Your ref: SSD-23512960
File no: MC-21-00005

21 March 2022

NSW Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

Recipient Delivery: patrick.andrade@dpie.nsw.gov.au

Attention: Patrick Andrade

Dear Sir

SSD-23512960 - Request for advice – Upgrades to Glenwood High School at 85 Forman Avenue, Glenwood

Thank you for your correspondence dated 22 February 2022 requesting our advice on the applicant's response to our submission sent to you on 14 December 2021.

The applicant's response has been carefully reviewed by Council officers. However, concerns are still raised in relation to the proposed stormwater system and the proposed reduced parking provisions on the site. These issues are listed in detail in the attachment to this letter.

The concerns detailed in the attachment need to be comprehensively addressed and referred back to us for review and conditions. Until then, our objection to this proposal still stands.

If you would like to discuss this matter further, please contact our Manager Development Assessment, Judith Portelli on 9839 6228.

Yours faithfully

Peter Conroy
Director City Planning and Development

Blacktown Council's submission to SSD-23512960 – Upgrades to Glenwood High School at 85 Forman Avenue, Glenwood

1. Engineering issues

a. Additional information and amended documents are required to address the following issues:

- The drainage system for the proposed development including OSD, RWT (i.e. water conservation), Stormfilter System (i.e. water quality), and flooding are to be designed in accordance with Council's WSUD Developer Handbook 2020, Engineering Guide for Development 2005 and Council's WSUD Standard Drawings.
- Civil Engineering Design Report by Enstruct Group Pty Ltd project no. 6393 revision C dated 9 November 2021 and Stormwater Management Plans in Appendix D of Civil engineering Design Report project no. 6393 revision a dated 9 November 2021, is to be amended to include the following details:
  - A rainwater tank is required to meet the water conservation targets under Part J for the development. A minimum of 80% of non-potable water demand for the development is to be met through the reuse of rainwater. Non-potable water demand is to include landscape watering and toilet/urinal flushing. MUSIC is generally used to assess the performance of the rainwater tank using the node water balance and an electronic copy of the MUSIC model needs to be provided to Council for assessment.
  - Rename "Enviropods" to "OceanGuard" on the report and plans.
  - All OceanGuards are to be clearly notated as "200 micron OceanGuards".
  - Provide OSD catchment plan demonstrating which areas drain to the OSD and areas bypassing.
  - Provide a MUSIC catchment plan that shows both the land use and the areas contributing to each specific device. To make this more understandable it may be easier in many cases to split these into two separate plans. Include all bypassing catchments. Ensure that a minimum fraction impervious of 90% is adopted for land-use in the MUSIC model.
  - The 1% AEP flows from the site are to be directed to the OSD. Demonstrate how the surface flows in excess of the pipe capacity are directed to the OSD system.
  - All pits deeper than 1.2 m must provide step irons at 300 cts.
  - The OSD Deemed to Comply Tool Spreadsheet levels do not match the OSD design and also includes incorrect design details for the proposed Filter Cartridges. The spreadsheet is to be amended to include correct Design Filter Cartridge Flow and Filter Cartridges flow with 1% AEP HED and ensure the levels match the design.
  - The MUSIC model includes total development area of 4000 m^2 whereas the OSD Deemed to Comply Tool Spreadsheet includes 6500 m^2. Provide

details of the proposed development area and amend both OSD spreadsheet and MUSIC model accordingly.

