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1.0 GENERAL

This statement herein addresses the provision of a site stormwater drainage system for the proposed development of commercial building at 100 Mount Street, North Sydney, NSW.

Figure 1.1 Aerial View

2.0 DESCRIPTION OF SITE

The site is located on the south western corner of Mount Street, Walker Street and Denison Street in North Sydney. The site has an area of 1756 m^2. The survey plan by PSN indicates that the site is falling towards the south-eastern boundary.

A 44 level commercial office tower and hotel building is proposed as is indicated on the Architectural plans by Rice Daubney.

3.0 SITE STORMWATER DRAINAGE

The proposed commercial office tower and hotel development will incorporate a site drainage system that will be designed to comply with North Sydney Council guidelines. This system will drain all the stormwater from the site and will consist of a piped network designed to contain the 1 in 100 year event. Overflow paths will be provided to allow for any flow in excess of that designed for the piped network.

The existing North Sydney Council stormwater drainage system consists of a 600mm main, running west to east under the kerb line in Mount Street and crosses Walker Street.

The post development flows up to the 1 in 100 Year Average Recurrence Interval (ARI) storm will not exceed the existing site flow as the existing site is fully developed as compared to the proposed development and the proposed development will contain rainwater for reuse purposes as herein discussed.

Any stormwater that is present within the basement levels will be pumped out via a basement pump-out pit present on Basement Level 5 and then treated before being released into Council drainage on Mount Street.

A Gross Pollutant Trap (GPT) that will be tailored in design selection to capture gross pollutants, leaf matter, fine sediments and nutrients such as phosphorous and nitrogen and will be suspended underneath the ground level. The location of this GPT is shown on WSP drawing C-06.

The proposed development will have negligible effect on climate change primarily as a direct result of incorporating the below rainwater reuse measures.

The effect on sea water level rise will be insignificant as a result of the above mitigation measures that will attenuate stormwater runoff flows and result in a reduction in flows to Sydney Harbour.

4.0 ON - SITE STORMWATER DETENTION

It is noted that the North Sydney Council Drainage DCP does NOT require the use of On Site Detention for the site stormwater drainage system.

5.0 RAINWATER REUSE

Rainwater Reuse (RR) measures consistent with North Sydney Council guidelines including a 60,000 litre storage tank for recirculation of treated rainwater for re–use for WC flushing and for irrigation of selected landscape areas. This RR Tank is located on Level 10 as shown on WSP drawing C-05.

6.0 SEDIMENT & EROSION CONTROL

The Contractor for the works is required to provide Erosion and Sedimentation Control in accordance with the following general requirements as provided below:-

- All existing surface pits shall be protected as detailed below and all boundaries where there is potential for runoff to contaminate downstream property (private or public) shall be protected by use of erosion fencing and earth berms.

In addition, the following measures shall be provided:-

SITE PROTECTION MEASURES

It is proposed to provide the following in order to inhibit the movement of sediment off the site during the demolition and construction phases.

Site Access

Construction vehicles leaving the site shall be required to pass over a Temporary Construction Vehicle Entry consisting of a 15m long by 3m wide 'cattle rack'.

Sediment Control

All exposed earth areas where it may be possible for runoff to transport silt down slope shall be protected with a sediment and erosion control silt fence generally installed along the boundaries of the site.

The fence will be constructed in accordance with details provided by the Department of Conservation and Land Management incorporating geotextile fabric which will not allow suspended particles greater than 50mg/l non filterable solids to pass through, and as such comply with the appropriate provisions of the Clean Waters Act 1970.

The construction of the silt fence will include the following:-

- Geotextile fabric buried to a maximum of 100mm below the surface;
- Overlapping any joins in the fabric;

- Turning up on the ends for a length of 1 metre in order to prevent volumes of suspended solids escaping in a storm event;
- Any Council owned road kerb entry and or gully pits will be protected by Atlantis Filter Bales and EcoSock. Additional protection will be provided by inserting Water Clean Filter Cartridges into the gully opening;
- Internal site drainage pits shall be protected by Sediment Traps consisting of Hay Bales.

6.1 Temporary Stormwater Pump-Out System (Where required)

Site runoff within the zones of the excavation will be drained into a central holding well within the excavation. Runoff will be allowed to settle out suspended particles and debris and an acceptable water quality of 50mg per L of Non Filtrable Residues (NFR) is required to be achieved prior to discharge by pumping into the authority system.

Once the stormwater has been adequately treated and the quality has been verified on the site, it will be pumped to the Council Stormwater system at a maximum discharge rate of 2 - 4 L/s.

