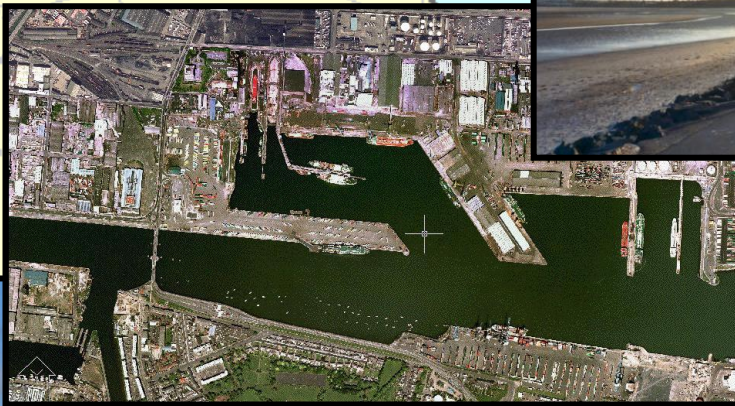


# Dublin Eastern Bypass

## Corridor Protection Study

### Boosterstown to Sandyford



**January 2011**

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### Corridor Protection Study Boosterstown to Sandyford

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## **1 Introduction**

This Study follows the completion of the Dublin Eastern Bypass Feasibility Study by Thoir Consult in September 2007, which concluded that there exists a strong economic case for retaining the Dublin Eastern Bypass motorway scheme as a medium to long term objective of the National Roads Authority. The Study concluded that a route reservation should continue to be protected for the future development of the scheme through the Dun Laoghaire-Rathdown County Council jurisdiction between Sandyford and Belfield. It was also recommended that development aspirations for the Port and Booterstown areas should respect the future need for the scheme and should provide a reservation for the future construction of the scheme.

The purpose of the Corridor Protection Study is to assist Local Authorities in their deliberations on planning applications by establishing guidelines for developments near or adjacent to the proposed route corridors. These guidelines have been prepared with a view to permitting certain development of the adjacent lands without undermining the future deliverability of the motorway scheme.

This report addresses the sectors of proposed Dublin Eastern Bypass that would lie within the Dún Laoghaire – Rathdown County Council jurisdiction from Sandymount Strand at Booterstown to the M50 at Sandyford. This report should be read in conjunction with the Feasibility Report for the Eastern Bypass, which is available on the NRA website.

The Corridor Protection Study was issued as a draft for consultation purposes to the Dublin Docklands Development Authority, Dublin City Council and Dún Laoghaire-Rathdown County Council in July 2008. Subsequent discussions were held with the Council during 2009 and 2010 culminating in certain revisions to the corridor including:

- Amendments to the corridor to reflect the Thoir Consult Eastern Bypass alignment and omission of certain lands that would have been required to accommodate the earlier Sandyford to St. Helen's motorway scheme, which has been abandoned;
- Omission of lands reserved for the Goatstown Junction, which is no longer considered compatible with the functions of the Eastern Bypass;
- Provision for possible future junctions with the N11 at Belfield and at Sandyford industrial Estate.

## 2 The Motorway Scheme

The Feasibility Study investigated several route options for the motorway scheme, having divided the route between Dublin Port and Sandyford into four sectors, as follows:

- Sector A: Dublin Port;
- Sector B: Dublin Bay;
- Sector C: Booterstown;
- Sector D: N11 to M50.

The following route options were retained following the Feasibility Study Stage:

- A1: Medium Level Opening Bridge across Dublin Port;
- A2: Cut & Cover Tunnel through Dublin Port;
- A4: High Level Bridge across Dublin Port;
- B3: Bored Tunnel across Sandymount Strand;
- B4: Viaduct across Sandymount Strand;
- C3: Bored Tunnel under Booterstown
- D1: Open Cut from N11 at Belfield to M50 at Sandyford with sections of mined tunnel.

The route options that have been used as the basis for this study are shown on **Figure 1** appended hereto. An Interchange Study has identified land footprints required to accommodate interchanges along each of the route options described above.

## 3 Route Corridor to be Protected

**Figure 1** shows the route corridor developed for the proposed motorway scheme. It is proposed that development should generally not be permitted within this corridor where it would jeopardise the deliverability of the Eastern Bypass motorway. This study also discusses development adjacent to the route corridor and includes suggested measures for development control that would assist the delivery of the scheme by reducing potential costs and risks. Alignment details are available on request from the local authority.

## 4 Suggested Development Control Measures for Developments Adjacent to Route Corridor

The principal issues are outlined below and discussed in detail in the following pages.

