

Determination 2023/004

Whether the construction of a wind turbine required a building consent and the issue of a notice to fix for its foundation

28 Arthur Street, Gladstone, Invercargill

Summary

This determination considers whether the authority was correct in requiring a building consent for the construction of a wind turbine, and its decision to issue a notice to fix for the construction of the supporting foundation without a building consent being obtained. In deciding these matters, I have considered whether the wind turbine is a building and whether the foundation was exempt from the requirement to obtain a building consent.

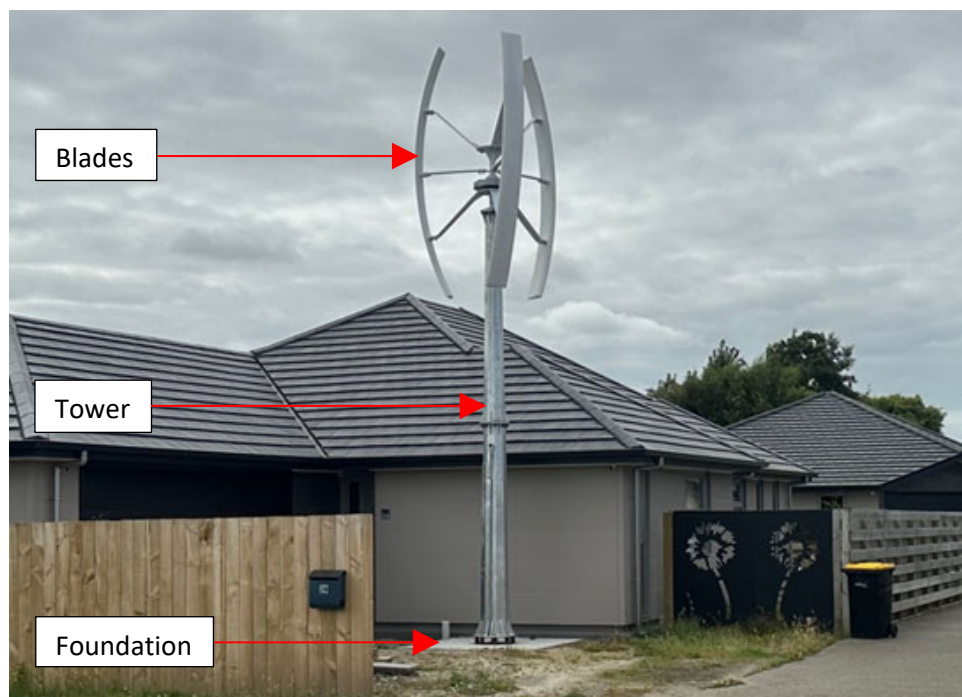


Figure 1: The wind turbine

In this determination, unless otherwise stated, references to “sections” are to sections of the Building Act 2004 (“the Act”) and references to “clauses” are to clauses in Schedule 1 of the Act – Building work for which building consent not required.

The Act and the Building Code (Schedule 1 of the Building Regulations 1992) are available at www.legislation.govt.nz. Information about the legislation, as well as past determinations, compliance documents (eg Acceptable Solutions) and guidance issued by the Ministry, is available at www.building.govt.nz.

1. The matter to be determined

- 1.1. This is a determination made under due authorisation by me, Katie Gordon, National Manager Building Resolution, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.¹
- 1.2. The parties to the determination are:
 - 1.2.1. S Crosbie and S Macnab, the owners of the property and recipients of a notice to fix (“the owners”). S Crosbie also applied for this determination.
 - 1.2.2. Invercargill City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3. This determination arises from the construction of a wind turbine and supporting foundation at the owners’ property at 28 Arthur Steet, Gladstone, Invercargill (refer to figure 1). The authority is of the view the owners were required to obtain a building consent prior to undertaking the building work.
- 1.4. The matters to be determined, under sections 177(1)(b), (2)(a) and (3)(e), are therefore the authority’s decisions to:
 - 1.4.1. require a building consent for the construction of the wind turbine, and
 - 1.4.2. issue a notice to fix for the construction of the foundation.

¹ The Building Act 2004, section 185(1)(a) provides the Chief Executive of the Ministry with the power to make determinations.