The proposed pumps will be one duty and one standby electro – submersible pumps which shall be mounted on a 300mm high concrete plinth.

The proposed stormwater rising mains to each of the excavation areas will be in the order of 65mm outside diameter polyethylene, PE80B 'Blueline', Class 12.5.

Dust Control

The following dust control procedures will be adhered to: -

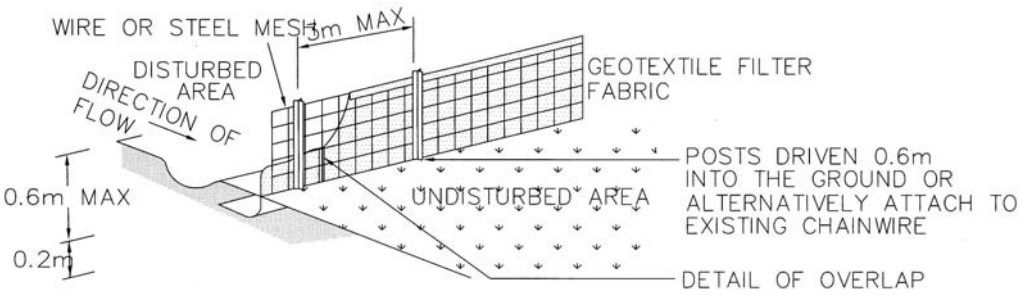
- Loose loads entering or leaving the site will be securely covered by a tarpaulin or like material in accordance with RTA and Council Guidelines.
- Soil transport vehicles will use the single main access to the site.
- There will be no burning of any materials on site.
- Water sprays will be used across the site to suppress dust. The water will be applied either by water sprinklers or water carts across ground surfaces whenever the surface has dried out and has the potential to generate visible levels of dust either by the operation of equipment over the surface or by wind. The watercraft will be equipped with a pump and sprays.

- Spraying water at the rate of not less than three (3) L/s and not less than 700kPa pressure. The area covered will be small enough that surfaces are maintained in a damp condition and large enough that runoff is not generated. The water spray equipment will be kept on site during the construction of the works.
- During excavation all trucks/machinery leaving the site will have their wheels washed and/or agitated prior to travelling on Council Roads.
- Fences will have shade cloth or similar fabric fixed to the inside of the fence.

Maintenance

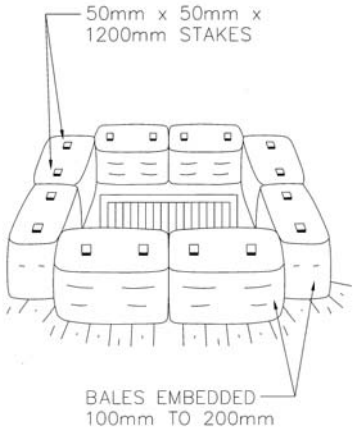
- It will be the responsibility of the site foreman for the building contractor to ensure sediment and erosion control devices on site are maintained. The devices shall be checked daily and the appropriate maintenance undertaken as necessary.
- Prior to the closing of the site each day, the road shall be swept and materials deposited back onto the site. Under no circumstances shall the road be washed down in order to clean or wash any materials deposited on the street.
- Gutters and roadways will be kept clean regularly to maintain them free of sediment.
- Appropriate covering techniques, such as the use of plastic sheeting will be used to cover excavation faces, stockpiles and any unsealed surfaces;-
  a) If dust is being generated from a given surface, and water sprays fail:
  b) If fugitive emissions have the potential to cause the ambient as quality to foul the ambient air quality:
- The area of soils exposed at any one time will be minimised wherever possible by excavating in a localised progressive manner over the site-
- Materials processing equipment suitable comply with regulatory requirements. The protection will include the covering of feed openings with rubber curtains or socks

It is considered that by complying with the above, appropriate levels of protection are afforded to the site and the adjacent public roads, footpaths and environment.



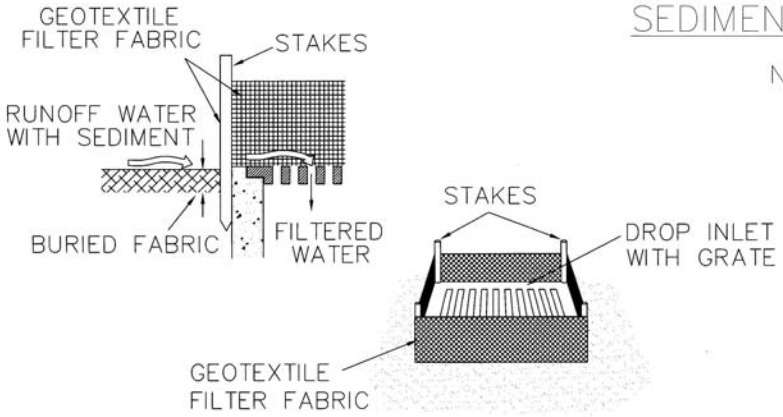
SEDIMENT CONTROL FENCE

NTS



STORMWATER PIT SEDIMENT TRAP

NTS



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

NTS

Atlantis Sediment Control Filter Bales

What are FilterBales?

