

**BEFORE A HARINGS PANEL**

**APPOINTED BY CANTERBURY REGIONAL COUNCIL**

**UNDER THE** Resource Management Act 1991

**IN THE MATTER** of the Canterbury Land and Water  
Regional Plan

**AND**

**IN THE MATTER** of Plan Change 7

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**STATEMENT OF TWELFTH KNIGHT CONSULTING**

**(SUBMITTER 507)**

**29 September 2020**

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## MAY IT PLEASE THE COMMISSIONERS

### *Introduction*

1. My name is Richard Spencer English. I have asked to be heard in support of my submission and have asked Mr. MARK JAMES TIPPER to represent me at the Hearing specifically in relation to my submissions on coal tar and the proposed changes to Land and Water regional Plan (LWRP) Rules 5.177 and 5.178.
2. Mr. Tipper has prepared this Statement and Mr. Tipper has agreed to be heard at the Hearing in support of this statement. I endorse the content of this Statement.

### *Nature of coal tar roading materials*

3. There can be confusion between the terms “coal tar” and “coal tar roading materials”. Coal tar is a by-product of coal gasification, a process by which coal is converted into gas (and coke). Coal tar was the residue at the end of the gasification process. In this ‘raw’ form coal tar is a semi-liquid industrial waste that includes a high mass of relatively volatile organic compounds. It is somewhat caustic, very toxic, and can cause severe acute or long term human health harm.
4. During the road manufacturing process in Christchurch up to the 1980s, coal tar was heated to a liquid state and then poured or sprayed onto the road surface or mixed with aggregate before placing on the road. As the coal tar-based road “cured” over the following weeks and months, the majority of the volatile component of the coal tar evaporated away leaving a durable solid surface. The coal tar that remained after curing was composed primarily of heavy mass polycyclic aromatic hydrocarbons (PAHs) that have low volatility and have very low solubility in water.
5. For clarity this Statement and the submission made by Twelfth Knight addresses only the management of roading materials containing cured coal tar. Unless otherwise stated, any use of the term “coal tar” in this Statement refers to roading materials containing cured coal tar. Management of uncured coal tar industrial waste is outside of the scope of this Statement.

### **Reference to the S42A Report**

6. Turning to the L&WRP, condition 1 of Rule 5.177, the primary purpose of which is to protect groundwater quality, requires that the deposited material is only cleanfill. Paragraph 11.12 of the S42A Report confirms that the LWRP definition of "cleanfill" replicates the definition of "cleanfill material" in the MfE document "A Guide to the Management of Cleanfills". Amongst other things, this definition precludes the deposition of hazardous substances. Coal tar contains PAHs including BaP which are recorded by MfE as hazardous substances. There is no proposal to change this condition as part of Plan Change 7. Therefore the deposition of coal tar cannot currently be considered a controlled activity under Rule 5.177. However at the very least Environment Canterbury (ECan) need to be consistent in their position on the risks that coal tar roading material poses to groundwater.
7. Technical memorandum 'Effects of cleanfill deposition on groundwater quality' that supports the Section 42A report for this topic states that cured asphalt has low leachability but states that coal tar poses a risk to groundwater because it contains PAHs. However, whilst PAHs and asphalts are very different compounds (coal tar comes from the mineral coal and asphalt is an oil based hydrocarbon) they both have very low leachability.
8. This discrepancy of intent is repeated in the S42A report. Paragraph 11.26 of the S42A report states in relation to concrete slurries, coal tar, and hydro-excavated waste "*...as described in the supporting technical memorandum 'Effects of cleanfill deposition on groundwater quality', these materials can leach and impact groundwater quality*" yet paragraph 11.29 states "*...coal tar is very toxic to environmental organisms (including humans), whereas aged coal tar bound to other waste (e.g. roading waste) is stable.*"
9. I believe this discrepancy stems from a confusion between 'raw' coal tar (the fresh by-product of coal gasification) which is a liquid at room temperature and the material that was used forty+ years ago to surface roads.
10. Therefore whilst I agree that concrete slurries and hydro-excavated waste can leach and consequently pose a risk to groundwater quality, coal tar found in

roading materials is hydrophobic, does not dissolve in water, and therefore will not leach PAHs that might contaminate groundwater.

11. Paragraph 11.23 of the S42A Report states that *"I note that PC7 provisions give effect to the RMA and are 'effects based', in particular they address effects on groundwater quality."* Insufficient evidence on the leachability of coal tar has been provided to support a position that the proposed exclusion of coal tar is effects based. It could also be argued that the risks to groundwater described in paragraphs 11.21 and 11.22 of the S42A Report are the result of the initial excavation rather than the subsequent deposition of materials, especially those that meet the definition of 'cleanfill materials'.
12. I have seen many laboratory reports that support the position that coal tar roading material does not leach and I have not seen any evidence to the contrary. I therefore agree with the author of the S42A report's conclusion in paragraph 11.29; for the purposes of this discussion coal tar roading material is stable and therefore does not pose a threat to local aquifers. ECan should confirm this position on coal tar leachability as it will fundamentally affect how applications for depositing coal tar containing roading material will be considered under the LWRP, whether the application be for a controlled or restricted discretionary activity.

***Other environmental and cost considerations***

13. Although asbestos is a hazardous substance that can be harmful to humans in late December 2017 ECan granted consent for Fulton Hogan to deposit asbestos as backfill material in a quarry near Templeton on the outskirts of Christchurch. Once buried the material was considered not to be a threat to human health.
14. A further part of the reasoning behind granting the consent states *"Formerly, asbestos-containing material has been transported to Kate Valley landfill, taking up valuable space in a municipal landfill, or transported to Otago for disposal. Provision of a safely managed fill option closer to Christchurch will result in significant cost saving and reduced need for transport of asbestos-containing*

*material by road.*<sup>1</sup> In addition to these points I would add that disposing material to these distant facilities is costly in terms of carbon footprint.

15. The same logic can be applied to enabling local deposition of coal tar roading material along with other roading asphalt layers. Currently Kate Valley landfill and the Green Island facility near Dunedin are the only landfills authorised to accept all types of coal tar. The ability to apply for a consent to deposit coal tar containing roading materials at a local facility would far better achieve the purpose and principles in Part 2 of the RMA than continued reliance on the existing more costly landfill options.

### ***Summary and Conclusion***

16. The potential quantum of road construction materials containing coal tar is significant. Disposal to municipal landfill is both monetarily and environmentally extremely costly in comparison to disposal into local lower classification fills. Both I and the S42A officers agree that coal tar in roading materials is stable and is therefore unlikely to leach or pose a risk to groundwater.

**RICHARD ENGLISH**

29 September 2020



**MARK TIPPER**

29 September 2020

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<sup>1</sup> <https://ecan.govt.nz/get-involved/news-and-events/2017/fulton-hogan-consent-decision/>