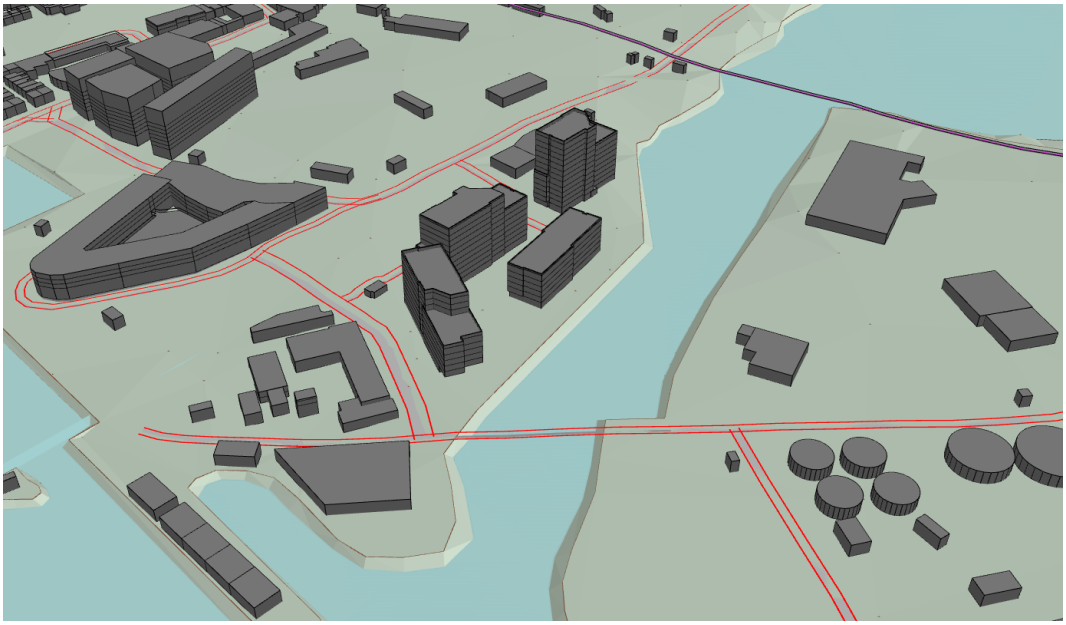


Figure 7: Screenshot of Noise Model.

5.2.2 Predicted Road Noise Levels

Incident road traffic noise levels have been predicted across all facades of the development for both the day and nighttime period.

Daytime Noise Levels

Figure 8, Figure 9, Figure 10 and Figure 11 below outline the predicted road traffic noise levels across the proposed site for the day time period at 1.5m, 4m, 6.5m and 9m height respectively.

Figure 8: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 1.5m Height for the Future Development.

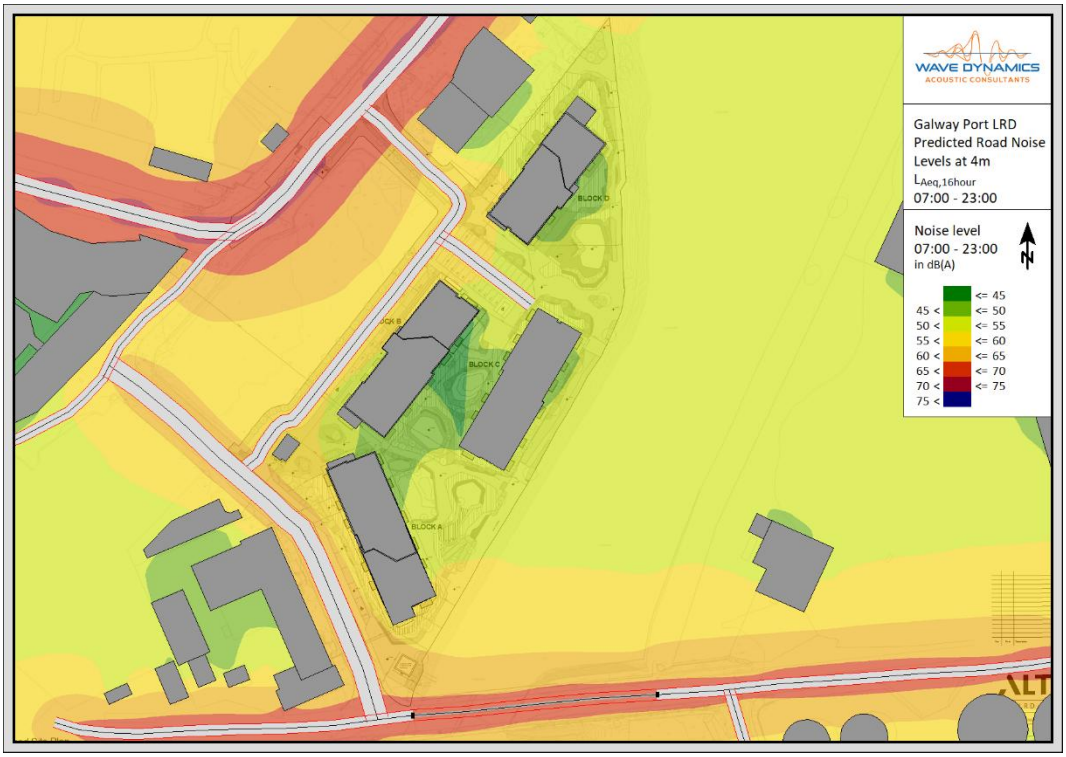


Figure 9: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 4m Height for the Future Development.

