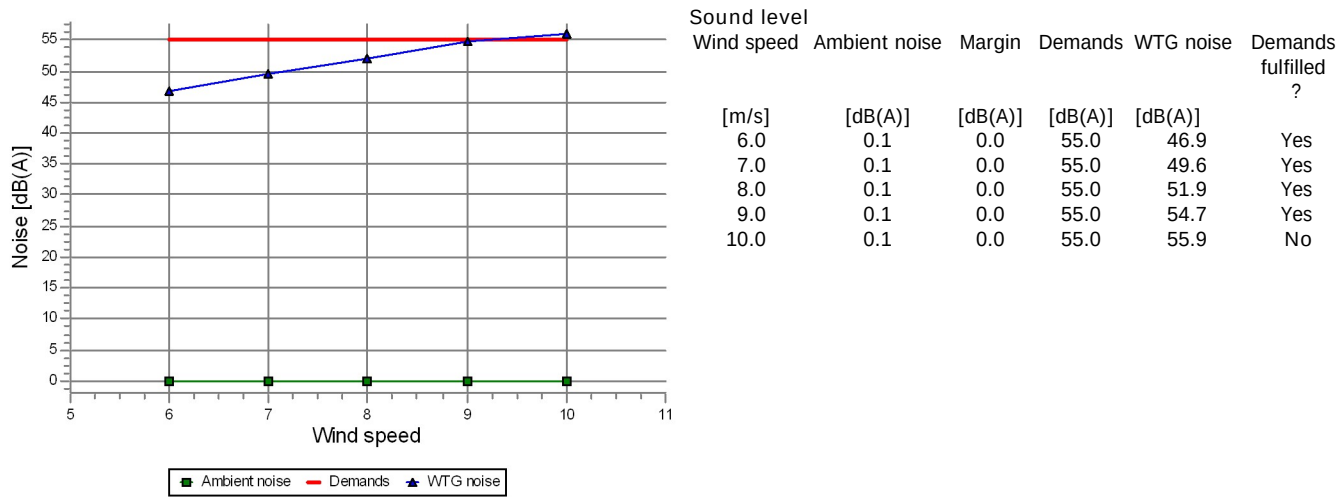
Wind speed: 10.0 m/s

WTG

No.	Distance [m]	Sound distance [m]	Calculated [dB(A)]	LwA,ref [dB(A)]	Dc [dB]	Adiv [dB]	Aatm [dB]	Agr [dB]	Abar [dB]	Amisc [dB]	A [dB]
1	66	68	47.16	95.1	0.00	47.64	0.31	0.00	0.00	0.00	47.95

DECIBEL - Detailed results, graphic

Calculation: Manchester BW15 Noise calculation model: ISO 9613-2 General
A Corn Exchange

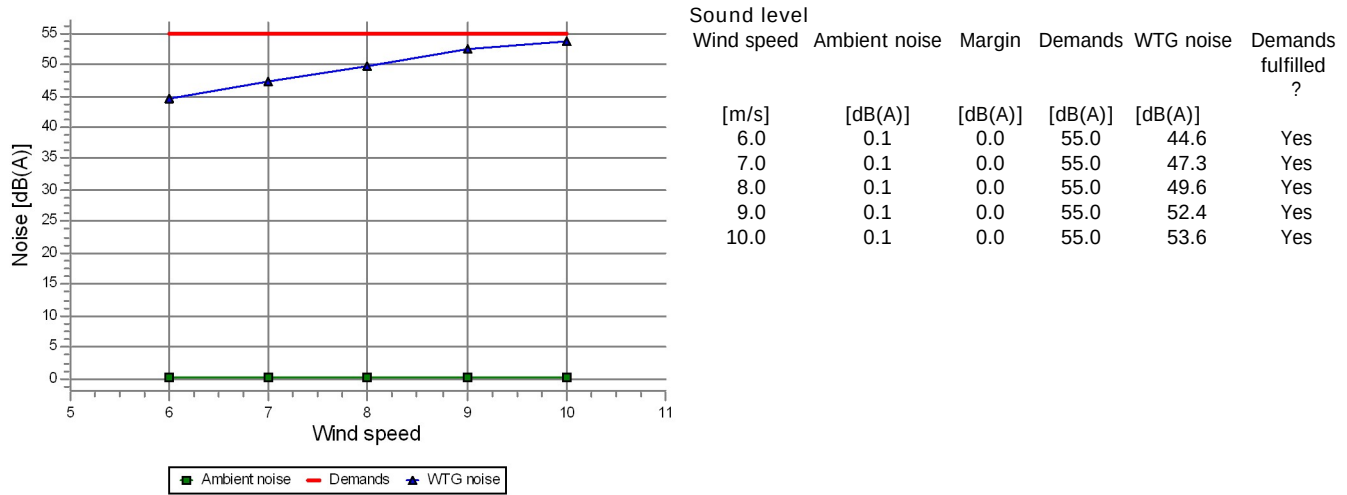


Calculated noise [dB(A)]

