

20 SUMMARY OF RESIDUAL IMPACTS

20.1 Introduction

This Chapter of the EIAR collates the predicted residual impacts on the environment as identified in Chapters 5 to 18, arising from the Proposed Development, during Demolition and Construction and Operational Phases.

Residual Impacts, according to the Draft EPA Guidelines (2017, p.3) are: -

“The final or intended effects which occur after the proposed mitigation measures have been implemented.”

A summary of the Proposed Mitigation Measures are outlined under Chapter 19: Summary of Mitigation Measures.

20.1.1 Population and Human Health (Chapter 5)

It is expected that the proposed development will have a **positive, long-term & imperceptible** impact on the human health of the local population.

There are no predicted adverse impacts with respect to health factors primarily due to the location of the proposed development and is residential characteristics.

All other environmental aspects relating to the human environment which have the potential to impact on the local population such as air quality and climate, noise and vibration, material assets and traffic are addressed in more detail in the relevant Chapters of this EIAR.

The cumulative impact of the development on the health of the surrounding area will be **positive, long-term & imperceptible**.

Interactions are fully addressed in Chapter 21: Summary of Cumulative Impacts and Interactions of this EIAR.

20.1.2 Biodiversity (Chapter 6)

Overall, although the proposed development may have some temporary negative impacts at the local level, these impacts will be fully mitigated over time to be rendered negligible.

It will be possible to retain the badger sett in place as part of the delivery of Phase 1, however the sett will be removed as part of future development plans. Although the loss of the sett would be, if unmitigated, a significant impact at the local level, the provision of an artificial (replacement) sett will reduce this impact to slight or moderate negative over time.

There will be a limited loss of feeding within the site for bats and birds and a loss of nesting areas for birds. Vegetation will establish over time and these losses will be reduced considerably. There will still be less cover for birds following all mitigation. There will be very limited (negligible to slight negative) long-term impact upon bats within the site given the low level of bat activity noted. There will be limited or no loss of roost potential as the site develops and with the provision of bat boxes.

20.1.3 Land, Soils and Geology (Chapter 7)

Construction Phase

The impact on land take is likely to have a moderate negative impact on the environment of the area, in that it alters the character of the environment, albeit in a manner consistent with existing and emerging trends.

Implementation of the measures outlined above will ensure that the potential impacts of the proposed development on soils and the geological environment do not occur during the construction phase, and that any residual impacts will be slight negative and short term in duration.

The primary residual impact is the potential removal of material unsuitable for reuse as fill material; however, the residual impact is likely to be slight negative and permanent.

Operational Phase

The impact on land take is likely to have a moderate negative permanent impact on the environment of the area (in that it alters the character of the environment); however, this change is consistent with existing and emerging trends. There are no predicted residual impacts, with respect to soils and geology, arising from the operational phase.

20.1.4 Water (Chapter 8)

Construction Stage

The residual impact to groundwater quality and to surface water quality resulting from potential pollution caused by site activities e.g. plant, fuel/ chemical spillage etc. or associated with cement handling and pouring during the construction phase is slight adverse.

The residual impact to surface water quality resulting from excess loadings of suspended solids, via temporary discharge during dewatering of excavations, or via inadequate onsite soil / storm water management, during the construction phase is slight adverse.

Operational Stage

The residual impact to groundwater quality resulting from potential pollution caused by emergency overflow discharge of effluent from the onsite wastewater pumping station during the operational phase is slight adverse. The residual impact to surface water quality resulting from potential pollution caused by the emergency overflow discharge of effluent during the operational phase is moderate adverse.

The residual impact to groundwater quality and to surface water quality resulting from occasional maintenance works during the operational phase is slight adverse.

The residual impact to groundwater quality and to surface water quality resulting from potential onsite use of home heating oil (kerosene) during the operational phase is slight adverse.

