Outline Construction Management Plan

Project:

Castle Street, Bray, County Wicklow

Client:

Silverbow Limited

Doc Ref. CHC-00-XX-RP-C-00003

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Suitability – S4=Planning , S2=Information , A1=Construction

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The information contained herein is current at date of issue in the Details, Control and Issue Log and may be subject to third part approvals for items such as connections, access arrangements and planning approvals.

The report addresses those items outlined only. In the event that there are items not covered within the report, the reader shall not infer that such extraneous items have been considered irrelevant or immaterial. Any items not covered within the report have not been investigated by the Authors and the reader should satisfy themselves that such items have been suitably investigated elsewhere.

Please note that this document is for the purpose of setting a clear path and philosophy for the future nominated Contractor in drawing up their own final strategy for and drafting of their Construction Management Plan.

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EXECUTIVE SUMMARY

Corrigan Hodnett Consulting (CHC) have been appointed to draft an Outline Construction Management Plan (CMP) in order to form part of the Strategic Housing Development planning application for the referred site.

This Outline Plan defines amongst other issues the physical and legal limitations within which a person or persons can carry out development works that affect the existing nature of public roads, footpaths and the surrounding environment for a duration of time. This plan also outlines the relevant requirements in relation to environmental management issues.

This outline plan sets out a road map and strategy for the future Contractor to adopt when drafting their own Site-Specific Management Plans.

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1.0 INTRODUCTION

Corrigan Hodnett Consulting Engineers have been appointed in the role of consultant civil and structural engineers for a strategic housing development scheme at the former Heiton-Buckley site at Castle Street, Bray, County Wicklow and also includes a dwelling to the rear, north, which is accessed off Dwyer Park. The project is titled 'Castle Street, Bray, County Wicklow'.

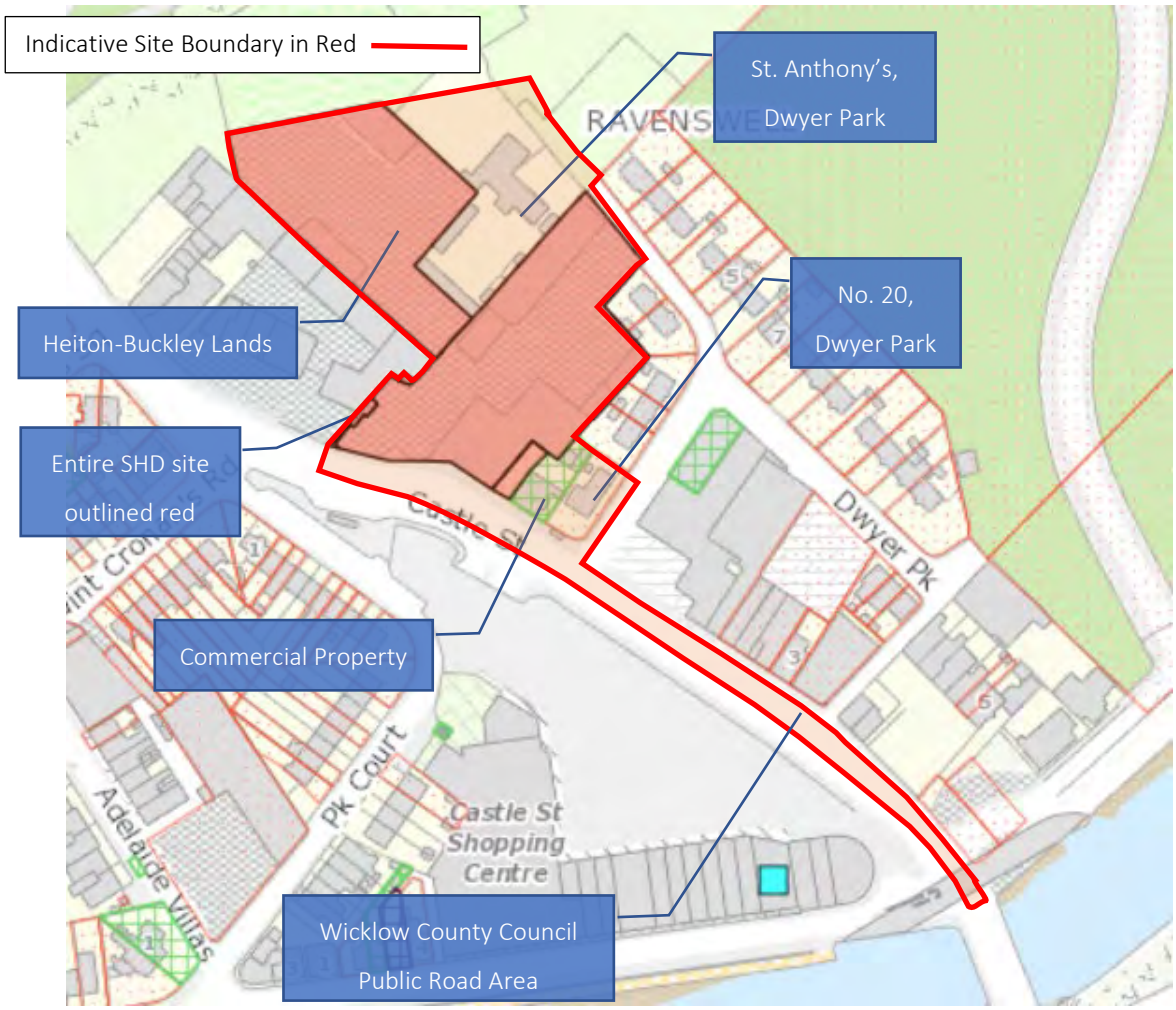
Please note that this document is also for the purpose of setting a clear path and philosophy for the future nominated Contractor in drawing up their own final strategy for drafting of their Site-Specific Construction Management Plan.

