



## Determination 2019/027

# Regarding building work compliance at 302 Kennedys Bush Road, Christchurch with Building Code Clause E1 Surface water, and grant of a building consent and code compliance certificate for this work

### Summary

This determination concerns sitework carried out by the applicant's neighbour and whether this is likely to cause damage or nuisance to the applicant's property in breach of Clause E1 Surface water. The determination also considers whether the authority was correct to grant a building consent and a code compliance certificate for this work.

### 1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> ("the Act") made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to this determination are:

- M Murdoch, owner of the neighbouring property at No. 304 Kennedys Bush Road, who applied for this determination ("the applicant")
- Turvey Trustee Ltd, owner of the property at No. 302 Kennedys Bush Road ("the owner"), acting through an agent ("the owner's agent")
- Christchurch Council, carrying out its duties as a territorial authority or building consent authority ("the authority").

1.3 The determination arises from the applicant's view that sitework carried out by the owner when constructing a driveway near their shared boundary does not comply with Clause E1 Surface water of the Building Code<sup>2</sup> as it is causing flooding and erosion on her property. In her view the authority was wrong to issue a building consent and a code compliance certificate for this work.

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<sup>1</sup> The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.building.govt.nz](http://www.building.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

- 1.4 While the applicant has also described work carried out by a network company at the berm (the area between the properties and the roadside) as contributing to her drainage problems, this is not a matter I can consider for determination as it is not sitework in relation to a building<sup>3</sup>.
- 1.5 The matters to be determined<sup>4</sup> are therefore:
- whether building work (sitework relating to the driveway construction) on the owner's property complies with Building Code Clause E1.3.1; being the requirement to avoid the likelihood of damage or nuisance to other property, and
  - whether the authority was correct to issue the building consent and code compliance certificate for this work<sup>5</sup>.
- 1.6 In making my decision I have considered the submissions of the parties, the report of independent experts commissioned by the Ministry ("the experts"), and the other evidence in this matter.

## 2. The building work

- 2.1 The applicant's property is in a hillside subdivision on Christchurch's Port Hills. It is generally steep, especially to the southwest, with grades of up to 12.5%.
- 2.2 The applicant's property is the highest of three lots: No. 304 Kennedys Bush Road (the applicant's property), No. 302 (the owner's property) and No. 300. The road in front of these properties runs east-west and the properties all have a natural gully below them to the south. The applicant's house was built in 2010.
- 2.3 All three properties have a surface water outfall installed under a resource consent granted by Environment Canterbury ("ECan") in 2007 to the original developer<sup>6</sup>. The resource consent placed conditions on the management of surface water discharge (from roofs and driveways) from the three properties.
- 2.4 The surface water outfall for each property took the form of an outfall chamber leading to a 20m long open concrete channel<sup>7</sup> laid flat following the site's contours – a minimum 2m wide strip down-slope from the open channel is referred to as the "stormwater treatment area". The channel was designed to direct the surface water to the east-southeast of each property before draining into the gully below. The resource consent required the surface water system on each property (being work completed under a building consent) to be collected in a detention tank, with the tank feeding water at a controlled rate to the outfall chamber and channel.
- 2.5 In early 2013, sitework began at the owner's property. This included compacting rubble to build a driveway set back 300-500mm from the shared boundary and running along most of its length. A low timber retaining wall was also constructed towards the southern end of the owner's property.

<sup>3</sup> Refer to section 7 of the Act for the definition of sitework.

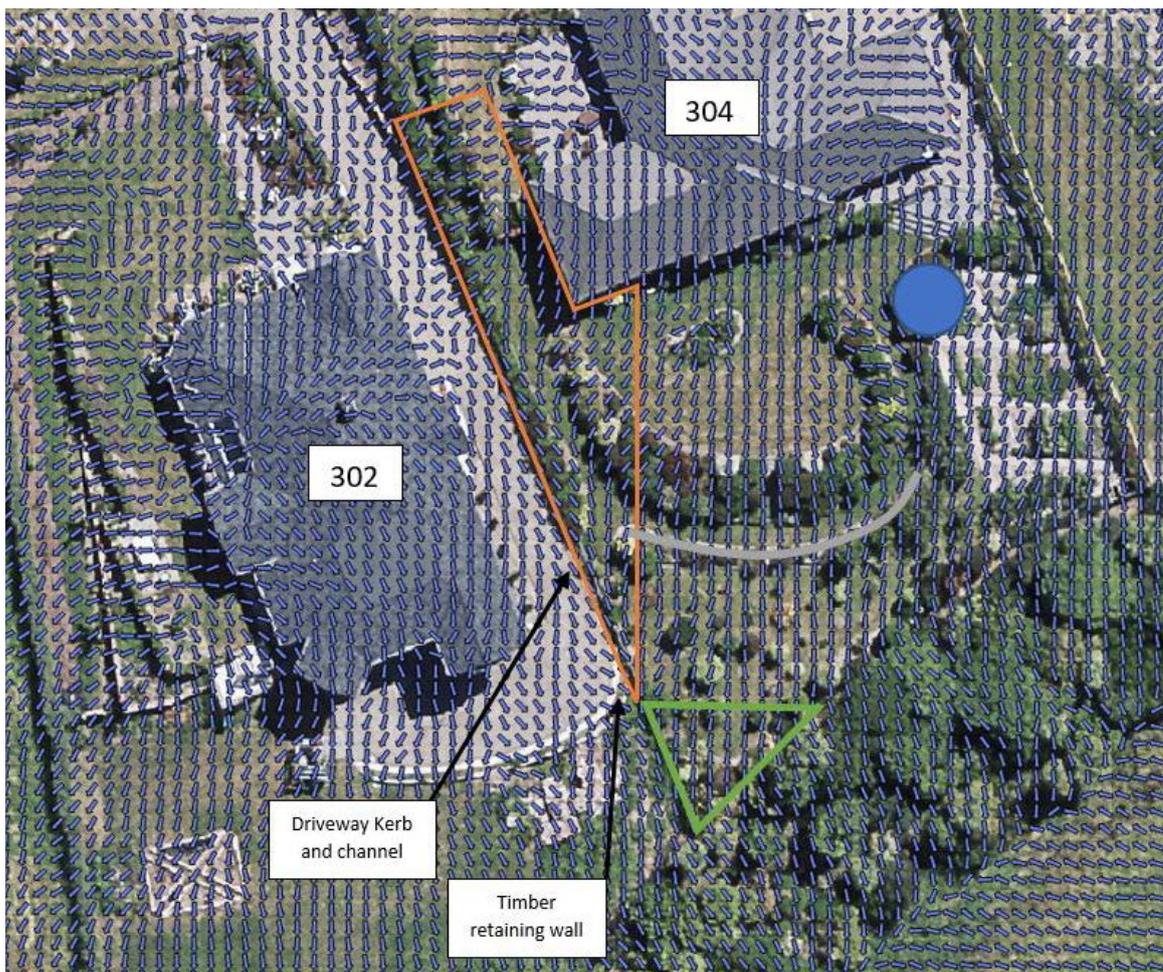
<sup>4</sup> Under section 177 (1)(a) of the Act

