

South Dublin County Council,  
Drainage Section,  
County Hall,  
Tallaght,  
Dublin 24

**HAYES HIGGINS PARTNERSHIP  
CHARTERED ENGINEERS • PROJECT MANAGERS**

**Our Ref:** 17D070/01  
**Project Ref:** 10 Units at Old Nangor Road (Simon)  
**Re:** Planning Application Drainage Submission – response to queries raised additional information report of the Planning Authority dated 20/12/2022  
South Dublin County Council Preplanning Ref: SD22A/041  
**Date:** September 23

Dear Sir/Madam,

With reference to report dated 20<sup>th</sup> December 2022 regarding the drainage submission pertaining to proposed social housing development at Old Nangor Road, Clondalkin, Dublin 22 Hayes Higgins Partnership (2HP) have reviewed and respond to each engineering item as outlined below. 2HP will include the updated design and below comments in the planning submission to be made.

1. ***The Planning Authority has concerns regarding the proposed development located directly over an existing culverted stream. It is council policy to open culverted streams where possible and to require a minimum setback distance of 10m to a structure.***

***(i)the applicant is required to investigate the culvert and to provide further details with relation to its location, quality, flow and course.***

***(ii)the applicant is required to explore alternative design solutions to provide for a minimum 10m setback from the culvert or alternatively demonstrate that development as proposed is appropriate by including all necessary mitigation measures or engineering details / design solutions to ensure that the proposal would not result in an unacceptable impact on the culverted stream or riparian zones.***

***The applicant shall and address the following points:***

***1.Details of compliance with the Greater Dublin Regional Code of Practice for Drainage works.***

***2.Details of SuDS proposed in the development to attenuate surface water.***

***3.Details of surface water attenuation calculations to determine what attenuation in m3 is required for the site.***

***4.Clarification and provide details of the existence of a public surface water sewer northeast of site. The applicant is advised to consult with the Water Services Section prior to responding***

The existing surface water stone sewer culvert traverses the full width of the site from east to west in a straight line. The current layout of the culvert and possible alternative layouts and design of the culvert on the site were considered with IE consulting as part of the overall design for the development. Opening up of the culvert on the site was considered however, there is a risk of drowning, possibility it could be subject to pollution by waste given its proximity to residential units and also the increased risk of vermin associated with such

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watercourses. Also, opening up of the culvert can present a residual flood risk due to potential culvert blockage and/or culvert surcharge which would present a significant risk to this development. On this basis opening up of the culvert is not considered feasible. Good practice is for culverts to be as straight runs where possible to maintain a steady hydraulic profile through the culvert and limit the potential for blockage. Having considered this, it is deemed best to maintain the current location of the culvert. Given the location of the culvert it is not viable to provide the required 10m setback from the culvert to proposed structures. The previous planning application on the site was granted per the current layout. As part of the previous application and in response to queries raised from South Dublin County Council Drainage Department during that application IE consulting were engaged to carry out an analysis of the culvert and propose new design for the culvert. Following discussions between IE Consulting and 2HP, the least onerous proposal was agreed which included 3No. 900mm pipes in lieu of the existing culvert. The proposed route follows the route of the existing culvert. The use of the 900mm pipes mitigated the impact that the introduction of the pipes would have on the overall height of the structure. On receipt of the proposed culvert design, Hayes Higgins Partnership designed the structure that was required for bridging the culvert. The proposed structure is piled foundations and ground beams due to the risk of differential settlement that would be present bearing on different subgrades and due to the large loads exerted each side of the culvert structure. The design of the culvert includes manholes upstream and downstream of the building for maintenance access if required. In addition to the engineering design of the culvert a legal opinion if the existing culvert is provided.

Refer to the enclosed.