1.1 Site Location

The subject development site under consideration is within the townlands of Ravenswell and Little Bray, off, and to the immediate northeast of Castle Street (Regional Road R761), Bray, County Wicklow; to the west of the existing Dwyer Park housing estate; to the east and north of existing Dargle Centre retail park. There are third party development zoned lands to the northwest and west of the site which are designated for the access route into the Former Bray Golf Course lands to the north of the development lands (identified as SLO 3 under the current Bray Local Area Plan).

The overall site is accessed off Castle Street via the existing access which previously served the Heiton-Buckley builder's providers on the site and two separate accesses via Dwyer Park which serves the two dwellings which form part of the site. The site is comprised of four properties, the actual Heiton-Buckley site, an adjacent commercial building to the south and two dwellings, namely St. Anthony's, Dwyer Park and No. 20 Dwyer Park as detailed in the following figure;

Figure 1-1 Site Extents



The applicant redline boundary also includes areas of public footpath and roadway along Castle Street to accommodate the necessary footpath upgrade works adjacent to the site, water services connections/outfalls and the proposed revised roadmarkings to accommodate a right turn manoeuvre into the site.

The lands to the north of the site proper are currently undeveloped greenfield lands which are zoned.

The Dwyer Park housing development to the east of the site is comprised of a mix of terraced, semi-detached, and detached single and two storey houses.

The existing buildings on the site were most recently used as a builder's providers, Heiton-Buckley but have been unoccupied for some time and are in a state of dilapidation. The existing dwelling on the site has been occupied until very recently and appears structurally sound. The external walls of a number of the existing commercial buildings also form the rear garden boundaries of the immediately adjacent houses in Dwyer Park. Similarly, the rear wall of one of the shed structures within the development forms a common boundary with several of the commercial units in the Dargle Centre retail park. It is

noted that an initial inspection of the boundaries has identified that a number of the boundaries have structural issues, some of which will result in eventual failure. A detailed structural inspection of all boundaries will be required prior to any works commencing onsite which will inform a remediation plan for those affected boundaries which are to remain in place.

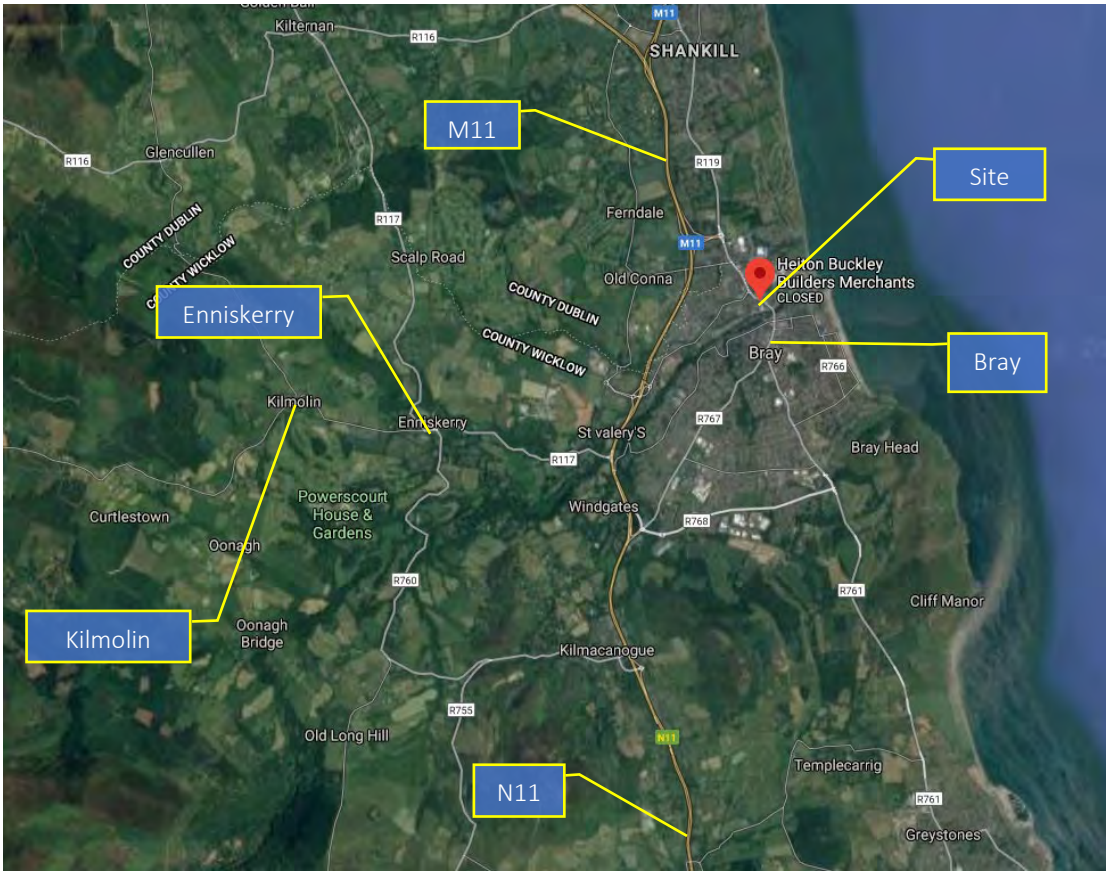
For future reference the terminology 'site' will apply to the subject development lands, i.e. the site under consideration which is identified graphically in the following pages.

