Inspector's Report
ABP-311279-21

Development	Demolition of warehouse and construction of independent residential units for the elderly, & ancillary works.
Location	Site of Value Centre Cash and Carry, Castle Road, Dundalk, Co. Louth
Planning Authority	Louth County Council
Planning Authority Reg. Ref.	20661
Applicants	Independent Trustee Company Limited
Type of Application	Permission
Planning Authority Decision	Grant Permission
Type of Appeals	Third Party and First Party
Appellants	Co Louth Archaeological and Historical Society Lorraine Scully and local residents Independent Trustee Company Limited
Observers	Cllr John Reilly Ruairí Ó Murchú TD
Date of Site Inspection	2nd November 2021
Inspector	Dolores McCague

1.0 **Board Correspondence**

1.1.1. The Board issued a letter on the 19th May 2022 requesting further information:

1 Having regard to the internal layout of the proposed building as detailed on the further information drawings submitted to the planning authority on 12/07/2021, including the provision of a central internal corridor (with rooflights and void) at all levels, and noting that the proposed apartments open onto this internal corridor, in order for the Board to be able to determine this appeal, please provide a full daylight, sunlight and ventilation assessment of the internal rooms within the apartments.

2 With regard to the construction of the proposed building, in order for the Board to be able to determine this appeal, please provide the results of any ground survey undertaken and a full description of the proposed construction and foundation methods proposed on site, including assessment of any potential impacts on vibration and noise during construction.

1.2. **Applicant Response**

1.2.1. A response was received from the applicant, 11th July 2022, which includes:

A letter from KPMG

A letter from Clúid Housing

A report from DCE Irl with an appendix by GEO Tick Ltd (geotechnical investigation report)

A report from IN2 (daylight, sunlight & ventilation report)

Drawings by van Dijk Architects - elevations and floor plans.

1.2.2. The letter from KPMG includes:

The layout and design of the proposed scheme as submitted was informed having regard to daylight and sunlight assessments and orientated accordingly to maximise daylight penetration to habitable rooms thereby achieving a high quality of residential amenity for future residents. The modest adjustments to the scheme (now proposed), primarily involving the widening of certain windows, are not considered to be material in nature but nevertheless result in improvements to the scheme resulting in a residential development of the highest quality. The scheme will meet

the BRE daylight standard for bedrooms and 89.6% of bedrooms will exceed the relevant standard, while 100% of living rooms will exceed the standard. The ventilation report demonstrates that the further information scheme will provide a high-quality internal environment for residents.

The geotechnical investigation report recommends that the building will require pile foundations, either driven or bored piles, due to the underlying ground conditions.

The 'proposed construction and foundation methods', prepared by Duffy Chartered Engineers IRL details the proposed construction and foundation methods and considers the potential noise and vibration impacts for the methods proposed. The building foundations will be constructed using bored (or Continuous Flight Auger) piles. This is a vibration-free and low noise construction technique.

Off-site construction techniques will be utilized as far as possible during construction of the superstructure (i.e. above ground) to minimize potential disruption to surrounding occupants.

1.2.3. The letter from Clúid Housing states that they have carried out a design review and confirm that the project aligns with practices and principles that their age friendly housing provider, Clann, has established in developments such as Broom Lodge, Faussagh Ave, D7. The use of an atrium building typology offers scope for through ventilation and daylight apertures on the internal access routes, as well as offering a bright, sunny and protected internal environment for tenants.

1.2.4. The report from DCE Irl includes:

Ground investigations took the form of 4 boreholes, one at each corner of the proposed building. Table 1 gives the results of the site investigations. Made ground was encountered in all tests consisting of clays, sands, gravels and rubble. Sands and gravels underlying the made ground are likely raised beach deposits interbedded with estuarine alluvium. The material underlying and interbedded with the raised beach deposits is estuarine alluvium in the form of soft silts and clays. Groundwater was encountered throughout the investigation and generally had strong flow.