<sup>5</sup> Under sections 49 and 95 of the Act

<sup>6</sup> Consent number CRC081520 granted to the developer by Environment Canterbury on 25 October 2007

<sup>7</sup> Referred to as the "concrete spreader" in Figure 1

2.6 Figure 1 shows the site layout for numbers 302 and 304.



**Figure 1: Site layout and flow direction of surface water (from the experts' report)**

### Legend

-  Flow Direction
-  Contributing natural catchment
-  Area of property affected
-  Concrete spreader
-  Rainwater tank

### 3. Background

- 3.1 From July 2013, following the installation of the driveway and associated sitework described in paragraph 2, the applicant reported that surface water was forced back across the shared boundary onto her property to its southwest corner leading to flooding and erosion damage.
- 3.2 In spite of remedial work carried out by the owner in 2015 (refer paragraph 4.2.5) at the authority's request, the applicant continued to report damage to her property.
- 3.3 A summary of events follows: I note that this largely relies on information provided in the applicant's submissions and supporting material.

Date	Event summary
Early 2010	Applicant's house (No. 304) is built (with the surface water outfall already in place).
May 2010	Fencing (wooden posts and windbreak) erected at boundary between No. 302 and No. 304. Applicant says windbreak was attached at sufficient height above ground level for a rake or weed trimmer to pass underneath.
Early 2013	Applicant says builders on owner's property (No. 302) use compacted rubble to raise the land at the shared boundary "by a considerable amount" and that "a good deal" rolled onto her property under the windbreak.
Feb 2013	Applicant visits the authority's office in an attempt to have this rubble removed from her property; advises the authority that the boundary level has been raised with rubble.
Jul 2013	Applicant first notices surface water draining onto her property and washing away soil; advises the authority and ECan.
Aug 2013	Applicant notices apparent difference between contours on subdivision plan and house plan for No. 302; advises the authority.
Nov 2013	Owner's builders start constructing driveway along shared boundary; applicant says builders refuse to remove rubble saying the authority had given permission for it to remain.
Dec 2013	Authority visits applicant; is reported by applicant as saying investigation necessary as boundary levels look high on the owner's property.
Jan to Jul 2014	Applicant's lawyer unsuccessfully seeks a report of the authority's investigation.  On 1 July 2014 authority advises applicant's lawyer that it has issued a code compliance certificate for No. 302 saying "specifically in relation to the levels and setbacks, Conformation [sic] of compliance was supplied by a Surveyor and reconfirmed by the designer".
Dec 2014	Authority's chief executive orders review of all documentation relating to applicant's concerns.
28 Apr 2015	<p><b>Report from the authority:</b></p> <p>Authority reports to applicant on its findings, concludes:</p> <ul style="list-style-type: none"> <li>• levels used onsite were accurate for the purposes of the building consent</li> <li>• it is satisfied the owner has met the requirements in the consent for surface water disposal</li> <li>• it has not allowed the owner to raise the land at the boundary.</li> </ul> <p>It also:</p> <ul style="list-style-type: none"> <li>• accepts that it had not actively required her neighbour to address the drainage issues identified, and</li> <li>• says it will request owner to remedy any build-up of land diverting the natural flow of water from No. 304 to No. 302.</li> </ul>
May-Jun 2015	On 6 May 2015 an authority official inspects the boundary. A further meeting a week later involves the owner's landscaper. The owner subsequently removes some debris.
Aug 2015	Authority advises applicant her neighbours have completed the required remedial work.
Sep 2015	Applicant still concerned about higher land levels on owner's property restricting