The site falls under the authority of Wicklow County Council for planning, road/access and stormwater services purposes. Irish Water are the authority for potable water and wastewater in the area.

The wider surrounding lands is a mix of low/medium density residential and commercial/retail uses.

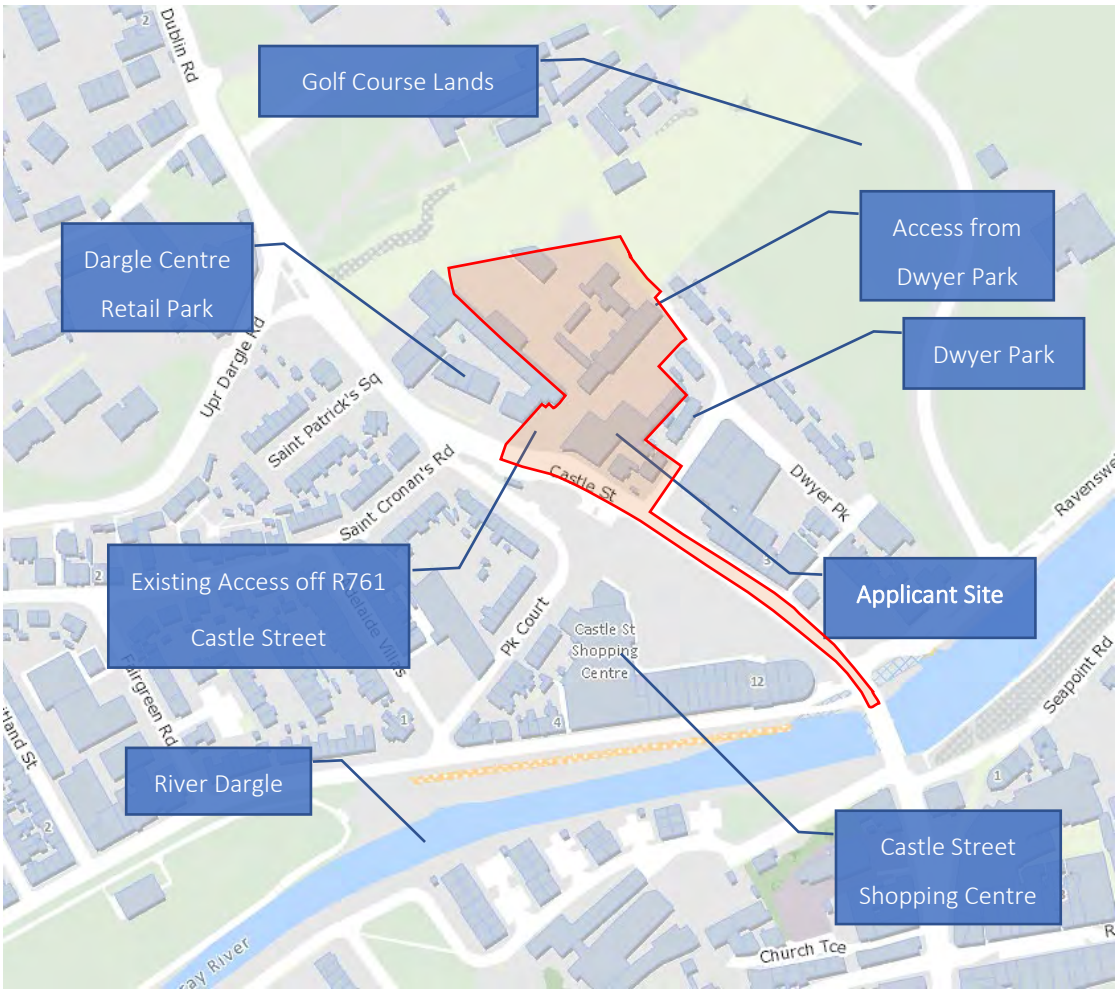
Figure 1-2 and Figure 1-3 following detail the location of the site in a regional and local context respectively.