Therefore, taking account of the proposed mitigation measures, no significant adverse impacts are anticipated to the receiving water environment arising from the proposed development during the construction or operational phases. On a regional scale, the proposed development will not affect the current 'Good' ecological status of the Rathmichael River as required under the European Communities Environmental Objectives (Surface Waters) Regulations, 2009 and as amended 2012. Similarly, the proposed development will not affect the current 'Good' status of the Wicklow Groundwater Body as required under the European Communities Environmental Objectives (Groundwater) Regulations, 2010 and as amended 2016.

20.1.5 Climate (Air Quality and Climate Change) (Chapter 9)

Construction Stage

Air Quality

When the dust minimisation measures detailed in the mitigation section of Chapter 9: Climate (Air Quality and Climate Change) (Section 9.7) are implemented, fugitive emissions of dust from the site will be insignificant and pose no nuisance at nearby receptors.

Climate

Impacts to climate during the construction phase are considered imperceptible and therefore residual impacts are not predicted.

Operational Stage

The results of the air dispersion modelling study indicate that the impact of the proposed development on air quality and climate is predicted to be imperceptible with respect to the operational phase.

Worst Case Impact

As part of the air dispersion modelling, worst-case traffic data was used in the assessment. In addition, conservative background concentrations were used in order to ensure a robust assessment. Thus, the predicted results of the operational stage assessment are worst-case and will not cause a significant impact on either air quality or climate.

20.1.6 Climate (Sunlight) (Chapter 10)

Construction Stage

As no ameliorative, remedial or reductive measures are now proposed, the residual impact of the proposed development on sunlight access is predicted to be as described under Section 10.5.1.1 above.

Operational Stage

As no ameliorative, remedial or reductive measures are now proposed, the residual impact of the proposed development on sunlight access is predicted to be as described under Section 10.5.1.2 above.

Worst Case Impact

Under a worst case scenario, the proposed development is predicted to result in an “imperceptible” to “slight” impact on sunlight access to lands outside the application site.

20.1.7 Climate (Daylight) (Chapter 11)

Construction Stage

As no ameliorative, remedial or reductive measures are now proposed, the residual impact of the proposed development on daylight access is predicted to be as described under Section 11.5.1.1 of Chapter 11: Climate (Daylight).

Operational Stage

As no ameliorative, remedial or reductive measures are now proposed, the residual impact of the proposed development on daylight access is predicted to be as described under Section 11.5.1.2 of Chapter 11: Climate (Daylight).

20.1.8 Air, Noise and Vibration (Chapter 12)

Construction Stage

During the construction phase of the project there is the potential for a minor to major short term noise impact on nearby noise sensitive properties due to noise emissions from site activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum.

The residual impact of the proposed development during the construction phase will be of short-term minor to major short-term impact.

Similarly, vibration impacts during the construction phase will be well controlled through the use of low impact equipment and adherence to strict limit values which will be subject to monitoring at the nearest sensitive buildings. The overall residual impact will be short-term, neutral and imperceptible.

Operational Stage

The predicted noise level associated with additional traffic is predicted to be of insignificant impact along the existing road network. In the context of the existing noise environment, the overall contribution of traffic is not considered to pose any significant impact to nearby residential locations. It can be concluded that, once operational, noise levels associated with the proposed development will not contribute any significant noise impact to its surrounding environment.

The resulting impact is of neutral, long-term and not-significant.

Noise levels associated with operational plant will be designed to ensure the prevailing background noise environment is not increased by a significant level such that potential adverse noise impacts are avoided. During the detail design stage, the prevailing background noise environment will be verified through updated baseline studies at the nearest noise sensitive locations in order to set appropriate noise limits in accordance with BS 4142 (2014). Once noise emissions from fixed plant items are designed in accordance with BS 4142 resultant residual noise impact from this source will be of neutral, minor, long term impact.

Worst Case Impact

In terms of potential noise and vibration impacts, the assessment has considered a range of worst case scenarios to determine the potential impacts of the proposed development.