Date	Event summary
	natural water flow; Ombudsman to review case.
Sep – Dec 2016	<p data-bbox="486 264 790 297"><b>Report from the authority:</b></p> <p data-bbox="486 320 1407 398">Authority proposes an independent investigation conducted by a technical services officer from outside its consenting and compliance group. In its letter and report of 25 November 2016, the authority says:</p> <ul data-bbox="534 405 1396 573" style="list-style-type: none"> <li>• the land has been inspected by an expert in land drainage</li> <li>• the owner has completed the required remedial work, so the ground level at the boundary is now below the windbreak fence</li> <li>• there are no current breaches of the Resource Management Act, Building Act or any bylaws</li> <li>• it is satisfied the work complies and there is no further action for it to take.</li> </ul> <p data-bbox="486 602 1407 683">In a meeting instigated by the Ombudsman, authority staff meet the applicant on 9 December 2016. Applicant later seeks full copy of independent investigation; receives more information in July 2017.</p>
Jun 2017	Applicant approaches ECan to review drainage issues. ECan inspects land on 15 June 2017; concludes the intent of the original surface water discharge consent is being met and no further action from it is required.
Aug – Oct 2017	<p data-bbox="486 797 1066 831"><b>Report from the applicant’s technical consultants:</b></p> <p data-bbox="486 846 1407 925">Applicant engages an engineering and environmental consultancy (“the applicant’s technical consultants”) to investigate the drainage issues and provide technical advice.</p> <p data-bbox="486 954 1407 1066">The consultants’ report issued 5 September 2017 agrees with the authority that there is no significant impediment to water flow across the boundary line but says the retaining wall behind the boundary and absence of a suitable interceptor drain appear to channel the overland flow back to the applicant’s property.</p> <p data-bbox="486 1095 858 1128">The consultants’ report concludes:</p> <ul data-bbox="534 1122 1407 1514" style="list-style-type: none"> <li>• the authority has concluded the principle of natural servitude<sup>8</sup> has been satisfied via the construction of a subsoil interceptor drain (on the owner’s property) to intercept and manage any cross-boundary flow.</li> <li>• a review of design details indicate that the drain is not an interceptor drain and is incapable of managing this flow. Further, the construction of side and rear retaining walls mean any cross boundary flow is redirected back onto No. 304.</li> <li>• observations of post-development flow paths indicate that overland flow, which would have “sheet flowed” across the boundary previously, is now channelled to a single location at the rear of the applicant’s property. This area is receiving more water as a result of the downhill development.</li> <li>• The backfill and topsoil next to the owner’s retaining wall means the retaining wall’s subsoil drain does not effectively intercept cross-boundary surface water.</li> </ul> <p data-bbox="486 1543 1407 1594">Applicant sends a copy of report to the authority, which responds saying this matter is at an end.</p>
30 Nov 2017	Applicant applies to the Ministry for a determination.

## 4. Initial submissions

### 4.1 The applicant

4.1.1 The applicant provided a detailed submission with her application as well as:

- a timeline of events and copies of correspondence between herself and the authority and ECan during 2013-2017

<sup>8</sup> That land on a hillside must accept all natural consequences of its location, including any overland runoff which naturally occurs from a higher property to a lower property.

- copies of relevant consents and plans including the 2007 resource consent relating to surface water discharge, subdivision contour plans, and extracts from the owner's consented plans showing contours
- copies of reports supplied by the authority following its review of documentation (April 2015) and further investigations (May 2015 and October 2016), and of the report from the applicant's technical consultants (September 2017)
- various photographs showing the property and shared boundary at various stages including pre-development, during and after construction of the owner's driveway and timber retaining wall, of her stormwater system, and of flooding on her property
- a video showing surface water flows on her property.

4.1.2 The applicant described the events leading to her application for determination (as summarised in paragraph 3.3), and she expressed dissatisfaction with the authority's responses to her concerns.

4.1.3 In the applicant's view (in summary):

- The owner's land was raised during siteworks in 2013 (which the applicant said extended from the bottom end of the proposed driveway to about three metres onto the berm), which "had the effect of forming a dam for all surface water which previously flowed freely downhill across the boundary".
- As a result, water flowed back onto her property and the "water treatment area" (refer paragraph 2.4) for her surface water system was constantly having water added to it<sup>9</sup> from the owner's land. Although the authority required the owner to carry out remedial work in 2015 the problem continued.
- There were discrepancies between the original contour levels shown at the boundary on the original subdivision plans and those shown on the owner's consented plans (by two metres), which were raised with the authority. This could have contributed to the drainage problems and the authority's later investigations not finding cause for concern.
- The independent inspection conducted in late 2016 was not "independent" as it was conducted by the authority's water engineer. The engineer did not inspect the applicant's property and had used "the [authority's] adopted ground level at the boundary" during the inspection.

4.1.4 As a result, the applicant engaged her own technical consultants to inspect the drainage and provide technical advice (refer paragraph 3.3). The technical consultant's report concluded that the owner's subsoil drain was incapable of managing cross-boundary flow, the construction of side and rear retaining walls redirected this water back onto the applicant's property, and that this was now channelled to a single location at the rear of her property.

## 4.2 The authority

4.2.1 The authority provided a submission on 19 December 2017 which included site photos and a detail from the plans approved for the owner's building consent. This detail included a subsoil drainage pipe at the boundary as well as unspecified

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<sup>9</sup> The 2m-wide water treatment area is approximately 10m upslope from the affected area of the applicant's property.

backfill. On 1 August 2018 it also supplied copies of plans approved for the owner's building consent.

4.2.2 The authority concluded:

... the building work carried out at [No.] 302 Kennedys Bush Road as it now exists does not create the likelihood of damage or nuisance to [No.] 304 Kennedys Bush Road. If there is any likelihood, then this will be no more than trivial and no further action is required.