Figure 1-2 Site Location; Regional Context[1]



[1] Source – Google Maps

Figure 1-3 Site Location; Local Context[2]



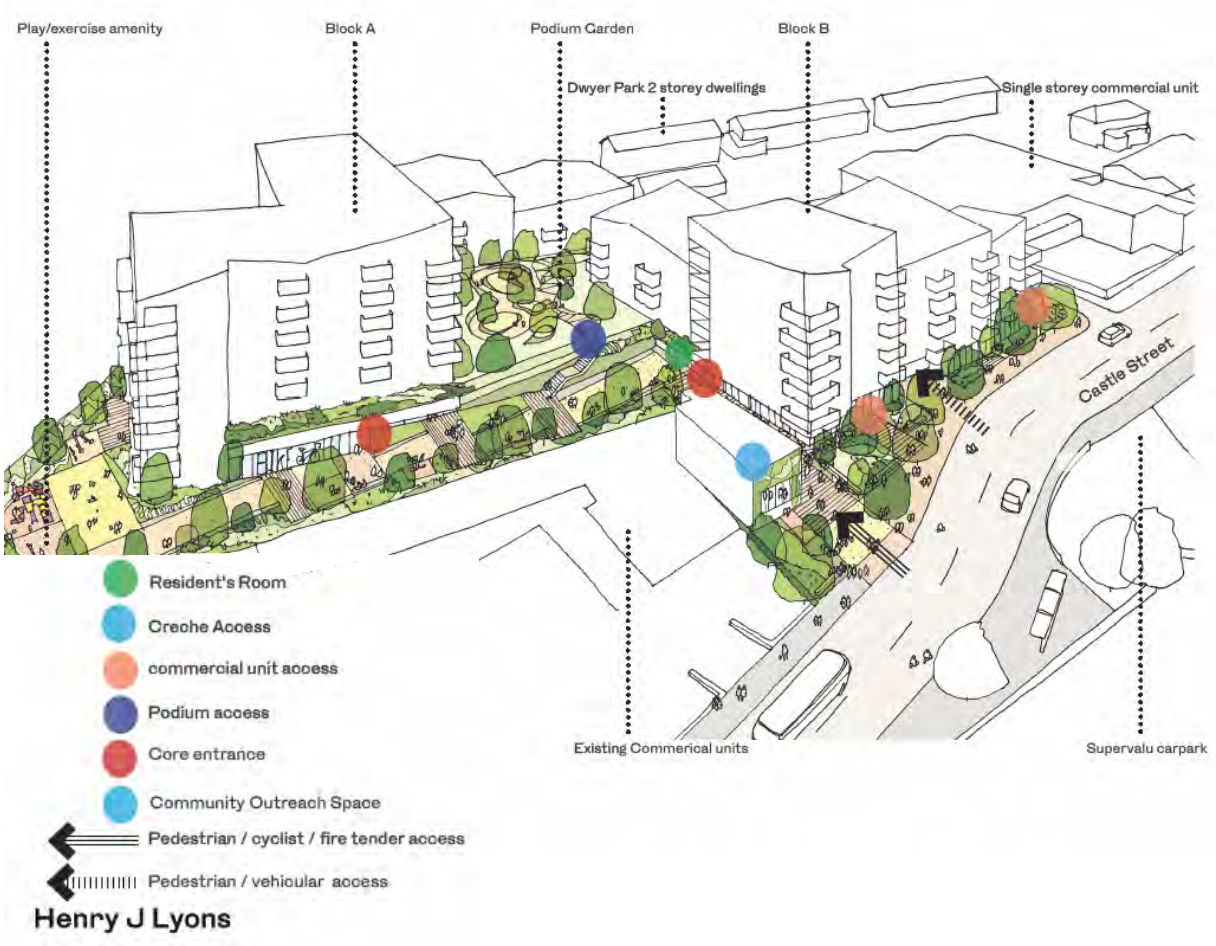
From the OS mapping provided and using the topographical survey procured for the site, the overall gross site area (redline area) amounts to approximately 1.0557 Hectares (10,557 square metres/ 2.609 Acres) which is inclusive of the area of public roads and footpaths. The nett area for development calculation purposes amounts to approximately 0.8594 Hectares (8,594 square metres/ 2.124 Acres).

[2] Source – Ordnance Survey Ireland, Geohive Mapping

1.2 Proposed Development

The proposed development is an apartment development based on a density of 162 units per hectare realising a total number of 139 apartments. The scheme will also include a creche (220 square metres) at ground floor of Block A. Block B will include two commercial units at ground floor (combined area of 688 square metres), a residents community meeting room at ground floor (74 square metres) and a separate smaller building housing a community facility (86 square metres). The accommodation is proposed in two blocks, up to seven storeys in height, with undercroft car and motorcycle parking, secure cycle parking and bin storage. There are also a number of visitor cycle parking spaces at surface level. For full details of the architectural and landscape proposals please refer to the relevant professional's reports in this regard. Refer Figure 1-4, Figure 1-5 and Figure 1-6 for details of the current proposal, extracted from Henry J. Lyons Architects SHD Stage 2 Submission Architectural Design Statement, available under separate cover.