Wind speed	
[m/s]	
6.0	46.9
7.0	49.6
8.0	51.9
9.0	54.7
10.0	55.9

DECIBEL - Detailed results, graphic

Calculation: Manchester BW15 Noise calculation model: ISO 9613-2 General
B Museum

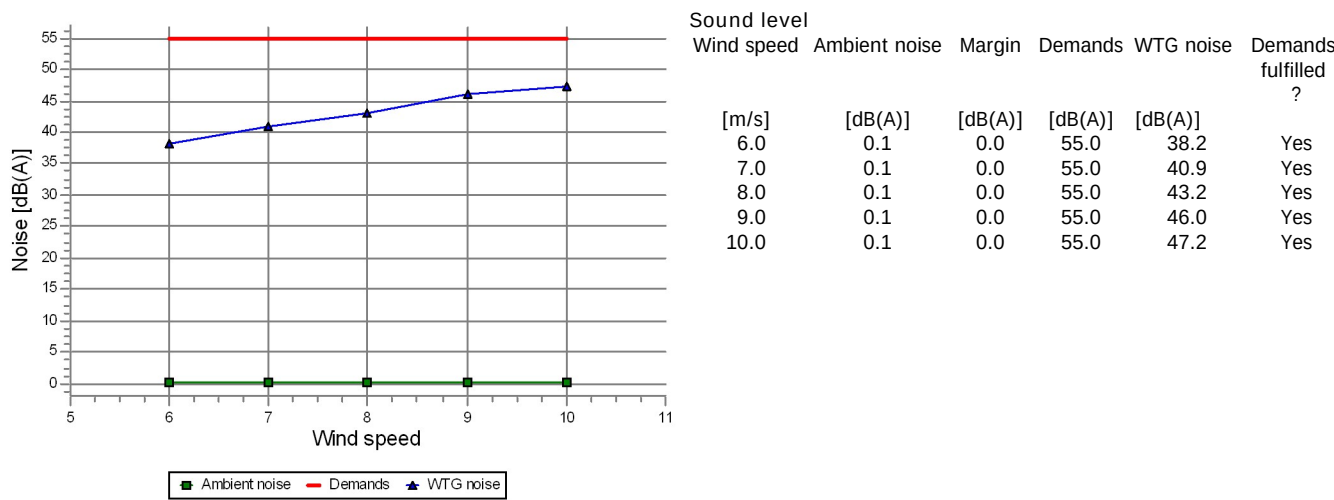


Calculated noise [dB(A)]

Wind speed	
[m/s]	
6.0	44.6
7.0	47.3
8.0	49.6
9.0	52.4
10.0	53.6

DECIBEL - Detailed results, graphic

Calculation: Manchester BW15 Noise calculation model: ISO 9613-2 General
C School



Calculated noise [dB(A)]

Wind speed	
[m/s]	
6.0	38.2
7.0	40.9
8.0	43.2
9.0	46.0
10.0	47.2

DECIBEL - Assumptions for noise calculation

Calculation: Manchester BW15

Noise calculation model:

ISO 9613-2 General

Wind speed (at 10 m height):

6.0 m/s - 10.0 m/s, step 1.0 m/s

Ground attenuation:

Fixed values, Agr: 0.0, Dc: 0.0

Valley effect, Penalty: 1.5 dB

Topographic screening, Reduction: 2.0 dB

Meteorological coefficient, C0:

Selected option: Fixed value: 0.0 dB

Type of demand in calculation:

3: WTG noise is compared to ambient noise plus margin (UK, AT etc.)

Noise values in calculation:

All noise values are 90% exceedance values (L90)

Pure tones:

Fixed penalty added to source noise of WTGs with pure tones

Model: 5.0 dB(A)

Height above ground level, when no value in NSA object:

0.0 m; Don't allow override of model height with height from NSA object

Uncertainty margin:

0.0 dB; Uncertainty margin in NSA has priority

Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:

0.0 dB(A)

Octave data required

Frequency dependent air absorption

63	125	250	500	1,000	2,000	4,000	8,000
[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]	[dB/km]
0.10	0.40	1.00	1.90	3.70	9.70	32.80	117.00

All coordinates are in

British TM-OSGB36/Airy (GB/IE)

WTG: POULSEN 15 10.6 !-!

Noise: BW15

Source Source/Date Creator Edited

17/09/2025 USER 17/09/2025 13:10

Status	Hub height [m]	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones	Octave data							
					63	125	250	500	1000	2000	4000	8000
From Windcat	15.0	6.0	88.1	No	Generic data 69.7	76.7	80.1	82.7	82.5	79.6	74.8	65.3
From Windcat	15.0	7.0	90.8	No	Generic data 72.4	79.4	82.8	85.4	85.2	82.3	77.5	68.0
From Windcat	15.0	8.0	93.1	No	Generic data 74.7	81.7	85.1	87.7	87.5	84.6	79.8	70.3
From Windcat	15.0	9.0	95.9	No	Generic data 77.5	84.5	87.9	90.5	90.3	87.4	82.6	73.1
From Windcat	15.0	10.0	97.1	No	Generic data 78.7	85.7	89.1	91.7	91.5	88.6	83.8	74.3