The site investigations have confirmed that the building will require piled foundations. DCE Irl has reviewed the report and the recommended method of construction for

the foundations is Continuous Flight Auger (CFA) piles. This is the recommended solution as they will be vibration-free and low noise during construction. This type of construction is typically used where new building foundations are located next to existing buildings and where the bearing capacity of the soil is inadequate at shallow depths. It is ideal in built-up areas with weak soil conditions and high levels of ground water, due to the vibration-free construction process and low noise level.

The method, shown in figure 3 of the report, involves drilling the pile to a design depth and pumping high slump concrete through the central auger stem as the auger is withdrawn. the system is controlled by on-board computer in the piling rig which measures depth, concrete flow, torque and pressure. Reinforcement is installed after concreting operations are completed by plunging the cage into the wet concrete.

They state that they were the design engineers on the Realt na Mara school extension and an extension to a house on Castle Rd where ‘driven piles’ were used which can result in more vibration than CFA; but there were no adverse impacts on adjoining properties or residents.

They refer to the work of a specialist contractor. The Piling contractor will be responsible for the works and will be required to provide both vibration and noise monitors to ensure agreed levels are not exceeded. At tender stage, a specification for the installation of the piling, will be issued to the tendering contractors. A list of the documents which will be referenced is given.

The specification issued to contractors will require:

Noise level during construction shall not exceed 55 dB(A) (30 minute Leq) at any point along the boundary of the site between 0800 and 2000 hours, Monday to Friday, 0800 and 1400 hours on Saturday and shall not exceed 45 dB(A) (15 minute Leq) at any other time. Noise monitors will be required to be utilised during the construction phase to ensure these levels are not exceeded.

Vibration from the construction activities shall be limited to the following:

At less than 10Hz, 8mm/s,

At 10 to 50 Hz, 12.5mm/s,

At 50 to 100 Hz, 20mm/s.

This is the allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the/a source of vibration. Vibration monitors will be required to be utilised during the construction phase to ensure these levels are not exceeded.

Noise from external plant will be minimised by the following measures:

Use of low noise generating equipment, and

Incorporating appropriately specified in-line attenuators for stacks and exhausts where necessary.

Monitoring of vibration and noise will be required to ensure levels in accordance with BS 528 are not exceeded.

1.2.5. GEO Tick Ltd - geotechnical investigation report, includes:

Boreholes were sunk to depths of up to 8.2m at which point they were terminated on refusal.

In its recommendations it states that it is understood that 'the proposed development is for domestic housing. No further details available at time of writing report'.

It states that the area is not suitable for any unsupported excavations. It is likely that bored piles (CFA or continuous helical displacement (CDH)) may be required due to the potential negative effects of vibrations on adjoining buildings.

'**The detailed design of piles should be undertaken in conjunction with specialist piling contractors[1]. Their proposals should include the means to verify that the required load capacity has been achieved: for example, dynamic pile tests and/or static load tests. The design of piles should allow for negative friction arising from settlements caused by any raising of the site ground levels**.'[2]

Borehole logs and laboratory analysis results are appended to the document.

1.2.6. The report from IN2 includes:

[1] The information provided is exploratory rather than design specific such that an appropriate condition would be required.

[2] As noted in the Inspector's report, site works include raising the ground level by approx. 1m to 1.5m to achieve an appropriate finished floor level, having regard to the location of the site within a flood risk area.

A daylight assessment was carried out: 100% of Kitchen Living Dining (KLD) areas achieved compliance with Average Daylight Factor (ADF) targets of >2.0%. 15 bedrooms were below the suggested minimum target of 1.0%. The daylight to bedrooms is reduced due to the size of the window, coupled with the set back nature of the room with an overhanging balcony. Potential minor modification would be to increase the window widths of the rooms in question. The proposed window module is as per similar bedroom windows found in other parts of the scheme. Full compliance with ADF is achieved with the minor modifications.

The scheme was assessed in relation to sunlight for units with the main living room windows to both south and west (orientated 264^0) this resulted in 5 applicable apartment units for assessment at ground, 3rd, 4th and 5th levels and 7 units at 1st and 2nd. The results, showing compliance in each case, are given in table 5.1 of the report, (that is for 34 of the 64 units).