Figure 1-4 SHD Application, Context Sketch[3]



[3] Source – Henry J. Lyons Architects

Figure 1-5 SHD Application, Proposed Ground Floor Plan[4]

[4] Source – Henry J. Lyons Architects

Figure 1-6 Aerial View of proposal with podium between Block A and Block B visible[5]

Figure 1-7 following details the Schedule of Accommodation for the proposed residential elements of the development.

Figure 1-7 Schedule of Accommodation[6]

RESIDENTIAL GIA	1 BED	2 BED	3 BED	TOTAL	
TOTAL Block A	28	53	12	93	10026
TOTAL Block B	5	38	3	46	4941
TOTAL Block A&B	33	91	15	139	14967
Area of podium Carpark					1734
UNIT MIX	24%	65%	11%	100%	

Commerical/Community area (sqm):		Creche:	
Community outreach:	86sqm	Creche Area:	220sqm
Unit 01:	284sqm	No. of children:	28
Unit 02:	404sqm	External Play area:	85sqm
Community meeting:	74sqm	Creche Drop off spaces:	3

Based on land use zoning and the building types in the immediate and surrounding area, it is considered that the proposed scheme is in keeping with the Bray Municipal District Local Area Plan 2018 (LAP), the Wicklow County Development Plan 2016-2022 (CDP), the National Development Plan 2018-2027 (NDP) and the Project Ireland 2040 National Planning Framework.

[5] Source – Henry J. Lyons SHD Stage 2 Submission Architectural Design Statement

[6] Source – Henry J. Lyons SHD Stage 2 Submission Architectural Design Statement

The planning consultant, Simon Clear & Associates, and the scheme architects, Henry J. Lyons, have prepared detailed studies relating to the architectural and planning aspects of the development site and their expertise should be consulted in this regard for a fully detailed assessment of these aspects of development.

2.0 Construction Management Plan

This section of the report is included to demonstrate an outline plan of how the works are intended to be carried out on site.

This Outline Construction Management Plan identifies an indicative sequence of the works from the initial enabling works through to any sub-structure and superstructure construction in advance of a Main Contractor being appointed.

This document is therefore an outline draft which is intended to set a clear path and philosophy for the future nominated Contractor in drawing up their own final strategy for drafting of their final Construction Management Plan.

2.1 Site Set-up, Hoarding and establishment of site access /egress

The sites surrounds are primarily comprised of residential and community use buildings such as educational and retail centres.

Small areas of hoarding maybe installed around localised areas of the site where existing boundary wall features might be removed as part of the works and / or where exiting boundary features are not of sufficient height or density.

The site layout offers the Contactor an opportunity to stockpile and store construction materials as required which will mitigate against construction traffic occupying road space on the existing Castle Street entrance/exit.

The Contractor will be responsible for securing the site and required to;

- Operate a Site Induction Process for all site staff;
- Ensure all site staff shall have current ‘Safe Pass’ cards
- Install adequate site hoarding to the site boundary;
- Maintain Site Security staff at all times;
- Install access security in the form of turn-styles and gates for staff;
- Separate public pedestrian access from construction vehicular access;
- Ensure restricted access is maintained to the works.
- Assess requirement for adequate lighting in conjunction with local authority.

Note general site operations may be dictated by the recommended methods of work which allow for the evolving Covid-19 pandemic.

2.2 Site Clearance and Demolition

The site is a brown field site and will generally require site strip of topsoil, existing surfacing and demolition of the former builders providers warehousing derelict buildings.

The outline method statement for the site clearance enabling works are as follows;

- Establish a site set-up and welfare facilities;
- Carry out a detailed services survey of the site to identify all buried services, determine what services are live, redundant and that may potentially serve neighboring properties;
- Carry out any necessary services diversions and decommissioning works;
- All site waste materials associated with the clearing of the site are to be separated for reuse, recycling or off-site waste as deemed appropriate per the implemented Construction and Demolition Waste Management Plan.

2.3 Bulk Excavations

Given the nature of the development there will be no bulk excavations required on the site to accommodate any basement structure. Localised excavations will only be required for other typical sub-structures such as shallow surface water attenuation tanks. Excavations can also be expected for installation of general site infrastructure. Excavations in this regard are situated such that they are not anticipated to have any effect on the existing surrounding boundary features.

The soils stratigraphy on site are anticipated to be soft materials to estimated rock head at approximately 8 to 10m below existing ground level. Structures are therefore anticipated to be supported of piles set into the rock layer where the augured method of low vibration piling will return some soil material for disposal during the piling process. Excavations at depth to accommodate civil infrastructure will be done so by safe appropriate construction methods including temporary works systems which will form part of Contractor safe work practice in accordance with current HSA guidance.

Material which is to be removed from the site will be tested appropriately in order to determine its suitability for disposal and handling etc. and this process will follow best practice guidance from the Department of Environment, Heritage and Local Government 2006.

2.4 General Construction Methodology

Apartment Structures

The apartment units are formed in blocks of 1 to 7 storeys over a single storey common undercroft and commercial. The undercroft areas which accommodates the car parking and other ancillary spaces is such that there is no basement structure requiring a bulk dig.