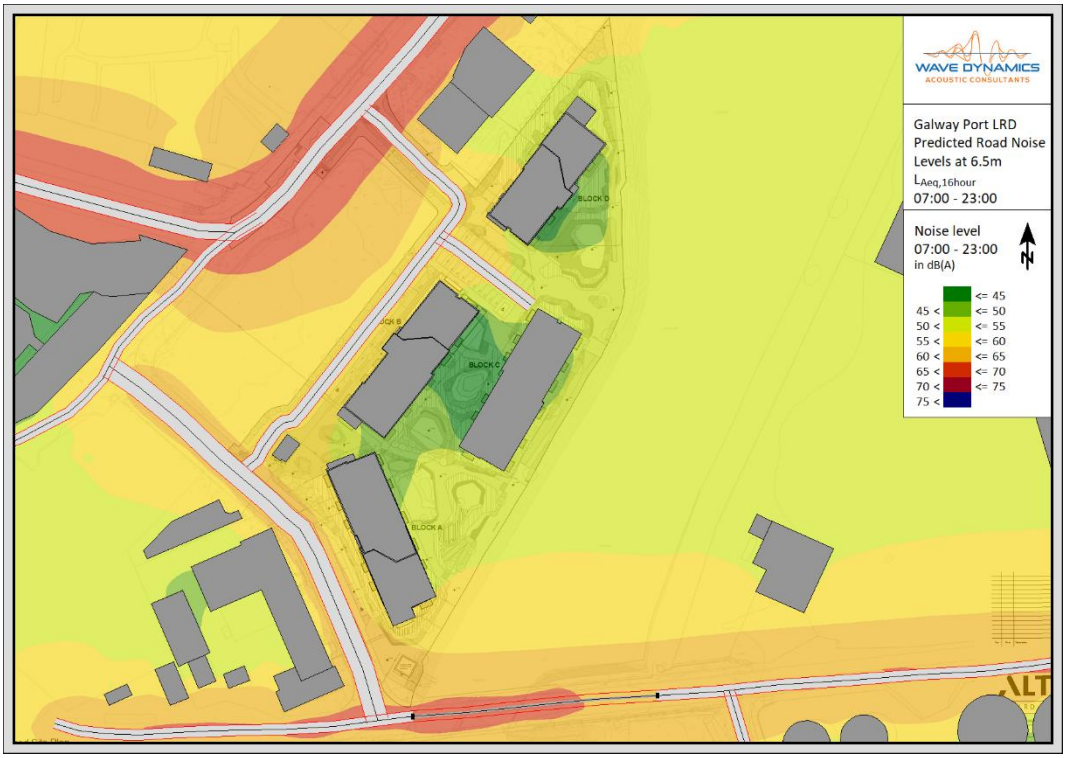


Figure 10: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 6.5m Height for the Future Development.

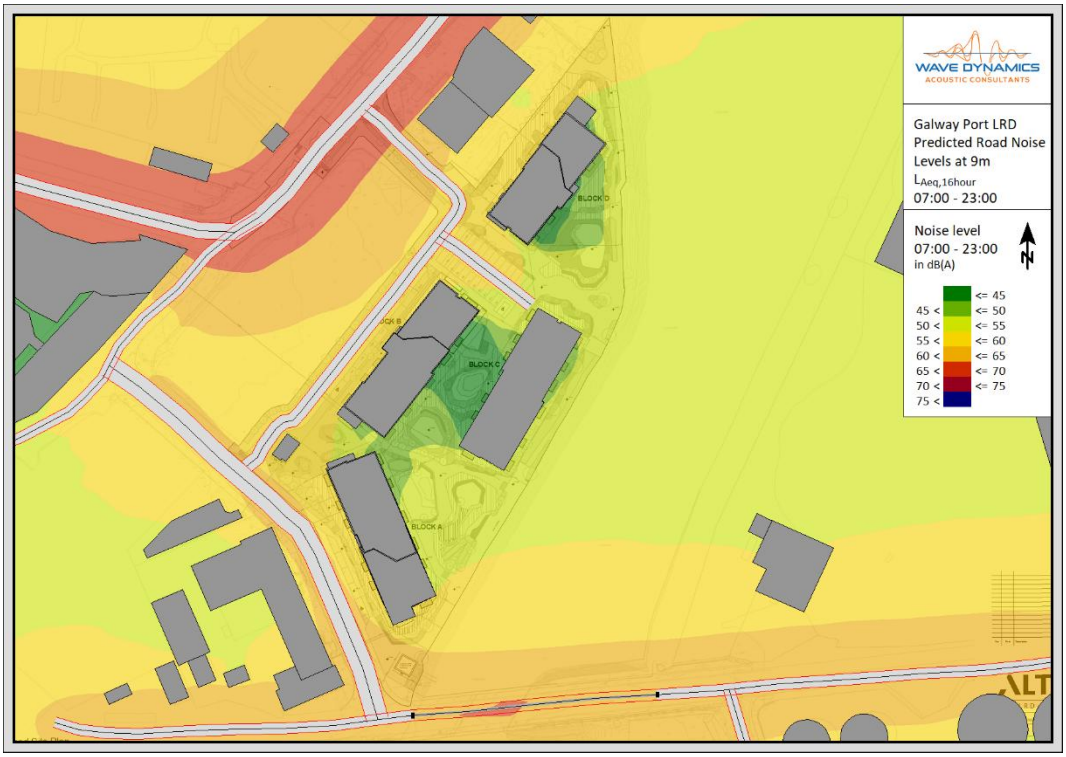


Figure 11: Predicted $L_{Aeq,16hour}$ (07:00Hrs – 23:00Hrs) at 9m Height for the Future Development.

Nighttime Noise Levels

Figure 12, Figure 13, Figure 14 and Figure 15 below outline the predicted road traffic noise levels across the proposed site for the nighttime period at 1.5m, 4m, 6.5m and 9m height respectively.

Figure 12: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 1.5m Height for the Future Development.

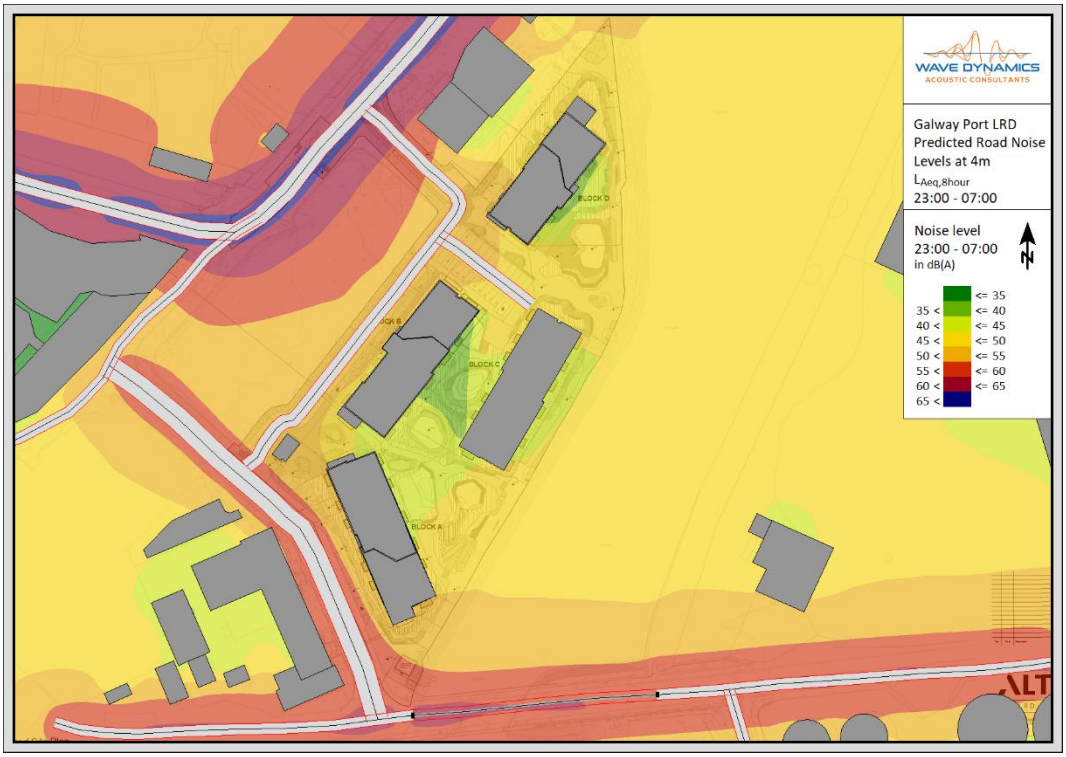


Figure 13: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 4m Height for the Future Development.