4.2.3 Regarding its issue of the building consent, the authority said it believed the approved plans demonstrated compliance with Clause E1.3.1 with respect to the applicant's property. The authority said:

- The approved plans showed that the flow of any overland water arriving at the boundary would not be impeded.
- The approved plans showed a "Max 1:6" slope, and the authority considered compliance was achieved as long as the flow of water was not impeded.
- The retaining wall construction varied from what was consented, but the authority did not consider this was a critical issue with such a minor structure. This was not building work requiring a building consent as the wall was significantly less than 1.5 metres high (it was covered by the consent and resulting code compliance certificate as it was detailed on the approved plans).

4.2.4 Regarding its issue of a code compliance certificate for the completed work, the authority accepted that compliance with Clause E1.3.1 was not achieved at that time as was evident at its inspection on 6 May 2015, saying:

...we accept that the landscaping at the boundary had been carried out in such a way as to create a small 'dam' of approximately 50 mm height (maximum) that impeded the overland flow of water...

4.2.5 The authority said it subsequently:

- wrote to the owner asking them to remove some landscaping at the boundary so natural overland water could flow onto the owner's property. An agent for the owner assured the authority this work would be carried out, and the authority had no reason to believe otherwise.
- asked an engineering specialist in surface water to visit the site and assess whether the remedial work had been completed, as there were further complaints from the applicant. This inspection concluded the work had been sufficiently completed and no substantive issue remained; a conclusion the authority said was confirmed at a later visit by two senior staff.

4.2.6 The authority also said:

- any further alteration to the boundary would make "no more than a trivial change" to the water that arrived at the lower part of the section, and
- there was no longer any specific impediment at the boundary to water flowing over it as there had been at its May 2015 visit.

## 5. The experts' report

5.1 On 21 May 2018 I engaged an engineering and resource management firm, which included a water resource engineer and geotechnical engineer, to provide an opinion on compliance of the owner's sitework with Clause E1.3.1 ("the experts"). The experts reviewed the material provided by parties, visited the site on 7 June 2018 and provided their final report on 27 July 2018. I copied this report to the parties for comment.

5.2 In their report the experts said their review of the material and onsite observations indicated that the overland flow concentrated along the boundary between No. 304 and No. 302 by No. 302 was likely to cause a nuisance and damage to No. 304.

5.3 The experts said the flow rates predicted for a 1:10 year storm event, concentrated along the steep flow path at the shared boundary between Nos 302 and 304, were likely to cause scour and erosion damage in the southwestern corner of the applicant's property. Accordingly, in their view the neighbour's driveway development works did not comply with Clause E1.3.1.

This is because the driveway prevents the natural overland flow of water from [No.] 304 crossing the boundary in the manner it did prior to development of the subdivision and leads to a concentration of these flows at the southwest corner of [No.] 304, where scour and erosion of the land is likely to occur.

5.4 The experts said the owner's construction of a driveway kerb and the subsequent backfilling of the area between this kerb and the shared boundary had collected and concentrated the overland flow, which was then disposed of back onto the neighbour's property.

5.5 The experts estimated the peak runoff flow in a 1:10 year rainfall event generated from the area of the applicant's property affected by the owner's sitework as being 1.5 litres/second.

Due to the highly erodible nature of the soils, the steep catchment and the concentration of stormwater runoff it is likely that the soils' natural ability to resist erosion will be exceeded and erosion will occur. The extent of erosion of these soils is highly dependent on the velocity and the shear stresses exerted at the flow-soil boundary.

Due to the small scale of this catchment and the relatively high variability of catchment features it is not feasible to reliably estimate a rate or amount of erosion that would occur along the concentrated flow path. However, there is a likelihood that erosion and scour would take place as a result of the construction.

5.6 The experts said it was not necessary to consider the likelihood of "nuisance" occurring (with regard to Clause E1.3.1) as, in their view, "damage" was a likely outcome given the predicted flow rates and site conditions.

5.7 The experts also commented that what appeared to be a subsoil drain was visible on the surface of the land between the driveway kerb and the boundary (on the owner's property).

For this drain to be effective it would need to be reinstalled underground with a layer of open graded drainage stone placed above to a level below that of the neighbouring property.

## **6. The first draft determination and submissions in response**

### **6.1 General**

- 6.1.1 The first draft of the determination (“the first draft”) was issued to the parties for comment on 8 August 2018. This concluded that sitework relating to the driveway construction on the owner’s property did not comply with Clause E1.3.1. It also concluded that the authority correctly issued the building consent but incorrectly issued the code compliance certificate for this work, and it reversed the latter decision.
- 6.1.2 I received the submissions outlined below in response to the first draft. These included a report from the owner’s project manager with more details of the sitework and some technical queries, which I asked the experts to respond to. I took this information into account and amended the determination as I considered appropriate.
- 6.1.3 Before issuing the second draft the Ministry also corresponded with parties on several occasions regarding the determination process and progress. These matters included the owner’s request for a hearing, and clarification by the Ministry about the matters a hearing could consider. The Ministry’s initial proposal (on 5 September 2018) was to proceed to a final determination, but this was later revised (on 17 September 2018) to suggest a second draft in light of new technical information to be supplied.