The super structure of the apartments is anticipated to be a reinforced concrete frame which will be supported by a transfer structures at appropriate levels to facilitate a supporting grid of columns and /or localised walls to suit the car parking or other ancillary use spaces.

The sub-structures will comprise a grid of piles founded in the anticipated rock head at a depth of circa 8 to 10m. Specialist pile installations will be of low vibration augured construction.

Site Infrastructure

It is anticipated that works to install civil infrastructure will commence in advance of or a least be phased with the relevant areas of buildings progress. The drainage infrastructure works will be co-ordinated as required by the relevant authority and Irish Water as necessary.

Following communications with the relevant local authority departments, the drainage strategy requires an extent of civil infrastructure which is routed externally of the site. The surface water drainage outfall is proposed to follow a route to the adjacent River Dargle at the Castle Street Bridge. Road opening licences etc., will be obtained from the local authority as appropriate. Connection licences and/or connection agreements as appropriate will need to be obtained in advance of such works commencing in the public domain.

There is a degree of realignment of existing road and footpaths etc. local to the site in order to facilitate an extended right turning lane all in the public domain.

Traffic management will require particular consideration along with any other relevant safety and health concerns within the surrounding live environs.

2.5 Environmental management

Dust

Dust prevention measures shall be included for control of any site airborne particulate pollution. The Contractor shall put in place and monitor dust levels in the vicinity using a Bergerhoff gauge instrument. The minimum criteria to be maintained shall be the limit for Environmental Protection Agency (EPA) specification for licensed facilities in Ireland, which is 350mg/m2/day. The Contractor shall continuously monitor dust over the variation of weather and material disposal to ensure the limits are not breached throughout the project. It is proposed to use a "Dust Boss" or similar spray cannon machine in order to contain and suppress dust on site. Such machines have a range of controls and can be adjusted to suit the particular area being treated.

Dirt

While the construction site works are traditional in nature, it can be expected that appropriate wheel wash facilities will be installed on site to that;

An appropriate wheel wash shall be adopted and located within the site confines.

All vehicles will be required to pass through the wheel wash before exiting the site to the public road network. The wheel wash must be kept in place and used throughout the construction works. If conditions require, then a manned power washer shall be put in place to assist the wheel wash system;

A dedicated road sweeper shall be considered for use for the duration of the haulage works on local external access roads as necessary. All waters shall be drained through appropriate filter material prior to discharge from the site or re-use as wheel wash water.

Noise

The Contractor will be required to monitor base noise levels at the site location before commencement of the project. Noise monitoring will then also be required throughout the project. Variation of noise levels from those experienced as part of everyday life in an area can result in extreme disruption, in particular at this sensitive site adjacent to residential areas. The Contractor shall implement measures to eliminate where possible and reduce noise levels The proposed development shall comply with BS 5228 "Noise Control on Construction and open sites Part 1: Code of practice for basic information and procedures for noise control" (or such further limits as imposed by Wicklow County Council.

Vibration

The Contractor shall provide and maintain vibration monitoring equipment for the duration of the works and for a period prior to construction at salient locations. Condition surveys of adjoining buildings, roads and/or other features as deemed appropriate will be conducted by the Contractor prior to works commencing and subject to the relevant property owner consent. Vibrations shall be monitored in accordance with BS 7385-1:1990 "Evaluation and Measurement for Vibration in Buildings".

The criteria for assessing vibration consider both human comfort and issues relating to cosmetic or structural damage to buildings. Vibration is measured in terms of Peak Particle Velocity (PPV in mm/s).

It is well reported that humans are very sensitive to vibrations and that any perception of vibration may lead to concern of possible resulting damage to building fabric. Humans percept vibration levels of around 0.5mm/s and may become disturbing at slightly higher levels. Contrary to human perception the vibration levels which are known to cause damage to buildings are of much higher magnitude.

BS 7385-2 section 7.4.1 notes that '*Some data suggests that the probability of damage tends towards zero at 12.5mm/s peak component particle velocity (PPV). This is not inconsistent with an extensive review of the case history information available in the UK.'* Such levels would not be tolerable on a human perception level where this would likely result in raised anxiety levels and perception of damage being caused.

In section 7.4.2 it is noted *'Limits for transient vibration, above which cosmetic damage could occur are given numerically in Table 1……. Minor damage is possible at vibration magnitudes which are greater than twice those given in Table 1, and major damage to a building structure may occur at values greater than four times the tabulated value.'*

BS 5228-2 echoes this comment and notes as follows; *'Limits for transient vibration, above which cosmetic damage could occur, are given numerically in Table B2…in terms of the component PPV. Minor damage is possible at vibration magnitudes which are greater than twice those given in table B.2, and major damage to a building structure can occur at values greater than four times the tabulated values.'*

This relevant British Standard Code of Practice BS5228 and Table B.2 therein notes the vibration limits (PPV) for cosmetic damage to residential buildings as 15mm/sec at 4Hz increasing to 20mm/sec at 15Hz. At Frequencies above 15Hz the allowable PPV is between 20mm/sec and 50mm/sec.