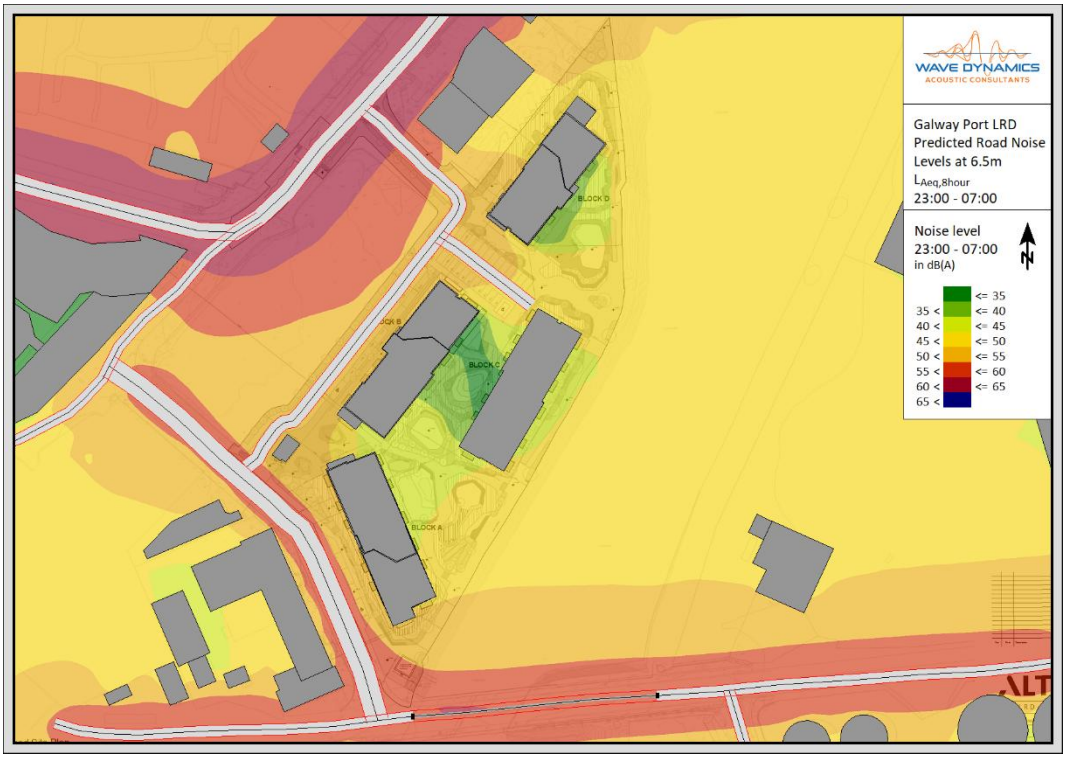


Figure 14: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 6.5m Height for the Future Development.

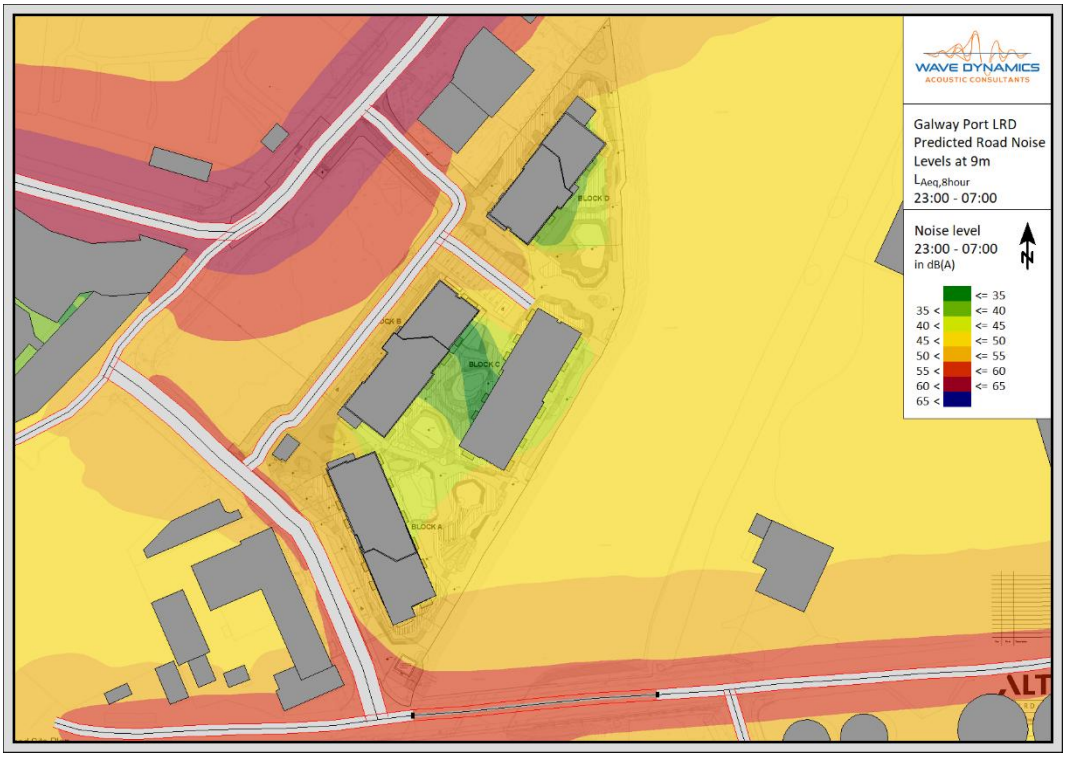


Figure 15: Predicted $L_{Aeq,8hour}$ (23:00Hrs – 07:00Hrs) at 9m Height for the Future Development.

5.2.3 Building Envelope Specification

This section outlines the building envelope requirements based on the measurements outlined in Section 3. Facade, wall, glazing, roof and ventilation specifications have been determined to achieve the internal noise level criteria for the development. The specification has been determined in accordance with EN ISO 12354-3: 2017 based on the predicted façade day and night noise levels, the room and facade dimensions from the drawings provided.

The building envelope specification should be confirmed by the acoustic consultant at design stage once the internal layouts and design development has been completed. Any changes to the assumed ventilation strategy and glazing requirement should be considered as part of the review and it should be based on the internal noise levels cited in this report.