Water Clean FilterBales are a unique new patented 7 stage sediment filter device developed to substantially reduce the migration of sediment and contaminants into drainage systems while allowing filtered water to easily pass through. FilterBales reduce customers' time and money by providing solutions to comply witht environmental and regulatory requirements.

Durable, Dependable, Reusable.
Replacing hay bales and other inadequate attempts to stop sediment run-off, FilterBales are durable and re-useable, effectively stopping your money from "pouring down the drain". They are also lightweight and easy to handle. Replaceable Water Clean Filter Cartridges guarantee peak performance is maintained.

Ask your local FilterBales stockist about replacement frequencies in your area. Cartridges and filter covers should be changed when the infiltration rate decreases. Water Clean FilterBales are suitable for a wide range of sediment and water management situations and can be easily secured in place for long term use. The unique multi-directional filter system allows you to position Water Clean FilterBales in any direction without reducing performance.

Water Clean FilterBales can be fixed to concrete or bitumen surfaces using an epoxy mortar-binder or fixed to earth surfaces using 6-10 mm pegs or stakes. When positioning, the side with the red reflective marker should be facing traffic.

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1. FilterBales frames are a perforated plastic structure made from recycled wheelie bins, battery cases, milk bottles etc.

2. Filter medium (bio engineered soil media) used in the filter cartridges is made from a special blend of recycled organic (RO) materials from kerbside and vegetation drop off centres. The RO hosts enhanced naturally occurring micro-organisms. The blend also contains natural minerals to capture nutrients. The filter medium is as safe as normal soil.

3. FilterBales have a seven (7) stage filtration system:

1. In through the filter bag
2. Through the perforated plastic structure wall
3. In through the filter cartridge bag
4. Through the bio engineered filter medium
5. Out through the filter cartridge bag
6. Out through the perforated plastic structure wall
7. Out through the filter bag

4. The filter bag is made from 300-micron (one third of a millimetre) pore size geotextile. This is the first stage that filters much of the sediment and other suspended solids from the run-off water. The geotextile is designed to stop sediment and reduce clogging but allow water to pass through easily. The filter cartridge bags are made from a similar geotextile.

5. FilterBales work effectively up to "a one-in-one-year 48 hours, 100 mm "storm events". This is the largest storm event experienced since the commercialisation of FilterBales. Having handled this easily, Filter Bales are considered capable of handling much greater "storm events'. During these storm events FilterBales were used inside gully pits in one application and on the ground surrounding the gully pit in another application.

6. EcoSocks are made from a similar geotextile to the filter cartridge bags and contain the same bio engineered soil media as the FilterBales. They appear able to stand up to as much wear and tear as a sandbag.

7. FilterBales are much lighter (at around 15 kgs dry weight) than hay bales. This reduces exposure to Occupational Health and Safety problems

Product Range

Item No.	Description	
HFB001	**High FilterBale,** suitable for high flow situations and higher retention time applications. Contains two standard size WaterClean Filter Cartridges in upright formation to treat contaminated waters. (605mm x 485mm x 460mm)	
LFB002	**Low FilterBale,** suitable for low flow situations and kerb & gutter applications. Multi-directional module containing two standard size WaterClean Filter Cartridges. (605mm x 485mm x 220mm)	
ESF004	**Directional EcoSock,** can be used in conjunction with FilterBales to direct water. Will also provide some sediment filtration from seepage through bio-remediating media contained within the EcoSock (1135mm x 160mm x 30mm)	

Accessories

Item No.	Description	
FCR004	**WaterClean Filter Cartridges** contain a unique blend of fixating and bio-remediating products that treat common pollutants. To achieve maximum performance, each FilterBale uses two WaterClean Filter Cartridges. (440mm x 400mm x 100mm)	
HBC005 (High bale)	**Replaceable FilterBale covers,** made from specially designed geotextile. FilterBale covers have a standard aperture of 300 microns.	
HBC006 (Low bale)	**Replaceable FilterBale covers,** made from specially designed geotextile. FilterBale covers have a standard aperture of 300 microns.	

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Atlantis Water Management

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ATTACHMENTS

WSP DRAWINGS:-

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