This British Standard states that minor damage is possible at vibration magnitudes which are greater than twice those noted above from table B.2. Furthermore, it notes that major damage to a building structure can occur at values greater than four times the tabulated values. This British Standard also notes that *'a building of historical value should not (unless it is structurally unsound) be assumed to be*

more sensitive'. In our view, none of the occupied structures / residential properties adjacent the development site could be describes as being in a 'structurally unsound' condition.

Table B.2 Transient vibration guide values for cosmetic damage

Line (see Figure B.1)	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

NOTE 1 Values referred to are at the base of the building.

NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

Figure 2-1 - Table B2 (Source BS5228-2)

Maximum vibration threshold levels to be emitted from the works will be set at 5 mm/sec PPV. This allows for a reasonable threshold of reduction and indicator level for mitigation measures to be reviewed.

In order to mitigate such risks from vibration or noise, various practices can be adopted during construction if deemed necessary, as follows;

- Limit hours of site activities likely to create high levels of noise or vibration;
- Establish channels of communication between contractor and local authority and residents as deemed appropriate;
- Appoint site representatives responsible for matters relating to noise and vibration
- Monitoring typical levels of vibration and noise during critical periods and at noted sensitive locations;
- All site access roads/points to be kept even to mitigate potential for vibration from wagons;
- Construct appropriate hoarding;
- Selection of plant with low potential for noise or vibration generation;
- Attenuation measures for particular items of plant.

Harmful Materials

Harmful materials shall be stored on site for use in connection with the construction works in a manner appropriate to their manufacturer's guidance. These materials shall be stored in a controlled manner.

Where on site fueling facilities are used there shall be a bunded filling area using a double bunded steel tank at a minimum.

2.6 Outline construction management

Signage

The site construction traffic will use the proposed development entry/exit point located at the existing Castle Street entrance/exit. The Contractor will erect appropriate signage in accordance with the NRA Traffic Signs Manual, Chapter 8.

No temporary road markings are envisaged. The current access will have sufficient width to accommodate expected construction traffic.

No proposals are expected to be required for a contraflow system. Construction traffic vehicles can que inside the site boundary as required and access / egress will be a managed manoeuvre by a flag / banksman and no traffic signals are proposed.

The existing pedestrian routes external of the site will be unaffected, and any gated temporary access hoarding will not open onto or obscure existing pedestrian infrastructure.

Any proposed alterations to existing lighting infrastructure will be agreed with the local authority by the Contractor.

Traffic

The final Construction programme is yet to be scheduled but expected to be circa 2 years. Peak construction traffic is expected to be during the short duration for demolition and civil works excavations. Delivery of materials such as ready-mix concrete wagons through-out the programme period will be scheduled at appropriate times by the main Contractor and can que within the confines of the site. The majority of construction traffic is expected to occur outside of peak AM and PM times so as to have limited effect on the local surrounding residential area during this temporary phase.

In relation to general haulage, the following will form part of the final traffic management plan;

At no time should construction associated vehicles be stopped or parked along the surrounding routes other than designated suitable lay-bys along the public road way;

Haulage vehicles should not travel in convoys of greater than two vehicles at any time;

Haulage vehicles should be spaced by a minimum of 250m at all times;

Strictly at no time should haulage vehicles be parked or stopped at the entrance to the site.

All loading of excess material will occur within the site boundary;

All off-loading of deliveries will take place within the site, away from the public road and will access via the construction site access.

The routing of construction traffic will be dictating by the direction or area where the particular delivery or service is coming from but in general the expected routing of construction traffic to, and within the site will be managed within site confines shown in Appendix A.

The increase in traffic as a result of construction should be readily accommodated within the existing road network. However, the site is located a within an urban residential area where restricted road and junction space is shared with other road users and the flow of construction traffic will need to be managed to ensure that potential conflicts are avoided.

Working Hours

The construction traffic will occur outside of peak background traffic hours within a six-day week with minimal impact on the operation of the existing road network. As part of the Contractors final construction management plan.

The site operation will be limited to the hours as stated in the relevant local or other authority and /or planning permission conditions which might suggest typical working hours of 07:00 to 19:00 Monday to Friday and 09:00 to 13:00 on Saturdays only.

It is noted that the CIF or other government body may require alternative working hours than those currently established hours to allow for the evolving Covid-19 pandemic.