Glazed Elements and Ventilation

The glazed elements and ventilation openings are typically the acoustically weakest elements of any façade. The required sound insulation performance of façade glazed elements and ventilation openings is outlined in Table 6 below.

It is required that the glazing, frame and seals as a whole achieve the performance when the window is in the closed position. The performance requirements outlined in Table 6 below are considered to provide adequate sound insulation to achieve the relevant day and night internal design goals respectively. A markup outlining the performance requirements for each façade are included in Appendix B. It is important to note that only the glazing to habitable rooms (bedrooms, living spaces, kitchens etc) is required to achieve the specifications outlined in Table 6 and marked up in Appendix B. Glazing to common space corridors is not required to achieve the below specifications.

Table 6: Sound Insulation Performance Requirements for Glazed Elements and Ventilation.

Façade	Glazed Elements (Frame & Glazing) Sound Insulation Requirements (Indicative requirements equal or approved)							Façade Ventilation Requirement[2]
	Octave Band Frequency Requirements[1] R dB						Glazing Acoustic Performance dB R_W	
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
RED	28	28	29	38	38	34	35dB R_w	38dB $D_{n,e,w}$ (1) Natural Ventilation
BLUE	Standard Glazing						29dB Rw	Standard passive ventilation

(1) Natural ventilation assumed throughout, the performance cited for the ventilator is in the open position. Should this change to mechanical ventilation the above specification may be reduced. An acoustic consultant should be engaged to assess the level of reduction appropriate to maintain the internal noise level criteria.

(2) The calculation assumes a maximum of 1 ventilation opening per bedroom at the specification outlined in Table 7.

(3) Standard double glazing assumes a construction of two panes of 3mm glass with a 10mm cavity achieving a minimum 29dB R_W, equal or approved. Similarly, standard natural ventilation assumes a performance of 29dB $D_{n,e,w}$.

It is important to note that the requirements outlined above are minimum requirements for the glazed element as a whole. The octave band values are indicative and specific to the assessed glazing type, equal or approved to meet the minimum project requirements is acceptable.

We understand the ventilation strategy is proposed as a natural ventilation system. Based on the information provided to us on the ventilation system, it has been assumed that this system is a natural ventilation system with passive openings or trickle vents. Should the ventilation strategy change to mechanical ventilation strategy Wave Dynamics should be engaged to provide an appropriate mechanical ventilation sound insulation performance requirement. Typically, the use of a mechanical ventilation strategy will lead to a reduced glazing specification compared to a natural ventilation system. This assessment is based on the windows in closed position, and the vents in the open position.

The calculations for the glazing figures in Table 6 are based on the use of basic trickle vents. The performance value, and that used in the calcs is given in Table 7 below.

Table 7: Recommended Ventilation Specification.

Façade	Description	Octave Band Centre Frequency (Hz) Sound Reduction Index $D_{n,e}$ dB					
		125	250	500	1k	2k	4k
RED	Acoustically rated trickle vent / wall vent $D_{n,e,w}$ 38dB	37	33	34	36	46	44
BLUE	Standard trickle ventilator typically ≥ $D_{n,e,w}$ 29dB	33	28	28	29	27	28

External Wall Construction

The façade wall construction has been assumed to achieve a minimum sound insulation performance of 56dB R_W. Typical façade construction such as concrete, blockwork, timber frame and brick offer high levels of sound insulation and will meet this requirement.

Roof Construction

The roof construction has been assumed to achieve a minimum sound insulation performance of 50dB R_W. Any skylights and glazing in the roof system to corridor or communal areas should be of standard double-glazed construction to meet a performance of minimum 29 dB R_w. There is currently no sky lights proposed to inhabitable

rooms, should the design change to include skylights to habitable bedrooms Wave Dynamics should be informed to provide specific guidance in each case.

5.3 Element 3- External Amenity Spaces

The external amenity spaces on the development include private amenity in the form of balconies and communal open spaces at ground level. Based on the assessment the balconies on the northeastern, western and southern elevations of Block A, the southwestern, western and northern elevations of Block B, and the southwestern, western and northwestern balconies on Block D are above the levels recommended in ProPG and BS 8233 (exceeding by 1-7dBA L_{eq}). However, appropriate amenity has been provided on the development for these residents with the communal open spaces at ground level in the centre of the development. These spaces are predicted to comply with the recommended external amenity noise criteria as outlined in ProPG and BS8233. Additionally, all other balconies are predicted to achieve the desirable external amenity noise levels without mitigation. This is in line with element 3(v) of ProPG which states:

"Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g. garden or balcony) then that impact may be partially off-set if the residents are provided, through the design of the development or the planning process, with access to:" ….

"a relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or

a relatively quiet, protected, publicly accessible, external amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance)".

Based on the measured noise levels at the site it is predicted that the external noise levels in both the communal open spaces and balconies aside from those marked up in Figure 16 will achieve the ProPG recommendations for desirable external amenity noise levels of 50-55dBA $L_{Aeq,16hour}$. Figure 17 below outlines the communal open space at ground floor level across the development.