Noise sensitive area: A Corn Exchange

Predefined calculation standard:

Immission height(a.g.l.): Use standard value from calculation model

Uncertainty margin: Use default value from calculation model

No temporal binning

Ambient noise: 0.1 dB(A)

Margin or Allowed additional exposure: 0.0 dB(A)

Sound level always accepted: 55.0 dB(A)

No distance demand

Noise sensitive area: B Museum

Predefined calculation standard:

Immission height(a.g.l.): Use standard value from calculation model

Uncertainty margin: Use default value from calculation model

No temporal binning

Ambient noise: 0.1 dB(A)

Margin or Allowed additional exposure: 0.0 dB(A)

Sound level always accepted: 55.0 dB(A)

No distance demand

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DECIBEL - Assumptions for noise calculation

Calculation: Manchester BW15

Noise sensitive area: C School

Predefined calculation standard:

Immission height(a.g.l.): Use standard value from calculation model

Uncertainty margin: Use default value from calculation model

No temporal binning

Ambient noise: 0.1 dB(A)

Margin or Allowed additional exposure: 0.0 dB(A)

Sound level always accepted: 55.0 dB(A)

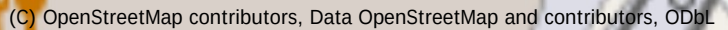
No distance demand

Manchester BW15

17/09/2025 14:14/4.0.424

DECIBEL - Map 6.0 m/s

Calculation: Manchester BW15



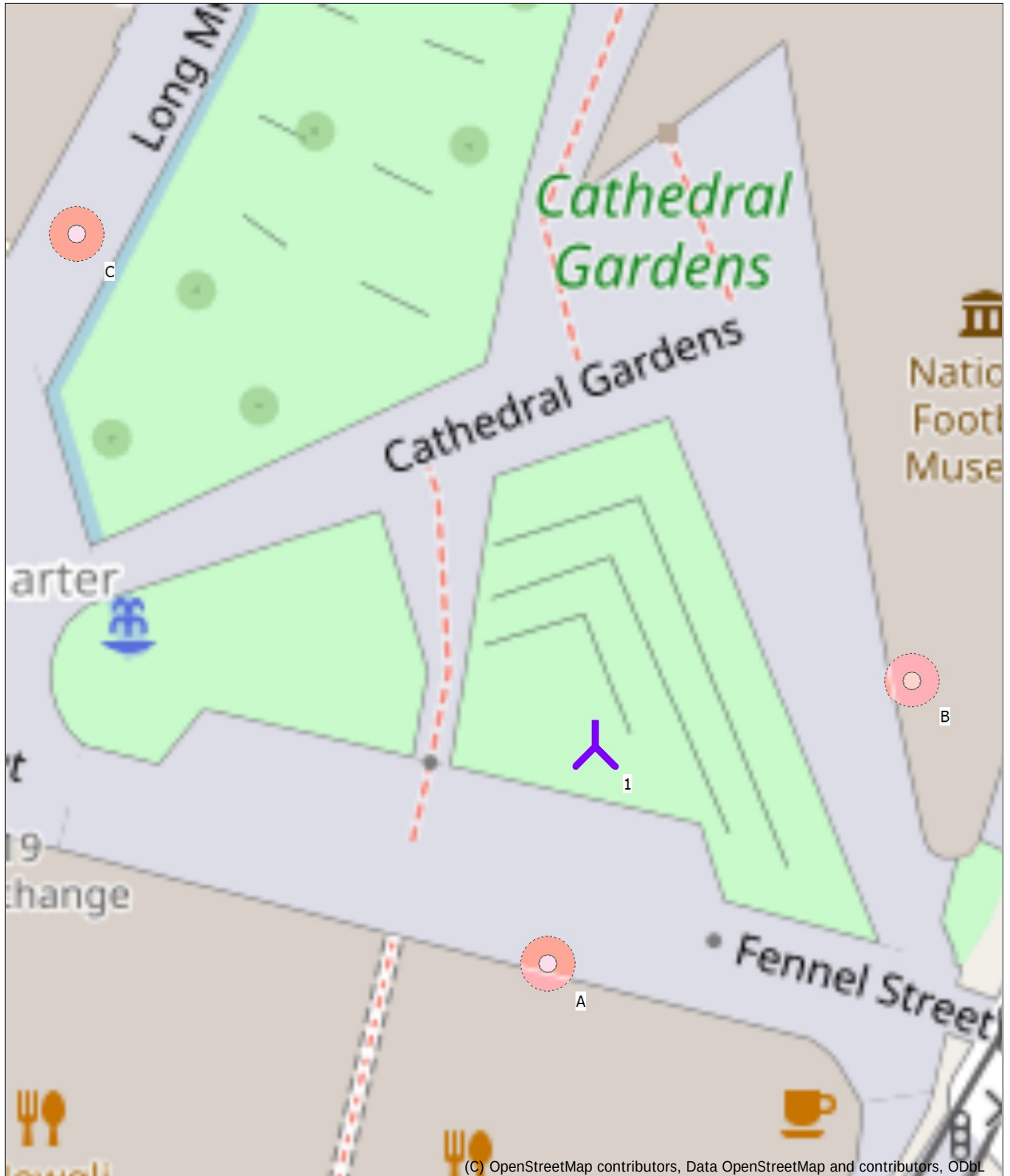
Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784