- (a) Possible noise, vibration and air impacts to be mitigated during construction and operational phases. This will take account of exceptional activities that will arise on the Eastern Bypass project such as rock breaking in granite.
- (b) Appropriate access provision to the Eastern Bypass construction site for haulage vehicles, especially in the context of large volumes of excavated material to be removed. Provisions to minimise segregation by the route in future.
- (c) Proximity to mainline alignment, allowing some flexibility for future optimisation to the mainline design.
- (d) Specific considerations where retaining walls are proposed along the Eastern Bypass route.
- (e) Service diversions to be included in development proposals to remove future obstacles to construction of the Eastern Bypass.
- (f) Open Space Provision
- (g) Visual impact
- (h) Soil Disturbance
- (i) Groundwater Considerations
- (j) Public Awareness

### (a) Noise, Vibration and Air

Both the construction and operational phases of the Dublin Eastern Bypass will, as in the case of any new motorway scheme, give rise to air and noise pollution, as well as possible vibration impacts arising from

- (1) blasting / rock breaking activity at construction stage and
- (2) truck traffic at operational and construction stages.

It would be prudent that developers of proposed larger developments abutting the protected route corridor should be required to demonstrate the following provisions to mitigate these concerns:

- (1) Where practicable, the proposed route corridor should be screened from the development areas by suitable landscape features such as earth bunds and/or planting strips. This would provide some degree of mitigation against air pollution;
- (2) Where practicable, new developments abutting the route corridors should incorporate noise and vibration mitigation measures for traffic volumes of 80,000 AADT (10% Truck Traffic) on the Eastern Bypass. Supporting analysis should be provided and should allow for temporary impacts at construction stage, as well as permanent impacts. This may be based on reasonable assumptions, rather than detailed background readings. This analysis should also take account of possible blasting / rock breaking activity at the construction stage in areas where granite is present at a shallow level.
- (3) In areas with granite at a shallow level, blasting / rock breaking will be required for construction of the Eastern Bypass. This has the potential to impact on nearby buildings. Similarly, vibrations will arise in the case of

bored / mined tunnel construction and this should be taken account of in the design of new structures adjacent to the route. Developers should be asked to demonstrate that the structural design of adjacent buildings and foundations will prevent any cracking or subsidence of the buildings as a result of such works. Details of tolerances should be included;

- (4) Developers should be required to demonstrate that vibrations caused by truck traffic on the Eastern Bypass will not affect adjacent buildings. It should be assumed that truck traffic will comprise 10% of the 80,000 AADT on the mainline;

**(b) Access Provision**

It should be assumed that the Eastern Bypass works site will be accessed from the existing road network. New development should be laid out in such a way so as not to preclude access for construction traffic to the Eastern Bypass construction site. Where the Local Authority considers that a particular development might compromise access to the Route Corridor, the following measures are suggested as requirements for planning applications:

- (1) Drawing indicating possible construction traffic routes from national / regional / local roads through to Eastern Bypass Route corridor;
- (2) Autotrack (or equivalent) Analysis indicating tracked path for large articulated vehicles and large rigid vehicles along the proposed routes;
- (3) Pavement analysis indicating the suitability of the pavement structure to cope with traffic during the construction period;
- (4) In the event that access to the development lands requires crossing the motorway reservation, the developer should be required to undertake to fund any future infrastructure required to maintain this connection, e.g. motorway overbridge. This would apply not only to cut off development land but also any open space included as part of planning application.

**(c) Proximity to Alignment**

It would be prudent that developers be required to submit drawings showing clearly the proximity of the site and key elements of developments to the proposed route corridor. The following details should be identified, as considered appropriate by the Local Authority, having regard to the size and scale of the proposed development:

- (1) Proximity of site boundary to route reservation;
- (2) Proximity of site access route to route reservation;
- (3) Proximity of possible site circulation routes to route reservation;
- (4) Proximity of any structures proposed (overground and underground) to the route reservation;
- (5) Proximity of any services proposed to route reservation.

**(d) Areas where retaining walls are proposed**

Certain sections of the Eastern Bypass route corridor will require the construction of retaining walls as the available reservation is of insufficient width to accommodate cut slopes to the depth required. Development adjacent to these areas would have increased potential for adding significant expense to the Eastern Bypass scheme and it might be appropriate that planning restrictions be more onerous in these areas. Suggested requirements for such developments are outlined below:

- (1) Drawings demonstrating proximity of structures (overground and underground) to likely retaining wall locations;
- (2) Drawings indicating zone of influence of building foundations near route corridor and supporting calculations demonstrating that no undermining of the building would occur during the construction of the Eastern Bypass retaining walls (with particular regard to retaining wall foundations, assuming standard construction). A worst case scenario should be assumed where the retained section is 2m deeper and 2m closer to the development than the indicative alignment for the purposes of this assessment.
- (3) Proximity of roads to likely retaining wall location;
- (4) Drawing indicating zone of influence of any relevant development access road foundations near route corridor and supporting calculations demonstrating that no undermining of the roadway would occur during the construction of the Eastern Bypass retaining walls (with particular regard to retaining wall foundations, assuming standard construction). A worst case scenario should be assumed where the retained section is 2m deeper and 2m closer to the development than the indicative alignment for the purposes of this assessment.