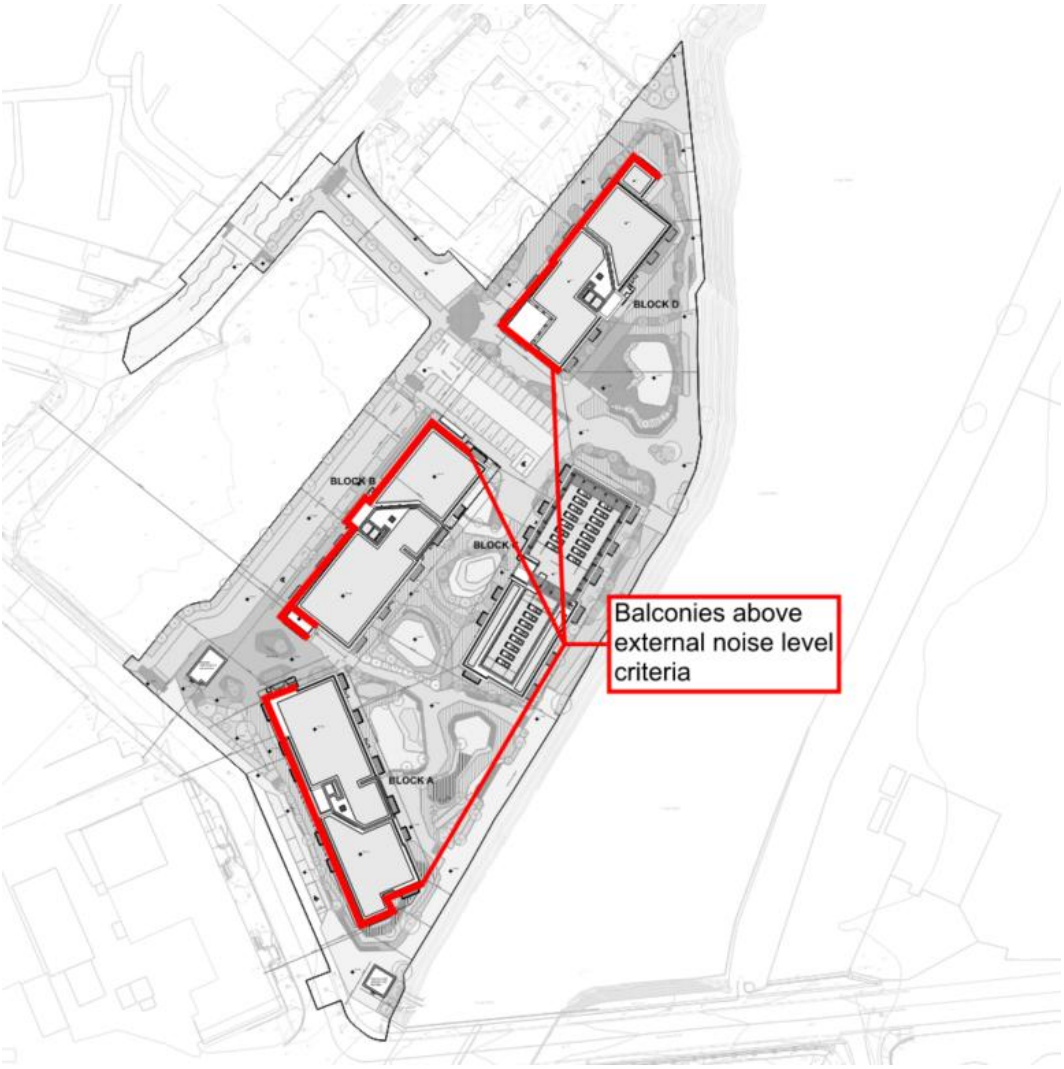


Figure 16: Balconies in Exceedance of External Noise Levels Criteria. (Ref: 24064.P101.4 Site Layout Plan)

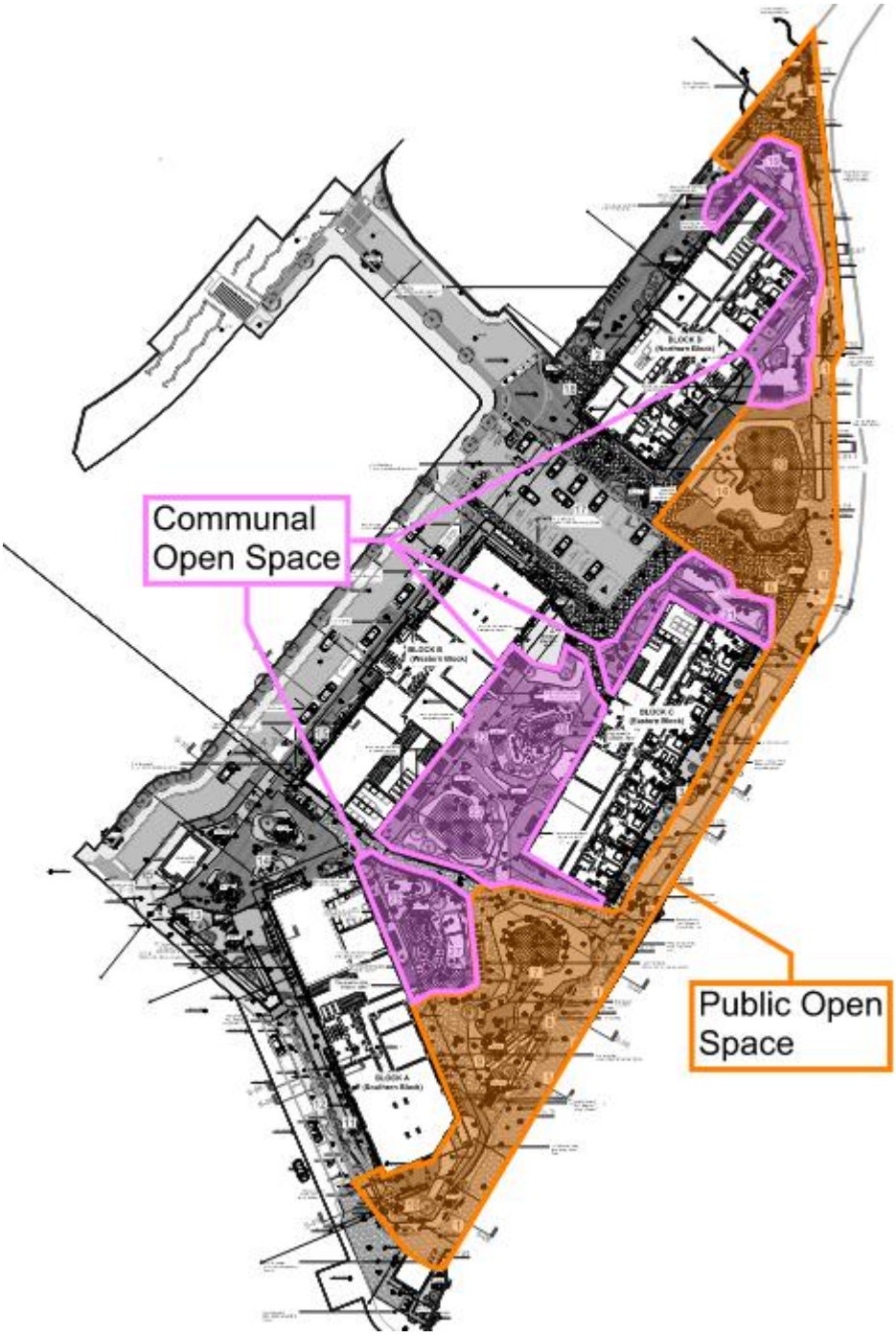


Figure 17: Communal and Public Open Space. (Ref: 24-612-SDA-PD-DR-GF-001)

5.4 Element 4- Assessment of Other Relevant Issues

This section of the acoustic design report considered the other relevant issues. Element 4 considers other issues which may remain relevant to the assessment, these issues are as follows:

- 4(i) compliance with relevant national and local policy.
- 4(ii) magnitude and extent of compliance with ProPG .
- 4(iii) likely occupants of the development.
- 4(iv) acoustic design v unintended adverse consequences and;
- 4(v) acoustic design v wider planning objectives.

5.4.1 Compliance with Relevant National and Local Policy

There are no specific noise guidance or policy documents for residential developments. The Galway City Council Noise Action Plan refers to the ProPG as the relevant document for assessment of the noise impact on new residential developments as followed in this acoustic design statement.