- 1.5. In deciding this matter, I must consider whether:
- 1.5.1. the wind turbine was excluded from regulation under the Act by way of section 9(ac) on the basis it is part of, or related to, a network utility operator (“**NUO**”²) system³
 - 1.5.2. the foundation for the wind turbine was exempt from the requirement for a building consent under clause 40 of Schedule 1.⁴

Issues outside this determination

- 1.6. The parties have included reference to matters that relate to the Resource Management Act 1991. As I have no jurisdiction under other enactments or the authority’s District Plan, this determination only considers matters relating to the Building Act and its regulations.
- 1.7. At the request of the parties, the Ministry issued a direction under section 183 on 7 October 2022.⁵ The direction confirmed that the authority’s power of decision under sections 49 and 51 to grant and issue a building consent for the proposed wind turbine at 28 Arthur Street was not suspended.⁶ The authority then issued a building consent (reference number BDG/2022/555) for the construction of the wind turbine on 10 October 2022.⁷ I have not considered the decision by the authority to grant and issue the building consent.
- 1.8. I have not considered whether the building work to construct the wind turbine or its foundation complies with the Building Code.
- 1.9. On 25 November 2021, the owners applied to the authority for a discretionary exemption from requiring a building consent for the construction of the wind turbine and foundation under clause 2, Schedule 1. However, on 24 March 2022, the authority refused the owners’ application.⁸ The application for determination did not include this decision by the authority to refuse the discretionary exemption application, so I have not considered this further.

² Refer to section 7 – Interpretation. Network utility operator includes a person who...(c) is an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 for the purpose of line function services as defined in that section.

³ Refer to section 7 – Interpretation. NUO system means a system owned and controlled by a network utility operator.

⁴ Sections 41(1)(b) and 42A(1)(c).

⁵ Section 183 Decision or exercise of power suspended until determination made: (1) Until the chief executive makes a determination on a matter, any decision or exercise of power by any person referred to in section 177 that relates to that matter is suspended unless and to the extent that the chief executive directs otherwise

⁶ The authority granted the consent on 20 September 2022.

⁷ The project description stated in the building consent is “Install Vertical Axis Wind Turbine on a [chartered professional engineer] designed plinth / foundation”.

⁸ I note the notice to fix (see paragraph 3.2) also included reference to information still to be provided by the owners, to the authority, in respect of the clause 2, Schedule 1, discretionary exemption application.

2. The building work

- 2.1. The owners' property is located on a relatively flat section of land in a residential area to the north of Invercargill city centre.
- 2.2. The wind turbine is located close to the southeast corner of the owners' dwelling and is approximately 4.8m from the east property boundary (to the centreline of the turbine).
- 2.3. The turbine includes a steel "tower" that is 6m high and rotor blades that extend a further 2.35m, giving an overall height of 8.35m. The tower is bolted to a concrete foundation. Refer to figure 1. The turbine has a "rated power" generation of 3 kilowatts. The installation is set up as an "on-grid" system whereby power generated by the wind turbine is fed by a controller and inverter into the dwelling and any excess power is sent to the mains electrical grid (refer to paragraph 4.1.5).
- 2.4. The foundation for the wind turbine was the subject of a specific engineering design by a Chartered Professional Engineer ("the engineer"). The design was for a foundation approximately 2m square and 1.2m deep, to be constructed using reinforced concrete. The design was supported by a Producer Statement – Design (PS1) dated 24 November 2021. The stated means of compliance with Building Code Clause B1 Structure was Verification Method B1/VM1 and New Zealand Standard NZS 3101:2006 – "Concrete structures standard"⁹.

3. Background

- 3.1. On 10 December 2021, the engineer conducted a site inspection and observed the excavation and steel reinforcement for the foundation. The engineer noted the excavation was approximately 2m square and 1.4m deep.¹⁰
- 3.2. On 28 January 2022, the authority issued a notice to fix¹¹ to the owners in accordance with sections 164 and 165. The notice stated:
 - 3.2.1. The particulars of contravention or non-compliance with section 40, specifically, "buildings not to be constructed, altered, demolished, or removed without consent"
 - 3.2.2. The foundation of the proposed wind turbine has been completed without a building consent.