During the construction phase, a range of worst case scenarios have been assessed assuming all plant items are operating along the closest noise sensitive boundaries. The assessment has determined impacts associated with these scenarios can be controlled through the best practice measures outlined in Section 12.8.

During the operational phase, traffic noise calculations along the surrounding road network incorporate a range of worst case scenarios to include the various phasing of the development site. The assessment has determined the resultant impact is not significant.

20.1.9 Landscape and Visual Impact (Chapter 13)

Construction Stage

Notwithstanding the proposed ameliorative and mitigation measures, it is considered that the initial development of the Site, including removal of trees and hedgerows and general construction activity will result in overall residual effects that are significant, negative temporary impacts and on-going residual effects that will be moderate negative short-term impacts.

Landscape and visual effects from general construction activity and traffic, earthworks, provisions of roads and services, progressive emergence of buildings and associated works, use of cranes, site lighting, etc. will have residual effects that are significant, negative and temporary to short-term impacts from the grounds of Crinken Church and from the adjoining residential property south of Crinken Church.

Landscape and visual effects from construction works will have residual effects that are moderate, negative and temporary short-term impacts on views along the R119 Dublin Road, from Beauchamp Lodge, from Shanganagh Park and Cemetery; from Woodbrook Golf Course and from properties to the south of the Site, including the residential property in the former Woodbrook Estates Office.

The Woodbrook Golf Development Area is generally isolated and well screened and as such landscape and visual effects associated with the construction of the 2 new replacement golf holes, and the modest modifications required to other golf holes, will have residual construction effects that are localised slight, negative and temporary impacts from adjoining golf course areas.

Otherwise, construction works will generally be well-screened and any potential landscape or visual effects will be slight, negative temporary or short-term impacts.

Operational Stage

On completion, the disturbance and change associated with the construction stage will be gradually altered by the influence that the new development establishes on the character and visual context of its environs.

In this regard it is considered that the Proposed Development on the Woodbrook Residential Development Area of the Site will have a residual moderate local impacts on the landscape character of its environs. These impacts will be viewed as being negative in the short-term, but the effect of the establishment of the new residential neighbourhood also has the potential to be viewed as a neutral or positive intervention in the longer-term.

This assessment on the significance and character of the change and effect must be viewed against the context of the appropriateness of the Proposed Development in relation to the residential zoning of the lands in the DLRCDP and in relation to the detailed urban structure envisaged for the lands in the WSLAP. Both envisage the provision of a significant residential development, in-keeping with the physical and visual character and scale of that set out in the Proposed Development.

Landscape and visual effects from the operation stage will have residual effects that are moderate, neutral and permanent from the grounds of Crinken Church and from the grounds of the adjoining residential property south of Crinken Church.

Landscape and visual effects from construction works will have residual effects that are slight, neutral permanent impacts on views from along the R119 Dublin Road, from Beauchamp Lodge, from Shanganagh Park and Cemetery; from Woodbrook Golf Course and from properties to the south of the Site, including the residential property in the former Woodbrook Estates Office.

During operation, the residual landscape and visual impact of the development of 2no. new golf holes and the modest realignment of others, will be slight imperceptible and permanent.

Operational Stage - Photomontages

The Photomontages are included in Appendix 13.1. Each view is discussed in the Table 13.6.