### **6.2 The applicant**

- 6.2.1 In a submission received on 27 August 2018 the applicant advised that she did not accept the first draft. She also sent a detailed submission in which she suggested various amendments to the first draft and a correction to the experts’ report. The applicant also provided supporting documents including a copy of the owner’s consented house plan with contours, a survey plan of the subdivision, a marked-up copy of a water flow diagram<sup>10</sup> from the experts’ report and related correspondence.
- 6.2.2 The applicant agreed with the first draft’s decision but said she was unable to accept certain sections of that draft as there was no agreed level of land at the boundary, saying:
- ...the level of land at the boundary needs to be determined so that land on both sides of the boundary can be returned to the original levels ... before any sitework is undertaken.
- and that:
- ...the drainage problem on our land would remain if [remedial work was] to happen with land levels as they are at present.
- 6.2.3 The applicant’s reasons for not accepting the first draft included the following (in summary):
- The authority had no input into sitework-related matters on the owner’s property between 2013 and 2015. Following the owner’s siteworks in 2013 rubble rolled across the boundary from No. 302 onto her property: for this to happen, the owner’s land must have been raised.
  - The authority’s assumption that the land had not been raised led to its subsequent use of the 2015 boundary level for all following inspections and assessments (including by the experts and the authority’s inspectors). The base

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<sup>10</sup> The water flow diagram is repeated in the determination as Figure 1.

of the wind break along the boundary could not be taken as the ground level, which the authority had appeared to assume.

- It could also be assumed that the subsoil drain shown in the owner's consented plans had been installed in accordance with the consent, but in inspections and assessments from 2015 onwards, the drain was observed to be lying on the surface. If the subsoil drain had been installed below ground as consented, the ground level at time of installation must have been higher than the adjacent land on the applicant's property.
- 6.2.4 The applicant said there were conflicting contours on the owner's consented house plans compared with those shown on the subdivision plan. The conflict in contour levels was a probable reason for the drainage issues.
- 6.2.5 The applicant also commented on water flow and on what she said were raised levels at other areas of the owner's property, mostly from landscaping. She was concerned that not all the conflicting areas of the flow direction identified on the experts' diagram had been considered.
- 6.2.6 The applicant's other comments included that the authority's statement "levels used on site were accurate for the purposes of building consent" did not detect the conflicting contour levels previously brought to its attention. She questioned whether ECan had carried out an inspection at the owner's property and was satisfied the owner had met the requirements for surface water disposal (refer paragraph 3.3).
- 6.2.7 The applicant sent further emails between 16 September 2018 and 11 March 2019 that included:
- her agreement with the Ministry's suggestion to issue a second draft
  - concerns about delays arising from the owner's request to supply an expert report, the time to provide this report, and what she saw as irregularities in the determination process
  - comments on the project manager's report.
- 6.2.8 In an email dated 2 November 2018 the applicant said there had been no building work on her land since the house was built in 2009/10 and that "all landscaping was completed" before issue of the code compliance certificate.
- 6.2.9 In an email dated 24 January 2019 responding to the project manager's report the applicant said the experts' inspection had been carried out assuming the current ground level at the boundary was correct. She considered that photographs included in the project manager's report supported her view that the ground level was raised by the owner's builders.

### **6.3 The authority**

- 6.3.1 The authority accepted the first draft determination in an email dated 30 August 2018. It also said:
- The owner had contacted the authority to advise it wanted to remedy any non-compliances as soon as possible and before the final determination was issued – the authority agreed this was the most appropriate action.
  - As the applicant did not accept the first draft the authority asked the Ministry to issue another draft before any work began.

- 6.3.2 On 2 November 2018 the authority repeated its acceptance of the first draft, but also said it also accepted the Ministry's suggestion of a second draft.

#### **6.4 The owner's initial responses**

- 6.4.1 The owner's initial responses to the first draft were via a barrister ("the barrister"). Responses from 14 December 2018 were from a partner in the law firm representing the owner ("the owner's lawyer").
- 6.4.2 On 28 August 2018 the barrister wrote to accept the first draft, saying he hoped that remedial steps would address the concerns raised in the experts' report and that proceeding to a final determination and revoking the code compliance certificate would not be necessary.
- 6.4.3 On 5 September 2018 the barrister responded to the Ministry's advice earlier that day that a final determination was being prepared and recommending that no remedial work should be carried out until this was issued. The barrister did not accept the code compliance certificate should be reversed and said the owner had not had a proper opportunity to respond to the applicant's latest submissions.
- 6.4.4 On 14 September 2018 the barrister withdrew agreement to the first draft, asked for a hearing, and said an expert was being engaged. On 9 October 2018 the barrister added that the occupier (not the owner) wanted to address the "surface water issue" but felt there were issues that needed expert consideration. He said aspects of the first draft were disputed and would benefit from being discussed at a hearing.

#### **6.5 The project manager's report and experts' comments**

- 6.5.1 On 14 December 2018 the owner's lawyer submitted a report written by the project manager whose firm carried out contract observation/liaison for the owner's house and associated works. The covering letter with the report stressed that the owner had sought to rectify any issues and would prefer meeting to agree an outcome.
- 6.5.2 This report ("the project manager's report") was dated 5 December 2018, described sitework at the owner's property, and included:
- construction photographs including details of the driveway, kerb, retaining wall and drainage, plus a chart of local rainfall data
  - consented Plan No. 1-01 titled "Proposed site plan", stamped "Amendment #1" and dated 17 January 2013 by the authority
  - plan SK 53 titled "Part-Drawing 1-01" with handwritten amendments identified as "subsequent sketch issue re minor driveway modifications/refinements etc during construction period"
  - drawing No. 238A showing the same boundary retaining wall detail provided by the authority (refer paragraph 4.2.1), but with handwritten amendments.
- 6.5.3 In his report the project manager said it was not sufficiently proven the owner's "as-consented construction" had adversely affected natural surface water discharge onto the applicant's property. He said the code compliance certificate should remain in force and further intrusive investigation should be carried out to establish any actual cause. The project manager said:
- ...there is clear provision of suitable drainage systems at the base of walls retaining 'natural land' at levels established at the time of construction, formed and appropriately draining to the required disposal / detention tank & dispersal system on the property of No. 302.