 New WTG

 Noise sensitive area

DECIBEL - Map 6.0 m/s

Calculation: Manchester BW15



0 5 10 15 20 m

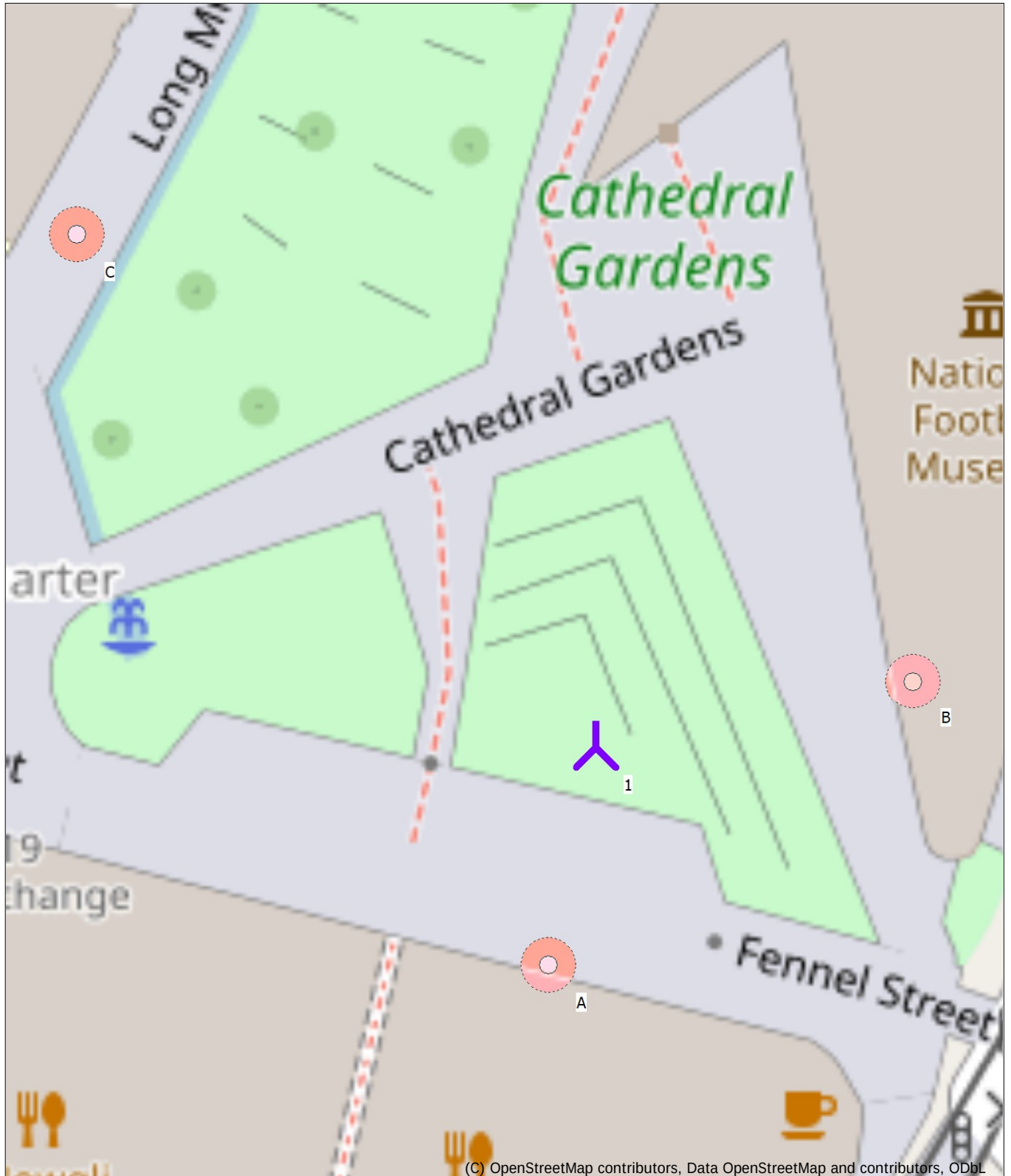
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New WTG