⁹ NZS 3101.Part 1:2006 (The design of concrete structures) is referenced in *Ministry of Business, Innovation and Employment Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure*, amendment 19, effective from 28 November 2019; this was the current version at the time the PS1 was dated.

¹⁰ It is not clear when the concrete was poured for the foundation other than it is assumed it was on a date after 10 December 2021 and prior to 28 January 2022.

¹¹ Authority reference number NTF/2022/1.

- 3.2.3. To remedy the contravention or non-compliance the owners must stop all building work with immediate effect and “provide a certificate of acceptance [application]¹² and structural engineering review including [a] summary and [supporting] site records for the completed foundations”.
- 3.3. On 8 March 2022, the authority granted a resource consent to the owners under the Resource Management Act 1991 “to erect a Vertical Axis Wind Turbine”. The letter (dated 9 March 2022) accompanying the issue of the consent stated:
- The purpose of the wind turbine is to generate electricity from wind, which will power the existing house on site. Surplus electricity supply might be sold back to the grid.
- 3.4. On 10 March 2022, the engineer completed a Producer Statement – Construction Review (PS4) in respect of an “overview of foundation bearing and reinforced concrete base pad for vertical axis wind turbine”. The PS4 stated compliance of the building work with Building Code Clause B1 Structure.
- 3.5. On 18 March 2022, the engineer conducted another site inspection and observed the bolts protruding from the foundation as well as the “rotor arm”, “generator assembly”, and “central hub unit” for the turbine. The inspection record states, “satisfied that [the] unit is acceptable to install”.
- 3.6. The Ministry received an application for a determination on 30 March 2022.
- 3.7. As noted in paragraph 1.7, the Ministry issued a direction under section 183 which lifted the suspension of the authority’s powers to enable the authority to issue a building consent and the building work to proceed.
- 3.8. On 27 October 2022, the wind turbine was installed.

4. Submissions

The owner

- 4.1. The owners are of the view that:
- 4.1.1. The “private wind turbine” is excluded from regulation by way of section 9(ac) of the Act on the basis it is part of, or related to, a **NUO system** [my emphasis]. However, the owners accept they are not a NUO (ie they are not an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992¹³).

¹² In accordance with section 97.

¹³ Available at: <https://www.legislation.govt.nz/act/public/1992/0122/latest/DLM281858.html?src=qs>.

- 4.1.2. Section 9(ac) “does not differentiate between privately owned or NUO owned wind turbines. The wording ‘part of’ suggests to [the owners that it is] owned by the NUO, whereas ‘related to’ suggests another form of connection”.
- 4.1.3. The wind turbine “is related to the NUO system, so is not a building under the Act” by means of the “distribution agreement” between the owners and the NUO and “by physical connection through the electrical wiring”.
- 4.1.4. The wind turbine “will be connected to the national grid as an electrical generator¹⁴, so [it] is therefore part of, or related to a NUO system”.
- 4.1.5. The owners “have a distribution generation agreement in place” with a NUO “to supply excess power back to the national grid”. The owners provided a copy of the “agreement to connect and operate a distributed generation system form”. The form is dated 8 April 2021 and was approved by the NUO on 17 May 2021. The form confirmed:
- (1) the owners of the distributed generation equipment were the owners of 28 Arthur Street
 - (2) the connection was “new generation in an existing premises”
 - (3) the type of generation (ie wind) being installed and manufacturer’s details.
- 4.1.6. As “wind turbines are not considered buildings in the Building Act, section 40 does not apply, and therefore cannot be the subject of a notice to fix”.
- 4.1.7. The construction of the concrete foundation for the wind turbine (without a building consent) was in reliance on section 42A(1)(c) and clause 40 of Schedule 1.
- 4.1.8. An engineer “is overseeing the structural aspects of the project...” including “providing onsite guidance and oversight for the construction” of the wind turbine.
- 4.2. The owners also referred to a “Technical Review of Wellington City Council” by the Ministry dated July 2012 titled “Guidance in relation to Schedule 1(k)¹⁵ exemptions and issuing infringement notices”.¹⁶ The owners referred to page 10 of the technical review which states:

¹⁴ Section 2 of the Electricity Act 1992 defines “electricity generator means any person who owns or operates a generator connected to distribution or transmission lines”.