| View | Baseline Description | View Sensitivity | Magnitude of Change | Level and quality of effect |
|--------------------------------------|---|------------------|--|--|
| View 1: Mullen's Carpark, Woodbrook. | View of hedgerows and trees – no development visible beyond carpark | Low | Upper aspects of development visible over boundary hedgerow. | Minor Neutral change in level of and quality of effect |

| View | Baseline Description | View Sensitivity | Magnitude of Change | Level and quality of effect |
|--|---|------------------|--|---|
| Across carpark to southern boundary hedgerow of the Site | | | Magnitude of change is Moderate | |
| View 2: Woodbrook Golf Course (Clubhouse). View is north along first hole with Site boundary on left (west) | View of parkland golf course with boundary trees and hedgerow and on course tree planting. Young tree planting continuing to mature along boundary hedgerow | Moderate – High | Upper aspects of apartment block development visible over boundary hedgerow. Magnitude of change is Moderate | Medium Negative – Neutral change in level and quality of effect |
| View 3: Woodbrook Golf Course (Clubhouse). View east from coast in vicinity of eleventh teeboxes | View across golf course with groups of trees to background uplands of Dublin Mountains | High | Upper aspects of apartment block development visible over boundary hedgerow and between tree groups. Magnitude of change is Moderate | Medium Negative – Neutral change in level and quality of effect |
| View 4: Shanganagh Cemetery. View south from cemetery to northern boundary hedgerow of Site | View across cemetery lands to boundary hedgerows with tree planting within cemetery | Moderate | Proposed Development is not visible. Magnitude of change is Negligible | None |
| View 5: Crinken (St. James') Church R119 Dublin Road. View south towards Site. | View of protected structure and grounds with mature tree planting. Sylvan character of Dublin Road | Very High | Upper aspects of Proposed Development visible through intervening trees. Magnitude of change is Moderate | Medium Negative – Neutral change in level and quality of effect |
| View 6: Grounds fronting Crinken (St. James') Church. View southeast towards Site. | View of protected structure and forecourt with mature grounds of residential property in background | Very High | Some aspects of Proposed Development glimpsed through intervening trees / boundary. Magnitude of change is Low | Medium Negative – Neutral change in level and quality of effect |
| View 7: R119 Dublin Road south. At northwest corner of Site. | View of stone wall boundaries and sylvan setting of road corridor. | High | Changes to road boundary for site access and entrance. Proposed Development prominent behind retained roadside trees. Magnitude of change is Moderate - High | Medium Negative – Neutral change in level and quality of effect |
| View 8: R119 Dublin Road south. At across R119 Dublin Road from access road to Woodbrook Downs. | View over junction on Dublin Road to stone wall and sylvan setting of Site boundary. | High | Removal of boundary section for new entrance providing open view of new road and Proposed Development. | Initial Major Negative decreasing to Major Neutral change in level and quality of effect. |

| View | Baseline Description | View Sensitivity | Magnitude of Change | Level and quality of effect |
|---|--|------------------|---|---|
| | | | Magnitude of change is Very High | |
| View 9: R119 Dublin Road north. At southwest corner of Site. | View of stone wall boundaries and sylvan setting of road corridor. | High | Changes to road boundary for site access and entrance. Proposed Development visible behind retained roadside trees. Magnitude of change is Moderate | Medium Negative – Neutral change in level and quality of effect |
| View 10: R119/N11 Windsor Roundabout. View north towards of Site. | View of roundabout with background sylvan setting of Dublin Road. | Low – Moderate | Proposed Development is not visible. Magnitude of change is None | None |
| View 11: Woodbrook Glen residential estate. View north towards Site. | View of traditional residential estate and associated tree-lined open space. | Moderate | Proposed Development is not visible. Magnitude of change is None | None |
| View 12: Shanganagh Park – east near coast. View southwest towards Site. | View of open parkland bounded by tree planting. | Moderate – High | Proposed Development is not visible. Magnitude of change is None | None |
| View 13: Killiney Hill. Elevated view south towards Site. | Expansive panoramic view south over coastal plain with Great / Little Sugar Loaf and Bray Head in background. | Very High | Proposed Development barely discernible as insert into wooded middle/background of view. Magnitude of change is Negligible | None |
| View 14: Ferndale Road. View east towards Site. | Expansive view east over wooded middle ground towards coast. | Very High | Proposed Development discernible as insert into wooded middle/background of view. Magnitude of change is Low | Minor Neutral change in level of and quality of effect |
| View 15: Carrickgollogan Hill. Elevated view east towards Site. | Expansive and panoramic view east over south city / Bray suburbs, separated by undeveloped / wooded lands. | Very High | Proposed Development visible as insert into wooded middle-ground of view. Magnitude of change is Low | Minor Neutral change in level of and quality of effect |
| View 16: Bray Head. Elevated view north towards Site. | Expansive and panoramic view north along coast and over Bray with south city suburbs, and Dublin Uplands in background | Very High | Proposed Development is barely discernible as insert into wooded middle-ground of view. Magnitude of change is Negligible | None |

