

C. COVER

CIVIL ENGINEERING REPORT

2A FRANCIS ST, YARRAVILLE

Completed by:

KPA Management & Consulting Pty Ltd

Job Number: 22115

Volume: 1.0

Date: 23.08.2022

For and on behalf of:

Steel Cement Limited Pty. Ltd.



**Steel
Cement**

To whom it may concern,

Date: 23.08.2022

RE: 22115 - 2A FRANCIS ST, YARRAVILLE - STORMWATER MANAGEMENT FOR BUILDING AND WORKS

Site: Proposed Cement Packaging Plant - 2A Francis Street, Yarraville

1.0 Proposed Development Description

It is proposed to construct new cement packaging plant at 2A Francis Street, Yarraville. The site is intended to produce cement using steel furnace slag as the majority cementitious component. This re-use of a waste product reduces the carbon production by reducing the requirement of kiln manufactured cement. The site is adjacent to an existing cement packaging plant to the north of the property. The new site will be an adjunct to the existing facility. The site is currently zoned Industrial 1 IN1Z. The proposed cement packaging plant is within the scope of the current zoning.

2.0 Project Objectives

- 2.1 Clause 53.18-5

The proposed development is intended to house packaging facilities and storage Silos. The management of this facility will be done using the following objectives. The first objective is to capture all stormwater runoff to mitigate the external discharge of sediment and rubbish laden stormwater. The second objective is to provide stormwater filtration to mitigate chemical pollutants from discharging the site also. The third objective is to utilise stormwater capture and re-use.

- 2.2 Clause 53.18-6

The management of the construction site will be achieved by the following objectives. The first objective is to mitigate surface erosion and sediment runoff external to the site. The second objective will be the removal of extensive amount of topsoil to meet contamination containment in accordance with EPA guidelines. This includes disposal to licensed facilities. The third objective is to maintain control of site rubbish and litter to mitigate these materials leaving the site using stormwater means.

