



Mr Julian Thompson  
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NSW Environmental Protection Authority  
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Dear Sir

**Re: Environmental Site Investigation for Bicentennial Reserve**

The Willoughby Environmental Protection Association (**WEPA**) is a local environmental group with over 150 members which has, for over three years, been looking at the health risks posed to the community by the possible disturbance of the old tip site at Bicentennial Reserve/Flat Rock Gully as part of the proposed Beaches Link Tunnel.

WEPA refers to Consulting Earth Scientists Environmental Site Investigation Bicentennial Reserve Former Landfill prepared for Willoughby City Council dated 11 January 2022 (**CES Report**). As Willoughby City Council (**WCC**) published the Report on 11 February 2022 (one month after it received the report) we have had limited time to review it.

WEPA requests that the EPA considers our concerns before reaching any final view on the adequacy of the CES Report, whether the site needs to be regulated under the Contaminated Land Management Act and the manner of regulation.

WEPA's preliminary concerns are:

**1. Potential contamination from Hallstrom refrigerator factory hasn't been properly identified, described and tested for**

Although the CES Report lists the Hallstrom refrigerator factory in a table listing businesses which may have contaminated the site, no other mention of the factory is made. This is despite the local history of the site by Robert F McKillop (*Managing our waste: An environmental history of Flat Rock Creek and the Willoughby Incinerator 1900-2011*) being referred to as a source, and this history making

extensive reference to the factory. This history makes it clear, as do aerial photographs, that the factory was a large-scale operation, and notes that “At its post-war peak the factory employed around 750 people and produced some 1200 refrigerators a week.”

This is despite the Hallstrom factory being located directly across the road (on the western side of Willoughby Road) from the site the subject of the CES Report.

The Museum of Applied Arts and Sciences has an example of the refrigerator produced at the factory in its collection and describes it thus:

*This is an example of the famous Hallstrom 'Silent Knight' electric refrigerator made in the Sydney suburb of Willoughby in 1958 by Hallstroms's Pty Ltd. .... Cream painted sheet metal refrigerator cabinet with right hinged door, curved sides and a horizontal chromed steel handle. .... Inside the refrigerator are four chromed wire shelves with silver and white aluminium front finishing strips. .... By the mid-1940s Hallstroms Pty Ltd was turning out 1200 refrigerators per week and employed over seven hundred people.*

These chrome plated racks were presumably produced on-site given the scale of the operation. Chrome-plating produces Chromium VI and PFAS chemicals were used as fume suppressants as part of the chrome-plating process. Yet neither of these chemicals have been identified as potential contaminants and Chromium VI, does not appear to have been tested for. It also appears that PFAS chemicals in soil have not been tested for.

It is possible that the results given for chromium include Chromium VI, but if this is the case this should be made clear and the results for Chromium VI reported on separately given the very different health impacts in relation of Chromium III and Chromium VI. Assuming the results for chromium to predominantly relate to Chromium VI, the levels are very high. The Recreational C HIL for Chromium VI is 240mg/kg but the sample taken at 15 metres at GW105 had levels of 18,000mg/kg – 75 times over the relevant HIL.

Given the use of PFAs chemicals as fume suppressants, it is likely that PFAS will be found in the soil wherever high levels of chromium are found. This needs to be tested for.

## **2. Dioxins produced by the incinerator and, possibly, open burning haven't been identified as a potential contaminant and tested for**

According to Robert F McKillop's local history the incinerator at the site was finally closed in 1967. Up until its closure plastics would likely have been burned at a temperature likely to generate dioxins.

WEPA has also viewed photographs showing open burning of waste at the tip during a period when the waste was likely to contain plastics including PVC and has been told by Dr Wayne Davies, a chemical engineer, that he witnessed the open burning of plastics when he was a child. This may also have generated dioxins.

The dioxins which would have been produced by such burning haven't been tested for.

## **3. Sampling needs to go deeper**

The soil sampling bores don't appear to have gone deeper than 5 metres.

This is too shallow as it is only likely to pick up imported fill, rather than the hazardous contamination that lies buried at depths of up to 30 metres.