Noise sensitive area

DECIBEL - Map 6.0 m/s

Calculation: Manchester BW15



0 5 10 15 20 m

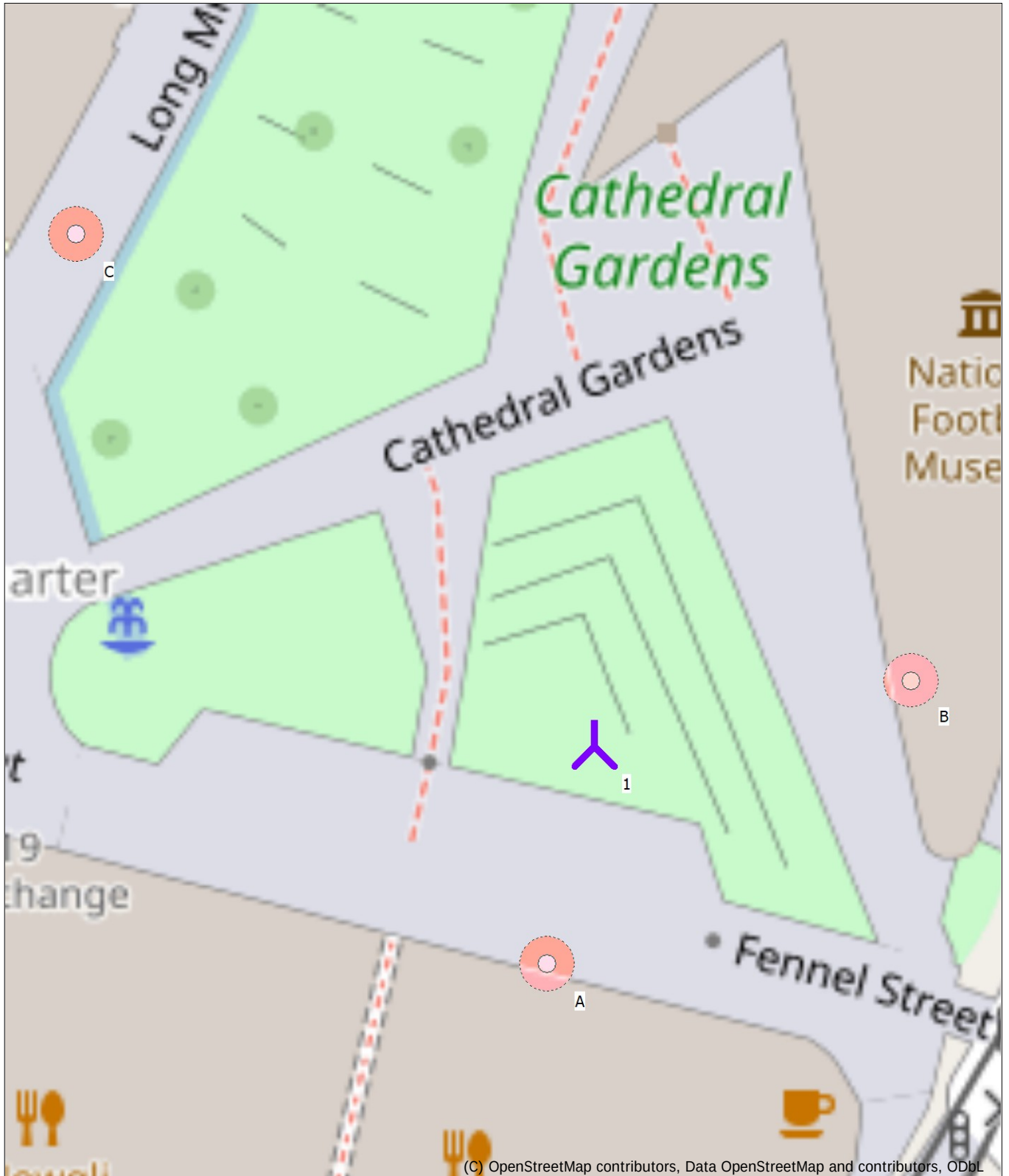
Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784