1. Drainage layout
2. Reports by IE Consulting. The reports detail the existing and proposed culvert
3. Drawing from IE Consulting showing proposed design
4. 2HP Foundation Layout
5. Legal Opinion from Peter Bland SC

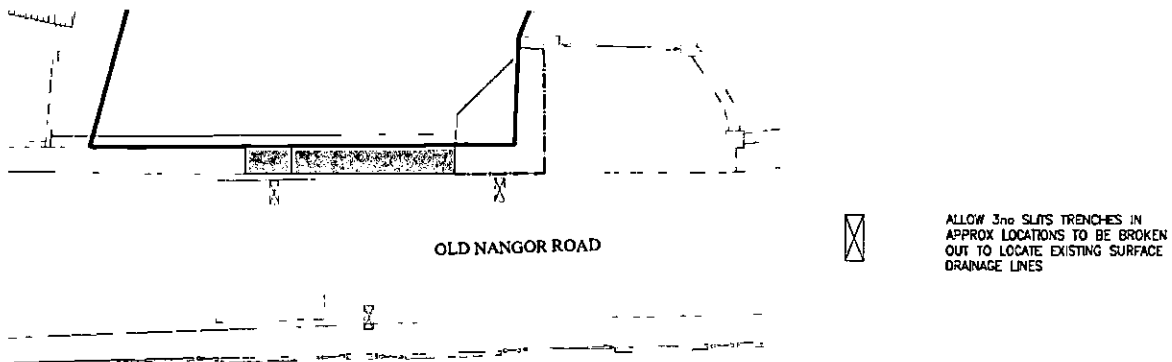
The SuDS proposed in the development as noted in the planning report will be a combination of permeable surfacing, landscaped areas and modular storage system. All possible SuDS measures have been explored, refer to the justification matrix for SuDS attached. Given the nature of the site in a confined urban setting and the building layout the feasibility of many SuDS measures are limited i.e. it is not feasible to utilize swales, ponds etc. Permeable paving and landscaped areas will be provided within the development. These will deal with some surface water at source. However, to deal with the surface water for the entire site an attenuation system is required. A Microstrain type system will be used. Refer to the calculations for the surface water attenuation enclosed. Per the planning report, the attenuation required is based on design for a 1 in 100-year storm (+20%). A 20% increase in runoff due to global warming is included as per "Greater Dublin Regional Code of Practice for Drainage Works" and the "GDSDS". Site specific MET Eireann Rainfall data has been used in the surface water drainage and attenuation design. The surface water will be dealt with and stored on site and a connection to the existing surface water drainage system will be used to dispose of the surface water from the developed site. A connection to the public surface water system on Nangor Road will be provided via a hydrobrake limiting discharge to 1 L/s.



Refer to the enclosed.

1. Drainage layout
2. SuDS justification matrix
3. Surface water calculations

Opening up works of the road to the front of the site are to be completed in order to confirm the details of the existence of a public surface water sewer. Refer to the below image to show the location of opening up works to be completed.



- 2. An Irish Water pipe intersects directly through the site from west to east, and there should be a 3m setback distance from the existing water main.**

**(i)The applicant is requested to liaise with Irish Water regarding the provision of a 3m setback distance from the existing water main or with regards to an alternative solution, which could include relocating the pipe, details of which should be provided to the Planning Authority.**

**(ii)The applicant shall obtain confirmation of feasibility letter from Irish Water for the proposed development and submit a pre-connection enquiry with Irish Water for proposed development for both Water and foul.**

The existing 100mm diameter cast iron water main traversing the site from west to east will be diverted around the building as required. Agreement with Irish Water on these works will be in place prior to any works taking place. Details of the proposed diversion are indicated on drawing 01 as submitted in the planning application and enclosed here for reference. The connection from the existing line to the main on Nangor Road will be maintained. A 100mm diameter HDPE watermain will be installed on site to form the diversion. All relevant agreements and Irish Water requirements will be adhered to. A diversion application for these works will be submitted to Irish Water.

An Irish Water application was made previously for this development at the time of the previous planning submission. Irish Water reviewed this development as part of the previous planning application and advised no issues with connection of this site to the public mains, refer to enclosed correspondence. The previous Irish Water application was based on the same design as the current design. Irish Water have advised us that given the lapse in time from submittal of the application to this point a new application should be submitted. An application based on the drawings as submitted in this planning application will now be

submitted. 2HP do not anticipate any issues concerning this development considering the previous communication from Irish Water.