Ventilation is reported on, with regard to the quality of ventilation particularly allowing for the internal corridor/atrium nature of the proposed building. Living rooms and bedrooms are located at the building perimeter, enabling ventilation to these areas from opening windows in a conventional manner. Kitchens and bathrooms have been located adjacent to the internal circulation / atrium spaces, each provided with mechanical ventilation with no window openings to the central area.

An assessment has been undertaken to determine the predicted environmental quality of the circulation / atrium spaces, to ensure that both Indoor Air Quality (IAQ) and thermal comfort to these spaces are adequate to allow both lounge usage for occupants and intermittent accessing through doors to apartment spaces. An assessment has also been carried out for the apartments, ensuring IAQ and thermal comfort are adequate for residents, using Dynamic Simulation Modelling (DSM). As outlined in the report, the DSM involved creating a 3D model of the building to assess compliance with the relevant best practice guidelines (Indoor Air Quality (IAQ) to EN. 13779 and Overheating Risk to CIBSE TM52). The atrium space was simulated for opening doors and vents at low and high level based on internal temperatures and air quality.

The results for the circulation / atrium spaces, for Indoor Air Quality (IAQ) are given in section 4.2 and shown in Fig 4.2.

The circulation / atrium spaces were predicted to have similar IAQ to external conditions throughout summertime (May-September) as atrium vents will be generally open in daytime, promoting healthy natural ventilation.

Atrium vents would be closed during cold winter conditions, however the BMS (building mechanical system) strategy would enable excellent Air Quality to be maintained throughout the year, with only isolated days where categorisation was determined to be outside the IDA1 classification (per paragraph 4.1= high air quality).

The simulation has determined that predicted IAQ within the circulation / atrium spaces can be maintained to ensure compliance with best practice comfort conditions for residents utilising lounge amenity areas and accessing apartments.

Intermittent door opening from apartments will be to a space with high IAQ conditions, ensuring that, in combination with natural ventilation from perimeter windows, apartments can maintain excellent air quality.

For thermal comfort, for the circulation / atrium spaces, parameters are as given in section 4.3 and shown in Figs 4.3.1 and 4.3.2, based on CIBSE TM52, an adaptive thermal comfort methodology, which acknowledges that people will adapt to higher internal temperatures during continuous warm weather and conversely that thermal discomfort will be experienced during cooler external conditions or if hotter weather suddenly occurs. It includes categorisation of comfort in accordance with people's sensitivity or fragility. Category 1 is used for the assessment – high level of expectation only used for spaces occupied by very sensitive and fragile persons. It assesses for: summertime, peak day and peak hour.

Results, illustrated in Figs 4.3.3 and 4.3.4, show that thermal comfort is achieved. In addition to summertime overheating risk, wintertime comfort was assessed by predicting heating requirements for the circulation / atrium spaces allowing for determined atrium window openings (those used in the air quality assessment) and associated predicted IAQ. Annual heating requirements to maintain comfort conditions (no heating between May-September) would not be excessive.

For apartments air quality: apartment 12 at level 5 is assessed, stated to represent the worst case scenario due to its relatively deep floor plan and single-sided ventilation strategy. Results in terms of predicted CO2 levels (fig 4.4.1) show KLD are predicted to have similar IAQ to external conditions throughout summertime

(May-September) as windows will be frequently open in daytime for both temperature control and fresh air. Briefly opening windows for fresh air in winter, if CO2 levels exceed 1200ppm, would enable excellent air quality to be maintained, with only isolated days where categorisation was determined to be outside IDA 1 classification.

For apartments thermal comfort – TGD Part L 2019 of the Building Regulations, dwellings -- requires overheating risk be avoided for normally occupied naturally ventilated spaces. CIBSE TM59 is a method identified as suitable for assessing overheating risk. CIBSE TM59 is an adaptive thermal comfort methodology, which acknowledges that people will adapt to higher internal temperatures during continuous warm weather and conversely that thermal discomfort will be experienced during cooler external conditions or if hotter weather suddenly occurs. Higher temperatures in the cooler months (May / June and September) are penalised more than during July/August.