5.4.2 Magnitude and Extent of Compliance with ProPG

This report demonstrates that all dwellings will meet the specified internal noise level requirements provided the guidance in this report is followed. External amenity spaces have been provided in line with the guidance set out in ProPG. Based on this the development is in general compliance with the ProPG requirements.

5.4.3 Likely Occupants of The Development

Additional needs of the future occupants are not known at this stage however the needs of all potential occupants have been considered with the assessment of adequate internal noise levels and provision of adequate external amenity spaces to meet the needs of potential occupants.

5.4.4 Acoustic Design v Unintended Adverse Consequences

The design has considered the impact of adverse consequences, mitigation has been provided by specification of the sound insulation and ventilation requirements.

5.4.5 Acoustic Design v Wider Planning Objective

Where possible the wider planning objectives have been considered including the need for residential housing with good transport links. It is assumed that the wider planning objectives have been adhered to by following the ProPG guidance.

5.5 Stage 2 Assessment Conclusion

The stage 2 assessment considers all four (4) elements, the principals of good acoustic design have been followed.

The element 2 assessment has considered the measures required to provide an adequate acoustic environment with appropriate noise levels for internal spaces. The sound insulation and ventilation requirements have been specified based on the predicted façade noise levels.

The element 3 assessment of external amenity spaces has considered the noise impact on the development and the external amenity spaces. The appropriate provision of external amenity space has been provided through the use of balconies and ground level communal open space and all public open spaces in line with the ProPG guidance.

Other relevant issues have been considered including, local policy, unintended consequences and the wider planning objectives.

6 Conclusion

Wave Dynamics were engaged by the Land Development Agency (LDA) as the acoustic consultants to undertake an Inward Noise Impact Assessment for the planning application for the proposed large-scale residential development at Galway Port, Lough Atalia Road, Galway.

The development consists of:

The Land Development Agency intends to apply to Galway City Council for permission for a 'Large-Scale Residential Development' (LRD) at a site of 1.621 Ha in Galway Port at Dock Road and Lough Atalia Road, Galway City, and extending to include parts of both roads for road infrastructure works and water services infrastructure works.

The proposed development principally consists of: the demolition of the existing office / bus depot building (370.2 sq m) and ancillary building (26.0 sq m); the partial demolition of the existing ESB sub-station and ancillary building (67.4 sq m); the demolition of existing boundary walls at the south-west and north-west; and the construction of a mixed-use development.

The proposed mixed-use development primarily comprises: 356 No. residential apartments (172 No. 1-bed, 169 No. 2-bed and 15 No. 3-bed); crèche (255.9 sq m); 2 No. café/restaurant units (totalling 428.4 sq m); and 1 No. retail unit (156.0 sq m).

The development has a total floor area of 32,096.0 sq m and is primarily proposed in 4 No. blocks (identified as A–D) that generally range in height from 6 No. to 13 No. storeys: Block A ranges from 6 No. to 9 No. storeys; Block B ranges from 6 No. to 11 No. storeys; Block C is 6 No. storeys; and Block D ranges from 6 No. to 13 No. storeys.

The proposed development also includes: new internal street and pedestrian network, including a one-way vehicular route at the north-western side of the site and new junctions with Dock Road at the south-west and with the access road from Lough Atalia at the north-west; upgrades to Lough Atalia Road and the access road from it at the north-west of the site, including the provision of a new toucan pedestrian/cycle crossing at Lough Atalia Road; upgrades to the footpath and road interface with Dock Road to the south-west; 37 No. car parking spaces; 1 No. set-down/delivery bay; 741 No. cycle parking spaces; hard and soft landscaping, including as public open spaces and communal amenity spaces; private amenity spaces as balconies and terraces facing all directions; boundary treatments; public lighting; bin stores; double sub-station; plant rooms; green roofs; rooftop lift overruns and plant; rooftop telecommunications, plant and enclosure at Block C; recladding of the existing sub-station and pumping station; and all associated works above and below ground.

Noise Impact Assessment

A Stage 1 and Stage 2 ProPG assessment have been undertaken. As part of the stage one assessment to categorise the site, a baseline noise survey was undertaken to measure the existing noise levels. Following a review of the noise levels on the site, including the L_{AFmax} and $L_{Aeq,}$ the site has been characterised as low to medium risk for day and night for the across the site therefore, mitigation measures are recommended to control the onset noise levels, this is in the form of glazing performance specification.

Internal Noise Levels

Following the baseline survey, a noise impact assessment was undertaken, this included break-in noise calculations to predict the internal noise levels from road traffic noise. Consideration has also been given to the future growth of the roads. The noise measurements were taken during peak traffic conditions. Following the assessment, the building envelope performance requirements were determined. The performance specification for the building envelope has been provided in this report which includes the external walls, glazing, roof and ventilation requirements.

External Amenity Noise Levels

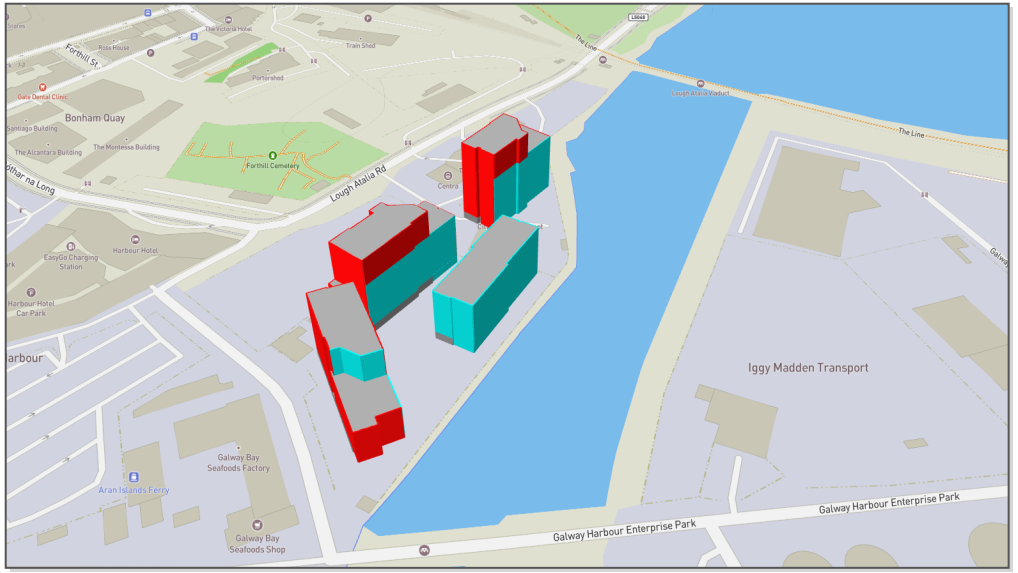
The external amenity spaces on the development includes balconies and communal open space at ground level in the centre of the development surrounded by the apartment blocks. Appropriate amenity has been provided on the development for residents using a combination of the balconies on suitable facades and the communal amenity spaces. This is in line with element 3(v) of ProPG.