New WTG

Noise sensitive area

DECIBEL - Map 7.0 m/s

Calculation: Manchester BW15



0 5 10 15 20 m

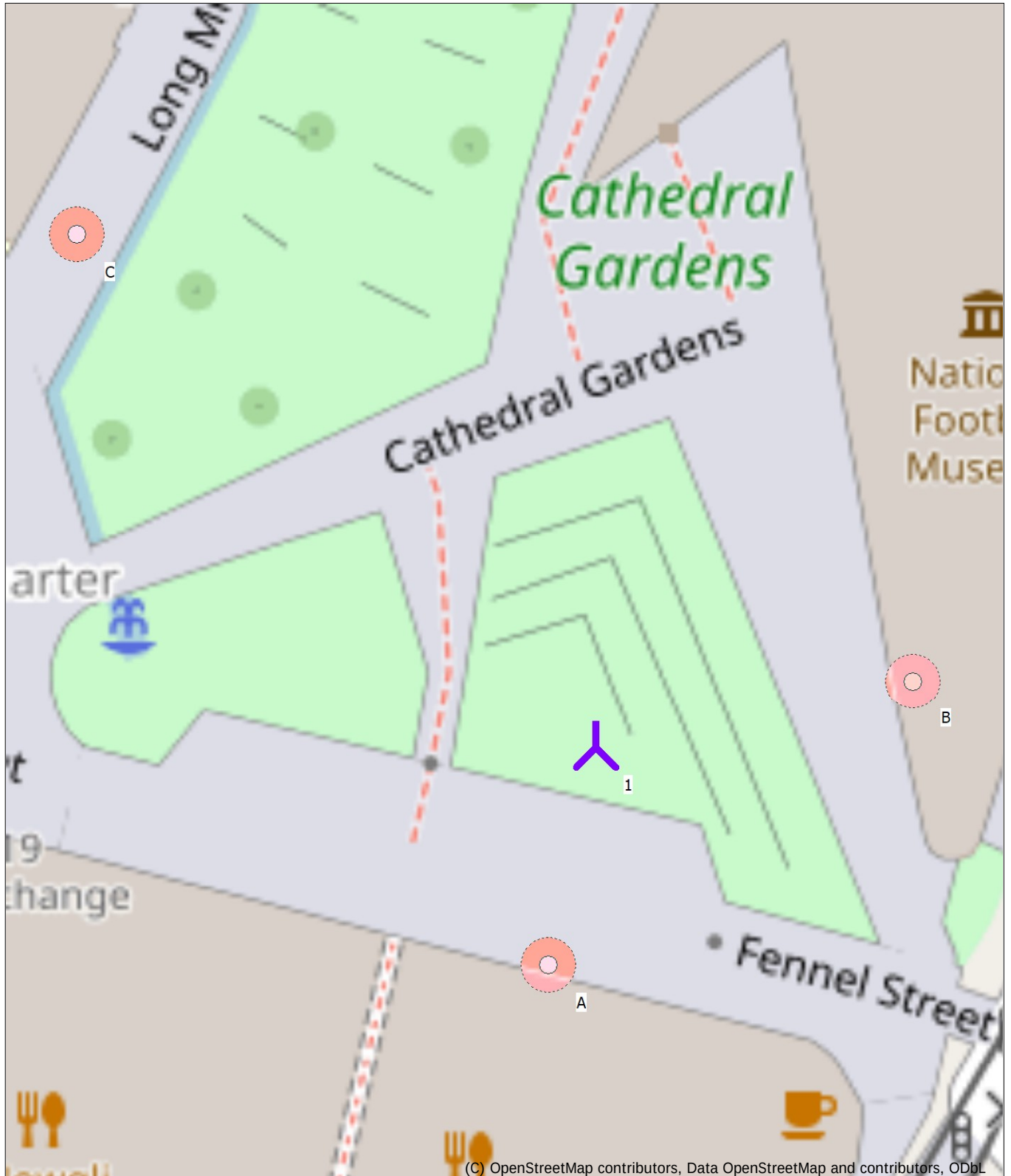
Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784