**(e) Services and Utilities**

Insofar as is practicable for the Local Authority, it would be desirable that any new services proposed in the vicinity of the route corridor would not encroach on the corridor, as they would then require diversion to accommodate the future motorway scheme. In particular, this should apply to major gas mains, watermains and sewers, diversion of which can involve significant complexity and expense. The Local Authority may also consider it appropriate in certain instances to seek proposals for the diversion of any services that currently cross or encroach on the corridor in the vicinity of proposed developments. Suggested requirements for planning applications are outlined below:

- (1) Drawings indicating existing services and utilities servicing the proposed development site;
- (2) Drawings indicating proposals for realignment of services and utilities;
- (3) Drawings indicating proposals for connecting to services and utilities;
- (4) Drawings indicating proposals for new services and/or utilities.

Services and Utilities are deemed to include (but not necessarily be limited to):

- Foul Sewerage;
- Surface Water Sewerage;
- Watermains;
- Gas Supply;
- Electricity Supply;
- Telecoms Connections (including cable tv and broadband).

**(f) Open Space Provision**

It is suggested that Open Space provision for new developments should generally be made outside of the route corridor so that in the event of the Eastern Bypass scheme proceeding, developments would maintain the minimum standard of open space provision required by the County



Development Plan. This may not be feasible in all instances. It is suggested that drawings and text describing the proposals should be submitted as part of planning applications for development of lands abutting the route corridor.

**(g) Visual Impact**

An unquantifiable risk associated with development adjacent to the motorway route corridor is the possibility that residents / workers in adjacent developments would object to the landscape and visual impacts of the proposed scheme. While it is acknowledged that no person has a constitutional right to a protected view, it is considered preferable that no new development should overlook the route corridor. While it would be impractical to restrict building frontage towards the route corridor, it might be appropriate to require that suitable landscaping proposals should be included to restrict the line of sight from any window to a minimum of 6m above the indicative road surface level at all points within the indicative road surface area. Such measures may include:

- Earth bunds;
- Dense planting;
- Fencing.

It may be possible to include these measures in parallel with requirements in respect of Noise, Vibration and Air considerations, as described above.

**(h) Soil Disturbance**

Bored / Mined Tunnel sections of the Eastern Bypass route corridor will lead to significant disturbance to local ground conditions. Development adjacent to these areas would have increased potential for adding significant expense to the Eastern Bypass scheme and it might be appropriate that planning restrictions be more onerous in these areas. Suggested requirements for such developments are outlined below:

- (1) Drawings demonstrating proximity of structures (overground and underground) to likely retaining wall locations;
- (2) Drawing indicating zone of influence of building foundations near route corridor and supporting calculations demonstrating that no undermining of the building will occur during the construction of the Eastern Bypass. A worst case scenario should be assumed where the alignment is 2m shallower and 5m closer to the development than the indicative alignment for the purposes of this assessment.
- (3) Proximity of roads to likely tunnel alignment;
- (4) Drawing indicating zone of influence of road foundations near route corridor and supporting calculations demonstrating that no undermining of the roadway will occur during the construction of the Eastern Bypass. A worst case scenario should be assumed where the retained section is 2m shallower and 5m closer to the development than the indicative alignment for the purposes of this assessment.

**(i) Groundwater Considerations**

It is suggested that any development which proposes altering the groundwater regime in the vicinity of the proposed Eastern Bypass, e.g. through the construction of underground structures below the Groundwater Table, should