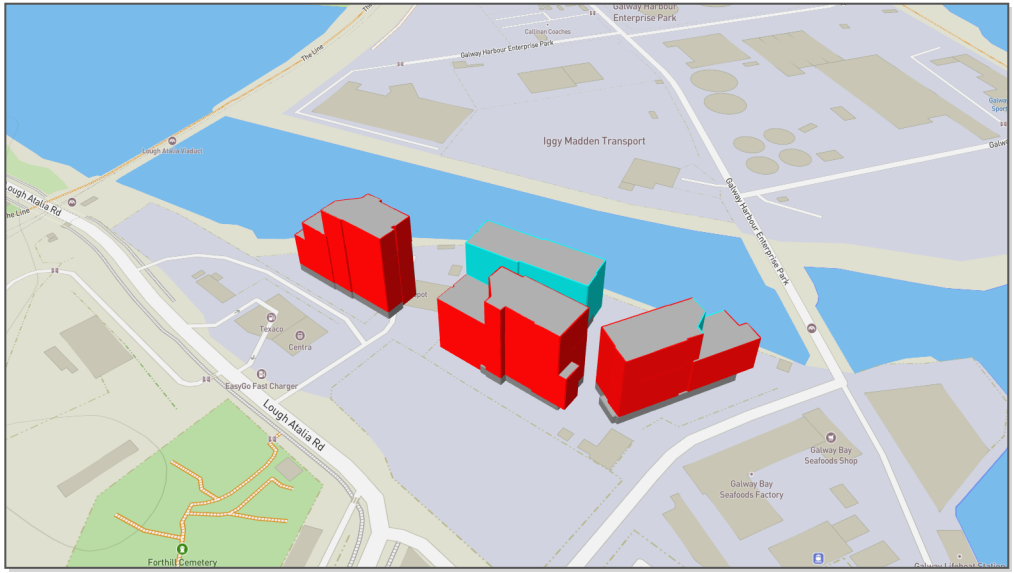
Based on the recommendations in this report it is predicted that the internal and external noise levels will achieve the targeted noise levels in line with BS 82233:2014 and ProPG 2017 guidance.

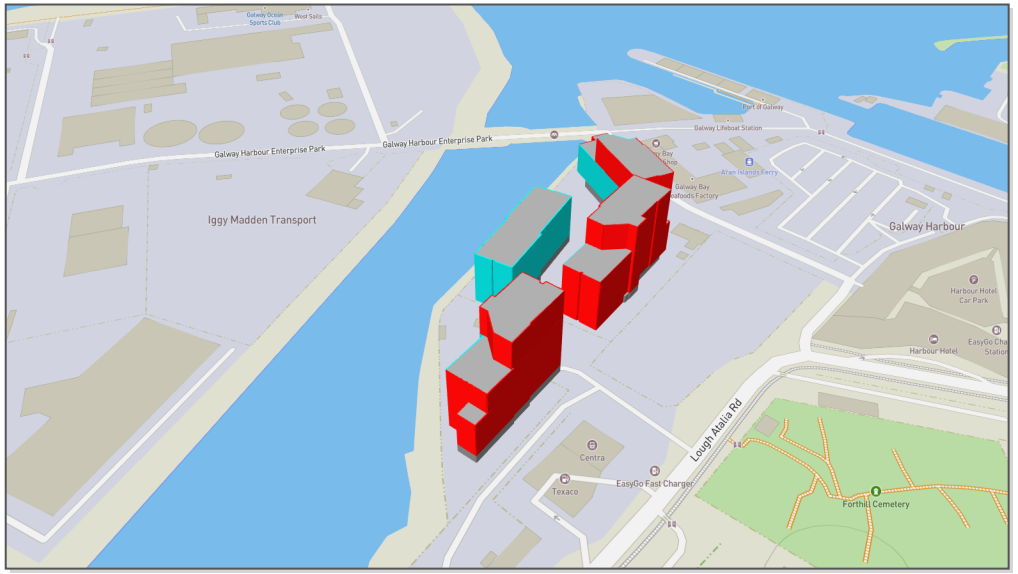
Appendix A- Glossary of Terms

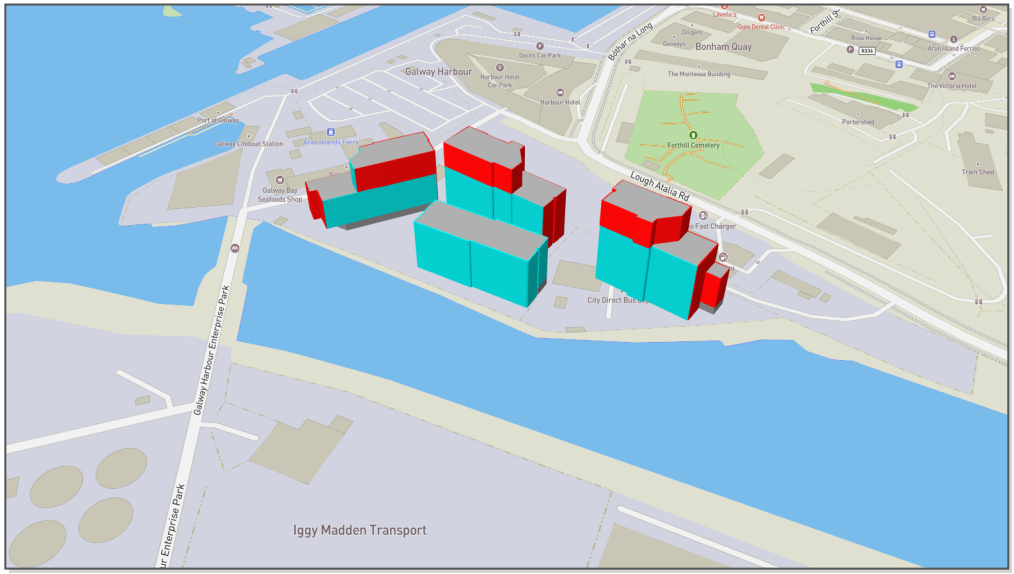
Ambient Noise	The totally encompassing sound in a given situation at a given time, usually composed of sound from all the noise sources in the area.
Background Noise	The steady existing noise level present without contribution from any intermittent sources. The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 per cent of a given time interval, T ($L_{AF90,T}$).
dB	Decibel - The scale in which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20 µPa).
dB(A)	An 'A-weighted decibel' - a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. 'A'–weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Hertz	The unit of sound frequency in cycles per second.
L_{A90}	A-weighted, sound level just exceeded for 90% of the measurement period and calculated by statistical analysis. See also the background noise level.
L_{Aeq}	A-weighted, equivalent continuous sound level.
L_{AFmax}	A-weighted, maximum, sound level measured with a fast time-constant - maximum is not peak
L_{den}	day-evening-night noise level, the A-weighted, Leq (equivalent noise level) over a whole day, but with a penalty of 10 dB(A) for night-time noise (23:00-07:00) and 5 dB(A) for evening noise (19:00-23:00), also known as the day evening night noise indicator