¹⁵ Schedule 1(k) was replaced by clause 2 of Schedule 1 on 28 November 2013 by section 73(1) of the Building Amendment Act 2013.

¹⁶ Available at <https://www.building.govt.nz/assets/Uploads/building-officials/technical-review/2012-wellington-technical-review.pdf> (accessed on 9 January 2023).

The Ministry noted that between [23 December 2010] and [13 March 2012] the wind turbine foundations (Example 5 on Table 2 refers)¹⁷ may have qualified as exempt under exemption (gb)¹⁸. However, since [13 March 2012] and the introduction of the Building Amendment Act 2012, wind turbines are no longer considered buildings under section 9(ac) of the Building Act 2004.¹⁹

The authority

4.3. The authority is of the view that:

- 4.3.1. The owners are not a NUO, and the “proposed wind turbine [is not] owned or controlled by a [NUO] therefore [the authority] believe that a building consent is required”.
- 4.3.2. The construction of the supporting foundation for the wind turbine required a building consent, hence the issue of the notice to fix and requirement for the owners to obtain a certificate of acceptance for the building work completed without first obtaining the building consent (or the discretionary exemption; refer to paragraph 1.9).
- 4.3.3. The “proposed location of [the owners’] turbine immediately adjacent to a dwelling and in close proximity to a public footpath and road in a residential area would suggest that any structural failure could have serious consequences to people and other property”.

5. Discussion

- 5.1. The matters to be determined relate to the construction of a wind turbine at the owners’ property and whether this required a building consent, as well as the decision by the authority to issue a notice to fix for the construction of the supporting foundation without a building consent.
- 5.2. The owners are of the view the wind turbine is excluded from regulation under the Act by way of section 9(ac) on the basis it is related to a NUO system, and even if

¹⁷ Pages 14 and 15 of the technical review refer to an example of “reinforced concrete foundation bases (27No.) for wind turbines” granted a discretionary exemption by the territorial authority under Schedule 1(k) with specific reference to the “Ministry’s guide exempt building work (published December 2010)” [second edition, titled “A guide to building work that does not require a building consent – Building Act 2004”].

¹⁸ Schedule 1, clause (gb): the construction, installation, replacement, or alteration of any plinth or similar foundation that is or has been (i) used for supporting mechanical plant, a tank, equipment, machinery, or similar item; and (ii) designed by a chartered professional engineer.

¹⁹ I note the quoted text did not clarify that it was in respect of wind turbines “not intended to be occupied that are part of, or related to, a NUO system” (Section 8 of the Building Amendment Act 2012 available at <https://www.legislation.govt.nz/act/public/2012/0023/latest/DLM3387765.html>). In the case of the relevant example exemption on pages 14 and 15 of the technical review report, the photos in the report show very large wind turbines that appear likely to be part of a NUO system.

this is not the case, the foundation for the wind turbine was exempt from the requirement for a building consent under clause 40 of Schedule 1.

Legislation

5.3. Section 8, building, what it means and includes:

- (1) In this Act, unless the context otherwise requires, building
- (a) means a temporary or permanent movable or immovable structure...; and
 - (b) includes
 - (i) a mechanical, electrical, or other system
-
- (2) Subsection (1)(b)(i) only applies if
- (a) the mechanical, electrical, or other system is attached to the structure referred to in subsection (1)(a); and
 - (b) the system
 - (i) is required by the building code; or
 - (ii) if installed, is required to comply with the building code.
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5.4. Section 9, building, what it does not include:

In this Act, building does not include

- (a) a NUO system, or part of a NUO system, that
 - (i) is external to the building; and
 - (ii) is connected to, or is intended to be connected to, the building to provide for the successful functioning of the NUO system in accordance with the system's intended design and purpose...
-
- (ac) security fences, oil interception and containment systems, **wind turbines**, gantries, and similar machinery and other structures (excluding dams) not intended to be occupied that are **part of, or related to, a NUO system**.....[my emphasis].