New WTG

Noise sensitive area

DECIBEL - Map 8.0 m/s

Calculation: Manchester BW15

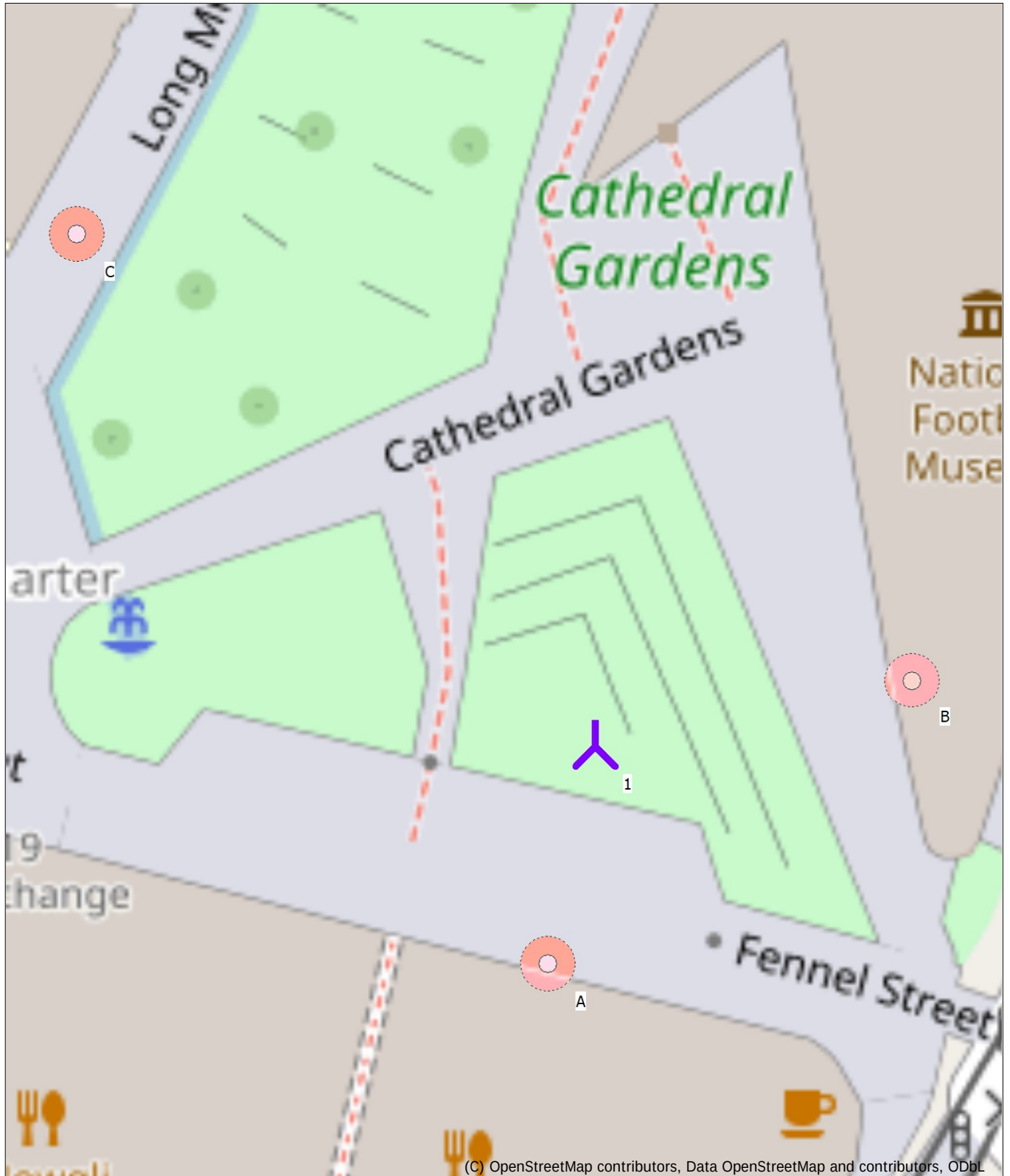


0 5 10 15 20 m

Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784
New WTG Noise sensitive area

DECIBEL - Map 9.0 m/s

Calculation: Manchester BW15



0 5 10 15 20 m

Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784

New WTG

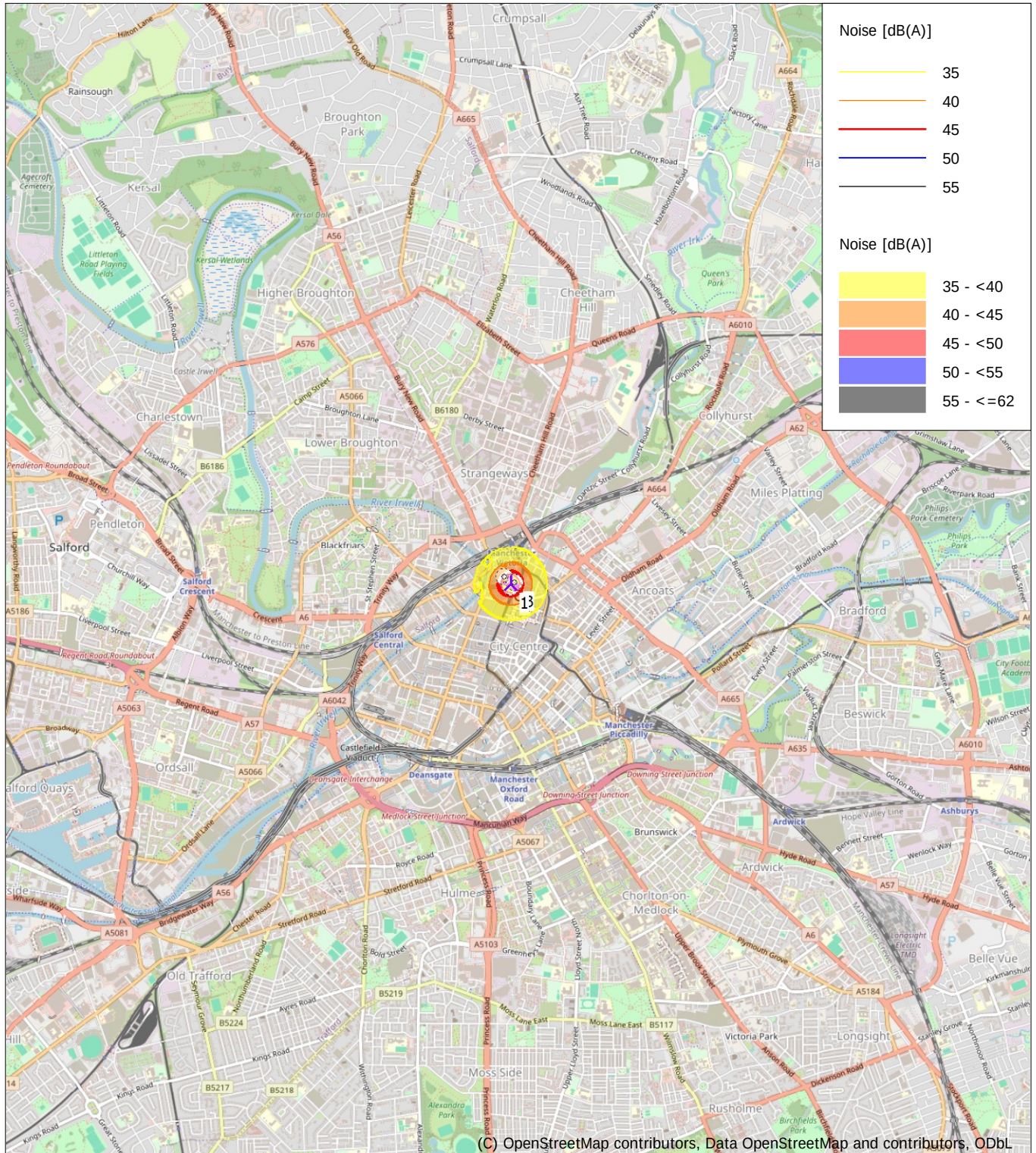
Noise sensitive area

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Manchester BW15

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Calculated:
17/09/2025 14:14/4.0.424