- 6.5.4 The project manager noted the authority’s view that any further alteration to the boundary would make no more than a “trivial change” to the amount of water arriving at the lower part of the applicant’s property.
- 6.5.5 The project manager’s report questioned aspects of the experts’ report. His queries and the experts’ responses (received in a letter dated 20 February 2019 and subsequently copied to parties) are summarised below. In their response the experts also noted they had been asked to quantify the engineering assumptions in their report. They said that, while they understood the value of site-specific data, in their opinion these assumptions were “well founded on engineering judgement and empirical data”.

<b>Project manager’s report 5 December 2018</b>	<b>Experts’ responses 20 February 2019</b>
<p>Some assumptions about the method the experts used to calculate runoff were questioned, saying flow paths appeared to have been inferred from LIDAR<sup>11</sup>-based information rather than from onsite.</p> <p>Further investigation was needed to establish the actual ground profile relationship at the driveway’s upper portion, and to produce any evidence that naturally occurring surface water could not “sheet” across the boundary to effective drainage. There had been no elevation or apparent alteration at this location.</p>	<p>The experts’ report refers specifically to the obstruction of flow created by the lower portion of the driveway (the southern end), not the upper portion.</p> <p>The experts used the 2017 subdivision plan to assess the fall of the land pre-development and the latest LIDAR information from LINZ<sup>12</sup> for post-development contours, which showed the fall in a similar direction to the natural land at No. 304 but a change at No. 302.</p> <p>A clear slope direction (and hence flow path) could be determined from these sets of information, and surveying would show similar trends.</p> <p>Due to the steep nature of the site it was possible to visually confirm the fall and see the flow path formed in the erodible garden materials running downhill almost parallel to the common boundary on the applicant’s side during their site visit.</p>
<p>Intrusive onsite investigation/testing was recommended to determine available permeability of the ground behind the owner’s concrete kerb and next to this on the applicant’s side.</p>	<p>In the experts’ experience, even the least dispersive Port Hills loess<sup>13</sup> soils are prone to erosion, so this testing would be superfluous as it would be unlikely to detract from the observed evidence of surface flow referred to above.</p>
<p>Clause E1 refers to naturally occurring water so there is no inference, expectation or requirement to control “applied water”; e.g. water used to maintain landscaping. The experts’ report does not establish the basis of their findings in relation to this.</p>	<p>The 10% AEP<sup>14</sup> peak runoff flow rate calculated in the experts’ report is based on average rainfall intensity and the area the rainfall will fall on which is “naturally occurring water”. The AEP value was used in their assessment and does not include any provision for applied water.</p>
<p>There is no evidence of erosion at the bottom southwest corner of the applicant’s property, just a statement in the experts’ report that this is likely.</p>	<p>During their site visit the experts identified that the site was underlain predominantly by loess. Sheet and rill erosion (where soil particles are moved downslope by surface or overland water flow) was a well-documented process in Port Hills loess soils. The experts listed a range of geotechnical factors that influenced this process and referenced a 2017 geological study that quantified</p>

<sup>11</sup> LIDAR is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor.

<sup>12</sup> Land Information New Zealand

<sup>13</sup> Loess is a sediment formed by the accumulation of wind-blown silt.

<sup>14</sup> Annual Exceedance Probability. The term “10% AEP” means an event having a 10 percent probability of occurring annually. This can also be referred to as a 1-in-10 year event.

Project manager's report 5 December 2018	Experts' responses 20 February 2019
	<p>the potential dispersive and erosive nature of these loess soils. "It is concluded from review of this information and our experience that erosion is likely".</p> <p>Additional testing could be carried out to attempt to quantify the likelihood of erosion but it was unlikely that any testing in Port Hills loess soils could rule out the potential for erosion and subsequent silt dispersivity. "Further, as stated above, we observed evidence of shallow surface erosion denoting surface flow that was unable to cross the [No.] 302 / [No.] 304 boundary due to the development on the [No.] 302 side."</p>

6.5.6 The project manager described the relevant sitework and said the ground profile (cut and fill) to the eastern side of the driveway had evolved over time. Drainage included a concrete "spoon drain" at the base of the concrete retaining wall and other drainage at the base of the timber retaining wall which discharged to the surface water detention tank.

6.5.7 The project manager said that, while the area between the kerb on the owner's property and the applicant's boundary had a gentle downslope as shown in the experts' report, the inference was then drawn that this contributed to accumulation of surface water on the applicant's property, saying:

This has not been definitively established as a contributory effect, given actual narrowness of the 'collectable' area between kerb and boundary on [No.] 302 and further that there is no apparent contributory effect from the land above to the [No.] 302 side of the legal boundary line.

6.5.8 The project manager said the intention of the work as designed and constructed was that any natural surface water arriving between the boundary and kerb would find its way down through the subgrade and be captured by the drainage at the base of the timber wall. "The circumstance as now apparently occurring on [No.] 304 was clearly not anticipated". He also said an "informal surface drainage coil" had been placed behind the driveway kerb to collect any intermittent surface water that could not otherwise be absorbed and to direct this to the drainage system.