As is made clear from Robert F McKillop's local history, the site was a deep valley that was filled with waste over many years when it operated as a tip. Aerial photos show it to have been filled moving in an easterly direction with sections topped with fill from unknown sources as it did so. WEPA has been told by a local historian that this fill was sometimes up to 10 metres deep. We suggest that:

- (1) a detailed historical review is undertaken by Council, and then reviewed by an independent historian, to understand how and when the levels of the site changed and what type of waste was dumped at different locations; and
- (2) additional sampling occurs at deeper depths (15 metres plus) at several locations to ensure that the industrial, building and medical waste dumped there when it was a tip is tested for, and not merely imported fill, noting that there will be significant excavation (until clean sandstone is reached) for the Willoughby Leisure Centre upgrade, which will require deep excavation for pylons to support the new building and the removal of mature trees with deep root systems.

Should the Beaches Link Tunnel be approved this will require equally deep but even more extensive excavation of the site.

In this respect, we note that the soil and fill include clay which is known to adsorb PFAS. This is a good thing as long as the clay is not disturbed. When such sites are disturbed by large-scale excavations however, PFAS may re-enter the environment as leachate or as dusts released from dried spoil.

#### **4. Too many areas have been excluded from testing**

At the request of Council, the site excludes the sports fields (netball and other sport pitches) which form a large proportion of the site. As a result, there is not sufficient testing to indicate the types of contaminations at different locations. WEPA has been told by the local historian, that different types of waste may have been dumped at different parts of the site. For instance, the Hallstrom refrigerator factory ceased to operate in the 1970s but the tip continued to operate into the 1990s. Our expert will be able to provide further comments on whether the number of samples taken complies with EPA Guidelines.

#### **5. The CES report does not reference the 2018 flood study prepared for Willoughby Council, or the Beaches Link EIS in relation to flooding**

The list of references commencing at page 86 of the CES Report makes no mention of the August 2018 study prepared for Willoughby Council by Lyall and Associates titled: *Flat Rock Creek Catchment Flood Study and Overland Flow Mapping* -

[https://www.willoughby.nsw.gov.au/files/sharedassets/public/ecm/willoughby-council-website/publications-reports-master-plans-strategies-action-plans/publications-reports-master-plans-strategies-action-plans/1-capture004\\_2018-11-21\\_13-37-02.pdf](https://www.willoughby.nsw.gov.au/files/sharedassets/public/ecm/willoughby-council-website/publications-reports-master-plans-strategies-action-plans/publications-reports-master-plans-strategies-action-plans/1-capture004_2018-11-21_13-37-02.pdf)

The CES Report recognises the relevance of possible flooding but states that the site is not a flood prone area requiring additional management based on a SEED review stating:

*A review of the Sharing and Enabling Environmental Data (SEED) interactive flood planning area did not highlight the site as being in flood prone area that would require additional management.*

Given the detailed assessment undertaken by Lyall and Associates in 2018, this conclusion should be reviewed, in light of that assessment.

It is also difficult to reconcile the conclusion in the CES Report with the following section of the Beaches Link EIS (Appendix R):

#### **5.1.1 Construction support site facilities**

*A range of site facilities including offices, staff amenities, workshops and parking are proposed at the construction support sites that are associated with the project, ..*

*With the exception of the ... construction support sites, all of the locations that have been identified for the proposed construction support sites are affected by flooding, whether that is as a result of main stream flooding, overland flow or ocean storm tides (refer to Table 5.1).*

*While the majority of the construction support sites would be subject to flooding during a 10% AEP storm event, depths of inundation are generally relatively shallow and of a short duration. The exception is the Flat Rock Drive construction support site (BL2), where depths of flow are greater than 0.5 metres in a 10% AEP flood event. ...*

*Site facilities located on the floodplain, particularly in areas of high hazard, pose a safety risk to construction personnel. It would therefore be necessary to locate site facilities outside high hazard areas with safe evacuation routes. All construction support sites include land that is located outside areas of high hazard that would be suitable for site facilities.*

In this context, it is also noted that the NEPM recommends that stockpile sites of spoil containing PFAS not be in flood prone areas.

## **6. Dr Bill Ryall's comments**

While preparing this letter WEPA has received the comments of Dr Bill Ryall regarding the CES Report. We endorse those comments and attach them to this letter. In particular, we endorse Dr Ryall's recommendation that the report, once amended as suggested, be reviewed by an EPA accredited auditor.

Dr Bill Ryall has also had the opportunity to read our comments, above, and endorses them.

WEPA is happy to meet with the EPA to discuss our concerns.

Yours faithfully,



John Moratelli

President, Willoughby Environmental Protection Association

16 February 2022