3.0 Standards Compliance

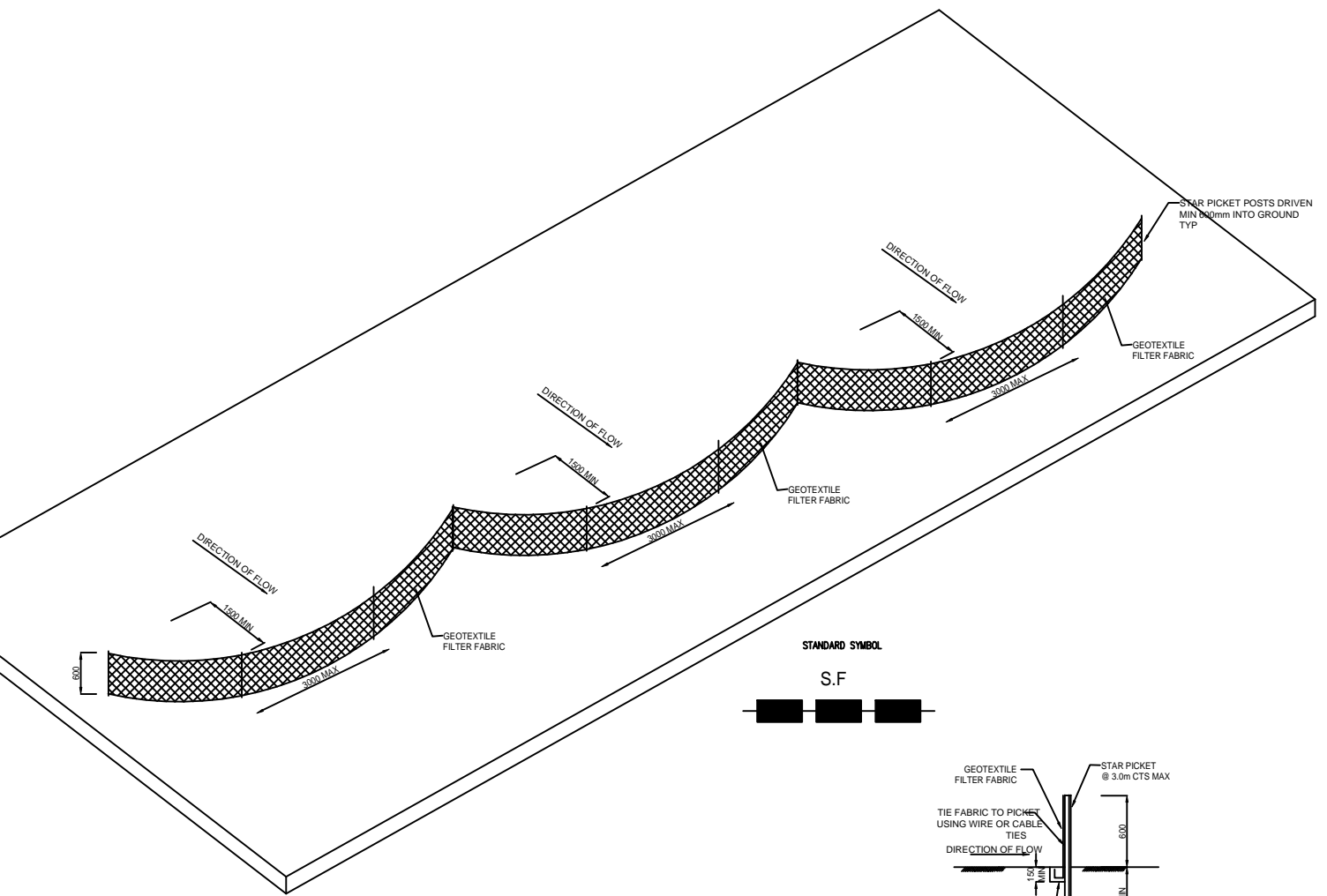
- 3.1 Clause 53.18=5 Standard W2

Stormwater Management System to be adopted for this site will be designed to meet the objectives set out in part 2.1. It is envisaged that the site will have a single point of discharge. It is currently set to discharge into street double pit at the south-west corner of the property. This works in with the general fall of the property towards that position. The installation of interceptor pits at strategic positions to achieve the capability of sediment control as well as chemical pollutant mitigation. The installation (e.g) the HumeCeptor System (Humes Products). This type of system is a dedicated interceptor pit approach. This method provides a three-pronged approach to water quality management. The first part is the ability to enable major settlement of Total Suspended Solids (TSS). For this site, this will be the major pollutant source. The second part is the ability to filter out volatiles such as oil products. The third part is the capture of litter and rubbish that is trapped in the interceptor pits. The use of large collection tanks together with the interceptor pits will enable efficient scheduling and maintenance. The capture and re-use of filtered stormwater using dedicated water tanks. The use of this water for garden and landscaping applications is envisaged. The use of stormwater for toilet facilities and possibly manufacturing (using further Class C water quality filtration).

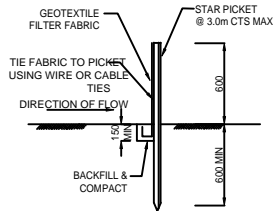
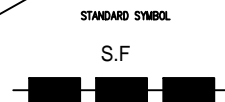
L. LETTER

- 3.1 Clause 53.18-8 Standard W3

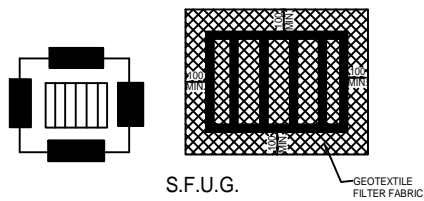
The issue that have been identified from this site is the protection of the adjoining Yarra River and associated flora located in between the river and the site. During construction, the mitigating of any site derived stormwater runoff is to be achieved. As for the usage management, there are three pollutant issues to alleviate. The removal of polluted soil will be the first requirement to be addressed. Sediment generated during this process will be channelled into settlement ponds to allow for sediment capture. The second issue of demolition material and rubbish. This material Will be captured using Silt Fences. They will consist of geofabric fencing across the site along low points to capture debris. The installation of straw bails within low points and along the entire perimeter of the site. They are designed to provide a filtration barrier. These objectives will be achieved using the standards set out in the Urban Stormwater - Best Practice Environmental Management Guidelines.



TYPICAL SILT FENCE (S.F.)