## 7. The second draft determination and submissions in response

7.1 The second draft determination ("the second draft") was issued to the parties for comment on 18 April 2019. The second draft reached the same conclusions as the first draft.

7.2 The authority and the owner accepted the second draft without further comment on 1 May 2019 and 10 May 2019 respectively.

7.3 The applicant accepted the second draft on 7 May 2019 subject to minor changes relating to the description of the surface water system and the date she first mentioned the raised boundary level to the authority. I have made both these changes.

7.4 The applicant also:

- acknowledged that the Ministry could not make any ruling with regard to the original levels at the boundary, but said she continued to believe there needed to be some agreement between the parties on this before deciding on remedial work
- asked for the second draft to include an “amendment to determine an agreed level at the boundary” that requested the authority to consider evidence submitted since the owner’s sitework began with regard to ground levels taking into account a number of other considerations (which were described)
- requested, if this amendment was accepted, that all parties receive a copy of the proposed remedial works.

7.5 The Ministry responded to the applicant on 16 May 2019, noting that it was not possible within the scope of the determination either to address the changes in levels (except to note these) or to stipulate the remedial work. The applicant acknowledged this response on the same day.

## 8. Discussion

### 8.1 Legislation and definitions

8.1.1 The requirements for managing surface water are set out in Clause E1 of the Building Code. The functional requirement of this clause is that “buildings and sitework shall be constructed in a way that protects people and other property from the adverse effects of surface water”.

8.1.2 Clause E1.3.1 reads:

#### **Performance**

Except as otherwise required under the Resource Management Act 1991 for the protection of other property, surface water, resulting from an event having a 10% probability of occurring annually and which is collected or concentrated by buildings or sitework, shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

8.1.3 Key terms are clearly defined (in Clause A2 Interpretation) as follows:

- “surface water” as “all naturally occurring water, other than sub-surface water, which results from rainfall on the site or water flowing onto the site, including that flowing from a drain, stream, river, lake or sea”
- “sitework” as “work on a building site, including earthworks, preparatory to or associated with the construction, alteration, demolition, or removal of a building”
- “other property” as “any land or buildings or part thereof which are — (a) not held under the same allotment; or (b) not held under the same ownership — and includes any road”.

8.1.4 I note that as the applicant owns the “other property” this confines the determination to the Building Code provision whose purpose is to protect that property – in this case from the effects of surface water under Clause E1.3.1. In other words, while this determination can consider the authority’s decision to grant the applicant’s neighbour a building consent and code compliance certificate it can only do so regarding compliance with Clause E1.3.1.

## **8.2 Compliance with Clause E1.3.1**

- 8.2.1 The first matter for consideration is whether the owner's building work – i.e. the sitework relating to driveway construction near the shared boundary – complies with the performance requirements of Clause E1.3.1.
- 8.2.2 In the authority's view (refer paragraph 4.2), the owner's building work "as it now exists" does not create the likelihood of damage or nuisance to the applicant's property. The authority also noted the existing stormwater disposal system for the properties and said any further alteration to the boundary would make "no more than a trivial change" to the amount of water arriving at the lower part of the applicant's property.
- 8.2.3 The owner's project manager says there is "clear provision" of suitable drainage systems (refer paragraph 6.5.3). The project manager considers further investigation and site testing is required to provide evidence that naturally-occurring surface water could not "sheet" across the boundary to effective drainage, and further investigation is also required to determine the ground's permeability. The project manager also says there is no evidence of erosion at the bottom southwest corner of the applicant's property, just a statement in the experts' report that this is likely.
- 8.2.4 In contrast, the experts conclude that the owner's sitework is likely to cause damage – scouring or erosion – so does not comply. They also identified factors contributing to the likelihood of erosion on the applicant's property including the "highly erodible nature" of the soils and the steep catchment in addition to the concentration of surface water runoff.
- 8.2.5 In their responses to the project manager's report, the experts described their reasons for concluding the natural fall of the land had been altered by the sitework at the area in question, and confirmed that their conclusions were based on a 1:10 year event for naturally occurring water only – which, as the project manager correctly points out, is the requirement of Clause E1.3.1 and not water from irrigation and the like.
- 8.2.6 The experts also elaborated on the nature of the loess soils at the applicant's property and reasons for concluding that erosion was likely. In support of this conclusion, they said there was onsite evidence of surface flow that was unable to cross the boundary because of development on the owner's side.
- 8.2.7 I note that the applicant's technical consultants found (in their report of September 2017) that surface water was being redirected back onto the applicant's property and channelled to a single location.
- 8.2.8 I have considered the experts' report and the other evidence in this matter, and agree with their conclusion that the sitework does not comply with Clause E1.3.1.

## **8.3 The issue of the building consent**

- 8.3.1 The next matter is whether the authority correctly issued a building consent for the owner's building work that included this sitework.
- 8.3.2 In its 19 December 2017 submission (refer paragraph 4.2.3) the authority said it believed the approved building consent plans demonstrated compliance with Clause E1.3.1. It said the plans showed the flow of any overland water arriving at the boundary would not be impeded. The authority also highlighted a detail from the approved plans (Drawing No. 238) in its submission that showed the proposed drainage near the shared boundary (a subsoil drainage pipe and unspecified backfill).