The criteria it uses for occupied rooms are:

Criterion 1 – for living rooms, kitchens and bedrooms the number of hours during which the internal temperature is more than 1^0 C above a running mean average of the external ambient temperature, during the period May to September shall not be more than 3% of occupied hours.

Criterion 2 – for bedrooms only, to guarantee comfort during sleeping hours, the internal temperature in bedrooms, from 22.00 and 07.00, shall not exceed 26^0C for more than 1% of annual hours (33 hours or more).

The assessment methodology, accounts for thermal comfort where conditions could be generally warm in a room throughout the year and deemed tolerable, but extreme hot conditions could be experienced on a particular day/hour which may deem natural ventilation unacceptable.

It includes categorisation of comfort in accordance with people's sensitivity or fragility.

A representative dynamic simulation model for apartment 12 at level 5 is assessed, as representing the worst case scenario – south facing, top floor, least shaded.

Thermal comfort for summertime and wintertime are shown in Figs 4.5.1 and 4.5.2. No overheating is predicted. Heating requirements would not be excessive.

2.0 Circulation

2.1.1. Other parties were notified of receipt of the applicant's submission on 18th July 2022 and submission or observations were invited.

2.2. Planning Authority Response

2.2.1. The Planning Authority responded including:

They note that 46 living room windows, oriented within 90^0 of due north, or unlikely to meet the criteria, were not assessed; that BRE acknowledges that

> for larger developments of flats, especially those with site constraints, it may not be possible for every living room to face within 90^0 of due south. In this instance 57.5% do not. Given the constraints of the site and the overall merits of this scheme, the planning authority do not consider that this will unduly impact on the residential amenities of future occupants.

They note that both conventional ventilation and mechanical ventilation will provide an appropriate level of ventilation

They note that foundations will be constructed using Continuous Flight Auger which is considered appropriate.

They recommend two additional conditions further to their previous decision:

> Condition 24
>
> (a) the construction and foundation methods as detailed by DCE Irl report dated 06/07/2022 which include the construction of the foundations using bored or Continuous Flight Auger piles shall be adhered to.
>
> (b) the transmitted ground vibration arising from any piling carried out on the site, when measured on the foundations of the house nearest the location of the piling and not owned by the developer or on a part of the house in close contact with the foundations, shall not exceed a peak particle velocity of 5 millimetres per second in any one of three mutually orthogonal planes.

Reason: To safeguard the amenities of adjacent property.

Condition 26

Cognisance should be taken of the requirements of BS 5228 part 1 1997 (Noise and vibration control on construction and open sites).

(a) The developers shall, if directed by the planning authority, monitor and record noise levels during construction of the development – Leq's and any other levels which may be requested by the planning authority (L max etc.)

(b) The developers shall, if directed by the planning authority, monitor and record the total dust emissions arising from all on site operation associated with the proposed development during construction.

(c) The number and locations of the monitoring and recording stations for sound and dust deposition, necessary to comply with the requirements of Part (a) and (b) of this condition, shall be in accordance with the requirements of the planning authority for such monitoring of sound and deposition.

(d) The planning authority shall be afforded access at all reasonable times in order to inspect, examine and check, or to have inspected, examined and checked all apparatus and equipment used or required to carry out monitoring or noise.

(e) The developers shall pay a sum of money to Louth County Council, if demanded, as a contribution towards the costs incurred by the said Council in carrying our, or in having carried out, check monitoring and recording of any, or all, of the matters required to be monitored and recorded by part (a) and (b) of this condition. The amount of contribution and the arrangement for payment of such contribution shall be as agreed between the developers and the planning authority.

Reason: In the interest of the proper planning and development of the area and in the interest of residential amenity.