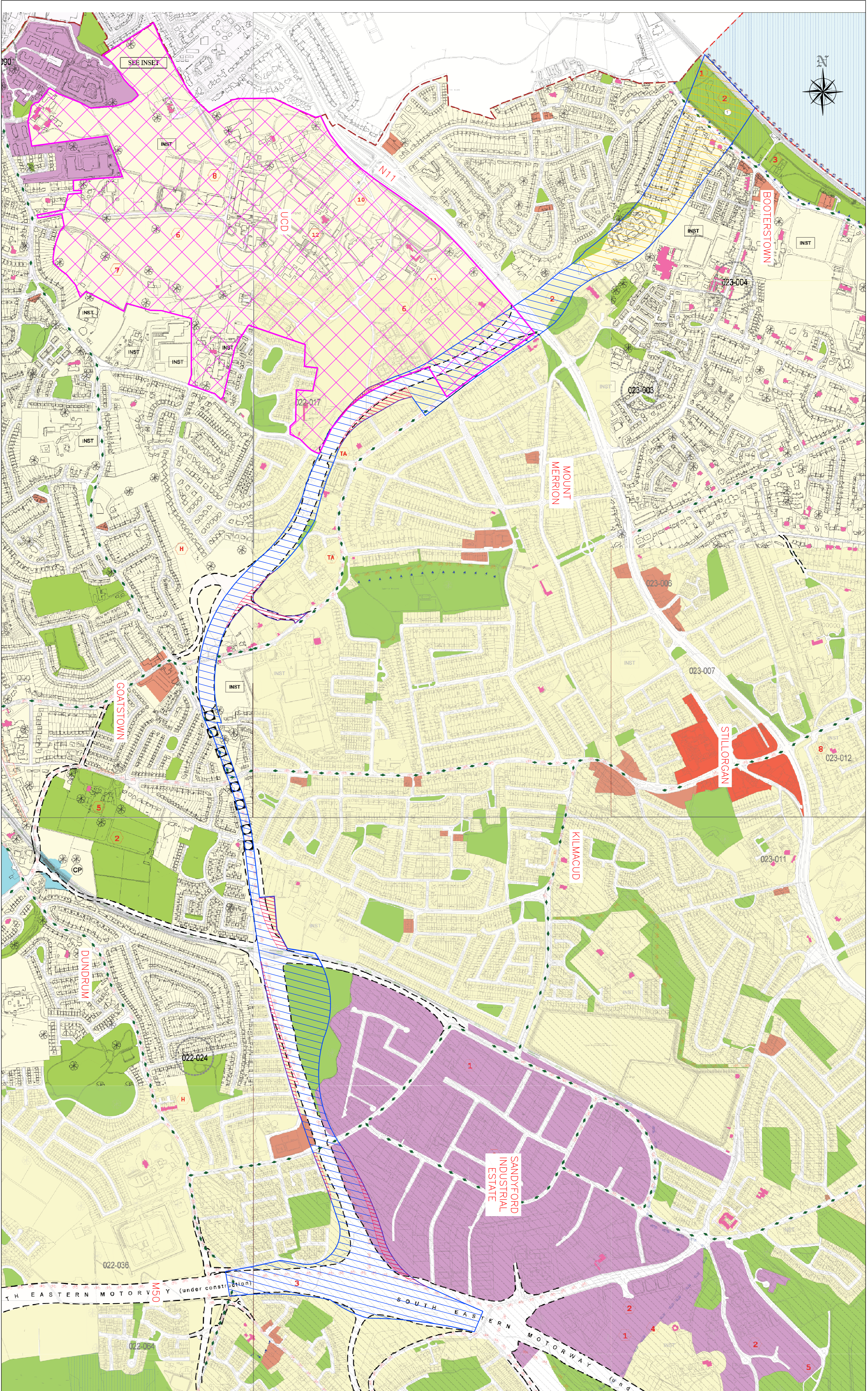
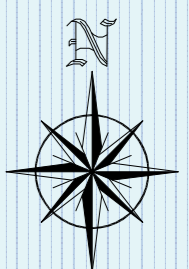
be required to demonstrate the implications of these alterations for the future construction of the Eastern Bypass.

Developers of larger developments might also be required to demonstrate that alterations to the Groundwater Table arising from the construction activities and the completion of the Dublin Eastern Bypass will not adversely affect the stability of their proposed developments.

**(j) Public Awareness**

Owners and occupiers of new developments on lands along and adjacent to the proposed route corridors should be made aware of the possible future provision of the Eastern Bypass Motorway Scheme. An undertaking in writing should be sought from developers that all owners and occupants of the scheme will be advised of the possible noise, vibration and air impacts associated with the Dublin Eastern Bypass motorway and that any compensation arising as a result would be payable by the developer of the subject lands and not by the developer of the Eastern Bypass scheme.





**LEGEND:**  
 ROUTE CORRIDOR  
 ADDITIONAL LAND NOT REQUIRED FOLLOWING SCHEME OPENINGS  
 TWIN BORED TUNNEL CORRIDOR



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No.	Revision	Date	By	Checked/Approved
	PRELIMINARY			
	APPROVAL			
	TENDER			
	CONSTRUCTION			



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