- On drawing 0201 (A):
  i. Show how the roof water gets to the rainwater tank. Provide a separate system for roof water and surface drainage. Pits between the roof lines (i.e. charged pipes) are to be sealed.
  ii. Provide details of the rainwater tank including pre-treatment, volumes, sections, dimensions etc.
  iii. The 375 mm diameter outlet to the existing stormwater Pit 1 is to be RCP.
  iv. Provide levels of the existing street Pit 1 and confirm the connection level to this pit.
  v. It is unclear whether Pits 18 and 27 are treating surface flows and all or only part of the upstream pipe flows as well. Provide detail for Pit 18 and 27 showing all invert levels for all pipes.
  vi. OceanGuards should treat a maximum of 1000 m^2 of non-roof areas and 1500m^2 of roof areas. All OceanGuards are to be clearly notated as “200 micron OceanGuards”.
  vii. OceanGuards treating only surface flows require a minimum clear depth of 500 mm below the grate to any inlet or outlet pipe obvert. OceanGuards treating surface flows and upstream pipe flows require a minimum clear depth of 500 mm from the invert of the upstream pipes to be treated, to the obvert of the outlet pipe. Where these pits are treating upstream pipe flows the inverts of all pipes in and out of the pit are to be shown.
  viii. Where OceanGuards (Enviropods) are designed to treat upstream pipe flows, the invert levels on all pipes discharging to and from the pit are to be clearly shown. Provide a minimum clear depth of 500 mm from the invert of the upstream pipes to be treated to the outlet pipe obvert.
  ix. Provide a pit detail with an Oceanguard fitted.
  x. Review the pit size as 600 * 600 mm pits are limited to 600 mm maximum depth and 600 * 900 mm pits are limited to 900 mm depth. Pits greater than 900 mm depth are all to be minimum 900 * 900 mm. All pits within the proposed development must comply with these requirements.
  xi. Charge line cleanout pits are to be provided at the low point of <u>all</u> charge line systems for the rainwater tanks to facilitate cleaning of the system.

- On drawing 0213 (A):
  i. The 450 mm diameter inlet pipe into the Stormfilter chamber is smaller than the 375 mm diameter outlet pipe from the OSD tank discharging to Councils existing drainage system. Provide details to ensure that the overflow from the OSD tank can surcharge safely to the street and away from any class rooms and does not impact adjacent properties.

ii. The design levels in the OSD tank do not match the S3QM Certificate Results or the OSD Deemed to Comply Tool Spreadsheet. Ensure consistency between the design.
iii. Rename 100 year ARI to 1% AEP on all notes and plans.
iv. Rename 1.5 year ARI to 50% AEP on all notes and plans.
v. Provide more details for the Stormfilter tank and how the overflow chamber will work.
vi. Confined space entry warning signs are to be detailed on the drainage plans adjacent to all entries into the Stormfilter Chamber in accordance with Council's Engineering Guide for Development 2005.
vii. Provide a minimum 2% slope in the OSD storage. For larger tanks this can be in the form of a 2% cross-slope to a central "V" drain with 2% longitudinal slope along the "V" drain. Reassess tank dimensions to achieve the minimum storage volumes.
viii. There are insufficient access grates for the below ground detention tanks. Access grates to the below ground detention tank must be a minimum 900 mm by 900 mm and are positioned such that the maximum distance from any point in the tank to the nearest grate is not greater than 4 m.
ix. The orifice within the Discharge Control Pit is to be protected by a suitable screen. Provide Maximesh Rh3030 for orifice diameters 150 mm or less with a minimum area of 50 times the orifice area and Weldlok F40/203 for orifices 150 mm diameter or more with a minimum area of 20 times the orifice area.
x. On the tank plan view, provide separate dimensions for the OSD tank and Stormfilter Chamber.
xi. Provide a sealed impermeable baffle, or hood set 250 mm upstream of the Stormfilter weir and extending from the sealed underside of the tank to 400 mm below the top of the weir for the 690 mm Stormfilter cartridge to, to contain floatables including oil. The Stormfilter weir level is to be set 770 mm above the false floor.
xii. The minimum length of the Stormfilter weir (L) is to be increased to provide a maximum velocity of 0.4 m/s under the baffle during peak flow (i.e. L > Q100 / (0.4 x 0.25), or L > 10 x Q100) in m, where Q100 is in m3/s). Provide calculations.

- Flood modelling and Flood report by Enstruct Group Pty Ltd project no. 6393 revision B dated 13 October 2021, is to be amended to address the following:
  - The flood report is vague and does not provide critical information carried out for the flood modelling. Provide details of blockages, pipes, total catchment area, boundary conditions, flows, velocities etc.
  - Allow for a maximum isolated rise in flood level of 0.02 m external to the site in the 1% AEP event as a result of the development.
  - All buildings in the floodplain (including both existing and proposed) are to be modelled as complete (i.e. 100%) blockages in the flood model. Simply applying Mannings 'n' value as suggested in Table 1 of the report is not accepted.