5.5. Section 7 states a NUO system means a system owned or controlled by a network utility operator and defines network utility operator as a person who:

(c) is an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 for the purpose of line function services as defined in that section....

Is the wind turbine a building?

- 5.6. In determining whether the wind turbine is a building, I must consider whether it is included in the meaning of 'building' by way of section 8 and whether it is excluded under section 9.
- 5.7. A similar situation was discussed in previous determination 2018/013²⁰ regarding the installation of a frost fan. The significant difference in this case is the wind turbine is constructed as an "on grid" system for the generation of electrical power (refer to paragraph 2.3), whereas the frost fan was installed for a different purpose. However, the features and form of construction are similar for both the frost fan and wind turbine, for example, both assemblies or systems are mechanical systems²¹ that are supported on a foundation.
- 5.8. Setting aside for the moment any exclusion from the definition of a building under section 9, section 8(1)(b)(i) includes mechanical, electrical, or other systems within the definition of building in section 8(1)(a). Section 8(2) is clear that not all mechanical systems are included in the definition of a building, rather only those systems that are attached to a structure (subsection 2(a) and are either required by the Building Code (subsection (2)(b)(i)) or, if installed, are required to comply with the Building Code (subsection (2)(b)(ii)).
- 5.9. Considering first section 8(2)(a), the wind turbine is a mechanical system attached to a structure. The structure in this case is the reinforced concrete foundation (the foundation) designed by an engineer.
- 5.10. Turning now to section 8(2)(b)(ii) the wind turbine is used for the purpose of generating electrical power for the owners' dwelling. Therefore, the building work to construct it is required to comply with the Building Code, including Clauses B1 Structure, B2 Durability, and G9 Electricity.
- 5.11. I have also considered if the supporting structure or "tower" (refer to paragraph 2.3) is a structure or is a component part of the mechanical system. From the information provided to me (specifically, the manufacturer's product information sheets provided by the authority in the clause 2 Schedule 1 documentation), I am of the view the tower is an integral element of the mechanical system and not a building in itself. In forming this view, I have taken into account that that the tower

²⁰ 2018/013: Regarding the authority's decision to require a building consent for the installation of a frost fan at 255 Kings Road, Waipara (dated 20 April 2018).

²¹ For the purposes of this determination, I have preferred the term mechanical system as opposed to electrical system to describe the form of construction of the wind turbine, notwithstanding its purpose is to generate electrical power.

and blades are provided together as one system or assembly and detailed as such in the specifications.

- 5.12. I will now consider whether the wind turbine is excluded from the definition of “building” by section 9, specifically sub-section 9(ac), on the basis it is a part of, or related to, a NUO system.
- 5.13. The parties accept the owners are neither an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 (refer to paragraphs 4.1.1 and 4.3.1). As such, the owners do not meet the definition of a NUO.
- 5.14. However, the owners consider their “private wind turbine” is related to a NUO system by virtue of the “distribution agreement” between the owners and the NUO and “by physical connection through the electrical wiring”.
- 5.15. In this case the wind turbine is not owned or controlled by a NUO. The wind turbine is owned and controlled by the owners of the property for the purpose of generating electrical power for their dwelling, with only excess power distributed to the mains electrical grid (refer to paragraphs 2.3 and 3.3); otherwise referred to as an “on-grid” system.
- 5.16. The “distribution agreement” referred to above states the owner of the distributed generation equipment are the owners of 28 Arthur Street and no information has been provided to the effect that the ownership or control of the wind turbine has otherwise been transferred to the NUO. I am of the view this equally applies to the electrical wiring referred to by the owners.
- 5.17. The owners also refer to the wind turbine as being “connected to the national grid as an electrical generator”. In this case the primary purpose and function of the wind turbine is to provide electrical power to the owners’ dwelling. The turbine is only connected to the national grid to send power to that system as and when it is in excess of the requirements of its primary purpose. It is not an “electrical generator” that has been installed, is owned, or controlled by the NUO.
- 5.18. While I acknowledge that the wind turbine is connected by electrical wiring to a NUO system, in light of the factors discussed in paragraphs 5.15-5.17 above, I do not consider that connection to be sufficient to consider the wind turbine to be related to a NUO system for the purpose of section 9(ac).
- 5.19. Therefore, I am of the view the owners’ wind turbine is a mechanical system that is not part of, or related to, a NUO system. Consequently, it does not meet the criteria stated in section 9 (specifically section 9(ac)).
- 5.20. In conclusion, the wind turbine is a mechanical system that is attached to a building and that when installed is required to comply with the Building Code. It is therefore included in the meaning of ‘building’ under section 8(1)(b)(i) and not excluded under section 8(2). It is not part of, or related to, a NUO system, so is not excluded