Appendix B- Façade Mark Ups









Glazed Element Specification

- Rw 35
- Standard Double Glazing

Natural Ventilation Specification

- 38 Dn,e,w
- 29 Dn,e,w Standard Trickle Ventilator

WAVE DYNAMICS
ACOUSTIC CONSULTANTS
DUBLIN WEXFORD CORK LONDON

Project: Galway Port LRD
Title: Glazed Element Specification
Author: Cathal Reck
Reviewer: Sean Rocks
Date: 2025-08-26

Appendix 11-1

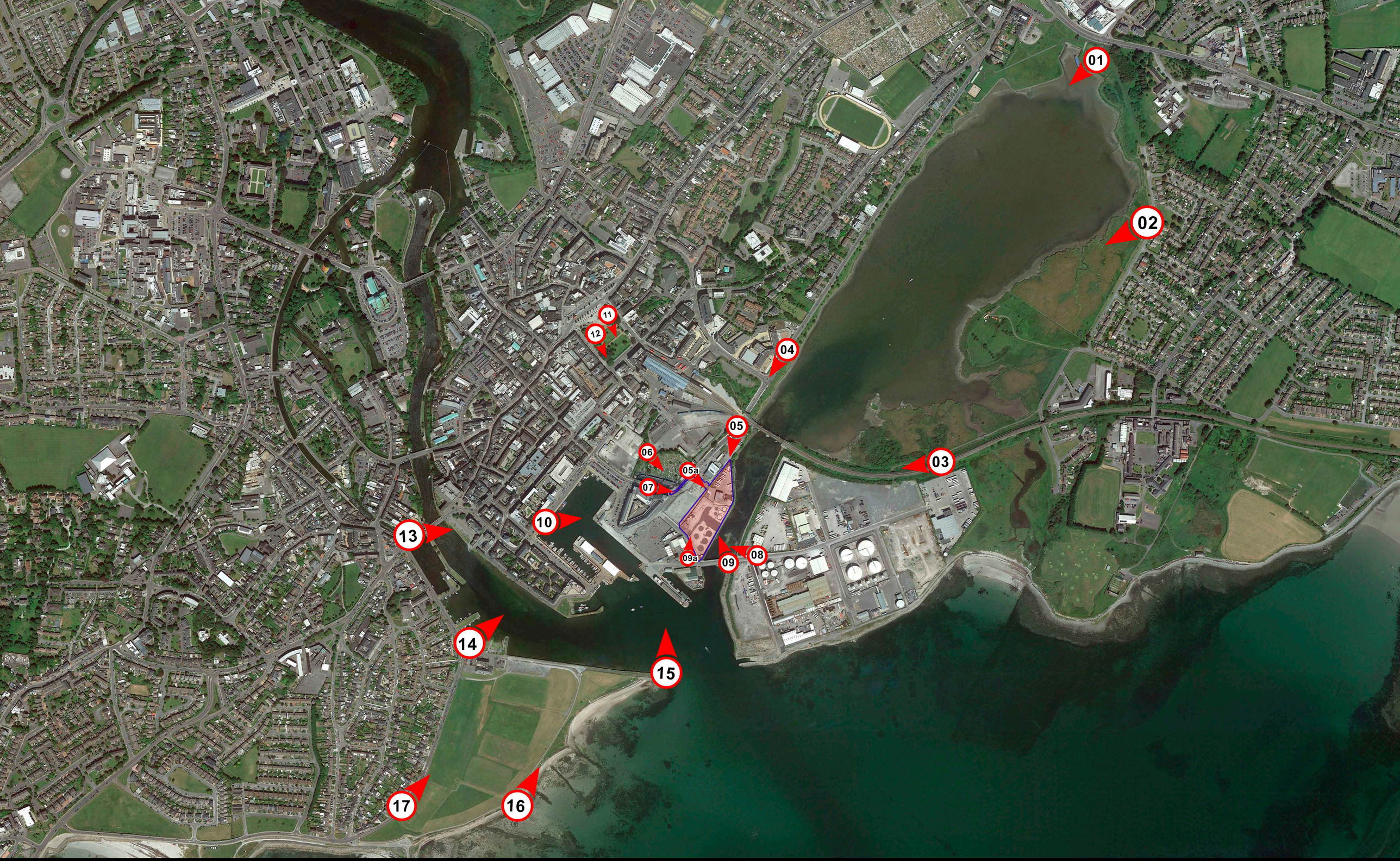
Verified Photomontages

Proposed LRD in Galway Port at Dock Road and Lough Atalia Road, Galway City

Prepared by Model Works Ltd

August 2025

MODEL WORKS



MODEL WORKS

project: Galway Port LDA

Photomontages

View Location Map

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:39
Canon 5D Mark II
50 mm Lens

location:
E 531240.995 N 726059.875

viewpoint: **View 1** **Existing**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:39
Canon 5D Mark II
50 mm Lens

location:
E 531240.995 N 726059.875

viewpoint: **View 1** **Baseline**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:39
Canon 5D Mark II
50 mm Lens

location:
E 531240.995 N 726059.875

viewpoint: **View 1** **Proposed**

issued: 12-08-2025

This view shows the envisaged built form of the enclosed Galway Inner Harbour Masterplan 2025, prepared by Scott Tallon Walker Architects on behalf of Galway Harbour Company and in consultation with stakeholders.This is indicative massing only as the buildings have not been subject to detailed design and will require Planning Permission. The inclusion of this massing in the view is solely to illustrate a reasonable, possible future scenario,and is not intended as an explicit cumulative assessment.

Angle of View 39° Horizontal (50 mm Lens)

.MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:39
Canon 5D Mark II
50 mm Lens

location:
E 531240.995 N 726059.875

viewpoint: **View 1** **Cumulative**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:25
Canon 5D Mark II
50 mm Lens

location:
E 531365.004 N 725671.456

viewpoint: **View 2** **Existing**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:25
Canon 5D Mark II
50 mm Lens

location:
E 531365.004 N 725671.456

viewpoint: **View 2** **Baseline**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

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Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 11:25
Canon 5D Mark II
50 mm Lens

location:
E 531365.004 N 725671.456

viewpoint: **View 2** **Cumulative**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 12:05
Canon 5D Mark II
50 mm Lens

location:
E 530855.353 N 725083.773

viewpoint: **View 3** **Existing**

issued: 12-08-2025

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Galway Port LDA

photography: 16-01-2024 12:05
Canon 5D Mark II
50 mm Lens

location:
E 530855.353 N 725083.773

viewpoint: **View 3** **Baseline**

issued: 12-08-2025