Appendix A

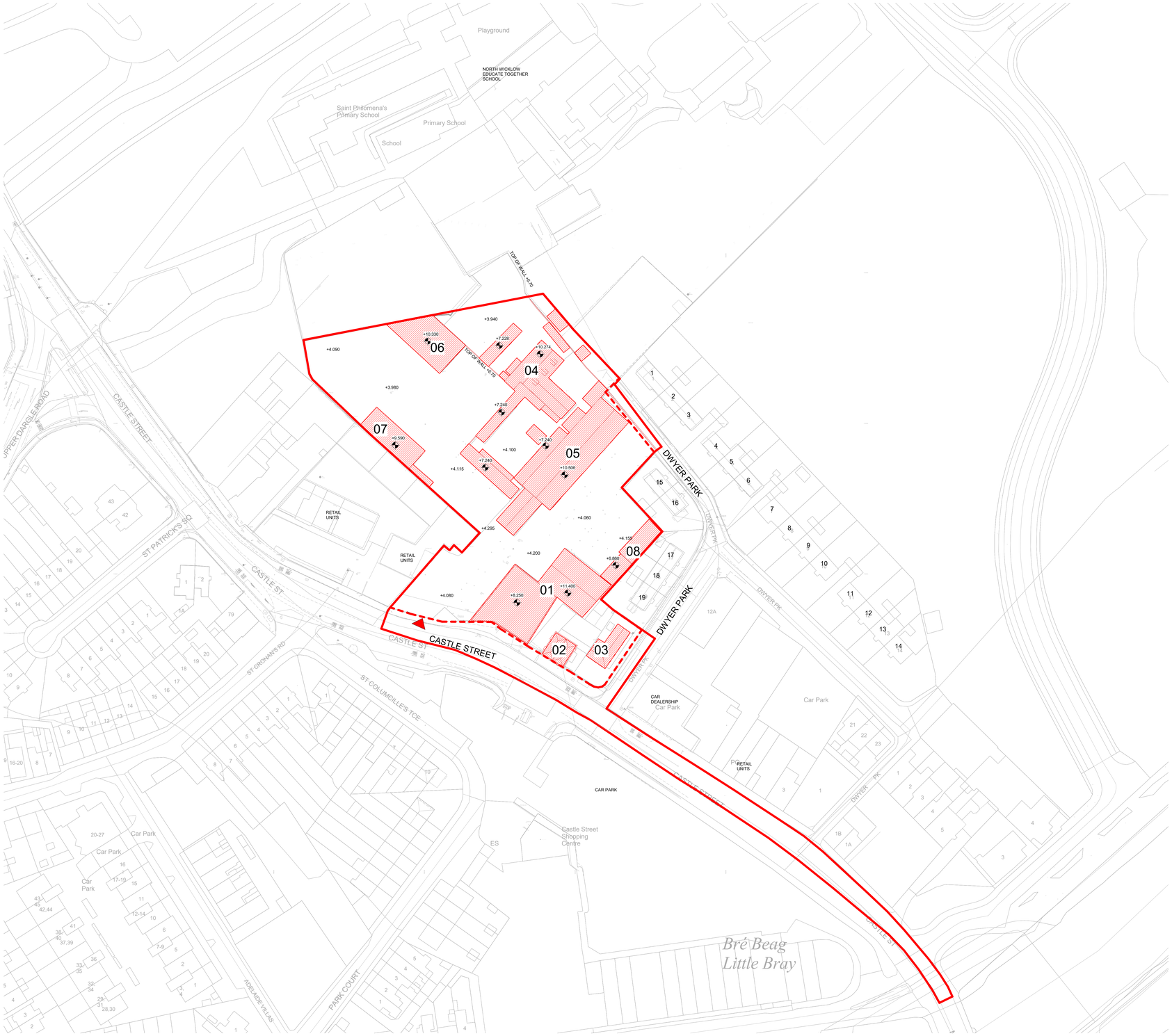
A.1 – Existing & Proposed Development Site Layouts

ALL DIMENSIONS TO BE CHECKED ON SITE
NO DIMENSIONS TO BE SCALED FROM THIS DRAWING
DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT CONSULTANTS DRAWINGS

N

Legend

- Site boundary
- Core site area
- Existing site entrance
- Buildings to be demolished
- Spot elevations
- + 4.00 Site levels



1 **EXISTING / DEMOLITION SITE PLAN**
1 : 500

REV	DATE	DESCRIPTION	CKH	DRN

STATUS CODE DESCRIPTION
ISSUED FOR PLANNING APPROVAL

CLIENT
SILVERBOW LTD.

PROJECT
SHD CASTLE STREET BRAY

DRAWING
EXISTING / DEMOLITION SITE PLAN

PROJECT NUMBER	DATE
960824	01/03/2022
SCALE@ A0: As indicated	DRAWN/CHECKED: DGI CM

STATUS CODE:	DRAWING NUMBER:	REVISION:
A1	CSB-HJL-AB-XX-DR-A-0003	

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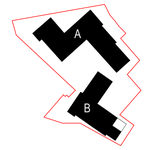
ALL DIMENSIONS TO BE CHECKED ON SITE
NO DIMENSIONS TO BE SCALED FROM THIS DRAWING
DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT CONSULTANTS DRAWINGS

1 **PROPOSED SITE LAYOUT PLAN**
1 : 500

N



Legend

- Site boundary
- Core site area
- Proposed site entrance
- Sedum roof

REV	DATE	DESCRIPTION	CKH	DRN

STATUS CODE DESCRIPTION
ISSUED FOR PLANNING APPROVAL

CLIENT
SILVERBOW LTD.

PROJECT
SHD CASTLE STREET BRAY

DRAWING
PROPOSED SITE LAYOUT PLAN

PROJECT NUMBER
950824

DATE
01/03/2022

SCALE@ A0
As indicated

DRAWN/CHECKED:
ROGI CM

STATUS CODE:
A1

DRAWING NUMBER
CSB-HJL-AB-XX-DR-A-0005

REVISION

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