- 8.3.3 In the report of its investigation which was given to the applicant on 28 April 2015, the authority said:

The approved plans showed that any water that crossed the boundary would be controlled by a subsoil drainage system that was laid on the upslope side of the retaining walls. Any water collected by this subsoil drain is further controlled with subsoil drainage once it intersects with the larger retaining wall at the end of the drive. This in turn is collected in a silt trap then drained to the 10,000 litre [surface water] retention tank. The [authority] had reasonable grounds to expect that the [surface water] at the boundary would be adequately controlled once the project was complete. There was no permission given by the [authority] to raise the levels on the boundary itself. ...

No documentation ... gives any permission to the builders from the [authority] to raise the levels at the boundary, nor to alter the overland flow path of water.

- 8.3.4 I have reviewed the approved plans and agree that they provide for drainage at the boundary. Accordingly, after considering the authority's submission and the other evidence in this matter, it is my view that the authority correctly issued the building consent with regard to compliance with Clause E1.3.1 that included this sitework.
- 8.3.5 I acknowledge the applicant's view that the ground levels at the boundary were altered during the owner's sitework. A comparison of the earthworks plan that was included in the owner's original consented plans<sup>15</sup> ("the original earthworks plan") with the site development plan included in Amendment 1 to the consent<sup>16</sup> ("the Amendment 1 site development plan") does show some discrepancies in the contour levels.
- 8.3.6 As a result, the cut face required by the original earthworks plan (to be retained by a timber retaining wall along most of the boundary) is not there, or is much reduced in height, on the Amendment 1 site development plan. For example, what appears to have been a 0.5m high wall between the 103.0m -104.0m boundary contours shown on the original earthworks plan has disappeared on the Amendment 1 site development plan and it appears from the 102.5m - 104.0m boundary contours that the driveway will be higher than the ground at the boundary.
- 8.3.7 The owner's project manager has provided an amended site development plan showing driveway modifications and refinements during construction. This plan shows that the driveway levels would align with boundary contours through the highest section of the driveway. I note that the concrete kerb and the soil built up behind the kerb would still be higher than the boundary contours, effectively creating a dam and diverter to any surface water crossing the boundary.
- 8.3.8 In my view, the discrepancy between the original earthworks plan and the Amendment 1 site development plan should have been questioned before the authority issued the amendment to the consent. However, as stated earlier, I consider the authority correctly issued the building consent with regard to Clause E1.3.1 compliance and I do not consider this discrepancy sufficient reason to set aside the consent.

## 8.4 The issue of the code compliance certificate

- 8.4.1 The final matter for consideration is whether the authority correctly issued the code compliance certificate (in mid-2014) that included this sitework.

<sup>15</sup> Plan No. 2-06 Earthworks plan, identified by the authority as "Approved consent plan, ABA10119402...06/11/2012"

<sup>16</sup> Plan No. 1-01 Site development plan, identified by the authority as "Amendment #1, ABA 10119402... 17/01/2013"

8.4.2 In its report to the applicant on 28 April 2015, the authority said:

The application for a code compliance certificate contains evidence that stormwater drains have been installed to comply with building code clause E1 – Surface Water, and that a stormwater detention tank has been installed as a part of this.

8.4.3 However, the authority itself acknowledges that the sitework did not comply with Clause E1.3.1 on 6 May 2015 when it visited the owner's property. While this was almost a year after the code compliance certificate was issued, I have not seen any evidence to indicate that the owner carried out further landscaping during that time that would have caused previously compliant sitework to become non-compliant. Further, given the concerns expressed by the applicant during this period, I consider this unlikely.

8.4.4 In addition, the drainage detail the authority relied on when considering whether the proposed building work would comply with Clause E1.3.1 (paragraph 4.2.1) does not appear to have been installed in accordance with the consented plans given that, during their June 2018 visit, the experts reported what appeared to be a subsoil drainage pipe on the surface of the land between the driveway kerb and the boundary.

8.4.5 Accordingly, after considering the evidence in this matter it is my view that the authority incorrectly issued the code compliance certificate for this work with regard to compliance with Clause E1.3.1.

## **8.5 Conclusion and next steps**

8.5.1 I have concluded that the owner's sitework does not comply with Clause E1.3.1 and that the authority incorrectly issued the code compliance certificate for this work. The effect of this determination will be that the code compliance certificate is overturned, enabling the authority to issue a notice to fix requiring the work to be brought into compliance with the Building Code.

8.5.2 In addition to remedying the non-compliance, as the drainage detail shown in the consented plans does not appear to have been followed the owner will need to engage with the authority to update the building consent file taking into account whatever solution the authority accepts as compliant.

8.5.3 As noted earlier (paragraphs 8.3.5 to 8.3.7), there is also a discrepancy between what was originally envisaged by the owner's consented earthworks plan and the completed sitework, which I take to have been built in accordance with the site development plan. This does not raise Building Code compliance issues other than with Clause E1.3.1, and the owner intends to provide a solution that meets this requirement. It is outside the matters for determination to require the ground near the boundary to be altered to its original levels.

## **9. The decision**

9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building work (sitework) at No. 302 Kennedys Bush Road near the boundary with No. 304 Kennedys Bush Road does not comply with Clause E1.3.1 of the Building Code.

9.2 I determine that the authority correctly issued the building consent for this work and I confirm this decision.

9.3 However, I determine that the authority incorrectly issued the code compliance certificate for this work and I reverse this decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 25 June 2019.

Katie Gordon  
**Manager Determinations**