Table 13.6: Review of Photomontages.

Worst Case Impact

Given the depth and maturity of the existing planting on and beyond the boundaries of the Site, the opportunity for viewing the Site is restricted even in its more immediate context. Therefore, in the scenario that proposed mitigation measures fail, it is considered that likely significant landscape and visual impacts are limited to short-term negative effects on the setting of Crinken Church and the adjoining residential property.

20.1.10 Material Assets (Transport) (Chapter 14)

Construction Stage

There will be a slight negative impact due to construction traffic. However, this impact will be short term. This will be mitigated by the introduction of a construction traffic management plan.

Operational Stage

During the Pre-DART operation of the proposed development (Opening Year) there will be a long term, slight to moderate negative impact due to increased traffic flows. This will be mitigated by travel planning measures.

During the Post-DART operation of the proposed development (Opening Year + 5) there will be a long term, moderate to significant positive impact due to improved access to buses due to Bus Connects and the Woodbrook DART Station which will offer an increased level of service in terms of higher frequency and capacity. This will positively impact the proposed development and reduce the dependency on car travel.

Additionally, during operation there will be an increase in pedestrian and cyclist movements, due to BusConnects, this will have a long term, slight to moderate positive impact. This will positively impact the proposed development and reduce the dependency on car travel.

Worst Case Impact

The worst-case scenario is that the proposed development, i.e. 'Woodbrook Phase 1', is built and occupied prior to the opening of the DART station.

This worst-case scenario has been modelled in the Opening Year Assessment (Section 14.5.1.2 Operational Stage of this Chapter) period and it is demonstrated that there is sufficient capacity within the local road network to cater for the additional traffic generated as a result of this worst-case scenario.

20.1.11 Material Assets (Waste) (Chapter 15)

The implementation of the mitigation measures outlined in Section 15.6 will ensure that the high rate of reuse, recovery and recycling is achieved at the development during the demolition, excavation and construction phases as well as during the operational phase. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

Construction Stage

A carefully planned approach to waste management as set out in Section 15.6 and adherence to the C&D WMP during the construction and demolition phase will ensure that the effect on the environment will be short-term, imperceptible and neutral.

Operational Stage

During the operational phase, a structured approach to waste management as set out in Section 15.6 will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, imperceptible and neutral.

20.1.12 Material Assets (Built Services) (Chapter 16)

Construction Phase

Implementation of the measures outlined in Section 16.6 will ensure that the potential impacts of the proposed development on the sites material assets do not occur during the construction phase.

Operational Phase

The surface water discharge from the site will be retained at greenfield runoff rates. The overall volume of foul water discharging to the Shanganagh WWTP for treatment and disposal will increase due to the development of the lands. The volume of potable water for treatment and use will increase due to the development of the lands. The demand on power supply, gas supply and telecommunications supply will all increase due to the development of the lands.

Residual impacts will be permanent and imperceptible.

20.1.13 Cultural Heritage (Archaeology) (Chapter 17)

There will be no residual impact on the cultural heritage resource.

20.1.14 Cultural Heritage (Architectural Heritage) (Chapter 18)

If the outlined mitigation measures are fully implemented, the residual impacts of the proposed development on the local architectural resource would be imperceptible.