by section 9(ac). On this basis, the construction of the wind turbine in this case was building work, so did require a building consent.²²

- 5.21. Schedule 1 sets out those categories or types of building work that are exempt from the need for a building consent. The Ministry has also issued guidance on exempt building work.²³ Unless an authority grants a discretionary exemption from the requirement for building consent under clause 2 of Schedule 1, Schedule 1 does not currently provide for wind turbines of the type considered in this case.²⁴
- 5.22. Regardless, I note the owners have applied for a building consent, and this has been granted and issued by the authority (refer to paragraph 1.7).
- 5.23. On a related issue, the authority had raised concerns about the location of the wind turbine and the consequences of any structural failure to people and other property (refer to paragraph 4.3.3). The authority has now granted and issued the building consent, which suggests that it was satisfied the building work to construct the wind turbine would meet the structural requirements of the Building Code.

The foundation

- 5.24. I now need to consider whether the foundation for the wind turbine was exempt from the requirement for a building consent under clause 40 of Schedule 1.
- 5.25. Schedule 1 part 3 describes exempt building work for which design is carried out or reviewed by a chartered professional engineer.
- 5.26. Clause 40 of Schedule 1 is in respect of “plinths”:

Building work in connection with any plinth or similar foundation if the plinth or foundation supports plant, a tank, equipment, machinery, or any similar item.

- 5.27. As previously stated, the form of construction of the wind turbine is similar to the frost fan discussed in previous determination 2018/013. In that case, the foundation pad was considered exempt under clause 40.²⁵
- 5.28. The design of the foundation for this wind turbine was carried out by the engineer who has also undertaken construction monitoring of the building work. The

²² Section 40 – building work not to be carried out without consent: (1) a person must not carry out any building work except in accordance with a building consent.

²³ Available at <https://www.building.govt.nz/assets/Uploads/projects-and-consents/building-work-consent-not-required-guidance.pdf>.

²⁴ Similar to previous determination 2018/013, I have considered if the wind turbine may have met the criteria stated in clause 4 of Schedule 1 for an unoccupied detached building. However, sub-clause 4(2) excludes buildings that are “closer than the measure of its own height to any residential building or to any legal boundary” (refer to paragraphs 2.2 and 2.3).

²⁵ 2018/013, paragraphs 5.2.1 and 5.3.2.

engineer has issued producer statements accordingly (refer to paragraphs 2.4 and 3.4).²⁶

5.29. I am of the view the construction of the foundation that supports the wind turbine is building work that is exempt under clause 40 of Schedule 1 from the requirement to obtain building consent.

The notice to fix

5.30. I now need to consider the decision by the authority to issue the notice to fix for “the foundation of the proposed wind turbine” that was completed without the owners first obtaining a building consent. The notice to fix did not include the wind turbine itself.

5.31. I have already reached the view the construction of the foundation was exempt under clause 40 of Schedule 1. Therefore, the authority was incorrect to issue the notice to fix for contravention of section 40 requiring the owners to obtain a certificate of acceptance for the completed building work.

6. Decision

6.1. In accordance with section 188 of the Building Act 2004, I determine that the authority:

6.1.1. was correct to require a building consent for the construction of the wind turbine and I confirm that decision; and

6.1.2. was incorrect to issue the notice to fix for the construction of the foundation for the wind turbine and I reverse that decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 2 February 2023.

Katie Gordon

National Manager, Building Resolution

²⁶ I have not assessed the compliance of the building work with the Building Code based on the information contained in the producer statements (refer to paragraph 1.8).