2.3. **Appellant Response**

2.3.1. Downey Planning on behalf of the third party appellants Lorraine Scully & others have responded to the applicant's submission, including:

Daylight, Sunlight and Ventilation

The BRE 2011 guidelines, on which the applicant's submission is based, have been superseded by guidelines published in June 2022[3], which sets out a very different methodology for assessing residential schemes. There is no basis for use of the 2011 guidelines. They conclude that the proposed development would have failed to meet the targets in the 2022 BRE guide. The requested item has not been submitted.

Re. daylight, they disagree that an increase of 500mm in the width of the windows is not material. The 56% increase in the window size also needs to take into account the increased level of overlooking. It will be particularly evident to the rear gardens of Mill Street as well as to parts of Castle Rd. This has not been considered in the FI response[4].

Re. sunlight, they question how the Board would be legally entitled to grant permission in the knowledge that the assessments were prepared using out of date methodologies.

Re. ventilation, they note that the applicant has been unable to provide any real-life examples of where such a design has been successfully constructed and occupied. There are limited true dual aspect apartments. Opening into an internal roofed courtyard should not be considered dual aspect. The figure of 100% dual aspect must not be taken into consideration.

Ground Surveys & Construction and Foundation Methods - significant errors have been found.

[3] Louth County Development Plan 2021-2027 and current Section 28 guidelines refer to the 2011 BRE guidelines, which therefore remain the relevant guidelines.

[4] The Board will note from the plans and elevations provided with the applicant's response, that there are numerous other windows on the elevations in which the widened windows would be placed, including living room windows, so that the proposed widened windows would not create any significant additional overlooking.

The lack of site-specific information and design detail for the foundation design is of concern. Their understanding of one of the precedent cases is disputed by one of the appellant's directly affected.

They refer to the statement that 'it *is understood that the proposed development is for domestic housing. No further details available at time of writing report*.' The entire basis of their design approach is flawed.

They refer to the table, at page 5 of the report, which would indicate that an allowable load bearing pressure of no more than 150kPa (m) was considered. They have been advised that this figure should in fact be up to 1,500kPa(m)

Re. the successful use of piling, including no. 26 Castle Rd for a house extension, one of the appellants who is owner and occupier of the adjoining house disputes the matter. A case is ongoing.

They refer to partial collapse of a house on the main street in nearby Blackrock, as a result of road construction with the dig filling up with water and coastal sediment. Blackrock's main street was also built on reclaimed land.

Despite the request to be specific, the applicant's response is generic. No detailed construction drawing or foundation or subterranean drawing has been prepared for this development, as was highlighted in their grounds of appeal. Where piles are to be at least 8m below ground and it is not known how many, or the exact location, the local residents cannot be satisfied that the proposed development will not give rise to serious structural damage to their property. Justice Humphrey in Balscadden Road SAA Resident's Association Ltd v An Bord Pleanála, confirmed this requirement. They request refusal.

Proposed Construction Programme – they note the 'standard' construction hours 8am – 8pm Monday-Friday and 8am – 6pm on Saturday. These are not standard hours. Standard hours are 8am – 6pm Monday-Friday and 8am – 1pm on Saturday. No such exception should be provided.

The statement re. temporary parking lacks clarity. It is important that it includes no parking on Castle Road as well as the private access lane.

The Construction Environmental & Demolition Waste Management Plan are not accurate and up to date. They did not take into consideration any ground investigations. The nature of the ground materials being removed should have been updated, and there is no confirmation that they carried out a full survey to determine whether the existing building contains asbestos.

Contamination of the water table poses a direct hydrological link to Castletown River and Dundalk Bay, a European site.

Should the Board grant permission, they request as a minimum a condition that requires the applicant to engage in fortnightly neighbour liaison meetings with a council/councillor representative to discuss issues such as noise, dust, access, extended hours, utility impacts, parking, deliveries, safety etc.

Despite numerous chances, the applicant has again failed to provide satisfactory evidence that the proposed development can be constructed safely without having an adverse effect on the environment or adjoining houses and structures and should be refused.

Planning Inspector

17th August 2022