- The post-development DEM is to be included to accurately represent any proposed ground level changes (i.e. cut and fill areas) in the post development model. This includes fill for areas such as driveway.
- Adopt an impervious area of minimum 80% for the catchment. Amend the DRAINS model and flood report accordingly.
- The maximum travel times for impervious catchment is 12 minutes and pervious catchment is 14 minutes. Amend the DRAINS model and catchment areas breakdown accordingly.
- The flood report is to include flood maps for both the existing and post developed scenarios for the various storm events. This report is to include flood maps for the velocity, depths, hazard etc.
- Provide a flood difference map (developed - existing) for the 1% AEP. Include a 0 to 20 mm category with gradations below or above this figure.
- Ensure the inflow hydrograph in HECRAS matches the DRAINS model.
- Provide a Flood Management Plan to address emergency flood management of the site include the use of appropriate warning signs, notices of procedures and depth gauges (if required).
- Provide the DRAINS hydrology and amended TUFLOW model electronically to Council.

- MUSIC Modelling is to be revised to address the following:
  - The MUSIC model breakdown is incorrect and includes only one node representing the proposed development. The model is to be amended to include appropriate nodes representing the proposed land-use draining to the specific water quality devices. The MUSIC model is to include the total proposed development area (including bypass areas). The MUSIC model is to be in accordance with Council's WSUD Developer Handbook 2020.
  - The proposed water quality system is to meet the required post development pollutant reduction targets indicated under Part J of Councils DCP.
  - A Rainwater tank is required to meet the water conservation targets under Part J for the development. A minimum of 80% of non-potable water demand for the development is to be met through the reuse of rainwater. Non-potable water demand is to include landscape watering and toilet/urinal flushing.
  - MUSIC is generally used to assess the performance of the rainwater tank using the node water balance and an electronic copy of the MUSIC model needs to be provided to Council for assessment.
  - Allow for a minimum usage rate of 0.06 kL/day/toilet or urinal and a minimum of 0.4 kL/m2/ year for landscape watering (excluding turfed areas).
  - Allow for a 10% loss in rainwater tank size volume in MUSIC to that shown on the design plans. e.g. where a 50kL tank is modelled, construct a 55kL tank.
  - Ensure that the areas draining to surface inlet pits with OceanGuards match the engineering plans.
  - Ensure that Blacktown Council's specific MUSIC modes are used for the total development area draining to the devices.
  - The minimum Stormfilter chamber area is to be No. of Cartridges x 0.177 m2/cartridge excluding the area of the weir.

- Ocean Protect has advised that the maximum storage permitted below the Stormfilter weir to ensure effective operation of the filter cartridges is limited to an equivalent volume derived from 2.0 mm of rainfall (20 m3/Ha) without losses, falling over the site area that drains to the Stormfilter chamber (ignoring any bypass area).
- When calculating the area of detention for Stormfilters, the design area for MUSIC is the area of the cartridge bay, less the area of the weir, less 0.177 m2 per cartridge. The detention depth is the height of the Stormfilter weir above the filter false floor (i.e. the cartridge height plus 80 mm) and the low flow pipe diameter is determined from the combined cartridge flow at the Stormfilter weir height assessed as orifice flow. A spreadsheet is available from Ocean Protect.
- The area above the on-site detention storage itself and the catchment areas draining to it are considered as bypass where they do not enter the Stormfilter chamber.

- Resubmit all models and OSD Deemed to Comply Tool spreadsheet electronically for Council assessment.

2. Traffic issues

a. We remain concerned that the provision of only 93 car parking spaces for the school with increased capacity for 1,820 students and 133 staff, will be relying on on-street parking to meet the parking demand. Our Traffic Engineer has been consistently opposed to this aspect of the proposal during our discussions with the School Infrastructure NSW. Our view remains that the reduced car parking provision on the site will put additional pressures onto nearby on-street parking as the school is isolated and is not frequently serviced by public transport. For these reasons, the proposal will not be supported in its current form.