DECIBEL - Map 10.0 m/s

Calculation: Manchester BW15



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap, Print scale 1:40,000, Map center British TM-OSGB36/Airy (GB/IE) East: 383,996 North: 398,771

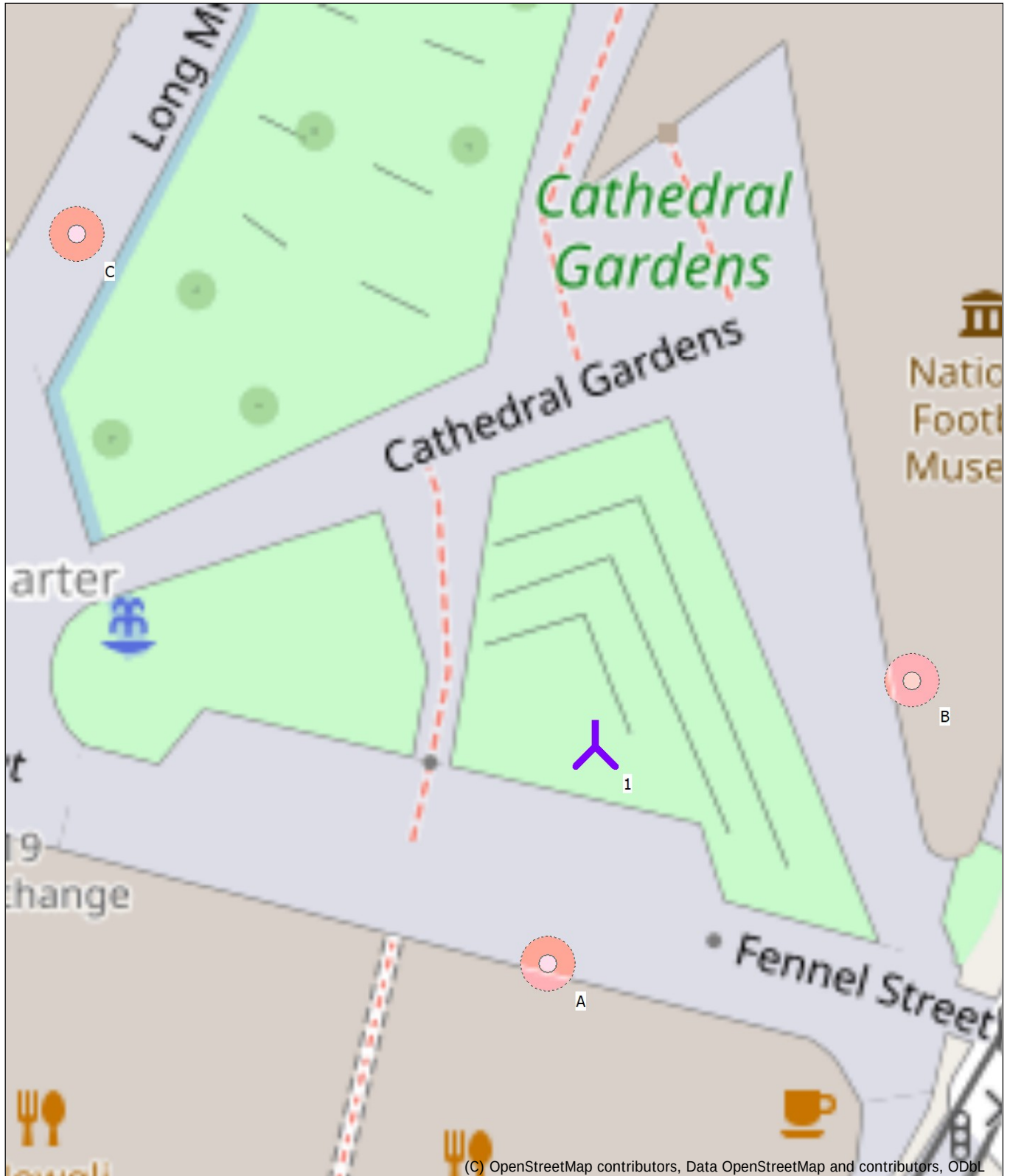
New WTG

Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 10.0 m/s
Height above sea level from active line object

DECIBEL - Map 10.0 m/s

Calculation: Manchester BW15



0 5 10 15 20 m

Map: EMD OpenStreetMap , Print scale 1:500, Map center British TM-OSGB36/Airy (GB/IE) East: 383,987 North: 398,784

New WTG

Noise sensitive area

DECIBEL - Map 10.0 m/s

Calculation: Manchester BW15