**3. Sustainable Drainage Systems**

**(A) The applicant should demonstrate compliance with the SDCC SUDS Design Guide 2022, and Policies GI3, GI4, GI5, IE3, SM2, SM7, and sections 4.3.1, 12.7.6, 12.11.1, and 12.11.3. of the South Dublin County Development Plan 2022 - 2028 in relation to sustainable drainage systems.**

**(B) In relation to SUDs, the applicant is requested to submit plans showing how surface water shall be attenuated to greenfield run off rates and showing what SuDS (Sustainable Drainage Systems) are proposed.**

**(C) SUDs Management - The applicant is requested to submit a comprehensive SUDS Management Plan to demonstrate that the proposed SUDS features have reduced the rate of run off into the existing surface water drainage network. A maintenance plan should also be included as a demonstration of how the system will function following implementation.**

**(D) Natural SUDS features should be incorporated into the proposed drainage system for the development such as bio-retention/constructed tree pits, permeable paving, green roofs, filtration planting, filter strip etc. In addition, the applicant should demonstrate how the proposed natural SUDS features will be incorporated and work within the drainage design for the proposed development. The applicant is requested to refer to the recently published 'SDCC Sustainable Drainage Explanatory, Design and Evaluation Guide 2022' for acceptable SUDS tree pit details.**

**(E) The applicant is requested to submit a report to show surface water attenuation calculations for proposed development. Show on a report and drawing what surface water attenuation capacity each SuDS (Sustainable Drainage System) system has in m<sup>3</sup>. Show in report what surface water attenuation capacity is required for proposed development. Show what different surface types, areas in m<sup>2</sup> are proposed such as, green roofs, permeable paving, buildings, roads and their respective run off coefficients. Submit a drawing showing the treatment train of SuDS and proposed natural flow controls for each SuDS system.**

Refer to item 1 above with regard to the SuDS design for this development and detailed design information on same. As noted, SuDS mechanisms have been utilised where feasible on this site and South Dublin County Council SuDS Design Guide 2022 was referenced during the design. Refer to drawing 021 enclosed showing the proposed surface water drainage system. The surface water will be attenuated to 1 L/s. Refer to the calculations for the surface water attenuation calculations attached. To size the attenuation system the run-off into natural landscaped areas and permeable paving have been excluded. The basis for this is the limited area on this site.

**4. 3. The applicant shall submit accurate plans demonstrating the provision of a visibility splay with a 2.4 meter set back at a 1.05-meter height from ground level and 49 meters sight lines in both directions from the entrance. Sight lines should be shown to the near side edge of the road to the right-hand side of entrance and to the centreline of the road to the left-hand side of the entrance (when exiting).**

**5. The applicant shall submit a revised layout of not less than 1:200 scale, showing a swept path analysis drawing (i.e. Autotrack or similar) demonstrating that fire tenders**



***and large refuse vehicles can access/egress the site. The drawing should also show how vehicles can access the parking spaces.***

Sightlines have been reviewed and designed in accordance with Design Manual for Urban Roads and Streets. Refer to the enclosed drawing showing site lines for the development. To the west of the site a site line of 45m can be provided. To the east of the site a site line of 35m can be provided. There are traffic calming measures within the vicinity of the site in the form of ramps on the road to the front of the site. There is also an entrance to a shopping centre car park to the east of the site and as such traffic is moving slowly. On this basis the traffic is moving at a reduced speed and the reduction in sightline distance does not pose an issue for the site. The previous planning application on this site for the same development provided the same sight distances. Refer to the enclosed drawing showing sightlines.

An Autorack swept path analysis has been completed for the development, refer to enclosed drawing demonstrating that fire tenders and large refuse vehicles can access/egress the site. Also shown on the drawing is vehicular access the parking spaces.

We trust the above is to your satisfaction and should you have any further queries, please do not hesitate to contact the undersigned.

Yours Sincerely,

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**Louise Mahony**

**B Eng, C Eng, MIEI**

Encls.

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5. SuDS justification matrix
6. Surface water calculations
7. Irish Water comments on feasibility
8. Sightline Drawing
9. Autotrack Drawing
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