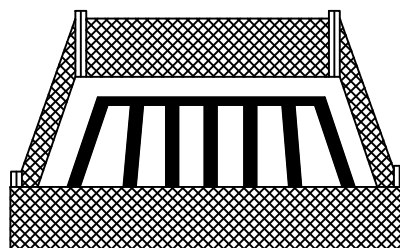


TYPICAL SILT FENCE SECTION (S.F.)



TYPICAL SILT FENCE UNDER GRATE DETAIL

NOT TO SCALE
 THE FIT MUST BE TIGHT AND A MINIMUM OF 100mm OF SILT FENCE MATERIAL SHOULD BE LEFT OVERHANGING AT THE EDGES



TYPICAL SILT FENCE DROP INLET FILTER

NOT TO SCALE
 INSTALL SILT FENCE IN ACCORDANCE WITH TYPICAL SILT FENCE DETAIL

HumeCeptor® system

The HumeCeptor® system is a patented hydrodynamic separator, specifically designed to remove hydrocarbons and suspended solids from stormwater runoff, preventing oil spills and minimising non-point source pollution entering downstream waterways.

The HumeCeptor® system is an underground, precast concrete stormwater treatment solution that utilises hydrodynamic and gravitational separation to efficiently remove Total Suspended Solids (TSS) and entrained hydrocarbons from runoff. First designed as an 'at source' solution for constrained, commercial and industrial sites it has been improved and expanded to service large catchments, mine and quarry sites, inundated drainage systems, and capture large volume emergency spill events. The system is ideal for hardstands/wash bays, car parks, shopping centres, industrial/commercial warehouses, petrol stations, airports, major road infrastructure applications, quarries, mine sites and production facilities.

Independently tested, and installed in over 30,000 projects worldwide, the HumeCeptor® system provides effective, and reliable secondary treatment of stormwater for constrained sites.

- **The system reliably removes a high level of TSS and hydrocarbons**

The HumeCeptor® system was developed specifically to remove fine suspended solids and hydrocarbons from stormwater, and has been certified to achieve high pollutant removal efficiencies for TSS (>80%) and Total Nutrients (TN) (>30%) on an annual basis.

- **It captures and retains hydrocarbons and TSS down to 10 microns**

Each system is specifically designed to maintain low treatment chamber velocities to capture and retain TSS down to 10 microns. It also removes up to 98% of free oils from stormwater.

- **Each device is sized to achieve the necessary Water Quality Objectives (WQO) on an annual basis**

Utilising the latest build-up and wash-off algorithms, PCSWMM software for the HumeCeptor® system ensures that the device chosen achieves the desired WQO (e.g. 80% TSS removal) on an annual basis.

- **Its performance has been independently verified**

The HumeCeptor® system's technology has been assessed by independent verification authorities including the New Jersey Department of Environmental Protection (NJDEP), The Washington Department of Environment (USA), and by the Canadian Environmental Technology Verification program (ETV).

Right:
The bypass
chamber of a
HumeCeptor®
system

- **The system is proven**

The HumeCeptor® system was one of the first stormwater treatment devices introduced to Australia, and now after 30,000 installations worldwide, its popularity is testament to its performance, quality and value for money.

- **High flows won't scour captured sediment**

The unique design of HumeCeptor® units ensures that as flows increase and exceed the treatment flow, the velocity in the storage chamber decreases.

- **Nutrients are captured along with the sediment**

The effective capture of TSS results in the capture of particulate nutrients shown to be >30% of TN and Total Phosphorous (TP).

- **Fully trafficable to suit land use up to class G**

The HumeCeptor® system is a fully trafficable solution, it can be installed under pavements and hardstands to maximise above ground land use (loading up to class D as standard).

- **Custom designs allow for emergency oil spill storage, directional change, multiple pipes, tidal inundation and class G traffic loads**

A range of HumeCeptor® systems are available, built specifically to manage emergency spills (50,000 L storage), change of pipe directions, the joining of multiple pipes, high tail water levels as a result of tides or downstream water bodies, and high levels of hydrocarbons with auxiliary storage tanks.

- **We are experienced in the provision of world class treatment solutions**

Humes has a team of water specialists dedicated to the advancement of economical sustainable solutions, and the provision of expert advice and support.

